



DEWEE

DECENTRALIZED ENERGY FOR
WOMEN ECONOMIC EMPOWERMENT

DECENTRALISED RENEWABLE ENERGY FOR WOMEN'S ECONOMIC EMPOWERMENT (DEWEE)

Powering incomes of 500,000 women-led
enterprises through access to clean energy



Global Energy Alliance
for People and Planet
GEAPP

Gates Foundation



HSBC



Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH





Context & Challenges

Why Energy Remains a Critical Constraint for Women-Led Enterprises

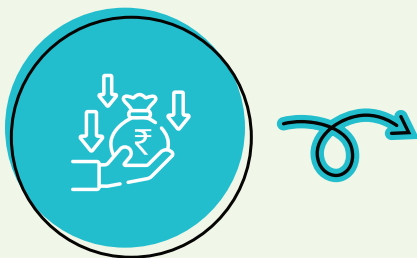
Despite widespread electrification, energy poverty continues to constrain women's livelihoods in rural India. The challenge today is not access alone, but the reliability, affordability, and suitability of energy for productive use. For millions of women-led enterprises, unreliable power directly limits income, productivity, and growth.

India's rapidly growing economy has led to a sharp rise in energy demand, with industry accounting for over half of total consumption. Within this landscape, rural micro, small and medium enterprises (MSMEs)—particularly women-led enterprises—play a critical role in building local economies, yet remain disproportionately affected by energy insecurity.

Despite widespread electrification, energy poverty continues to constrain rural enterprises

Key Challenges Facing Women's Livelihoods

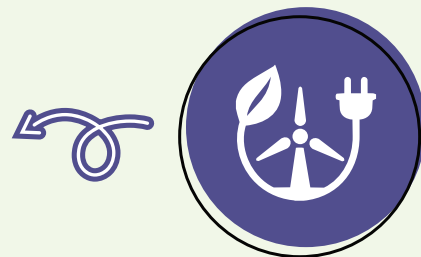
Women remain concentrated in low-income, low-productivity livelihoods



Across rural economies, women predominantly operate micro and nano enterprises spanning agriculture, food processing, dairy, tailoring, retail, and services often characterised by low incomes, limited productivity, and minimal asset ownership or mechanisation. Nearly 20.5% of MSMEs in India are women-owned, with the majority concentrated in micro enterprises (Ministry of MSME Annual Report 2022–23), while over 70% of rural women workers remain engaged in agriculture and allied sectors (Periodic Labour Force Survey, MoSPI). Without dependable energy, opportunities for mechanisation, longer operating hours, and business diversification remain out of reach further restricting their ability to scale, diversify, and achieve sustained income growth and keeping many enterprises locked in subsistence cycles rather than pathways to growth.

Clean energy is rarely recognised as a livelihood multiplier

While decentralised renewable energy (DRE) holds the potential to significantly reduce operating costs and enhance output, women remain significantly under represented within the renewable energy ecosystem. Women constitute only 11% of India's renewable energy workforce, compared to a global average of approximately 32% (IRENA Renewable Energy and Jobs Report), reflecting structural and exposure-related barriers. Many women entrepreneurs have limited exposure to its productive applications, with this participation gap reinforcing low awareness and constrained engagement with decentralised solutions. This awareness gap delays adoption and prevents enterprises from leveraging energy as a catalyst for income acceleration.



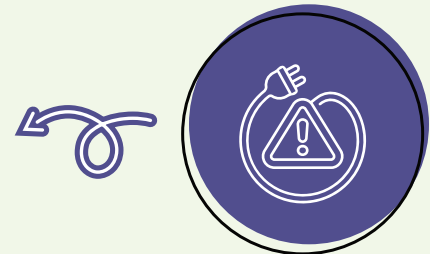
Persistent reliance on diesel and fossil fuels raises cost and vulnerability



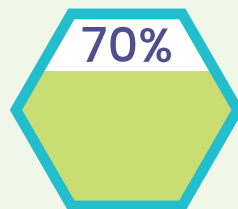
Diesel-powered equipment and generators increase operating expense, expose women led enterprise to fuel price volatility, and increased physical strain. Energy-intensive rural livelihoods continue to depend heavily on diesel-based infrastructure, with India operating an estimated 8–9 million diesel irrigation pumps (MNRE / CEEW analysis). Fuel price volatility directly impacts irrigation costs, compressing margins for agriculture-linked women enterprises and heightening financial vulnerability. These factors collectively weaken enterprise resilience, making women-led businesses more susceptible to financial shocks.

Power unreliability disrupts enterprise stability

Frequent outages, voltage fluctuations, and seasonal supply disruptions interrupt operations, erode customer confidence, and restrict enterprises from functioning during peak demand hours. While electrification has expanded, reliability and quality of supply remain inconsistent across several rural regions, limiting the ability of enterprises to adopt machinery, expand production capacity, and operate predictably. The result is lost revenue, reduced competitiveness, and constrained long-term growth.



20.5% Share of MSMEs owned by women in India



70%+ Rural women engaged in agriculture & allied sectors



8–9 Million Diesel irrigation pumps in operation



11% Women in India's renewable energy workforce

The Solution Bridge:

A Livelihood-Led Clean Energy Solution

DEWEE addresses these interconnected challenges by embedding clean, reliable energy at the heart of women-led livelihoods. The Decentralised Energy for Women's Economic Empowerment (DEWEE) is climate-resilient livelihoods programme that leverages decentralised renewable energy as a strategic catalyst for women's economic growth. Designed for scale, the programme systematically integrate clean, reliable, and affordable energy solutions into women-led enterprises, addressing one of the most persistent constraints to productivity, income stability, and enterprise scale in rural and semi-urban India.

By combining decentralised renewable energy adoption with enterprise strengthening, skill-development, and local service ecosystems, DEWEE enables women not only to adopt clean energy for productive use, but also to participate meaningfully in the clean energy economy as entrepreneurs, technicians, and service providers. This dual approach accelerated income generation and enterprise resilience, while cultivating skilled women led workforce capable of supporting long-term energy transitions at the community level.

Moving beyond the traditional focus on energy access, DEWEE advances a structural shift toward resilient enterprises, stronger local markets, and enhanced women's agency. In doing so, it helps ensure that the benefits of India's clean energy transition are decentralised, inclusive, and locally anchored while contributing to climate mitigation, economic resilience, and equitable development.



Vision, Goal & Progress

Placing Women at the Centre
of the Energy Transition



VISION

A future where women are at the centre of India's clean energy transition as entrepreneurs, service providers, and leaders of resilient local economies.



MISSION

To enable 500,000 women-led enterprises across India to enhance income, productivity, and resilience through decentralized renewable energy.



Progress on the Ground:

DEWEE has translated clean energy access into measurable livelihood outcomes for women.

2,736+

women entrepreneurs enabled through DRE-based livelihood solutions

>12.5MW
installed solar capacity

5,258+

Enterprises onboarded for DRE transition

~30% average income gains reported across multiple enterprises, post-solarisation

17.7%
are irrigation pumps of the total enterprises solarised

19.1%
are food-processing enterprises in the total pool that were solarised

9.5%
include tailoring/weaving units that have been solarised

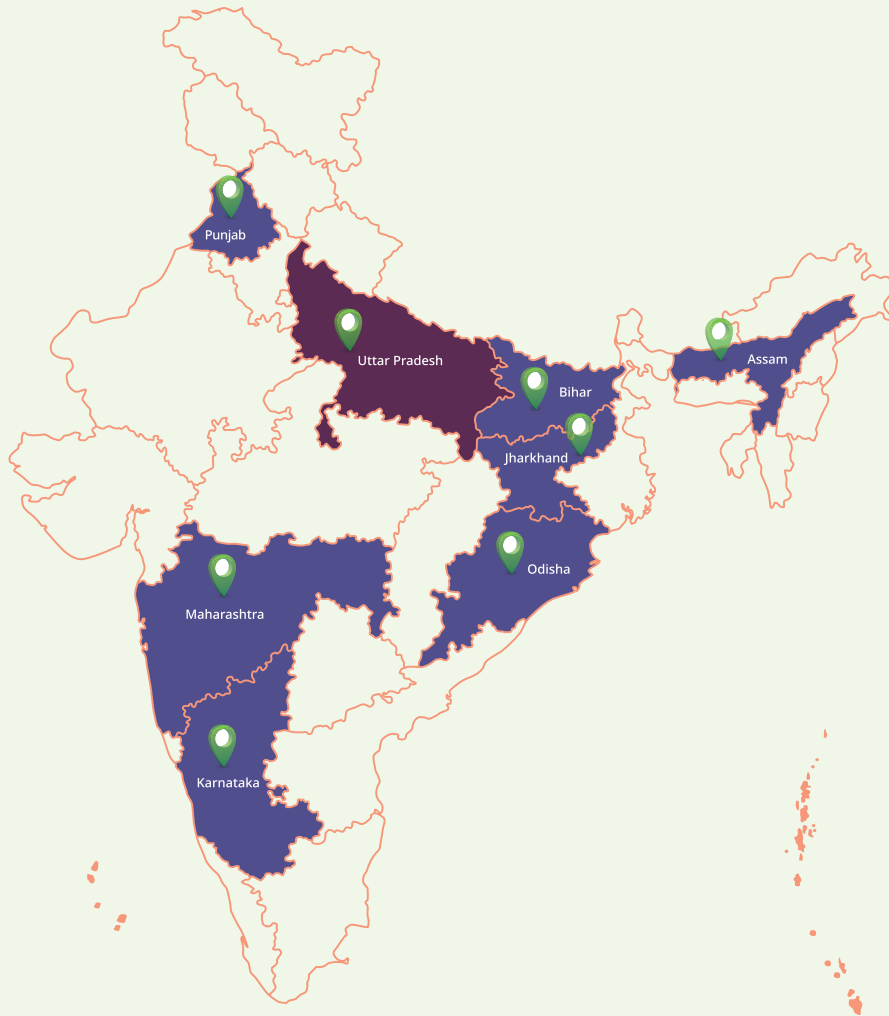
7.3%
are general stores (kirana shops) have been solarised

57,700 Surya Sakhis provisioned (one per Gram Panchayat)

₹2,500/month
assured income

₹8,000–₹10,000/month
potential from installation and servicing

Creation of India's largest women-led clean energy technician workforce



The programme is being implemented in state of Uttar Pradesh and will be expanded across high potential states including Bihar, Jharkhand, Odisha, Assam, Maharashtra, Punjab & Karnataka.

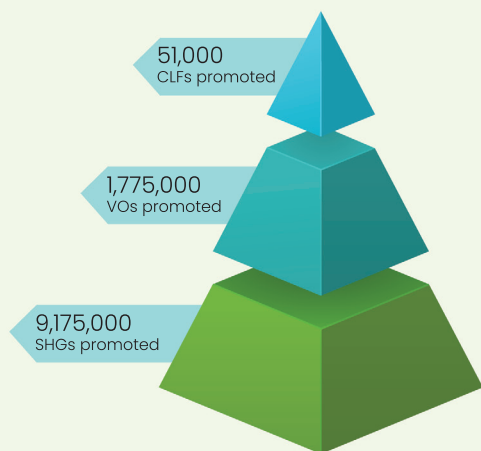
DEWEE leverages strong community institutions promoted under State Rural Livelihood Missions (SRLMs), particularly women's Self-Help Groups (SHGs), and institutions in its fold like Village Organisations (VOs), and Cluster Level Federations (CLFs) to reach marginalised households and enterprises, ensuring last-mile access to clean energy solutions.

Institutional Backbone:

Partnering with NRLM to Scale Women-Led Clean Energy

DEWEE is strategically aligned with the National Rural Livelihoods Mission (NRLM), one of the world's largest poverty alleviation platforms, to integrate decentralised renewable energy into women's livelihood pathways at scale. With a grassroots network reaching nearly every fourth rural household through Self-Help Groups, Village Organisations, and Cluster Federations, NRLM provides a ready ecosystem to accelerate clean energy adoption, finance access, and enterprise growth.

The collaboration aims to unlock sustainable livelihoods for millions of women while enabling a new generation of clean energy entrepreneurs across rural India.



The NRLM reaches to **every fourth rural household** in the country through the following three-tier structure of SHGs and its federations:

Cluster Level Federations (CLFs)

- Federated structure of the VOs
- On average comprises of 30-45 VOs
- 3 CLFs in a block of approximately 2 lakh population

Village Organizations (VOs)

- Federated structure of all SHGs of the village
- One VO comprises of 8-15 SHGs on average

Self Help Groups (SHGs)

- Groups of ~ 12 to 15 rural women
- Generally, women from the poorer strata in rural areas get involved in savings and credit activity – to improve their livelihoods

State Spotlight: Uttar Pradesh State Rural Livelihoods Mission (UPSRLM)

In Uttar Pradesh, DEWEE leverages the extensive community architecture of UPSRLM, which has mobilised over **9.5 million women into nearly 870,000 self-help groups**, creating one of India's deepest last-mile institutional networks. With strong access to subsidised credit, curated government schemes, and a mandate to reach the most marginalised households, UPSRLM provides a powerful platform for expanding women-led enterprises and advancing the 'Lakshpati Didi' vision of enhanced household incomes.



5258

Enterprises onboarded for DRE transition (Nos.)



2014

Enterprises transitioned to DRE (Nos.)



2957

GHG emissions mitigated (MT CO₂E)



12751

Capacity of DRE installation (KW)



2736

Women Entrepreneurs reached (Nos.)

Approach & Programme Design:

How DEWEE Converts Clean Energy into Sustainable Income



Our Three-Pronged Approach



Women as Drivers of the Clean Energy Economy

DEWEE trains women as Surya Sakhis to anchor last-mile delivery, support installation, and provide routine maintenance of decentralized energy systems creating a skilled, women-led clean energy workforce. This approach cultivates a skilled, women-led clean energy workforce while strengthening local service infrastructure critical for long-term adoption and system reliability.



Transforming Women-Led Enterprises into Green Enterprises

Micro and nano enterprises are supported to transition from diesel and unreliable grid power to solar-powered solutions that enhance productivity, reduce operating costs, and stabilise incomes. This transition strengthens enterprise resilience while aligning local economic growth with climate goals.



Catalysing New Local Economic Pathways

Beyond strengthening existing businesses, DEWEE enables women to capture emerging clean-energy-linked livelihood opportunities, including cold storage, food processing, e-mobility, agrivoltaics, and energy services expanding income potential and diversifying rural economies.



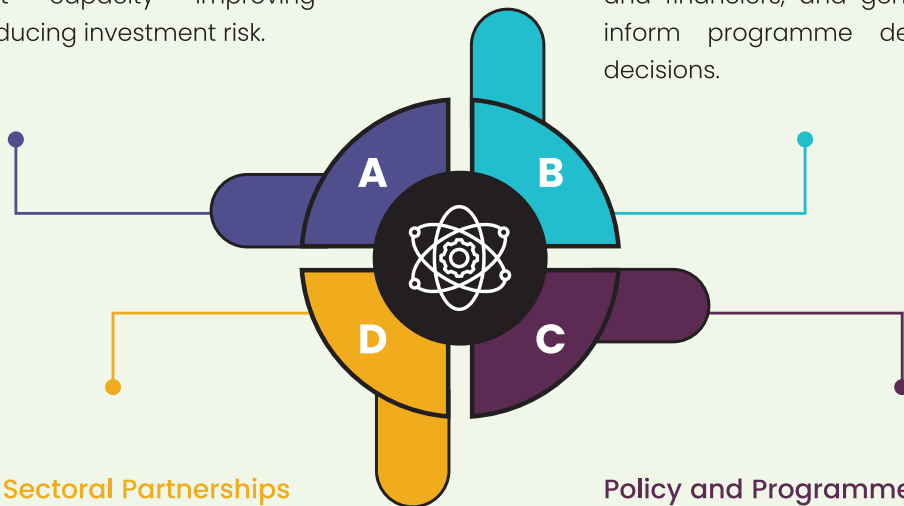
Core Programme Components

Enterprise-level DRE Feasibility and Design

DEWEE conducts enterprise assessments to evaluate energy demand, livelihood dynamics, income potential, and financial viability. Based on these assessments, tailored DRE solutions are designed to align operational needs, seasonal income flows, and repayment capacity improving adoption while reducing investment risk.

Demonstration of DRE-Enabled Women Enterprises

Select enterprises are developed as proof-of-concept models to demonstrate the economic benefits and returns of clean energy adoption. These demonstration sites accelerate peer learning, strengthen confidence among women entrepreneurs and financiers, and generate evidence to inform programme design and policy decisions.



Ecosystem and Sectoral Partnerships

DEWEE convenes government departments, financial institutions, manufacturers, distributors, and service providers to build a supportive market ecosystem. These coordinated approaches reduce transaction costs, improve access to finance and technology, and ensure reliable last-mile delivery of DRE solutions.

Policy and Programme Integration

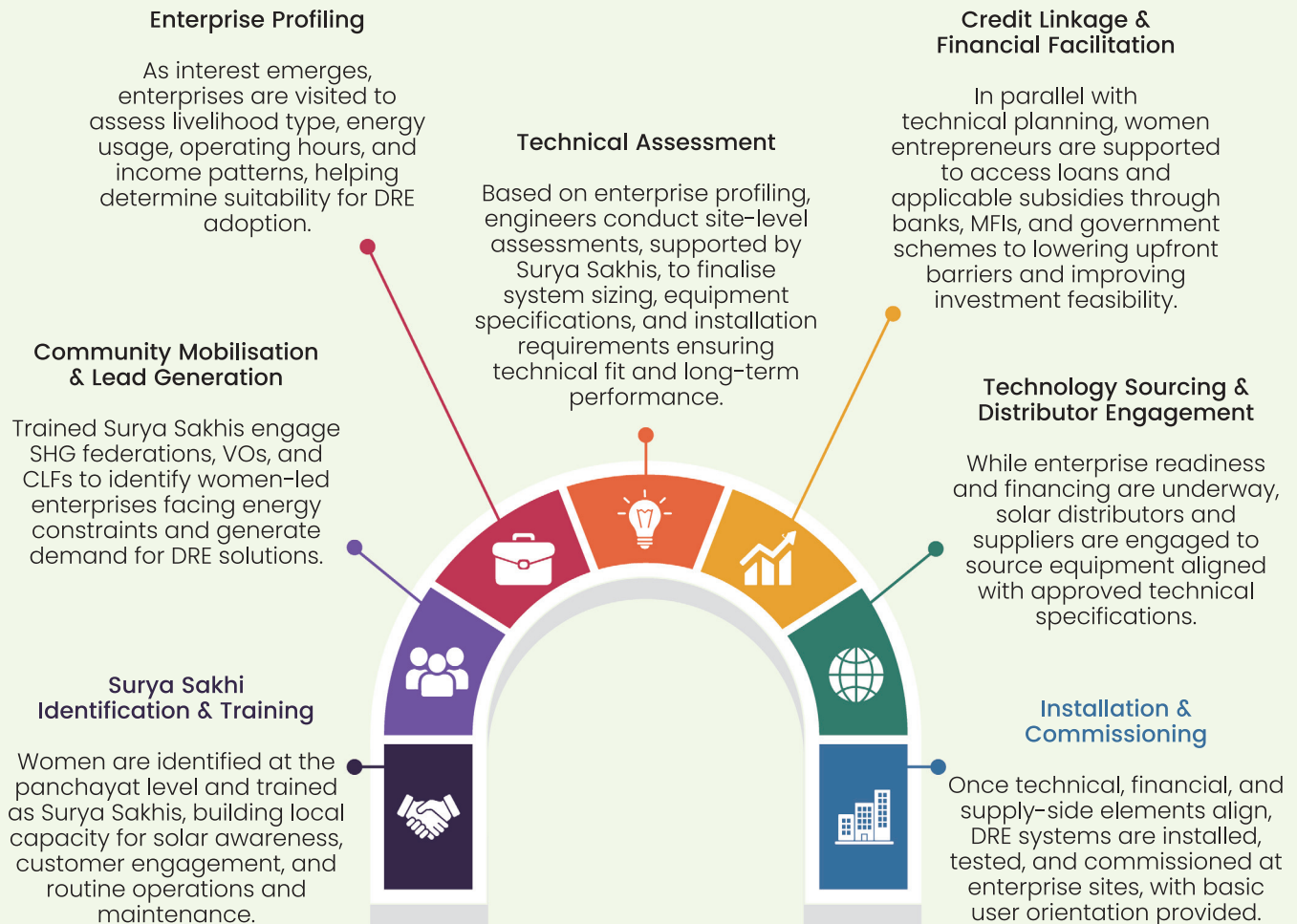
Working closely with public systems, DEWEE integrates DRE-enabled women enterprises into existing livelihood, energy, and rural development programmes. Field-insights are translated into technical inputs, implementation guidelines, and policy recommendations to enable sustained scale through public systems.

Operational Model:

From Community Demand to Durable Impact



DEWEE's operational model converts community demand into sustained clean energy adoption by intergrating local leadership, enterprise readiness, financing, and reliable service delivery. Designed for continuity, the model progresses from early mobilisation to installation and evolves into structured, localised support systems that ensure long-term functionality and enterprise stability.



Stories from the Ground :

What Change Looks Like on the Ground

Across sectors and geographies, women are using clean energy to reduce costs, increase productivity, and build resilient livelihoods. These stories reflect how decentralized renewable energy translates into real economic change.



Story 1: Solarising Nutrition Supply Chains

Women-Led THR Manufacturing Units | Uttar Pradesh

Women-operated Take Home Ration (THR) manufacturing units play a critical role in strengthening local nutrition systems. However, frequent daytime power outages disrupted production, increased reliance on diesel generators, and forced women to work night shifts to meet output targets.

Through a state-supported initiative, decentralized solar systems were installed across THR units, enabling uninterrupted operations and significantly improving production efficiency.

The transition has lowered operating costs, reduced carbon emissions, and strengthened timely delivery of fortified nutrition to communities—while enhancing incomes and ownership among women managing these enterprises.

Each unit supports livelihoods for around 20 women while strengthening the reliability of food supply for vulnerable communities.

Production efficiency improved by up to 3X while reducing monthly energy costs by ₹65,000 per unit.



Story 2: Powered by the Sun, Rooted in the Soil Rajrani

Solar Irrigation Entrepreneur | Unnao, Uttar Pradesh



Erratic electricity and costly irrigation once limited Rajrani's farm productivity, with annual expenses reaching nearly ₹30,000. Water uncertainty constrained crop choices and created financial stress for her household.

“With solar irrigation, our income is stable, and we are now able to build a permanent home,” says Rajrani.

After installing a 2 kW solar irrigation pump, Rajrani secured reliable access to water—allowing her to cultivate vegetables alongside traditional crops and stabilise farm income.

Today, she not only saves on irrigation costs but also rents the pump to neighbouring farmers, creating an additional revenue stream while elevating her standing within the community.

Farm income increased while unlocking a new monthly revenue source through solar pump rentals.



Story 3: Powering Purity: Solar Energy Transforms a Rural Water Enterprise

Seema | RO Plant Owner | Unnao, Uttar Pradesh

Strong demand for safe drinking water positioned Seema's RO plant as a vital community service but unreliable electricity restricted operations to just a few hours daily, leading to lost customers and declining confidence.

With DEWEE's support, Seema adopted a 9.8 kW solar solution and expanded capacity with a water pouch packaging unit. Reliable power doubled operating hours, improved service delivery, and enabled business expansion.

Today, Seema has strengthened distribution, created local employment, and is planning further scale demonstrating how clean energy can unlock high-growth rural enterprises.

Monthly income surged from ₹50,000 to ₹90,000 while doubling operating hours.



Story 4: From Power Cuts to Progress

Kanti | Solar Agripreneur | Unnao, Uttar Pradesh

Frequent outages and rising diesel expenses once threatened the viability of Kanti's family-run agri-processing unit, eroding customer trust and inflating operational costs.

Motivated to secure reliable energy, Kanti invested her savings and accessed institutional finance to install a solar system powering the flour mill, rice mill, and oil expeller. The shift eliminated diesel costs, restored productivity, and improved service timelines.

Now recognised as a local role model, Kanti is preparing to expand into spice processing, creating future employment opportunities within her community.

Eliminated diesel expenses of up to ₹15,000 per month while strengthening enterprise profitability.



Recognition & Institutional Endorsements:



In its first year of implementation, DEWEE has received strong recognition from leading institutions, government stakeholders, and global development leaders underscoring the programme's credibility, relevance, and potential for scale.

National Recognition:

PCI India was honoured with the 'CSO of the Year' award at IDRES 2026, hosted by CLEAN, acknowledging DEWEE's pioneering work in advancing clean energy for women-led livelihoods.

Policy Validation:

The Economic Survey 2024–25 featured DEWEE as a promising model for integrating reliable clean energy into women-led enterprises to strengthen incomes and livelihood resilience.

Government Leadership Engagement:

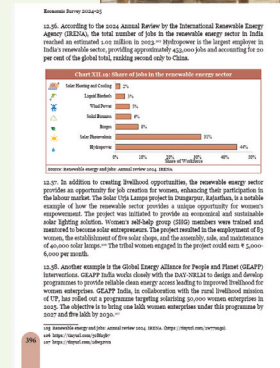
Government Leadership Engagement: Hon'ble Deputy Chief Minister Shri Keshav Prasad Maurya visited a solarised Take Home Ration (THR) manufacturing unit supported under DEWEE, interacting directly with women workers and reviewing production highlighting high-level government interest in the model.

Global Development Recognition:

During his visit to India, the President of the World Bank commended the intervention, recognising its role in advancing inclusive and climate-aligned rural development.

Replication Interest:

A multi-state delegation of senior government officials from six states visited DEWEE implementation sites to study the model for potential replication reflecting growing momentum for scale through public systems.



Partners:

Scaling Impact Through Strong Partnerships



DEWEE is implemented through strategic partnerships across philanthropy, government, finance, and clean energy markets—ensuring scale, credibility, and sustainability.

Global Energy Alliance for People and Planet (GEAPP)

The Global Energy Alliance for People and Planet (GEAPP) is a multi-stakeholder alliance of philanthropic, government, private sector, and development finance partners working to end energy poverty and accelerate equitable clean energy transitions in emerging economies. GEAPP combines expertise and resources to scale renewable energy solutions, expand access to reliable, affordable clean power, and drive inclusive economic growth. The alliance aims to catalyse transformational investment, create jobs, reduce carbon emissions, and improve livelihoods for millions, supporting systemic change while advancing climate and development goals.

The Gates Foundation

The Gates Foundation is a leading global philanthropic organisation dedicated to creating a world where every person has the opportunity to live a healthy, productive life. Guided by the belief that all lives have equal value, it works with partners worldwide to tackle inequities that limit human potential and opportunity. Its mission focuses on reducing poverty, strengthening health systems, expanding access to education and opportunity, and enhancing economic resilience, especially in low- and middle-income countries. The foundation supports data-driven solutions and long-term strategies that remove barriers to health, nutrition, financial inclusion, and sustainable livelihoods.

HSBC

HSBC is a leading global banking and financial services institution with a long history of supporting sustainable economic growth and community investment. Through its corporate sustainability and community programmes, HSBC partners with civil society organisations to advance financial inclusion, environmental sustainability, and skills development. Its initiatives include climate solutions partnerships and community investment projects that support education, livelihoods, and environmental protection — reflecting its commitment to fostering resilient, inclusive communities while aligning finance with sustainable development.

GIZ India

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been operating in India for over 60 years. In 2022, India and Germany signed the Green and Sustainable Development Partnership and made a commitment to achieving the goals of the 2030 Agenda and the Paris Agreement. GIZ works on behalf of the German Government, the European Union (EU), other public and private clients as well as civil society in the following thematic areas: Environment, biodiversity and natural resource management, Sustainable urban and industrial development, Energy, as well as social and private sector development

Prerna OJAS

Prerna OJAS is a clean energy enterprise promoted under the Uttar Pradesh State Rural Livelihoods Mission (UPSRLM) to expand access to decentralised renewable energy while strengthening women's economic participation. The initiative builds the capacity of Self-Help Group (SHG) women to become solar entrepreneurs, technicians, and service providers, enabling last-mile energy delivery across rural communities. By creating local green jobs and supporting women-led enterprises, Prerna OJAS contributes to sustainable livelihoods and advances an inclusive energy transition in Uttar Pradesh.



Looking Ahead

Building on current momentum, DEWEE aims to:

- Scale enterprise transitions across new geographies
- Deepen convergence with government schemes
- Strengthen local green jobs in DRE solution installation and maintenance
- Generate learning to inform policy and large-scale adoption of DRE-enabled women enterprises

PCI India is a development agency specialized in solving inter-sectoral development challenges. In India since 1998 and headquartered in New Delhi, we currently have a footprint across 18 states covering 205 districts.

Being a tech-enabled agency, we engineer designs for complex development problems and implement multi-dimensional solutions at scale. Our strength lies in customised signature solutions for inclusive development through community centric approach. Our work has a strategic blend of off the shelf solutions, technical assistance and direct implementation programs, to co-create lasting change.

We collaborate closely with communities, governments, industries and institutions to design, test and offer sustainable solutions to complex problems that adversely affects marginalised and vulnerable communities in the country.

Contact us:



PCI India

F-87, Okhla Industrial Estate Phase -3,
New Delhi – 110020, India.

Phone: 011-46058888 | Website: www.pciglobal.in

