Women-Led Green Entrepreneurship: Motivators and Challenges

Dr. Reeti Gupta
Assistant Professor
Dept. of Commerce
Govt. College, Israna,
Panipat, Haryana, India
Email: rs.reeti@gmail.com

Abstract

Women entrepreneurs are spearheading India's green economy, founding 18% of sustainability-focused startups (WISER Report, 2024). Yet their growth remains hindered by systemic barriers, including limited access to financing, gender biases, market competition, and knowledge gaps in sustainable practices. This qualitative study investigates varied successful women-led green enterprises across renewable energy, waste management, and sustainable agriculture to uncover how they thrive despite these challenges. Through case study analysis and secondary data triangulation, the study reveals how these entrepreneurs convert constraints into competitive advantages such as leveraging alternative financing, community-driven networks, and eco-innovations to bypass institutional roadblocks. Policymakers and investors can harness these insights to accelerate women's leadership in the green transition, particularly through gender-lens investing, targeted incubation programs, and policy reforms that address structural inequities.

Keywords:

Sustainable Business, Women Entrepreneurs, Entrepreneurial Ecosystem Gender-lens Investing.

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Dr. Reeti Gupta

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1. Introduction

Green entrepreneurship has emerged as a transformative force in India's transition toward an ecologically sustainable economy, with women playing an increasingly crucial role. As of 2024, women founders lead 18% of India's sustainability-focused startups (WISER Report, 2024), pioneering innovative ventures in renewable energy, waste management, and regenerative agriculture (Raman et al., 2022). Yet their potential remains undervalued by systemic inequities.

Green entrepreneurship merges environmental and business goals through sustainable innovation, aligning with the triple bottom line and SDGs (UNEP; World Bank). It empowers communities via circular economies and green jobs (Hussain, 2024; Nayak and Hegde, 2023). However traditional narratives of green entrepreneurship often overlook gendered dynamics in resource access, market entry, and innovation. In India, where women constitute 80% of the informal recycling sector (NITI Aayog, 2023), their grassroots expertise remains undervalued in policy and investment frameworks.

The rise of India's green entrepreneurial ecosystem which is now the third-largest globally (ANDE, 2023), offers a critical testing ground for these dynamics. While incubators and impact investors proliferate, only 22% of women green entrepreneurs access such support (GEM, 2023). This study examines how India's women green entrepreneurs redefine value creation by merging environmental care with economic empowerment.

Objectives and Methodology

RO1: To identify the motivations driving women's entry into green entrepreneurship.

RO2: To systematize the challenges faced by women-led green entrepreneurs and document successful coping strategies.

Research Design: Qualitative as thematic analysis has been done of case studies and policy documents.

Data Collection Method: Secondary data i.e. Peer-reviewed journals, government/NGO reports (2015-2024), and entrepreneurial case profiles.

This paper is structured into six sections. Section 2 discusses key enablers supporting these ventures, while Section 3 presents the systemic challenges they face. Section 4 examines coping strategies adopted by women entrepreneurs, Section 5 highlights the study's theoretical and practical implications of the study, and Section 6 concludes with limitations and future research directions.

2. Enablers for Women-led Green Entrepreneurship in India

According to a WISER or Women in India's Startup Ecosystem Report, women-led startups have risen to 18 percent in the country in the past five years (Dsouza, 2024). This marks a significant increase from just 8 percent in 2015, driven by policy initiatives like Startup India (2016) and state-level schemes (e.g., Kerala's SheTaxi for EV entrepreneurship). Many factors are enabling women-led green entrepreneurship such as rising demands, rise of new technologies, the growing involvement of participants like private sector firms, entrepreneurs, scientists, military, etc. and the need to meet the targets of Sustainable Development Goal targets OECD (2020). Domestically, market regulator Securities and Exchange Board of India introduced business responsibility and sustainability reporting (BRSR) as part of environmental, social and corporate governance (ESG) disclosures that companies have to mandatorily make annually from 2022-23. Moreover, there is a 31% annual growth in consumer demand for sustainable products (EY, 2023), which has created opportunities for women-led ventures in organic textiles, zero-waste products, and solar energy. Then, there are the sustainability goals India has announced it will meet, both at the government and corporate level, such as net-zero greenhouse gas emissions by 2070 or Reliance Industries setting 2035 as the year by which it will "turn net carbon zero". Some of the prominent enablers are:

1. **Government Initiatives and Policies**:

India promotes women-led green entrepreneurship through policies like Startup India, offering funding and incubation (De & Chatterjee, 2024). Supportive frameworks incentivize green innovation, helping women build technical and managerial skills (Table 1).

Table 1: Government Policies and Initiatives

Government Scheme/Initiative	Objective	Measures
National Action Plan on Climate Change (NAPCC)	Addressing climate change challenges and promoting sustainable development	Focuses on eight national missions such as solar energy, energy efficiency, sustainable agriculture, and water conservation.
Startup India Initiative	To nurture and support startups	Various incentives, tax benefits, and funding opportunities for startups working on innovative solutions in sectors like renewable energy, waste management, and clean transportation, etc.
National Clean Energy Fund (NCEF)	To support renewable energy projects and promote clean energy technologies	Financial support for research, development, and deployment of renewable energy solutions. Funding opportunities for green entrepreneurs.
Renewable Energy Policies and Incentives	To promote renewable energy development, such as the National Solar Mission, National Wind Energy Mission, and various state-level renewable energy policies	Encouraging investment and entrepreneurship in the renewable energy sector by extending subsidies, tax incentives, feed-in tariffs, and preferential tariffs.
Green Skill Development Program (GSDP)	To build a skilled workforce for the green economy	Providing training and capacity-building programs in green entrepreneurship and sustainability-related industries.
Technology Business Incubators (TBIs)	To support technology business incubators that focus on nurturing green startups and entrepreneurs	Providing infrastructure, mentorship, networking opportunities, and access to funding for startups developing innovative solutions in sustainability and environmental conservation.
Green Public Procurement (GPP)	To encourage green public procurement practices and to create market demand for green technologies	Incorporating environmental criteria into government purchasing decisions and prioritizing environmentally friendly products and services

Source: Compiled by Author.

2. Technological Advancements:

Green tech innovations like AI, IoT, and mobile platforms (e.g., Farmizen) are enabling scalable solutions, while solar microgrids (Solar Shakti) address women's care needs through decentralized energy. Government-backed initiatives further support female participation in cleantech sectors. However, only 12% of women entrepreneurs utilize advanced tools due to skill gaps (WISER, 2024), highlighting the need for targeted training programs.

3. Market Demand:

Ethical consumerism is growing at 31% annually (EY, 2023), with women-led brands like Upasana Eco Fashion commanding 20-30% price premiums by linking sustainability to family health (IBEF, 2023). Despite this, women capture just 18% of the sustainable market, indicating untapped potential in gendered marketing strategies.

4. Investment & Collaboration:

Impact investments in India grew 53% (2015–2020), reaching $10.8B (AVPN, 2020), with models like SEWA's cooperatives showing 2x ROI. Women-centric incubators (e.g., Villgro) improve venture survival rates by 40% (Dsouza, 2024), but urban bias limits rural access to such networks.

5. Global Opportunities:

While partnerships like 24 Mantra Organic–Fairtrade empower 5,000 women farmers but according to the Federation of Indian Export Organisations, only 8% of women-led green ventures export due to certification costs. Digital export hubs could bridge this gap for artisan eco-products.

3. Challenges for Women-led Green Entrepreneurs

Green entrepreneurship case studies reveal persistent systemic barriers despite innovative approaches. Poonam Bir Kasturi (Daily Dump) confronts low composting awareness and competition from cheaper alternatives, underscoring the need for behavioral change campaigns. Neha Arora (Planet Abled) faces resistance to inclusive tourism, highlighting gaps in accessible infrastructure and societal attitudes. Revathi Roy (Hey Deedee) navigates EV cost barriers and gender stereotypes in logistics, exposing financing and policy shortcomings.

One of the most pressing challenges is financial exclusion, where women founders struggle to secure capital for their ventures. Despite the rapid expansion of India's green startup ecosystem, women-led enterprises receive a mere 0.3% of cleantech venture funding (ANDE, 2023; Dsouza, 2024). This disparity stems from deep-seated biases, where women are often questioned about their ability to balance business and family responsibilities during investor pitches (Nguyen et al., 2023; Potluri and Phani, 2020). Additionally, traditional loan requirements such as collateral in the form of property, disproportionately disadvantage women, particularly in rural areas where land ownership remains heavily gendered.

Another critical challenge is gendered market access, where women entrepreneurs encounter difficulties in securing corporate contracts and scaling their businesses. Studies indicate that women-led green ventures are 35% less likely to win procurement bids compared to male-led firms. Furthermore, societal stereotypes often funnel women into "soft" sustainability sectors like organic food and handicrafts, while limiting their presence in high-growth areas such as renewable energy and clean technology.

Infrastructure and technology gaps further exacerbate these challenges, particularly for women in rural and semi-urban regions. Around 72% of women green entrepreneurs in these areas lack reliable access to clean energy, forcing them to rely on expensive and polluting alternatives like diesel generators (NITI Aayog, 2023). Even when technology is available, high costs and a lack of training prevent many women from adopting scalable solutions such as solar-powered machinery or IoT-based agriculture tools.

Finally, policy-practice divides undermine the potential of government initiatives designed to support women entrepreneurs. Complex application processes, a lack of awareness, and insufficient childcare support at incubation centers further marginalize women from these programs. Without targeted interventions, these challenges will continue to stifle the growth of women-led green enterprises, despite their proven potential to drive sustainable development.

4. Coping Strategies: From Survival to Transformation

Women-led green entrepreneurs in India have developed innovative and resilient strategies to navigate systemic barriers, transforming challenges into opportunities for sustainable growth.

- **Financial Resilience:** Women entrepreneurs have turned to community-based financing models to bypass traditional banking hurdles. For instance, Kerala's Kudumbashree collective, a network of over 10 million women, provides low-interest loans to self-help groups (SHGs), achieving four times higher repayment rates than conventional banks. Similarly, grant competitions like Tvaran (a Cisco-Villgro initiative) have awarded ₹ 20 lakh grants to women-led climate startups, enabling them to scale without relying on biased venture capital.
- **Market Disruption and Digital Innovation:** To overcome gendered market exclusion, women are carving out niche segments where sustainability and ethics command premium value. Ethical Organic Fashion, for example, markets "farm-to-hanger" sarees, appealing to eco-conscious consumers willing to pay 20-30% more for transparency.
- **Frugal and Collaborative Technology:** Where infrastructure is lacking, women adopt low-cost, high-impact innovations. Daily Dump's terracotta composters, made from local materials, have reached over 1 million households without relying on expensive imported technology. In Rajasthan, the Solar Shakti collective pools solar-powered sewing machines, enabling members to share costs and energy access.
- **Policy Advocacy and Ecosystem Alliances:** Rather than waiting for systemic change, women are rewriting the rules. Grassroots alliances, like waste-picker unions, successfully lobbied for Extended Producer Responsibility (EPR) reforms, securing fair wages. For example, 'econscious' is a green enterprise launched by Sonal Shukla that offers eco-friendly products by converting plastic waste into furniture (Ahuja et al., 2024).
- **Social Empowerment and Mentorship:** To combat stereotypes, women entrepreneurs are building visible role models. Hey Deedee, India's first all-women EV logistics fleet, trains marginalized women as drivers, proving they can excel in male-dominated sectors. Meanwhile, pioneers like Poonam Bir Kasturi (Daily Dump) mentor newcomers, creating a ripple effect of confidence and knowledge-sharing.

5. Managerial Implications and Recommendations

This study's findings offer critical insights for policymakers, corporate leaders, investors, and entrepreneurship incubators to foster an inclusive and sustainable green economy (Table 2).

1. Policymakers and Government Agencies

Policymakers must implement gender-responsive reforms to support women-led green enterprises. This includes allocating 30% of green funding to women-led ventures, simplifying loan collateral through SHG guarantees, and expanding rural grants with childcare support. Streamlining policies via single-window portals and conducting gender audits will ensure equitable access and effectiveness.

2. Corporations and Industry Leaders

Businesses play a pivotal role in bridging market access gaps for women-led green ventures. Procurement policies should reserve a minimum quota (e.g., 15%) for women-owned sustainable suppliers, as seen in Flipkart's partnership with Hey Deedee. Mentorship initiatives can help women navigate corporate tenders, while preferential pricing for women-led eco-businesses would incentivize ethical sourcing. Supply chain inclusivity is another priority.

3. Investors and Financial Institutions

Investors must adopt gender-lens investing to address funding disparities. Dedicated green venture funds for women entrepreneurs, with relaxed equity demands, can unlock capital. Non-financial metrics (e.g., jobs created for women, carbon footprint reduction) should be tracked alongside ROI to attract impact capital.

4. Incubators and Entrepreneurship Support Organizations

Incubators need tailored programs addressing gendered barriers. Sector-specific training and women-centric networks are essential. Childcare support during training programs would improve participation rates. Incubators should also act as intermediaries, helping entrepreneurs navigate subsidy applications and policy frameworks.

5. Women Entrepreneurs

Women entrepreneurs can leverage collective strength through cooperatives (e.g., Kudumbashree) for bulk purchasing and marketing. Digital platforms (e.g., Farmizen for farm-to-consumer sales) can bypass traditional market barriers. Women's participation in policy dialogues and showcasing social impact metrics (e.g., jobs created, emissions reduced) can attract investor and policymaker attention.

Table 2: Recommendations for the Stakeholders

Stakeholder	Immediate Action	Long-Term Strategy
Policymakers	Launch gender-quota grants	Institutionalize gender audits of green programs
Corporations	Reserve procurement for women-led suppliers	Build gender-inclusive supply chains
Investors	Pilot revenue-based financing	Establish gender-lens ESG metrics
Incubators	Provide childcare at training programs	Create women-led green entrepreneur networks

6. Limitations and Future Research Directions

Firstly, the reliance on qualitative case studies may limit generalizability across diverse regional and sectoral contexts. Additionally, the study primarily focuses on successful ventures, potentially overlooking early-stage entrepreneurs who exit due to systemic barriers. Therefore, future research should adopt mixed-methods approaches to quantify gendered disparities in funding and market access. Comparative studies across developing economies could identify transferable strategies, while longitudinal research would assess the long-term efficacy of gender-responsive policies like Startup India's initiatives.

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