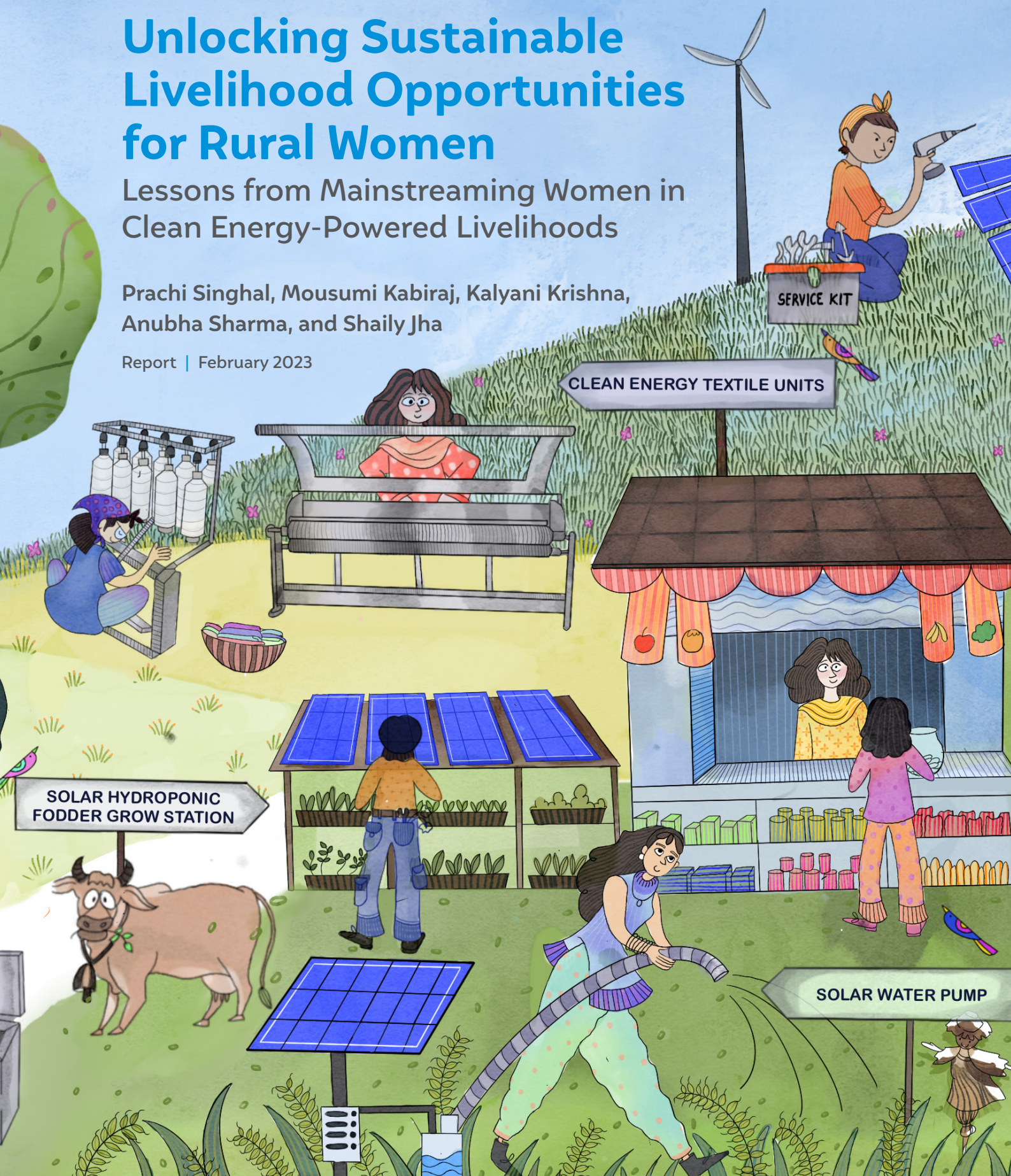


# Unlocking Sustainable Livelihood Opportunities for Rural Women

Lessons from Mainstreaming Women in Clean Energy-Powered Livelihoods

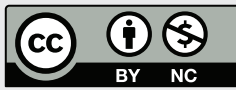
Prachi Singhal, Mousumi Kabiraj, Kalyani Krishna, Anubha Sharma, and Shaily Jha

Report | February 2023





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## About CEEW

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## About Powering Livelihoods

A joint initiative between CEEW and Villgro, [Powering Livelihoods \(PL\)](#) is boosting India's rural economy by scaling up the penetration of clean energy-powered appliances (decentralised renewable energy) for livelihoods, especially amongst women. It is doing so by:

- providing deep technical and capital assistance to social impact enterprises deploying RE-powered livelihood equipment
- enabling sectoral partnerships with various enabling stakeholders including financiers, investors, and state government departments, and go-to-market partners.
- generating bespoke market research insights and evidence at scale about the impact and viability of DRE-livelihoods
- supporting national and sub-national policy frameworks to mainstream DRE-livelihoods to positively impact rural incomes, especially of women.

Solar refrigerators, energy-efficient food processors, solar reeling machines, cold storage, solar dryers, etc., are some of the technologies we support under the programme. By leveraging these enterprises growth, the programme generates rigorous evidence about these solutions' impact, viability, and scalability to garner the support of investors, financiers, and policymakers to realise a potential USD 50 billion market opportunity.

To further gender-inclusion in the clean-energy-for-livelihood sector, the programme has strategised, piloted, and catalysed several gender-inclusive business strategies that enable greater adoption by and impact on women. These strategies were designed keeping three key stakeholders in mind: enterprises, end-users, and value chain partners, spanning three major activity streams: awareness and capacity-building of all the stakeholders, building organisational resilience, and sectoral growth support.



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DECENTRALISED  
RENEWABLE  
ENERGY  
POLICY

WOMEN

POLICYMAKERS

EVENTS AND MEDIA

DONORS

ENTERPRISE

INCUBATORS AND ACCELERATORS

PROCUREMENT

MARKETS

FINANCERS

**IT TAKES A VILLAGE  
TO CREATE  
SUSTAINABLE LIVELIHOODS  
FOR WOMEN**

Illustration: Hailey Thomas



## Executive summary

Rural women are silent workers and significant contributors to the rural economy (Patel and Sethi 2022). A recent research study by McKinsey Global Institute suggests that by 2025, India's Gross Domestic Product (GDP) may increase up to 18 per cent just by providing equal work opportunities for women.

At 75.7 per cent, agriculture accounts for the largest share of women's employment. Next up, micro entrepreneurship forms an alternate avenue for the productive participation of women in the workforce (Bhardwaj 2022). By 2030, an estimated 30 million women-owned micro, small and medium enterprises (MSMEs) are expected to flourish in India, employing nearly 150 million people (Bhasin 2022).

However, one of the biggest challenges Agri and allied industries face is low mechanisation and the need for more reliable electricity. Approximately 119 million farmers and 34 million micro-enterprises in the Indian rural economy are constrained by unreliable electricity access (Waray, Patnaik, and Jain 2018). Decentralised renewable energy (DRE) powered livelihood solutions have the potential to solve this while simultaneously reducing drudgery and time spent on labour-intensive

activities. They provide several benefits that can help in enhancing livelihoods and the lives of women, their families, and communities exponentially. A USD 50 billion market opportunity exists for clean energy-powered livelihood appliances to boost India's rural economy, especially among women.

For the Powering Livelihoods (PL) programme, we explicitly integrated a gender lens throughout to mainstream women in all our activities. We undertook several initiatives to build our internal capacity, our portfolio enterprise's capacity and the larger ecosystem's capacity to understand, target and reach women customers. Targeted funding for gender inclusion was made available to the enterprises to help them budget the time, efforts and resources needed to mainstream women across their organisation and value chain. We conceptualised, piloted and catalysed various partnership models and business strategies that could uplift women's socio-economic participation and make technology-based rural livelihoods women-friendly.

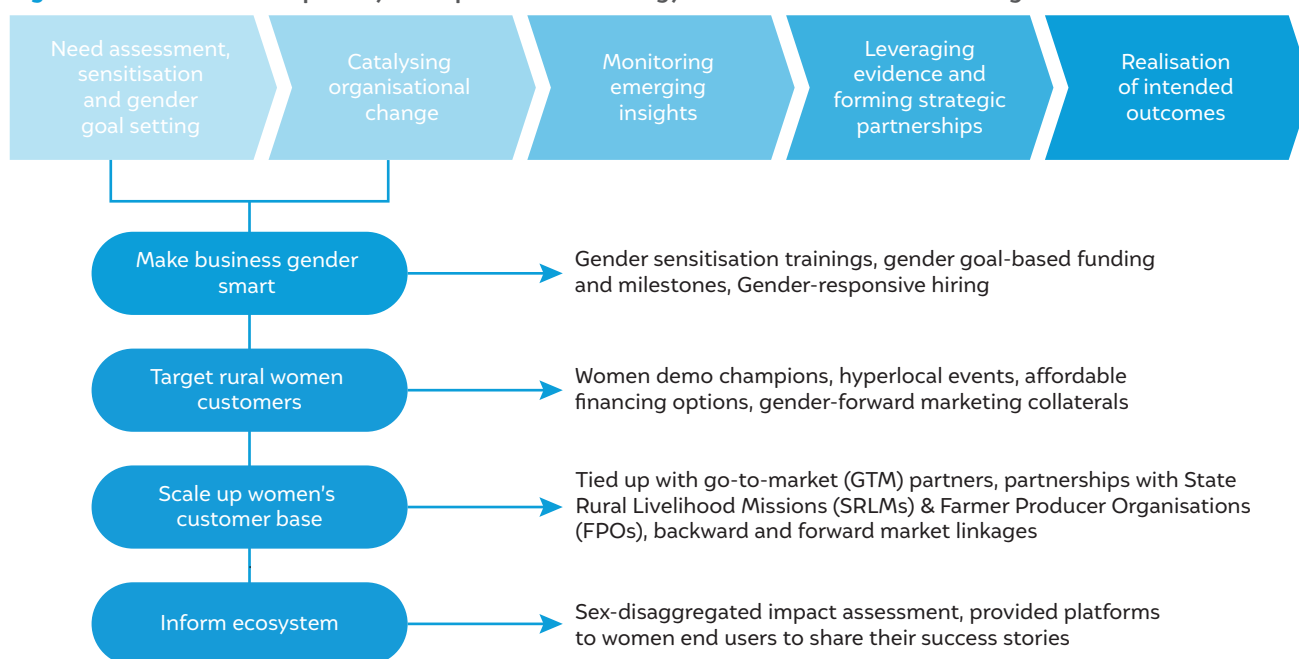
**Who should read this report:** Policy-makers, funders, financial institutions, market enablers, Decentralised Renewable Energy (DRE) and livelihood enterprises, investors, women micro-entrepreneur's supporters and other rural livelihood community stakeholders.



Image: CEEW

Solar-powered dryers can support rural women to enhance their livelihoods, earn a sustainable income and reduce post-harvest losses



**Figure ES1 Framework adopted by PL to promote technology-based rural livelihoods amongst women**

Source: Authors' compilation

Through this report, we want to share some of our documented learnings and evidence from our successes and failures to guide us in scaling up sustainable livelihoods for women. It includes comprehensive learnings and recommendations from the various women mainstreaming activities we conducted as part of our programme. The resulting learnings create a repository of the tools used and share the knowledge generated. It also incorporates sample success stories and evidence-based approaches. While not exhaustive, it could be used as a repository of field-tested tools and evidence-based practices to guide the progress and implementation of gender-inclusive programmes in the DRE-Livelihood sector.

Many of our strategies result from incremental rounds of discussions and field testing; thus, maintaining a minimum of a 6–9-month timeline for any new intervention to stabilise and show results is integral. We observed that enterprises and end-users often devise ways to succeed and scale once presented with enough impetus. The key is to centre women end-users' needs, experiences, expectations, risk-taking, motivations, and limitations while designing any intervention and being open to continuous iterations and pivots.

To realise the shared goal of sustainable livelihoods for women, each key actor will have to collaborate and prioritise gender goals.

- **Policymakers, sectoral associations, and government bodies** should integrate explicit gender

focus and adoption of DRE livelihood appliances in the rural livelihood and micro-entrepreneurship support policies.

- **Civil society (including enterprise support incubators and accelerators)** should take proactive efforts to understand and spotlight differentiated women's needs and preferences.
- **Financing institutions** should simplify the documentation requirements for women, treat technology as collateral, and increase the moratorium period of the loans taken by women to mitigate the more significant number of challenges faced by women versus men to stabilise and scale a new business.
- **Technology enterprises/rural livelihood providers** should integrate gender lens across all organisation levels - from the business vision, budget goals, and board members to front-mile sales agents.
- **Donor institutions** should provide the initial risk and catalytic capital and allocate specific funding for gender inclusion in the livelihood promotion programmes.

Only when the above stakeholders work together will DRE livelihood technologies be able to serve as a low-risk, easy-to-access springboard for a rural woman micro-entrepreneur to power her business and our rural economies.

# 1. Introduction

By 2025, India's GDP has the potential to grow by **18 per cent** just by providing equal work opportunities for women (McKinsey Global Institute 2018). However, it is easier said than done. Women face myriad challenges to realise their full economic potential such as lack of opportunities, cultural barriers, prevalence of informal labour, limited access to higher education, skill building opportunities, access to financing and credit, access to modern technologies, and support systems (Patnaik, Jha, and Jain 2021). Rising climate change also poses a major risk for women; 80 per cent of all people forced to leave their homes due to climate change are women (UN 2022).

How can we enable an ecosystem which helps women in realising their full economic potential and take up adequate opportunities to earn a decent and sustainable income? We attempt to answer this question in the context of rural livelihoods. In the spirit of learning by doing and sharing, we share key lessons based on our experience of deploying gender-inclusion strategies as part of the PL programme.

# 2. DRE technologies can improve women's socio-economic participation

Agriculture and MSME form the gateway to improve women's livelihood opportunities. More than 75 per cent of all female workers in India are employed in agriculture and agri-allied industries, such as food processing, livestock, dairy etc. (Chand & Singh 2022). By 2030, an estimated 30 million women-owned MSMEs are expected to flourish in India, employing nearly 150 million people (Bhasin 2022). Inadequate access to reliable electricity and improper mechanisation is one of the biggest bottlenecks these MSMEs face to prosper (Waray, Patnaik, and Jain 2018). DRE-based livelihood technologies, with their capability to mitigate intermittent electricity problems and introduce mechanisation, can play a critical role in improving the productivity in these sectors.

## Clean energy powered livelihood technologies have a USD 50 billion market opportunity in rural India

More than 80 per cent of women-led enterprises in the country are single-worker firms (MSME 2020), signalling that most women run their enterprises out of home or in the vicinity of home to simultaneously take care of their domestic work. While at the macro level, DRE technologies provide new livelihood opportunities and boost local economies, at the micro level, they address the 'time poverty' faced by women reducing the labour and time spent on activities such as fuelwood and water collection, preparation of food, processing, etc (Mukherjee 2021) (Nelson & Kuriakose 2017).

Long-term access to a reliable energy supply through DRE solutions can also help build self-resilience and adaptive capacities among women and decrease their vulnerability to climate change risks (IRENA 2021).

## What is time poverty for women?

The inequitable, gender-based allocation of unpaid domestic work, representing "double-duty" for women who enter the workforce, which often leaves women with little or no discretionary time, is known as time poverty.

### Impact of time poverty on women's economic prospects:

- Limiting women's engagement in the workforce due to unpaid domestic responsibilities.
- Gender based pay-gap where women are paid less than men for similar work.
- Discrimination via hiring and promoting men over women.

Source: Hyde, Greene, and Darmstadt 2020





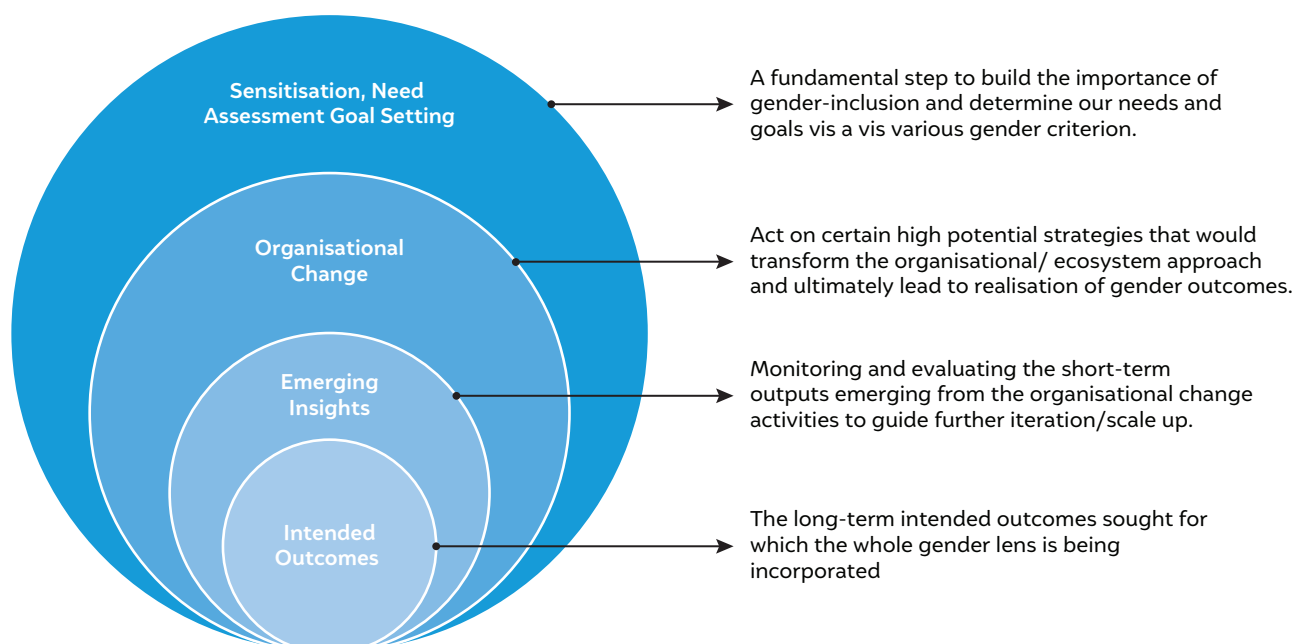
Image: CEEW/Emotivelens

Solar-powered drying units creating new sustainable farm-based livelihood opportunities for rural women in Andhra Pradesh, India

### 3. Women as clean energy entrepreneurs

Leveraging the potential of DRE technologies, we, at the PL programme, integrated women-inclusion in every

aspect of the DRE value chain by deploying strategies to mainstream such solutions among women, while making the technologies, business-models and financing women-friendly. The design thinking framework we adopted to design and implement these strategies can be summarised as:







**Need assessment and sensitisation:** At the start of the program, the first step was to sensitise the programme enterprises and value chain partners on the importance of gender-inclusion in their business. We trained them to recognise women's differentiated needs and how to respond to them. We also undertook needs assessment to mainstream gender-inclusion in their businesses pertaining to their business vision and intended outcomes.



**Catalysing change:** After mapping the gaps and needs of the enterprises and value chain partners in mainstreaming gender-inclusion, we provided catalytic advisory, financial and technical assistance. The assistance helped them in implementing key gender-forward strategies and interventions against certain hypotheses. For some of the large-scale change, we also leveraged strategic partnerships to build a chain reaction.



**Leveraging emerging insights:** For each action implemented, we monitored and evaluated the immediate short-term outputs (performance against pre-set metrics) to accordingly iterate/scale/ reject the strategies. We also documented and shared the learnings across peers to build ecosystem knowledge and evidence.



**Measuring intended outcomes:** These are the ultimate goals towards which all the above multi-pronged activities are funnelled. It takes a few months to a few years (depending upon the strategy) to fully realise these outcomes.

At the programme level, our goal, thus far, has been to enhance the awareness and adoption of DRE technologies for livelihoods among women, with the intended outcome that the usage of DRE livelihood appliances will improve the economic and social capital of rural women. At the individual organisational level for each enterprises/value chain partners their goals varied

from making their business gender-smart; being able to target potential rural women customers; scale up their women customer base and to build themselves as women friendly brand in the ecosystem.

## Practitioners' perspectives



*"Powering Livelihoods supported us in sex-disaggregation of consumer data which was an eye opener for us. We then knew where we stand and envisaged where we want to go to mainstream gender in our enterprise. Creating gender-focused collaterals rather than product specific helped us in reaching out to more women end-users."*

**Tushar Devidayal, CEO, Devidayal Solar**

*"Engaging local women in customer-facing roles helped Resham Sutra to attract more women end-users as they understand the demographic and culture of women end-users, are able to relate better with their on-ground challenges, and can build trust."*

**Kunal Vaid, Director, Resham Sutra Pvt. Ltd.**

Our model of change is centred around women end-users' needs, experiences, expectations, motivations, and constraints. Our interventions focused across all kinds of stakeholders – technology enterprises, financiers, policy makers, market enablers. We aim to promote organisational resilience through tailored training and capacity-building support; inter-linked value chains; and shared evidence on the successes and failures of these technologies. We are undertaking continuous iterations and pilots on each of these interventions to arrive at successful model.

Going forward, the programme goals will expand to focus on improving after-sales support for these technologies, enabling better market linkages for end-users, and supporting a critical mass of women micro-entrepreneurs through deeper hand-holding to be economically successful.

**It is essential to centre a women's needs, experiences, expectations, risk-taking abilities, motivations and limitations while designing gender-forward strategies**

## 4. Key successes emerging from our work

### At the end-user level



Out of the **~13,000 end-users** using programme-supported DRE livelihood technologies, more than 80 per cent are women (till August 2022).



**So far, at least 30 women have received collateral-free, low-interest financing**, unlocked through the programme's effort. More financiers' commitments are underway to provide easy financing to women DRE users and women-led FPOs.



Based on the impact assessment survey of more than 700 end-users, 70 per cent of women\* experienced a **33 per cent increase in income** (on average), and **92 per cent** of women\* believed that their business knowledge and skills have become more relevant.

*\* Percentage of women who responded to the corresponding survey question*

Source: Authors' compilation



Image: CEEW

Considering the challenges associated with poor accessibility in remote locations, Ghummar Farmer Producer Group (PG) received a van fitted with solar-powered deep freezers by Devidayal Solar – one of the programme enterprises. The van allows them to instantly preserve the fruit pulp collected from remote forest regions, transport it to central facilities for hardening and transport the hardened pulp to a larger cold storage in Udaipur, preventing wastage in between.



Image: CEEW/Emotivelens

A group of women having just made a purchase booking for a DRE refrigerator using end-user financing support from Rajasthan Grameen Aajeevika Vikas Parishad (Rajeevika). Around 28 of such purchases were made by women using a 50 per cent subsidy and 50 per cent credit support from Rajeevika in the first two months of the support programme.

## At the ecosystem level



PL team has supported the Ministry of New and Renewable Energy (MNRE) in formulating a policy framework to develop and promote DRE for livelihood applications, with **explicit emphasis on gender-inclusion**.



The programme has initiated partnerships with **Uttar Pradesh State Rural Livelihood Mission (UPSRLM)** and **Bihar Rural Livelihood Promotion Society (BRLPS)** to promote DRE livelihood among SHG women network.



We supported several women end-users as speakers at national and international forums by institutions such as MNRE, GiZ, Association of Renewable Energy Agencies of State (AREAS), National Solar Energy Federation of India (NSEFI) etc. to share their impact stories with key stakeholders including **Smt. Nirmala Sitharaman, Hon'ble Minister of Finance and Corporate Affairs, Government of India**.



We financially enabled rural go-to-market organisations such as DharamaLife, ESSMART, 1bridge to upskill, build capacity and transform business models so as to promote DRE livelihood technologies amongst rural women at scale. In a first of its kind, **six sales** of high-ticket size solar pumps and solar-powered hydroponic fodder grow units have happened via GTM organisations.

Source: Authors' compilation



Image: CEEW/Emotivens

A group of women farmers using solar dryers to convert their farm produce into high demand, dried food ingredients. Through a tripartite partnership between Powering Livelihoods, Raheja Solar, and Centre for Sustainable Agriculture, we have installed 36 solar dryers across six FPOs. It benefits 120 women farmers in generating an overall income of INR 45 lakhs by preserving 180,000 kg farm produce in one year.



Image: CEEW

Meera Jatt speaking at the MNRE-organised AREAS Foundation Day. She runs the Maitree Mahila dairy and agriculture producer company. The group has been using solar-powered DC refrigerators since 2020 to help address the challenge of unreliable electricity. This has helped them increase their processing capacity by three times.



## At the enterprise level



Our gender sensitisation training and gender goal budget setting has encouraged five DRE technology enterprises and four rural livelihood ecosystem organisations to pursue active endeavours to **increase the share of women within their teams and in their customer bases.**



We piloted the women demo champion model to engage existing women end-users as sales/pre-sales agent. During a 3-month trial, **two demo champions generated 12 high potential leads from their local communities.**



We initiated hyperlocal events to increase product awareness amongst potential women end-users. **~1,000 women have attended live physical demos of the product and made an on-the-spot purchase/booking of 40 units** across five hyperlocal events conducted so far.

Source: Authors' compilation

Image: CEEW/Emotivelens



Neetu Tandon, 48, a demo champion for the Kissan Dharambir multi-purpose food processing machine, giving a product demo to the women of her local community. Tandon runs a successful Fast-moving consumer goods (FMCG) micro-enterprise using the food processor and is an inspiration in her community. As a demo champion, she hosts two to three such localised demos in her community every month, generating four to five potential sales lead for the enterprise.



Image: CEEW

We organised a hyperlocal event in Uttar Pradesh through a joint collaboration with Perna Ojas and UPSRLM. The event led to the sales of three units of a multi-purpose food processing unit by Kissan Dharambir, a DC solar refrigerator by Devidayal Solar, three solar looms by Reshamsutra, and three solar dryers by Raheja Solar.

## 5. Strategies to mainstream women in rural livelihoods

We initiated several interventions to make the DRE Livelihood ecosystem more gender inclusive and improve women's socio-economic capital through DRE Livelihoods. A set of these interventions were targeted at programme enterprises and some were focused on ecosystem level partnerships to further gender-inclusion.

In Table 1, we present a summary of these interventions capturing their emerging impacts and associate key lessons. Most of these interventions are applicable for the enterprises and stakeholders working to promote rural livelihoods in general.

### Practitioners' perspectives



*"We are thrilled to be joining hands with CEEW- Villgro & Prerna Ojas in promoting DRE-powered livelihoods for people living in UP's rural areas. We hope with technical support of organisations like CEEW and Villgro, Prerna Ojas will work to transform millions of lives in the state."*


**Bhanu Goswami, former Managing Director, UPSRLM**

*"The gender-sensitisation training conducted by the Powering Livelihoods team for the field agents of ESSMART created two-fold impact; firstly, it increased awareness on approaches to adopt when targeting women customers and SHGs, which was also helpful in improving one's specific approach and pitch when dealing with them."*


**Shanina van Gent, Head of Projects and Partnerships, ESSMART**

**Table 1** Gender-forward strategies to promote technology-based rural livelihoods


Intended Outcome	Challenge/need	Strategy	Applicability	Emerging impact	Key learnings
<b>Sensitisation, need assessment, and gender goal setting</b>					
<b>Gender-diverse teams and customer base</b>  <b>Dedicated resource allocation and efforts towards gender-inclusion</b>  <b>A more gender sensitive organisational vision and approach</b>	Limited understanding and presence of gender-differentiated problem-solving and impacts	Sensitisation and capacity building training of the programme team and enterprises on the importance of gender-inclusion and helping them assess their gender-inclusion needs	<b>Can be applied to:</b> enterprises and organisations working towards livelihoods promotion, organisations providing support to such enterprises  <b>Tested with:</b> the programme team and six programme enterprises	Allocation of dedicated resources to initiate and oversee the gender-inclusion work  Setting of specific goals for gender-inclusion, including gender-responsive hiring policies, marketing plans, etc.	Each organisation adopts gender integration lens in a unique way, so there is no fixed route  Sensitisation at all levels of the team is essential to create a conducive action plan
<b>Women customers being recognised as a distinct customer segment</b>  <b>Proactive actions to reach, influence and win women customers</b>	Limited awareness amongst customer-facing organisations on the differentiated needs, usage patterns, and motivations for women to adopt a technology	Gender awareness training for value chain providers to align their offerings and support to women end-users' needs and preferences	<b>Can be applied to:</b> end-user financing organisations, go-to-market organisations, market research organisations  <b>Tested with:</b> PL go-to-market partners, such as ESSMART and 1bridge	ESSMART realised the business value in selling livelihood products to women and has started pitching directly to them  Dharma Life has initiated the JAYA platform to provide online training on DRE technologies to women customers	The training needs to focus on the 'why' of including women and the 'how' to reach out to and support women
<b>Translating intent into real action towards gender-inclusion</b>	Gender-inclusion is not an active business goal for many enterprises because of limited resources and other priorities	Specific budget allocations within enterprise funding for gender mainstreaming work	<b>Can be applied to:</b> all enterprise funding programmes  <b>Tested with:</b> all the programme enterprises	As of August 2022, the programme has reached ~13,000 end-users, of whom more than 80 per cent are women	Meaningfully merging gender targets in the business goals of the enterprise makes it a part of their long-term strategy

Intended Outcome	Challenge/need	Strategy	Applicability	Emerging impact	Key learnings
 <b>Catalysing organisational change</b>					
<b>Gender-specialised capacity within organisations to effectively work on gender-inclusion goals</b>  <b>Gender goals of the organisation are more holistic, timely met and have a clearer pathway to scale</b>	Lack of consistent and deep support towards gender-inclusion in various livelihood promotion programmes	Placing a dedicated team focused on mainstreaming gender-inclusion in all aspects of the programme	<b>Can be applied to:</b> any enterprise and enterprise support programmes  <b>Tested with:</b> the PL programme	A dedicated gender-inclusion team of four members hired at the programme level, leading to timely and better implementation of gender strategies and inclusion of a gender lens in all aspects of the programme	The resources responsible for gender-inclusion should be embedded in the current team structure and operations and not operate as a silo. Alternatively, capacity should be built of every team to integrate a gender lens in their work
<b>Increased gender diversity in organisations to enhance their productivity, business value and innovation potential.</b>  <b>Improved job opportunities for women</b>	Most programme enterprises have less than 30 per cent women in their teams and are facing difficulties in attracting women employees	Encouraging programme enterprises to have gender-responsive hiring and workplace policies	<b>Can be applied to:</b> any emerging technology enterprise.  <b>Tested with:</b> all programme enterprises.  The hiring templates and workplace policy recommendations	Reshamsutra – a programme enterprise promoting solar silk reeling, managed to hire a woman as their Chief of Staff after posting a gender-responsive terms of reference (ToR)  Raheja Solar, another programme enterprise promoting solar dryers –has more than 40 per cent of women employees because of a gender-sensitive hiring policy and workplace	It is important to overcome organisational bias on what roles women can and cannot undertake. Otherwise, hiring efforts alone will not ensure retention of women in the long run  Specialised gender job portals, such as Jobsforher, Sheroes, SheJobs, Women Entrepreneur Network are examples of platforms to attract female talent
<b>Greater livelihood opportunities for rural women in the energy value chain</b>  <b>Expansion of outreach channels reaching rural women</b>  <b>Better sales communication with potential women customers translating into more adopters</b>	Low success of commission-based sales agents in demonstrating the usage of technologies	Engaging successful women users as local demo champions	<b>Can be applied to:</b> all kinds of technologies.  <b>Tested with:</b> energy efficient multi food processors and hydroponic fodder growing units	A total of six demo champions were engaged. They have conducted localised demo sessions each in their communities, generating at least 15 high-potential sales leads	Personal user experience and credibility are the unique propositions that women demo champions bring over regular sales agents. However, they need sales training and leads follow-up support from enterprises
	Potential customers want to see, touch, and feel a product before buying it	Organising hyperlocal demo events and demo stations to showcase new technologies	<b>Can be applied to:</b> easy-to-transport and -demonstrate technologies.  <b>Tested with:</b> all the programme enterprises except for cold storage	DD Solar – solar refrigerator promoting enterprise in the programme – has set up 20 demo sites in Rajasthan in partnership with local women self help groups (SHGs)  Four hyperlocal events have been conducted with an attendance of 1,000+ women, leading to the sale of 40+ units	Hyperlocal events are successful in generating women leads because they help mitigate the mobility challenges faced by women  A combination of both a hyper-local demo event and deploying limited, subsidised demo units works best as the events lead to an initial interest generation and the presence of demo units helps interested leads explore the products further
	Disconnect between product marketing and a potential woman buyer's awareness and interest	Creating and distributing gender-inclusive marketing collaterals	<b>Can be applied to:</b> all kinds of enterprises  <b>Tested with:</b> DD Solar Kissan Dharambir (multipurpose food processors) and Reshamsutra	A women-focused online marketing campaign by DD Solar on various social media platforms received 500+ direct leads, all from women, within 10 days of the launch of the campaign	Before starting any high-action marketing activity, enterprises should set up a proper sales conversion funnel to follow up with leads.  Physical collaterals and short videos in local languages are effective



Intended Outcome	Challenge/need	Strategy	Applicability	Emerging impact	Key learnings
<p><b>Greater income and sustainability of women-led rural enterprises</b></p> <p><b>Improving bankability of microenterprises by enabling market linkages</b></p> <p><b>Establish models with assured procurement of final goods, i.e. assured revenue, to enhance the interest of potential women end-users, who otherwise struggle to find market for their products given the mobility challenges</b></p>	<p>The lack of raw materials and a market for final product could be an important limiting factor to realise sustainable income by women micro-entrepreneurs</p>	<p>Enabling backwards and forwards market linkages.</p>	<p><b>Can be applied to:</b> enterprises manufacturing technologies which are not only used as a service but to manufacture commodities which require further market linkages</p> <p><b>Tested with:</b> enterprises such as Reshamsutra, S4S Innovations, Raheja Solar (solar dryers), and cold storage solutions.</p>	<p>Reshamsutra has set up a cocoon bank for its silk-reeling machine users. 30 women are active users</p> <p>Raheja Solar has set up a forward market linkage for six FPOs using 36 solar dryers to cumulatively support 120 women farmers in earning a guaranteed income of around INR 3.5 lakhs/month, using their farm-based raw materials</p>	<p>End-user financiers are keener to extend support when technology-promoting enterprises also facilitate backward and forward market linkages as a guaranteed buyback from them ensures regular loan payback</p> <p>Establishing B2B partners are most effective for enterprises to offer backward and forward market linkage support</p>
 <b>Leverage strategic partnerships to further gender-inclusion</b>					
<p><b>Catalyse technology adoption among women by unlocking the credit</b></p> <p><b>Safeguard women's ambitions to initiate, manage and scale their own micro-enterprises</b></p> <p><b>Establish unbiased evidence about credit worthiness of DRE technologies to receive perceived risk among financiers</b></p>	<p>Women face challenges in availing loans from financial institutions due to a lack of collateral and cumbersome documentation processes. Providing financial support to women end-users increase the adoption of livelihood technology among them.</p>	<p>Targeted financing and subsidy support for women end-users</p>	<p><b>Can be applied to:</b> all end-user appliance purchase financing support organisations and SME credit organisations</p> <p><b>Tested with:</b> financing organisations such as Ashwa Finance, Sanghamithra Rural Financial Services, Samunnati Financial Intermediation &amp; Services Private Limited, etc.</p>	<p>Encouraged by the success of the PL-supported pilot of Raheja Solar's solar dryer with 6 women-led FPOs, Samunnati Financial Intermediation &amp; Services Private Limited has increased the loan coverage to women FPOs from the initial 20 per cent to 80 per cent of the capex. Going forward, the FPOs no longer need to depend on grants and subsidies to adopt such a technology.</p> <p>Rajasthan Grameen Aajeevika Vikas Parishad (Rajeevika) has committed to extending 50 low-interest loans of INR 30,000 for women interested in purchasing solar refrigerators</p>	<p>Sharing regular evidence on the success of the technology to build relationships and trust is essential to cultivate any financing partnership. This is a new sector to them and requires taking a risk and going out of one's comfort zone.</p> <p>Financing organisations prefer and prioritise business models wherein enterprise take some responsibility of loan documentation and collection, either by providing guaranteed buyback, pay as you go mechanism, or having their agents on the field to be in touch with the customers regularly.</p>

Intended Outcome	Challenge/need	Strategy	Applicability	Emerging impact	Key learnings
<p><b>Create a critical mass of role model women-led microenterprises using DRE technologies</b></p> <p><b>Enhance women's enterprising skills, productivity, employability and income-earning opportunities</b></p>	A limited number of successful women micro-entrepreneurs are owning and scaling DRE tech-equipped businesses. It leads to low visibility of relatable role models among prospective women users	Entrepreneurship development training to select women end-users to create successful, local role models	This strategy is yet to be implemented	We hypothesise that a successful pilot programme would result in the creating resources or a replicable model that could be extended to thousands of women-led micro-enterprises	<p>Most organisations provide skill-building training under specific projects, focusing on a particular segment and region. Thus, offering limited opportunities to create long-term nationwide programmes through one-time catalytic support.</p> <p>There are also limited physical/permanent walk-in training centres present for women micro-entrepreneurs across India which can be provided one-time capacity-building support to enable continuous training on DRE Livelihood technologies</p>
<b>Improved outreach to last-mile rural women customers without increasing the enterprise team size</b>	DRE enterprises have limited reach and resources to expand into new regions	Partnered with rural GTM organisations and provided them with financial support to build their capacities on selling high-ticket sized DRE products to women customer	<p><b>Can be applied to:</b> all last-mile, on-ground entities that are engaged as a value chain partner</p> <p><b>Tested with:</b> GTM partners, such as 1bridge, Dharma Life, and ESSMART</p>	Six sales by leading rural GTM such as DharamaLife, ESSMART, 1bridge. They are expanding their product basket to include DRE livelihood enterprises and considering women SHGs as an essential business segment	<p>Need to sensitise rural market enablers on the business benefits of selling to women.</p> <p>It is essential to discuss and enable various financing mechanisms for GTM partners as well as end-users to increase sales and maintain a level of interest among GTM partners</p>
<p><b>Opportunity for DRE technologies to reach millions of women in a very short span of time</b></p> <p><b>Evidence generation for policy makers to commit a scheme/ budget for supporting DRE livelihood technology adoption by masses</b></p> <p><b>Mainstreaming DRE technologies awareness and knowhow</b></p>	Given the low customer density and high diversity, small and young enterprises are not able to reach a large number of potential rural (women) customers on their own	<p>Partnerships with SRLM, who have mechanisms to form, reach, and finance millions of women SHGs in the country.</p> <p>As part of the partnership, we are building SRLMs capacity of on the DRE-livelihoods front, supporting them to conduct hyperlocal events and unlock initial sales through promotional subsidies and women demo champions</p>	<p><b>Can be applied to:</b> State level SMEs and rural development departments</p> <p><b>Tested with:</b> State Rural Livelihood Missions in Uttar Pradesh and Bihar</p>	<p>Through the partnership with UPSRLM, 30+ leads and 24 sales (completed and in the pipeline) in the first month of activity itself</p> <p>The high demand coming from SRLMs also prompted one of the programme enterprises, ReshamSutra, to iterate and develop a hybrid solar sewing machine product. Seven orders have already been made within a month of the newly designed product</p>	<p>Bringing convergence with the existing/ongoing work of SRLMs helps move the conversation and partnerships faster</p> <p>Government agencies look for evidence about the relevance and impact of a new technology before promoting it</p>

Intended Outcome	Challenge/need	Strategy	Applicability	Emerging impact	Key learnings
<b>Enable differentiated policy support for women towards livelihood technology adoption</b>	Limited gender budgeting and differentiated focus on women in government policies	Advocate for an explicit focus on women and DRE Livelihood technologies in rural livelihood promotion policies	<p><b>Can be applied to:</b> all government policies by all policy advocacy initiatives and organisations</p> <p><b>Tested with:</b> MNRE, Jharkhand Renewable Energy Development Agency (JREDA)</p>	There is explicit mention of support for women in the recently released policy framework for DRE livelihood applications by the MNRE	Gender sensitisation of the team drafting/ advising the policy is critical. Only when they are aware, they will be able to bring out the gender-differentiated nuances in the policy.
 <b>Leverage evidence</b>					
<b>Enhanced understanding of key decision-makers about the differentiated needs and challenges of women and differentiated impacts of technologies and strategies</b>	The lack of sex-disaggregated data limits stakeholders' understanding of gender inequality	Explicitly designing MLE tools to uncover sex-disaggregated impacts	<p><b>Can be applied to:</b> the sector stakeholders who are generating/ consuming impact data</p> <p><b>Tested with:</b> All programme enterprises to collect sex-disaggregated data</p>	<p>Sex-disaggregated Management information system (MIS) and impact reporting are becoming a part of business processes for many enterprises</p> <p>The programme has been able to inform policies and funnel funding to enterprises because of gender impact reporting</p>	<p>Sex-disaggregated data highlights gaps and promotes an understanding of the tacit reasons for bias, which typically get lost in culture, processes, and systems</p> <p>Gender -is an opportunity for businesses, and this can only be leveraged when investors, entrepreneurs, and other incubators see the positive impacts of gender-inclusion on businesses in empirical terms</p>
	Limited avenues for decision-makers to learn about the nuanced contexts of women end-users	Providing speaking opportunities to women end-users at national and international forums to share their stories; publishing video case studies focused on women end-users	<p><b>Can be applied to:</b> women entrepreneurs running Small and Medium Enterprises (SMEs) in each sector</p> <p><b>Tested with:</b> existing women demo champions and women end-users in PL</p>	Several women end-users of the programme have participated in the events by MNRE, GIZ, AREAS, and CLEAN to share their journey and experience of using DRE technologies	<p>End-users sharing their experiences builds the first-hand understanding among the audience of women's perspectives on DRE-based livelihoods</p> <p>Sharing experiences with platforms instils confidence and brings recognition, which helps to get more resources to scale businesses</p>

Source: Authors' compilation



## 6. Recommendations

To effectively integrate a gender lens in any organisation or an industry practice, we recommend the following five-fold approach. It's an iterative and continuous process requiring self-assessment at every stage.



### STEP 1: Sensitisation and need assessment

Starting with building an understanding across the organisation of why gender-inclusion is important. Analyse your current organisational policies and practices to identify entry points for women across the organisation's value chain.



### STEP 2: Selection of goal-based strategies/tool

Basis the needs and organisational goals, adapt or design appropriate strategies to help meet the desired goals. Each strategy should ideally include an action plan, monitoring indicators to track progress,



### STEP 3: Allocation of resources

Once certain strategies are selected, allocate appropriate resources (financial and human) to meet the goals.



### STEP 4: Monitoring and evaluation

For every action, establish a monitoring plan, feedback and redressal mechanisms along with metrics to evaluate the progress of the strategies.



### STEP 5: Building collaborations

To scale up the successful strategies further, collaborate with like-minded stakeholders who share the same vision but offer complementing support.

**Table 2** Suggested action points according to different gender goals

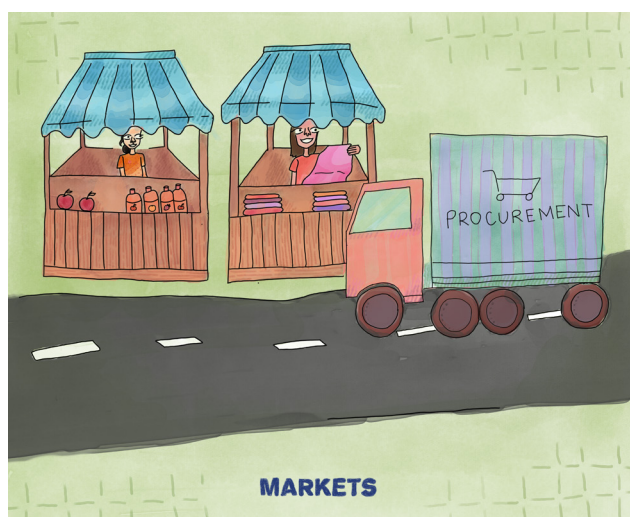
Goals	Action points				
<b>Make business gender smart</b> 	Capacity building of teams on gender-lens integration	Hire specialised gender experts	Make workplace policies more gender-friendly	Gender-responsive hiring ToRs	Gender-based goals and budgeting
<b>Target rural women</b> 	Organise hyperlocal product demonstrations	Engage with local influencers and existing users as a sales commission agent	Offer easy-to-avail financing options	Distribute marketing collaterals in vernacular language	Provide entrepreneurship training and market linkage support
<b>Scale up women's customer base</b> 	Tie up with GTM partners	Leverage supporting government schemes and policies	Build partnerships with women SHGs and FPOs network	Partner with financing and market-enabling institutions	Collaborate with other enterprises operating in the same value chain
<b>Inform ecosystem</b> 	Publish sex-disaggregated impact analysis data	Leverage evidence to advocate and raise additional resources	Promote successful women users as role models	Provide platforms to women to share their impact stories	Share knowledge and learning with peers in the ecosystem

Source: Authors' compilation

A convergence between stakeholders in the ecosystem is vital to realise economically-viable and sustainable livelihood opportunities for women leveraging DRE livelihoods. Each key actor – clean energy enterprises, donors, financiers, the support ecosystem, market enablers, policymakers, and end-users will have to prioritise gender goals. Below are the recommendations highlighting potential steps/initiatives that each stakeholder can take:

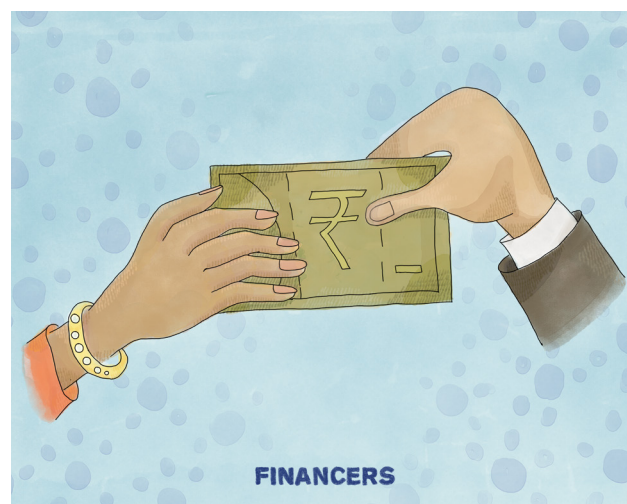


**Policymakers, sectoral associations, and government bodies** are encouraged to release explicit policies and schemes to support women's adoption of DRE livelihood appliances. DRE livelihood appliances should also integrate into the existing rural livelihood and micro-entrepreneurship support activities and schemes across various ministries.

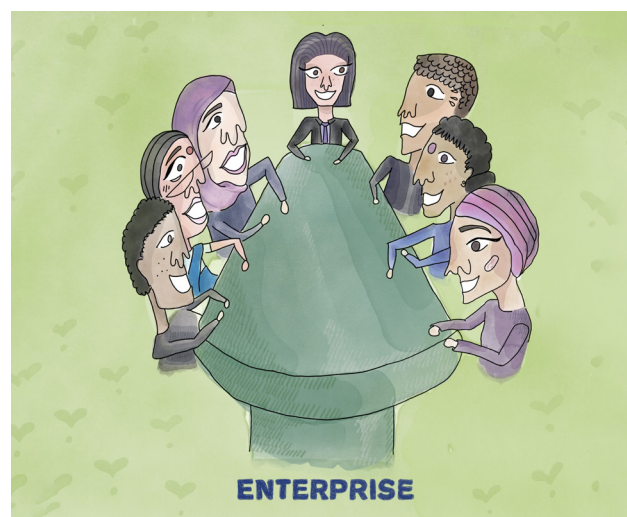


**Civil society (including enterprise support incubators and accelerators)** should take proactive steps to gain direct and regular feedback from practitioners and end-users to course-correct their programmes and support. Efforts should be made by the senior management to listen to women's voices from the ground through field visit and by inviting women end-users to be a part of high-

level consultations, roundtable discussions, events, and conferences.



**Financing institutions** play a critical role in enabling adoption of capital-intensive livelihood technologies. To unlock financing for women, financiers should simplify the documentation requirements as literacy and mobility remain limited for women, treat technology as collateral, and increase the moratorium period of the loans taken by women to mitigate the larger number of challenges faced by women versus men to stabilise and scale a new business.



Illustrations: Hailey Thomas

**Enterprises/technology providers** also need to actively take feedback from their women end-users and early adopters to ensure that their products are women-friendly. To reach out to more women end-users, they should consider adopting innovative strategies such as demo champions, hyper-local awareness events, featuring women in their marketing collaterals, Do-it-yourself (DIY) product installation and service training videos. Gender integration should happen across all enterprise levels, from the business vision, budget goals, and board members to front-mile sales agents.

Illustration: Hailey Thomas



To catalyse all of the above efforts, **donor institutions** are encouraged to provide the initial risk and catalytic capital and allocate specific funding for gender-inclusion in the livelihood promotion programmes.

In conclusion, only when the above stakeholders work together, will DRE livelihood technologies be able to serve as a low-risk, easy-to-access springboard for a rural woman micro-entrepreneur to power her business and our rural economies.



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## Acronyms

AREAS	Association of Renewable Energy Agencies of State
BRLPS	Bihar Rural Livelihood Promotion Society
DIY	do-it-yourself
DRE	decentralised renewable energy
FMCG	fast-moving consumer goods
FPOs	farmer producer organisations
GDP	gross domestic product
GTM	go-to-markets
JREDA	Jharkhand Renewable Energy Development Agency
MIS	management information system
MLE	monitoring, learning, and evaluation
MNRE	Ministry of New and Renewable Energy
MSMEs	micro, small and medium enterprises
NSEFI	National Solar Energy Federation of India
PG	producer group
PL	Powering Livelihoods
PO	Perna Ojas
Rajeevika	Rajasthan Grameen Aajeevika Vikas Parishad
SHGs	self help groups
SMEs	small and medium enterprises
SRLMs	State Rural Livelihoods Missions
ToR	terms of reference
UPSRLM	Uttar Pradesh State Rural Livelihood Mission



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We are grateful to our peer reviewers for taking the time to review the report thoroughly. Their critical remarks and the comments they posed helped us improve this report greatly and make it more beneficial for the ecosystem. The authors would also like to thank all the interview respondents, Kunal Vaid and Upasna Jain, a representative from Resham Sutra Pvt. Ltd; Kissan Dharambir, Prince Dharambir, Ramkrishna Sameriya, representatives from Kissan Dharambir; Tushar Devidayal, a representative from Devidayal Solar; along with the representatives of our go-to-market strategy partners, i.e., 1Bridge, Dharma Life, and ESSMART, who shared their experiences with us and played an active role in writing this report.

Lastly, our gratitude to the resilient women micro-entrepreneurs and clean energy enterprises who inspired us to write this report and remained our guiding force throughout. Our hope is that this report guides the larger development ecosystem and policymakers to forefront sustainable livelihoods for women in India.

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*“To have any meaningful impact on women’s livelihood, we will have to re-look at women’s work not only from an economic perspective but also from a socio-political perspective. Women can not only be efficient workers but efficient leaders as well.”*



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*“The progress of nation’s economic development goal could be achieved by providing women with opportunities to upgrade their skills, to access resources and earn a sustainable livelihood, rather considering gender inclusion a mere checklist.”*



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*“The programme has benefited over 13,000 end users - 70% of which are women. This target was achievable because enterprises identified women as a significant, untapped customer base, as well as fresh elements of their value chain. This report is a validation of how appropriate innovations can aid in growing the presence of women at all levels of the workforce.”*





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Anubha champions diversity and inclusion at Villgro Innovations Foundation by supporting social entrepreneurs in developing gender-inclusive business strategies for growth. She is a development professional with experience in micro-enterprises at Kudumbashree National Resource Organization and is an alumnus of Initiatives of Change (IofC), Switzerland, and Panchgani, India.

*“As businesses today seek new growth markets, there is an emerging realisation of the potential of the untapped female labor force. However, the knowledge and understanding of diversity and inclusion is often limited to the workforce. In this report, we have tried to highlight learnings from our attempt at making the value chains of businesses inclusive. This will help in not just establishing but also expanding the definition of the business value of gender inclusion and how it is an integral part of any company’s growth strategy.”*



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*“Gender smart business is a smart business, and this can only be leveraged when investors, entrepreneurs and other incubators see the positive impact of gender inclusion on businesses in numbers and other indicators. Through Powering Livelihoods, we found that a good way to begin gender integration is to assume that it applies across all the aspects of the business; prioritise these strategies across some key aspects, execute and evaluate them to show evidence of its impact on the business.”*



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