



## FACT SHEET

# 'Agents of green transition'

Gujarat's women salt farmers signal a cleaner, fairer future for informal workers

In the sun-scorched salt flats of Gujarat, a quiet revolution is taking place in one the world's most gruelling industries – one that could transform how you see the salt in your cupboard, but also how we think about net zero and the opportunity a 'green transition' presents to empower the 740 million women working in the world's informal economy.

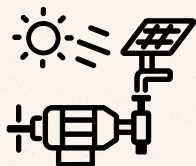




# Summary

- Salt is one of the world's most ubiquitous commodities. As the world's third largest producer, India's salt industry is a crucial part of the global supply chain – and **80% of India's salt comes from Gujarat's salt flats.**
- Yet the **40,000 female salt farmers working in this region** are often excluded from the decision-making processes that impact their lives: from wage-setting to financial and energy independence. This has historically kept them trapped in **cycles of debt and perpetuated gender inequities.**
- But a project spearheaded by India's largest union of informal sector workers is changing that by putting power – both electrical and economic – directly into the hands of women in the informal economy.
- By **replacing polluting diesel-powered pumps with solar-powered equivalents and training the women as solar technicians**, the Self-Employed Women's Association (SEWA) is slashing emissions, cutting salt farmers' operational costs by 60% - so they keep more of the money they make – and giving women control over their own economic futures by transforming them into energy entrepreneurs.
- Today, the women are part of **a cooperative that owns, controls and maintains the solar energy infrastructure**, providing them with new green skills and additional sources of income.
- Outside the salt season, the solar panels are collected and turned into a temporary solar farm, **selling surplus green electricity into India's grid.**

## Key results



**~7,000**

solar pumps  
installed



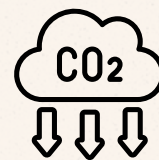
**30-33%**

rise in income  
from salt  
production



**600%**

increase in average  
salaries (including  
additional solar  
income streams)



**18,900**

annual tonnes  
of CO<sub>2</sub> emissions  
reduced by the  
project each year



# Salt-farming in Gujarat: A cycle of exploitation

- **Salt is integral to India's culture, economy and history.** In 1930, Gandhi's Salt March against the British salt tax became an integral moment in the country's fight for independence.
- In Gujarat, particularly in the arid inland regions of Kutch and Banaskantha, the salt industry is still dominated by **small-scale, informal farmers – the Agariyas.**
- The Agariyas employ the traditional technique of evaporating brine in earth-dug pans to produce salt. Historically, the Agariyas would rely on bullocks (cattle) to power pumps to extract the brine from underground reservoirs. Today, that role is performed by diesel-powered pumps.
- **An Agariya family will use around 1,300 liters of diesel** to power their pumps during the eight-month farming season.
- In the Rann of Kutch alone, the **annual diesel consumption of 56 million litres across 43,000 families** is responsible for an estimated 115,000 metric tonnes of CO<sub>2</sub> emissions.
- In real terms, **Agariya families pay 40-60% of their annual income on diesel** and only earn around ₹150 (\$2) for each ton of salt – while the market price is over ₹17,000 (\$239), with traders taking the lion's share.



*Clockwise: Salt flats of Surengranagar; the dirt is stamped down into vast pans to hold the brine water, which is continuously raked to form the perfect size crystals; Agariya families pay 40-60% of their annual income on diesel for the brine pumps. (IHRB/Oliver Gordon).*



# The salt farmers of Surendranagar's just transition timeline

- 1972:** SEWA is founded by the late Ela Bhatt. The largest union of informal sector workers in India, SEWA today boasts 3.2 million members across the country.
- 1980's:** SEWA expands its original focus on cities to work in rural areas, particularly with textile workers migrating to work in the salt pans.
- 2010:** SEWA starts working with the Agariyas (salt farmers) providing healthcare and childcare support to build trust and understand needs.
- 2013:** SEWA launches a pilot programme installing 14 solar-powered pumps.
- 2014:** SEWA partners with NRDC to build a business case to bring solar pumps to all the Agariya families, distributing 200 solar-powered pumps.
- 2017:** The Government of Gujarat announced 80% subsidies on solar water pumps for salt farming - reducing the salt farmers' upfront costs to purchase the pumps.
- 2017:** A blended finance mechanism by the International Finance Corporation (IFC) helps SEWA Bank to finance a further 600 solar pumps and enables Bank of Baroda, India's third largest public sector bank, to extend direct loans for 15,000 more solar pumps.
- 2018:** A carbon credit scheme comes online on the Gold Standard trading platform. The proceeds help pay off the women's loans for the solar pumps.
- 2019:** SEWA – with the help of UNEP and India's Skill Council for Green Jobs – sets up a programme to train the women as solar engineers.
- 2022:** ReNew launches its 'Project Surya' training programme, with the aim of training 1,000 Agrariya women as solar technicians.

## Salt supply chain





# The financial power of the collective

- In 2013, following consultation with the Agariyas that identified solar pumps as the most impactful course of action, **SEWA launched an initial pilot** - and in 2014 they partnered with NRDC and US-based renewable energy company SunEdison to **distribute 200 solar-powered water pumps**.
- The early programme delivered economic, social, environmental and commercial benefits, but the Agariyas required loans to purchase the pumps: at \$2,000-\$2,500 each, the pumps were still out of reach
- **SEWA loaned the solar pumps to its members** on five-year, zero-interest installment plans. Installments were seasonal – payable during the salt-production season - and an early successful repayment record demonstrated the model's economic viability.
- To attract more banks to the scheme, the **IFC designed a blended finance mechanism** – using public sources of capital to attract private investment – to de-risk the credit and **accessed philanthropic funds provided by India's YES Bank to create a 'first loss guarantee'** for the lenders. This would cover the first 25% of losses in the case of defaults.
- This was complemented by a **worker cooperative model**, where the women collectively pooled their resources to fund the solar infrastructure, bypassing the need for individual loans and sharing the financial burden – but also giving the women ownership over the solar systems.
- To date **there have been zero defaults** - allowing IFC to repay the 25% loss guarantee to YES Bank.

## Women taking power

- Once the solar panels were in place, SEWA's partners established a **programme to train the women as solar engineers** - to install and maintain their own solar panels and pumps, and others' solar infrastructure too.
- SEWA devised the idea of a **seasonal solar farm**, where the women could install their individual solar panels at the end of the salt season. This seasonal solar farm would then **generate electricity to sell to the grid during the off-season**.
- The women **received their first cheque from selling solar electricity** into the grid in April 2025.



# Results

## INCOMES

- So far, there have been ~7,000 solar pumps installed across the region. On average, this has led to a **30-33% rise in income from salt production**.
- Including additional income streams provided by the solar park and work opportunities for solar technicians, **the women have increased their average salaries by 600%** - from between ₹5,000-10,000 (\$58-116) each year to around ₹40,000-60,000 (\$465-698).
- Manguben Dhirubhai Jaga, a 26-year-old salt farmer, previously produced 600-650 tons of salt each year with her family. Since adopting the new technology, their production nearly doubled to around 1,100 tons. She now **saves over ₹200,000 (\$2,329) each season and her salt income has gone up by nearly 30%**.
- Over 70% of the participating women have been able to invest their additional income in improving their children's education and healthcare.



Once the solar panels were installed, there was a risk the women were reliant on male engineers to install or fix the solar panels - perpetuating historical gender inequities. To solve this, the partners set up a programme to train the women as solar engineers. (IHRB/Oliver Gordon)



## EMISSIONS

- On average, each solar pump reduces emissions by 2.7 tonnes of CO<sub>2</sub> annually. The **7,000 pumps installed by the project reduce emissions by 18,900 annual tonnes of CO<sub>2</sub> each year** – equivalent to taking over 4,000 cars off the road every year.
- The **solar park has a aggregate capacity of 2.7 megawatts** of renewable electricity.
- Around 100,000 litres of diesel are not burnt as a result of the project – meaning less pollution.



*"When I used to work with diesel pumps, my chest would often hurt from the fumes." Manguben Dhirubhai Jaga, a 26 year old salt farmer; 30-foot narrow holes are used to reach the subterranean water, with diggers wearing a rope in case they pass out from a carbon monoxide leak. (IHRB/Oliver Gordon)*

## SCALING POTENTIAL

- Scaling SEWA's programme to the 43,000 Agiriya families in Gujarat's Rann of Kutch region could **save ~115,000 tonnes of CO<sub>2</sub>** each year.
- There are an estimated 150,000 salt-pan workers across India. If each of these workers exchanged their diesel-powered pumps for solar equivalents, and achieved the same emissions reductions, this could **reduce ~400,000 tonnes of CO<sub>2</sub> emissions each year**.
- SEWA's solar model could be applied to a **wide-range of fossil fuel-reliant informal sectors**, including smallholder farms. Solar powered irrigation systems can cut smallholder farmers' energy costs by 80% and reduce emissions by 95%.



# Voices of Surendranagar



26-year-old Manguben has spent over a decade working on the salt farms. **“Before, I felt like a prisoner to the salt pans and the debt I owed. Now I feel free – free from pollution, free from debt. I’m part of something bigger, something that can change the world.”**

Having completed the training in 2019, she is now a registered solar technician and off-season she earns a living installing solar infrastructure in other villages. **“Before, I never imagined that I could be a technician; the salt pans were my entire life,”** she says.



Payal Dharamsibhai Metalia, a 21 year old Agariya woman who joined SEWA three years ago to train as a full-time solar engineer.

**“Before we joined SEWA, we were seen as helpers in the household, but now we’re seen as contributors. I can support my siblings’ education, and I’m proud of that.”**



Saniya Salimbhai Divan is an 18 year old third-generation SEWA member.

**“Before, our siblings went to government schools, but now with the extra income, we’re able to send them to private schools.”**

**“The education is better, and it’s giving them more opportunities.”**



**“It’s not just about reducing diesel use; it’s about empowering women to take control of their work and their lives,”** says Reema Nanavaty, Director of SEWA.

**“We want to extend this transformation to all India’s 150,000 salt-pan workers and to other sectors like farming and waste recycling... Our goal is to create a larger, more inclusive cooperative model that empowers women to take control of their energy sources and their futures.”**





**“...We knew there was a significant demand for skills in the sector and so a gap which needed urgent attention,”** says Vaishali Nigam Sinha, Co-founder of ReNew and Chair of the ReNew Foundation.

**“With solar and wind facilities across India, finding skilled talent locally remains a challenge we are determined to solve, by ensuring women get trained and are at the forefront to fill this gap.”**



*Mary Robinson meeting Agariya solar technicians at the community solar park near Dhrangdhra.  
(Credit: Oliver Gordon / IHRB)*

## FURTHER READING:

- <https://www.sewa.org/> - The Self Employed Women's Association
- <https://www.nrdc.org/> - NRDC (the Natural Resources Defense Council)
- <https://www.renew.com/> - ReNew
- <https://www.unep.org/> - UNEP (the United Nations Environmental Program)

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SEWA's story is being featured by **JUST Stories** - a project from the Institute for Human Rights and Business dedicated to finding and telling stories of people working together to advance just transitions. To read SEWA's full story and for more information please visit [www.just-stories.org](http://www.just-stories.org).

