

Women Entrepreneurs with A Focus on Manufacturing Enterprises: A Case Study

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Abstract: *This chapter inspects the role of Indian women entrepreneurs in forming international manufacturing through sustainable innovation, digital integration, and export-oriented growth. The purpose of this case study is to analyze how women-owned ventures from India have overcome inequality and structural challenges to establish a competitive presence in international markets. It specifically focuses on four early- to mid-stage manufacturing ventures, Silpakarman, Clan Earth, Eco Femme, and Biocon that illustrate diverse approaches to sustainable production, technological adaptation, and international trade.*

The aim of this chapter is to identify the drives and success factors enabling women entrepreneurs to scale manufacturing enterprises globally. The key objectives include assessing the influence of sustainability-focused design, tech-based value chains, and inclusive business practices on internationalization; the chapter provides a comparative analysis of innovation strategy, supply chain models, financial performance, and market penetration.

Each of the enterprises contributes differently to the entrepreneurial ecosystem. Silpakarman demonstrates how domestic craft-based manufacturing, specifically bamboo and fiber products, can reach international buyers through digital platforms and green branding. Clan Earth combines re-forestation and sustainable design with digital retail, exporting sustainable lifestyle goods via e-commerce channels (Amazon). Eco Femme integrates menstrual health education with the global distribution of organic, reusable sanitary products, positioning India as a hub for locally led, sustainable manufacturing. Meanwhile, Biocon, as the most mature enterprise in the study, highlights the tracks from biotech startup to global biopharmaceutical exporter under visionary women's leadership. These case studies demonstrate that women entrepreneurs are not only participating in but also reshaping international manufacturing by embedding purpose, innovation, and sustainability in their enterprises. It also highlights future trends in international entrepreneurship, rising demand for circular economy products, digitized logistics, and gender-lens impact investing, that will shape the scalability and resilience of such enterprises.

Keywords: Digital, International market, Innovation, Sustainable, Women entrepreneurs

I. INTRODUCTION

Women's empowerment is a dynamic concept that holds significant importance in different aspects of community. Empowerment of female is and continues process that enables them to realize and fully utilize their potential and make impactful identity in all areas of life. In India, despite growth, female still face challenges in achieving equal rights and opportunities, due to ingrained cultural barriers and an orthodox male-dominated structure. However, globalization, industrialization, and social legislation have opened new economic benefits for women by access to diverse job markets



and platforms for entrepreneurship. Indian female entrepreneurs are pioneering sustainability-led manufacturing framework that influence digital innovation and international exposure to transcend conventional challenges. According to Ahmed (2024), in India, female green entrepreneurs are not only highlighting environmental problems through innovation but also transform the systemic inequalities and limited organizational support. Similarly, Thakur & Tyagi (2023), this study mentioned that, in India, where female constitute 14% of all entrepreneurs, still these facts underscore the rising prominence of female in impactful industries like sustainable manufacturing, e-commerce, and bio-innovation. Concept of entrepreneurship presents an impactful avenue for empowering women's. Entrepreneurship not only creates economic opportunities for female but also creates employment opportunities for others. Female entrepreneurs also generate positive advancements in society by advocating for the rights of female and other underprivileged societies.

Female entrepreneurs in India are frequently brought unique ideas for sustainability-led models, enterprise barriers, giving innovative approaches. This chapter analyzed four enterprises that contribute differently to the entrepreneurial ecosystem- such as Silpakarman, Clan Earth, Eco Femme, and Biocon stand out as critical transformation. Through these enterprises, this chapter tries to assess using a structured approach that includes sustainably product innovation, digital supply chain, market penetration internationally, and ventures performance are examined to draw success components and following opportunities in female-owned international enterprises.

II. METHODOLOGY

In this paper, employs a qualitative approach, exploratory multiple-case study methodology, using publicly available documents, field reports, annual report, and media coverage are analyzed to understand the real-life cases – dealing internationally and empowering women such Silpakarman, Clan Earth, Eco Femme, and Biocon based on their relevance to the study's objective, active presence in India, and the availability of documented outcomes. These cases were chosen for their shared emphasis on international entrepreneurship, and women-centered strategies. Their alignment with real-life application and global business, especially in marginalized areas, makes them well-suited for a multiple-case study method aimed at how Indian women leaders tackle challenges and barriers - enhancing education, fostering skill development, and economic independence by contributing to bridge the gender divide and social equality for women and shaping sustainable ecosystem.

III. DISCUSSION AND RESULTS

3.1 Silpakarman (In-Depth Analysis)

3.1.1. Background

Silpakarman, established in Tripura, owned by a female centered social venture that recreate authentic bamboo and living fiber workmanship, merging it into a modern product for digital trade environment. This enterprise operates with a clear vision for overall community empowerment- specifically upgrading tribal female expertise through deconcentrated, and skilled based manufacturing. According to Purohit., (2023), in India female entrepreneurs targeted sustainable industries more offend, and function as factors in network for development by creating local jobs, restoring cultural heritage, and encouraging inclusive value development. Similarly, this technique aligns with wider findings that female-owned eco-friendly enterprises in India often appear from grassroots initiatives, focused on socio-environmental rather than profit motives (Sinha R. et al., 2023).

3.1.2. Manufacturing Innovation

Report published by Mongabay, they highlight that Silpakarman's technique has developed a supply chain track in rural area of Tripura, working with local partners, community heads and members. Silpakarman craftsmanship is collaborated with sustainable materials such as living fibers and bamboo products. This enterprise mostly focused on bamboo production while minimizing infrastructure costs, it is renewable material without any ecological cost. Bamboo products like home décor utility items are manufactured through sustainable processes that reduce the utilization of energy and protect the environment. Silpakarman's operations are achieving the CSR standards that aligned with UN



SDGs; specifically, SDG 12-focused on responsible consumption and production and also SDG 5- is focused on gender equality.

3.1.3. Integration of Digital and International

The venture strategically locates e-commerce platforms such as Amazon India, and Etsy to access international markets. One of the most applied or important marketing platform is social media platforms that highlight green branding and cultural legitimacy. Social media marketing platform functions; rising sales, influencing customers easily, and highlighting stories of socio-environmental behind each product.

3.1.4. Financial Interpretation

The revenue numbers are not published yet, but the analysis of Silpakarman's market behavior mentions an annual turnover is rupee 2-5 crore. Additionally, this enterprise has impacted over 500 rural households and contributed in household income increased by 30% and helps to enhance sustainable livelihood (Pillai et al., 2025).

3.2 Clan Earth (In-Depth Analysis)

Background

Clan Earth formed from integrating tree-planting with eco-friendly goods production. Founder of the venture specifically embraces women entrepreneurs and sustainability. In India, Clan Earth is a begging of a new era of eco-friendly ventures, with the focus to fight deforestation and wastage of plastic which is harmful for environment. The venture intertwined the manufacture of sustainable goods with ecological vision. Clan Erath is owned by women with playing roles in development of product, marketing strategies, and operations for inclusive governance and women entrepreneurship in India's sustainable economy.

Product Innovation and Environment

Their commitment towards environment- planting a tree for every product sold initiative has resulted in over 50,000 trees are planted through partnership with NGOs which accordingly conserve ecological models and shows carbon desolation approx. 500-700 metric tons over 15 years. They make products like backpacks, home décor products, and accessories using biodegradable materials, also they use plastic free packaging to support and promote sustainable environment. These strategies of Clan Erath achieve multiple SDGs - SDG 12 (as earlier mentioned it is focused on responsible consumption), SDG 13 (focused on climate action), and SDG 15 (is focused on life on land). The venture adapted circular sourcing supply chain approach to minimize the waste across the product life. According to Purohit (2020), author reflects the circular entrepreneurship, which means eco-friendly enterprises led by female are increasingly applying modular and closed-loop production methods to minimize environmental wastages.

E-commerce, Market Penetration, Revenue and Inclusive Impact

Clan Erath utilizes Amazon digital platform for fulfilling international networks. With the help of e-commerce, and eco marketplaces Clan Erath reached across plus 30 countries. Additionally, social media plays an important role for brand differentiation in a competitive sustainable niche market. The annual turnover was estimated rupee 1-3 crore, with 70% of sales from global customers. Importantly, Clan Erath's model merges product designers and female artisans from marginalized societies for enhancement of economic inclusion and livelihood.

3.3 Eco Femme (In-Depth Analysis)

In 2009 Eco Femme founded and established by Kathy Walking and Jessamijn Miedema in Auroville, Tamil Nadu. They focused on reusable menstrual health products. The venture produces and internationally distributes reusable sanitary pads. These are made from GOTS (global organic textile standard) certified cotton and washable up to 75 times, providing economic and environmental opportunity.

Eco Femme embodied a hybrid model for business by merging sales with social outreach. The initiative taken by Eco Femme "Pad for Pad", educate underprivileged adolescent girls on reproductive health and hygiene and also provide them free reusable menstrual items to needed girls in rural India. The ventures operational model that addresses structural public health deficits while declining environmental degradation. This narrates to a possible diversion of 75



million pads from marine ecosystem, remarkably contributing to SDG 12 and SDG 3 to achieve SDGs goal by 2030. The venture replaces over 75 used pads and distributed over one million pads across 20 plus nations. Along with achievements, enterprise faces some common problems; balancing production capacity with overall demand, maintaining GOTS certification by decentralizing manufacturing and entrenched menstrual mindset in rural areas. From a digital engagement perspective, Eco Femme leverages a multichannel strategy, selling through Shopify, eco-friendly marketplaces, and global NGO partnerships. The organization's transparency and storytelling (through impact dashboards, personal narratives, and video testimonials) enhance trust and visibility in international markets. These digital practices are central to scaling social enterprises, particularly those led by women, as noted by Pillai et al. (2025). Nonetheless, its consistent revenue growth (estimated ₹2–4 crore annually) and outreach to over 50,000 adolescent girls mark it as a benchmark in social enterprise scalability and impact. As per Ray et al. (2023), this approach reflects the unique orientation of women entrepreneurs who often embed social justice objectives into product-centered enterprises, particularly in sectors like menstrual health that are stigmatized and underfunded.

3.4 Biocon (By Kiran Mazumdar-Shaw)

Established in 1978 by Kiran Mazumdar-Shaw with an initial capital of ₹10,000 (~USD \$1,200), Biocon emerged at a time when both biotechnology and women entrepreneurship were nascent in India. Mazumdar-Shaw, trained as a master brewer in Australia, redirected her technical expertise to industrial enzyme production, a highly unconventional path for an Indian woman entrepreneur of her era. This divergence from normative gender roles in business leadership has been the subject of both scholarly and policy interest (Ahmed, 2024; Thakur & Tyagi, 2023), especially as it reveals how women entrepreneurs often navigate institutional voids with high technical acumen and international collaboration. Biocon's operations reflect a seamless integration of digital systems, from ERP-enabled supply chains to pharmacovigilance compliance platforms that meet FDA, EMA, and CDSCO standards. The company exports to over 120 countries, making it a paradigmatic example of digital-global convergence in Indian manufacturing. As Pillai et al. (2025) observe, scale and regulatory navigation are key differentiators for women-led firms in high-tech industries, where gendered perceptions often intersect with capital and compliance challenges. With consolidated revenues surpassing ₹3,774 crore (~USD \$455 million) in FY23, Biocon has firmly positioned itself in the top tier of global biosimilar producers. Biosimilars alone contributed ₹2,102 crore (~USD \$255 million), supported by heavy R&D investment (~12–15% of annual revenues). The company's Q1 FY25 profit surged to ₹6.6 billion (~USD \$78 million), reflecting strong market demand and regulatory approvals. Through strategic acquisitions (e.g., Viartis biosimilar assets), Biocon is poised to capture a sizable share of the \$60 billion global biosimilars market. Biocon's operations reflect a seamless integration of digital systems, from ERP-enabled supply chains to pharmacovigilance compliance platforms that meet FDA, EMA, and CDSCO standards. The company exports to over 120 countries, making it a paradigmatic example of digital-global convergence in Indian manufacturing.

IV. COMPARATIVE INSIGHTS

Dimension	Silpakarman	Clan Earth	Eco Femme	Biocon
Sustainability	Natural fibers; green branding	Circular products; tree planting	Reusable menstrual products	Biosimilars reduce carbon footprint
Digital Strategy	Online craft platforms	E-commerce (Amazon, etc.)	Direct-to-consumer & NGO channels	ERP, digital regulatory systems
International Reach	Asia-Pacific, US via platforms	Global Amazon markets	20+ countries	120+ countries
Revenue (Est.)	₹2–5 Cr p.a.	₹1–3 Cr p.a.	₹2–4 Cr p.a.	₹3,774 Cr (FY23)
Export Volume	Moderate consumer exports	Moderate consumer exports	1M+ pads to 20 countries	70% products; US/Europe 50%
Impact	500+ households,	50k trees, CO ₂	75M+ pads saved;	Diabetes, cancer



	+30% income	sequestration	menstrual health outreach	treatment access
Key Success Factor	Community-based cluster model	Tree-product tie-in	Health + environment model	R&D & strategic partnerships

Summary of table:

Sustainability and local community integration drive product markets fit.

Digital channels are critical for scaling exports.

For scaling, Biocon illustrates how deep R&D and international regulatory capacity are essential.

Micro SMEs leverage niche impact in revenue-limited models; enterprise-level scale demands significant capital and global partnerships.

V. FUTURE TRENDS AND IMPLICATIONS

Circular economy model: The trajectory of women-led enterprises in sustainable manufacturing is increasingly shaped by emerging macroeconomic and technological trends that reconfigure both opportunity landscapes and strategic imperatives. One such trend is the, which prioritizes resource regeneration over linear consumption. Firms like Silpakarman and Eco Femme exemplify this shift by embedding material reuse, waste minimization, and lifecycle-conscious product design into their operations. As global consumers demand eco-responsible alternatives, such models position women entrepreneurs to lead in niche, high-impact markets aligned with SDG 12 (Responsible Consumption and Production) (Ray et al., 2023).

Digitalization of supply chains: has become indispensable for international scalability. Digital platforms, from enterprise resource planning systems to e-commerce channels, allow even microenterprises to participate in global trade, decentralize inventory management, and access real-time consumer analytics. As shown in the cases of Clan Earth and Eco Femme, such tools enable cost-effective market entry while enhancing traceability and trust.

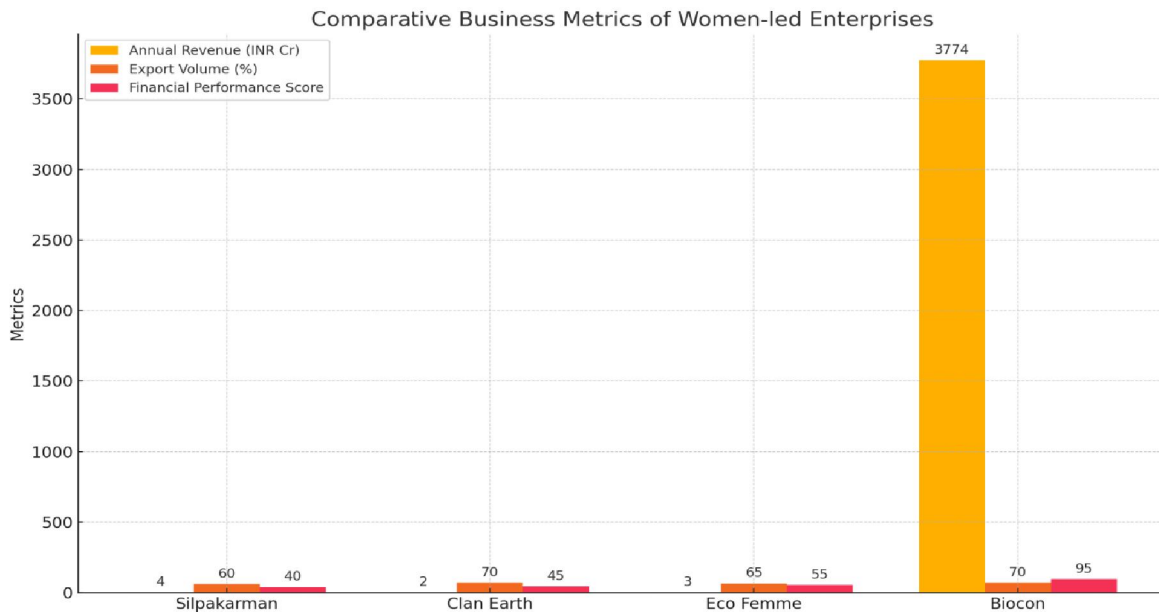
Gender-lens investing within ESG (Environmental, Social, and Governance) framework is creating targeted funding pipelines for women-led enterprises. These mechanisms integrate gender equity as a performance metric and prioritize funding for ventures that demonstrate both social inclusion and ecological integrity (Ahmed, 2024).

Capital-intensive R&D cycles: firms operating in science-based sectors, such as Biocon, must contend with **escalating regulatory complexity**. The capacity to navigate FDA, EMA, and CDSCO requirements while maintaining innovation pipelines is critical for sustained global competitiveness. Collectively, these trends signal a systemic evolution, where women entrepreneurs are poised to drive inclusive, digital, and sustainable industrial futures.

VI. CONCLUSION

The comparative exploration of Silpakarman, Clan Earth, Eco Femme, and Biocon affirms a transformative narrative in which Indian women entrepreneurs are not only stakeholders but also systemic re-shapers of global manufacturing ecosystems. Each enterprise, despite varying in scale and sector, demonstrates a shared reliance on sustainability-driven innovation, digital supply chain integration, and value-centered leadership, a convergence that aligns with emerging scholarship on "eco-preneurship" and "inclusive capitalism" (Ahmed, 2024; Sinha Ray et al., 2023). What distinguishes these enterprises is their articulation of purpose, not as a marketing add-on, but as a foundational strategy that defines product design, stakeholder engagement, and growth pathways. Silpakarman and Clan Earth, operating at the artisan and lifestyle goods level, exemplify frugal innovation embedded within cultural continuity and ecological regeneration. Eco Femme introduces a feminist-ecological model where gender, health, and environmental sustainability are synergistically addressed. Biocon, in contrast, offers a blueprint for scaling purpose into global pharmaceutical leadership, illustrating how R&D-intensive businesses led by women can penetrate and transform high-barrier international markets.





Source: Biocon: CNBC TV18 (2023), Reuters (2024), WIPO Magazine (2023); Eco Femme: Wikipedia, Eco Femme official reports; Clan Earth & Silpakarman: Media estimates from Mongabay, Your Story, product platforms

Digital platforms emerge as a key enabler across the cases, providing dis-intermediated access to global consumers, decentralizing logistics, and amplifying social narratives. However, the ability to scale - from ₹3 - 5 crore revenue in early-stage ventures to Biocon's ₹3,774 crore turnovers, reveals the critical role of institutional infrastructure, international compliance capacity, and sustained R&D investment. From a policy perspective, the cases underscore the urgent need for gender-lens impact investing, targeted incubation for green MSMEs, and adaptive regulatory frameworks that recognize the intersectional barriers faced by women entrepreneurs. These are not isolated success stories but instructive models for designing an entrepreneurial ecosystem that is resilient, inclusive, and globally competitive.

Lastly, this chapter presents not merely anecdotal evidence, but a layered thesis: that women-led enterprises, when empowered through digital tools, sustainable design, and enabling finance, can redefine the contours of international manufacturing, bridging the local and the global, the artisanal and the technological, the ecological and the economic.

REFERENCES

1. Eco Femme." (n.d.). Wikipedia. Retrieved April 2025, from https://en.wikipedia.org/wiki/Eco_Femme
2. Ahmed, N. (2024). *Empowering Change Through the Transformative Impact of Women Green Entrepreneurs*. DOI:10.4018/979-8-3693-6572-4.ch006
3. CNBC-TV18. (2023, May 24). *Biocon Biologics crosses \$1 billion revenue*. [mint+2CNBC TV18+2Kiran Mazumdar - Shaw+2](#)
4. India Today. (2024, August 18). *Kiran Mazumdar-Shaw: Spearheading pharma innovation*. [India Today+1Wikipedia+1](#)
5. Kiran Mazumdar-Shaw blog. (2024, December 31). *Year-End Reflections: Driving India's Bio-Revolution*. [Wikipedia+13Kiran Mazumdar - Shaw+13SK A&G+13](#)
6. Mazumdar-Shaw, K. (2017). Interview. *ETHealthWorld*. [ETHealthworld.com](#)



7. Pillai, R. H., et al. (2025). *Women Entrepreneurship in Fostering Sustainable Livelihood*. SMART Journal of Business Management Studies. [DOI:10.34293/2321-2012.2025.0001.6](https://doi.org/10.34293/2321-2012.2025.0001.6)
8. Purohit, T. (2020). *Sustainable Women Entrepreneurial Initiatives Driving Societal Development*. [RJSSM](#)
9. Reuters. (2024, August 8). *India's Biocon posts Q1 profit rise*. [Reuters](#)
10. Science-community blog posts and Mongabay.
11. Sinha Ray, R., et al. (2023). *Women in Sustainable Businesses: Insights from India*. In *Responsible Leadership and Sustainable Management*. [DOI:10.1007/978-981-99-5366-0_12](https://doi.org/10.1007/978-981-99-5366-0_12)
12. Thakur, D., & Tyagi, D. (2023). *A Contribution of Women Entrepreneurs in Economic Development of India*. [DOI:10.36948/ijfmr.2023.v05i04.4739](https://doi.org/10.36948/ijfmr.2023.v05i04.4739)
13. Wikipedia. (2025). *Biocon*.
14. World Intellectual Property Organization (2023). *Biocon Case Study*. [WIPO Magazine](#)

