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PROJECT TITLE: Solar water pumps for salt farmers of Kutch, Gujarat, India

Document Prepared By WOCAN

Project Name	Solar water pumps for salt farmers of Kutch, Gujarat, India
W+ Project ID	01
Project Start Date	12/10/2017
Project End Date	On-going
Date of PDD	6 June 2025
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1. DESCRIPTION OF WOMEN'S EMPOWERMENT ACTIVITIES

1.1 Summary Description of the Women's Empowerment Activities Implemented

a) Location of the Project

The project is located in the Rann of Kutch, Kutch, Gujarat, India.

b) Conditions prior to the project's implementation

Located in the Kutch region of Gujarat, the project aims to install solar PV systems for operating the water pumps used by salt farmers. The 'Agariyas' or salt farmers of the Rann of Kutch produce more than 75% of India's salt. The area has dual characteristics of a wetland in June-September when it is submerged in rainwater as well as the water from the sea, and a dry season during which the salt farming is practiced. Most of this water evaporates by the month of October, the beginning of the salt season. A crucial part of the salt farming process is the pumping of the brine from surface or underground sources into the salt pans; farmers generally use diesel for operating the pump. A salt farmer spends nearly a lakh rupees (~ 1,400 USD) annually, a significant portion of his earning, for procuring diesel. In this context, solar pumping has been identified as a desirable technological solution. The project involves the installation of solar panels that power the motor to pump water into the salt pans which are then left to evaporate, leaving behind salt deposits.

The project was initiated by SEWA with the goal to replace diesel pumps with solar pumps that convert solar energy to mechanical energy require to operate the water pump. The solar PV is connected to the pump during the day time. In case of emergencies and extended hours of pumping, the solar controls are disconnected, and diesel generator is used. The project start date was 12 October 2017 when the first batch of solar PV panels were purchased under the project. To date, a total of 1292 solar PV arrays has been installed

The Grassroots Trading Network for Women which is an initiative of SEWA has partnered with Value Network Ventures (VNV) to generate carbon credits contributing to climate change mitigation by displacing fossil fuel use and thereby reducing greenhouse gas (GHG) emissions and aligning with co-benefit certification mechanisms under carbon markets.

Women are one of the key stakeholders in the project. The project aims to address SDG goal 5.5 to ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life.. SEWA,

through the Grassroots Trading Network for Women has provided linkages to solar panel producers and access to loans to purchase solar panels.

1.2 Project Sector and Type

The project falls under- Type – I – Renewable energy.

The project leads to climate change mitigation by providing access to solar based water pumps to targeted salt farmers as an alternative energy source to diesel.

1.3 Project Implementer

Organization name	Value Network Ventures Advisory Services Pte. Ltd.
Contact persons	Sandeep Roy Choudhury Kasturi Navalkar Filip Tetaert
Titles	Director Head, Partnerships Head, Land Sse
Address of Home Office and Field Office	41/1, Rayyan Towers, Church St , Bengaluru – 560001, Karnataka, India
Telephone	**+ 91 9945662120**
Email	sandeep@vnvadvisory.net; kasturi@vnvadvisory.net; filip@vnvadvisory.net

1.4 Other Entities Involved in the Project's and Women's Empowerment Activities

Organization name	Grassroot Trading Network for Women, Self-Employed Women's Association (SEWA)
Role in the project	The Grassroots Trading Network for Women, SEWA, provides services and information for solar panel installations and loans to community members
Contact person	Heena Indravardanbhai Dave

Title	Vice President, SEWA
Address	SEWA Reception Centre, Opp Victoria Garden, Bhadra, Ahmedabad, Gujarat, India 380001
Telephone	+919408778689
Email	heenadave@sewa.org

1.5 Project Activities Start Date

The project start date is on 12th October, 2017 when the first batch of solar PV panels were purchased under the project. To date a total of 1292 solar PV arrays has been installed.

1.6 W+ Domains and Crediting Periods

The relevant W+ Standard domains that will be applied are:

- Income & Assets
- Education & Knowledge

W+ Domain and title of related activities	*Start Date*	*End Date*	*Crediting period:* *Total Years/Months*	*Any Associated Standard (e.g. CDM, VCS)*
Income & Assets	*May 2025*	*June 2025*	*2 years*	*Gold Standard*
Education & Knowledge	*May 2025*	*June 2025*	*2 years*	*Gold Standard*

1.7 Description of the Project's Activities

The project involves replacement of diesel pump with solar pump that converts solar energy to mechanical energy required to operate the water pump. The solar PV is connected to pump during the day time. In case of emergencies and extended hours of pumping, the solar controls are disconnected, and diesel generator is used.

Women are one of the key stakeholders in the project. The project aims to address SDG goal 5.5 to ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life. The number of solar PV systems installed for women salt farmers in the Rann of Kutch in operation is 1290.

The project employed three successful financing measures to reduce cost and corresponding loan amount for participating *agariyas*:

1: vendor financing
2: capital subsidies
3: low cost loans

The project was conceived and operationalized in three phases:

Phase 1 (2014-15) : SEWA loaned the solar pumps to its members on five-year, zero interest installment plans. SunEdison provided these pumps to SEWA at zero cost vendor financing. To avoid burdening farmers, the installments were payable only during the salt production season. The loan tenure period was 5 years.

Phase 2 (2016-17): Loans were provided by SEWA and subsidized by key national partners such as the Ministry of New and Renewable Energy, National Bank for Agriculture and rural Development and banks.

Phase 3 (2017-18): This phase was comprised of two stages in which SEWA arranged bank loans and State Government subsidies, with interest subvention by a bank in stage 1. The loan tenure for stage 1 is 5 years and stage 2 is seven years.

1.8 Project's Activity Boundary and Scope

The project is located in the Rann of Kutch, Kutch, Gujurat, India. The geographical coordinates of the Rann of Kutch are: Latitude: 24° 05' 6.60" N Longitude: 70° 38' 9.59" E.

1.9 Conditions Prior to the Project's Initiation of Activities

Prior to the project intervention, women salt workers in the Little Rann of Kutch were trapped in a vicious cycle of gendered energy poverty—marked by dependence on expensive, unreliable, and polluting diesel power—chronic income insecurity, bonded labor, severe health risks, and climate vulnerability, with limited access to affordable clean energy, financial autonomy, basic services, and pathways out of systemic poverty.

1.10 Compliance with Laws, Statutes and Other Regulatory Frameworks

1.11 Project Implementer's Right to Engage in the Project

The project is in compliance with the host country's (India) legal, environmental, ecological and social regulations. There are no objections for the implementation of this type of project (solar water pump systems) in the host country nor from the MOEF (Ministry of Environment & Forest) & MNRE (Ministry of New & Renewable Energy) as per the information on their websites.

1.12 Other Forms of Environmental or Social Credit

The Gold Standard (GS) or Gold Standard for the Global Goals, is a standard and logo certification mark program, for non-governmental emission reductions project in the Clean Development Mechanism (CDM), the Voluntary Carbon Market and other climate and development interventions. The goal of the GS is to add branding, with a quality label, to carbon credits generated by projects which can be bought and traded by countries that have a binding legal commitment according to the Kyoto Protocol, businesses, or other organizations for carbon offsetting purposes.

1.13 Additional Information Relevant to the Project

The project participant, VNV Advisory, has full and uncontested legal ownership of the products that are generated under Gold Standard Certification. The project participant has signed an end user agreement with each of the beneficiaries / salt farmers participating in the project.

2. GENDER ANALYSIS

Background

The Little Rann of Kutch (LRK**)** is a remote desert area that covers over 3000 square kilometers in Gujurat – India's westernmost state – produces nearly 76 percent of the Nation's salt[1].During the annual monsoon season, the LRK floods with sea water. After the waters recede, the Agariyas – salt farmers, move into the marshes, construct squared-off pans, dig wells, pump brine, and harvest salt, with each salt pan traditionally

[1] Government of Gujarat, Department of Industries and Mines; SEWA-NRDC Reports (2019–2021)

producing 600 metric tons of salt annually[2]. Approximately 43,000 Agariya families migrate into the LRK each season[3].

However, the vast majority rely on inefficient, diesel-powered water pumps, which must be transported over long distances to the remote desert. As a result, fuel expenditure alone consumes more than 40% of an *Agariya* family's annual income.

The primary dependence on one seasonal occupation, combined with meagre savings and high energy costs, has entrenched generational poverty among salt farming communities, particularly among women workers who bear the heaviest burden of labor and income insecurity.

Recognizing these challenges, the Self-Employed Women's Association (SEWA**)** and the Natural Resources Defense Council (NRDC) partnered with women salt workers to transition salt production away from expensive, polluting diesel toward more efficient solar and solar-hybrid water pumps.

The project involved building a robust *Agariyas* training program to skill women in operating solar technologies and developing the business case for scaling solar adoption in salt farming livelihood.

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Overview of women salt workers in Little Rann of Kutch, Gujurat

Prior to SEWA's intervention in Surendranagar district in 1992, women salt workers were confronted with the high time and financial investments that were required to manage their energy needs, which included purchase of diesel and the collection of firewood, while also managing household care work.

Families also did not have access to loans to invest in solar-powered energy pumps. This was compounded by gender asymmetries within the household and communities that

[2] NRDC & SEWA, *Empowering Women Salt Farmers through Clean Energy Solutions*, 2021

[3] SEWA Membership Data and SEWA Academy Survey (2018–2020)

limited women's decision-making abilities both in the household and in trade negotiations with salt buyers.

The findings of the gender analysis conducted by the WOCAN W+ team complements these earlier findings that were identified in the SEWA study and the existing literature. While existing gender asymmetries largely determine women's abilities to access resources and information, time poverty due to multiple roles is one of the key challenges to women and their well-being.

Women's time poverty

Women in the area of study are time poor as a result of the triple burden of work they assume through their socio-cultural-determined roles. Women are equally engaged in production work, as they are in household care, and engagement in community activities.

An assessment of the Activity Profile (below) outlines the various types of work associated with salt production, as well as the work associated with household care. Women are engaged in all aspects of the production work, albeit men take the lead role in work that requires physical strength such as hut construction, digging wells, setting diesel pumps and installation of solar pumps. Women's roles in production work are limited to assisting in the heavy physical labor input of men, but their roles in mixing mud to harden its consistency, applying rollers on the salt pans, collecting salt and marketing are just as significant. Boys and girls are equally engaged in supporting roles.

In addition to their role in production, women are almost solely responsible for care work that includes cooking for the family, cleaning the home, fetching water, child care, supervising children's education and marketing salt.

Activity Profile

Production work	**Women**	**Girls**	**Men**	**Boys**
Hut construction	x	x	xx	x
Digging wells	x		Xx	
Setting diesel pumps			Xx	
Pipeline connection	x		xx	x
Mixing mud	xx		x	x
Solar installation	x		xx	
Water management in salt pan	x		x	
Mixing mud to hard consistency	xx	x	x	x
Applying rollers on pans	xx		xx	
Forming salt pans	x		xx	

Salt collection	xx	x	x	x
Marketing salt	xx		x	
Care Work				
Purchasing groceries	xx		xx	
Cooking	xx	X		
Cleaning	xx	x		
Child care	xx	x	x	
Caring for education of children	xx	x		
Managing savings and finances	xx	x	x	

An additional assessment to determine a 24-hour work cycle of women during two seasons was employed to map out the various activities undertaken by women in each period of the day that was broken into one hour time periods.

The 24-hour work cycle was employed for two seasons: the 2-month wet season when the salt pans are flooded with sea water; and during the salt harvesting season in Rann.

Period 1: wet season

Time	Work
5 - 6 A.M	Wake-up, freshen up, tea and breakfast
6 - 8 A.M	Household cleaning and tiffin making
8 A.M.	Leave for Rann
9 - 12 A.M	Gara/Mud work
12 - 5 P.M.	Well digging
5 - 6 P.M.	Return back to village
6 - 7 P.M.	Bath and washing clothes
7 - 9 P.M.	Cooking and Dinner

Period 2: Salt mining season in the Rann

5 - 6 A.M	Start the Raking
6 - 8 A.M.	Raking

9 - 10 A.M.	Turn on the motor for the solar pump
10 - 12 A.M	Household Chores such as cooking, cleaning, child care
12 - 3 P.M	Solar Adjusting or well digging
3 - 5 P.M.	Rest or monitor pipeline
5 - 6 P.M.	Cooking dinner
6 - 10 P.M.	Diesel machine monitor or Racking work

In both seasons, women's day begins around 5 AM and ends approximately between 9 and 10 PM in the evening. While work is considerably more intensive during the period of salt mining, women are engaged in both production and care work in both seasons, leaving limited time for personal leisure.

In sum, it needs emphasizing that the introduction of solar energy through SEWA's intervention has considerably enhanced the economic, health and collective strength of women salt farmers. However, time poverty continues to underscore the limits to women's abilities to potentially participate more meaningfully in interventions that target their economic and social well- being.

3. SELECTION OF W+ DOMAINS

W+ Domain	***Benefits***	***Challenges/Risks***
Knowledge & Education	*Enhanced knowledge and skills for solar panel management and marketing*	With more knowledge and skills, women may be burdened by additional roles without support

Income & Assets	*Increased income and assets with conversion from diesel to solar powered pumps; market negotiation for salt prices; improved health*	Income gains might be unstable incase of volatile market price/unstable market Increased income might be still controlled by male members reducing women's financial autonomy

4. Women's Empowerment Plan (WEP)

a) *Theory of change*

RESULTS	***Indicators***	***Risks***	***MoV***	***W+ Domain***
End outcome				
Intermediate outcome ◊ *Movement of women from 'private 'to 'public' spaces*	◊ *Increased mobility for women* ◊ *Women able to negotiate better market prices from salt dealers* ◊ *Husband's support for women enhanced* ◊ *Improved intra household decision making by women* ◊ *Access to financial services/loans*	◊ *SEWA lacks funds for additional capacity development for women's leadership* ◊ *Resistance that results from socio cultural norms and values that inhibit women's movement to 'public' spaces*	◊ *Mobility data* ◊ *HH purchasing decisions* ◊ *Statements of male household members* ◊ *Household access data*	◊ *Leadership*

Immediate outcome ◊ *Increased income & assets* ◊ *Increased knowledge* ◊ *Better Health and well being*	◊ *Increased income and assets* ◊ *Conversion of income to assets* ◊ *Increased knowledge* ◊ *Decrease in expenditure on health/less case of skin and other diseases*	◊ *Income gains might be unstable incase of volatile salt price/unstable market* ◊ *Increased income might be still controlled by male members reducing women's financial autonomy* ◊ *With more knowledge and skills women may be burdened by additional roles without support*	◊ *SEWA research report* ◊ *Gender analysis findings* ◊ *W+ measuremer*	◊ *Income & Assets* ◊ *Education & Knowledge*

Outputs ◊ *Installation of solar pumps* ◊ *Women supported to access loans and subsidies* ◊*Training on techniques to improve salt yields* ◊ *Training on maintenance and repair of solar units* ◊ *Access to marketing linkages*	◊ *1200 women accessed solar pumps* ◊ *1200 women trained in maintenance and repair of solar units* ◊ *1200 women access subsidy/loans*		◊ *SEWA research data* ◊ *FDG findings*	
Activities	*Existing activities* ◊ *Solar pump installation* ◊ *Enabling access to loans/subsidies* ◊ *Capacity development for market linkages* ◊ *Collective action* ◊ *Training on producing improved salt yield* ◊ *Training on maintenance and repair*	*Additional activities for higher outcomes* ◊ *Leadership training for collective action* ◊ *Additional income from solar electrification project* ◊ *Access to better water management technology* ◊ *Introduction of climate smart agricultural crops and technologies*		

b) Project's Intentionality:

The Women's Empowerment Plan also needs to demonstrate evidence of project's Intentionality. These include at evidence of at least two of the following criteria from the table below:

Policy for gender/women's empowerment	**Budget targeted for women's empowerment**	**M&E plan for women's empowerment**	**Internal capacities for gender analysis and women's empowerment**	**Project's selection criteria of beneficiaries** *to demonstrate equal opportunity for participation of women from all social groups in project activities*
Yes	*Yes*	*No*	*No*	*No*
It exists in the four pillars of SEWA	*It exists in the four pillars of SEWA*			

5. MONITORING & EVALUATION PLAN

W+ Domain	*Number of Beneficiaries*	*Required sample size*
Income & Assets	*1292*	*68*
Education & Knowledge		
Total	*1292*	*68*

***Outcomes**:*

Results	Indicators	Risks – including Do No Harm risks	Means of verification	Collection methods	Frequency	Responsibility
End outcome (Long term)						
Intermediate outcome (Medium Term)						
Immediate outcome	◊ Increased income and assets	◊ Income gains might be unstable	Survey results	Survey	NA	W+ Team

◊ Increased income & assets ◊ Increased knowledge ◊ Better Health and well being	◊ Conversion of income to assets ◊ Increased knowledge ◊ Decrease in expenditure on health/less case of skin and other diseases	incase of volatile market salt price/unstable market ◊ Increased income might be still controlled by make members reducing women's financial autonomy ◊ With more knowledge and skills, women maybe burdened with additional roles without support	SEWA income data			
Outputs ◊ Installation of solar pumps ◊ Women supported to access loans/subsidies	◊ 1200 women accessed solar pumps ◊ 1200 women trained in maintenance					

◊ Training on techniques to improve salt yields ◊ Training on maintenance and repair of solar units ◊ Access to marketing Linkages	and repair of solar units ◊ 1200 women access subsidy/loans					

6. DO NO HARM INDICATORS

Indicators	Increase in financial distress
Question	Have you had to sell assets (jewellery, livestock, etc.) or get a loan in order to pay for solar?
Indicator	Increase in children assisting in salt work
Questions	Have you had to employ your children below age 14 yrs in salt work? Have the children had to drop out of school?
Indicator	Incidence of physical, emotional, or relational harm reported by women linked to changes in income, asset control, or decision-making power within the household

Questions	Has increase in income or assets led to any physical or emotional abuse, social sanctions, violence, or marital troubles? Are you able to negotiate the prices and terms of salt sales with traders?

7. BENEFIT SHARING MECHANISM

In terms of existing sharing of benefits, a member of SEWA has access to the following non-monetary benefits:

- ◊ Technical trainings;
- ◊ Support to market linkages;
- ◊ Access to formal financial facilities that include banking linkages;
- ◊ Access to government schemes;
- ◊ Voice and visibility in local and international fora;
- ◊ Membership in savings groups and self-help groups

SEAH Statement

Declaration of non-involvement in any form of discrimination, sexual exploitation, abuse or harassment (SEAH)

Hereby declare that, to the best of my knowledge, neither (name of project implementer) or any other entity involved in project design or implementation has been involved in or will be involved in any form of discrimination, sexual exploitation, abuse, or harassment (SEAH).

This signed declaration is made in good faith and with my full consent, without pressure or coercion. I understand that any breach thereof may/will result in the termination of the W+ Application.

This signed declaration forms part of the requirements of the application of the W+ Standard.

Signature of authorized representative submitting this Project Design Document

Name:_____

Title : _____

Signature:_____ Date: _____

W+ Project Design Document Template Revision History		
#	**Date**	**Description**
1	2015	Original
2	22 May 2017	Edits to nomenclature for consistency. Removal of redundant information requests. Addition of time-frames and specificity regarding multiple domains and prevention of double-counting.
3	16 June 2017	Expansion of PDD requirements, transferred text from W+ Standard responding to public comments.
4	12 February 2019	Edits to clarify content of each section
5	27 October 2020	Edits to clarify content of each section
6	7 November 2023	Edits to clarify content of each section and include Women's empowerment plan and intentionality