International Journal of Advance and Applied Research
www.ijaar.co.in
ISSN – 2347-7075 Impact Factor – 8.141
Peer Reviewed Bi-Monthly
Vol. 6 No. 42 November - December - 2025

Challenges and Solutions for Green Entrepreneurship for Sustainable Development in Indian Scenario

Dr. Mayadevi Jadhav[1], Dr. Arun Pardhi[2],
Dr. Yogesh Deshmukh[3] & Prof. Swamini Raut[4]
[1]*GSMCOE, Balewadi, Pune*
[2]*ASM's IBMR, Chinchwad, Pune*
[3]*Alard Institute of Management, Pune*
[4]*RJSPM's Arts Commerce And Science College Bhosari, Pune*
Corresponding Author – Dr. Mayadevi Jadhav
DOI - 10.5281/zenodo.17986752

Abstract:

Green entrepreneurship has become a key strategy for striking a balance between environmental sustainability and economic growth. In India, it is essential to solve problems like resource depletion, climate change, and ecological degradation by creating jobs and encouraging innovation for progress. Thus the path of green entrepreneurs has challenges such as restricted financial resources, low consumer awareness, insufficient regulatory backing, technology limitations, and gaps in infrastructure. Despite these obstacles, India has environmentally friendly businesses using renewable energy, circular economy projects, eco-friendly products, waste management, and sustainable agriculture. This paper critically highlights the difficulties faced by Indian green entrepreneurs and presents solutions, including public-private partnerships, capacity-building initiatives, green financing methods, supporting government policies, and digital technologies. Green entrepreneurship may be improved via cooperation amongst stakeholders, including the government, business, and civil society. This study focuses on how green entrepreneurship in India has the ability to make a substantial contribution to long-term environmental stewardship and sustainable development goals with practical solutions.

Keywords: Green Entrepreneurship, Sustainable Development, Economic Growth. Indian Scenario.

Introduction:

In the twenty-first century, sustainable development has become one of the most important worldwide concerns. Countries are forced to come up with solutions that combine ecological protection with economic advancement in light of the growing threat posed by climate change, resource shortages, and environmental deterioration. A key element of this shift is green entrepreneurship, which is defined as business ventures that provide economic benefit and support environmental sustainability. Given its expanding population, energy requirements, and environmental issues, India offers a wide range of opportunities for green business. Green business owners, however, confront many challenges, such as restricted access to capital, low customer awareness, poor

infrastructure, and a lack of legislative backing. The purpose of this study is to evaluate these issues critically and offer potential fixes for them.

Literature Review:

The concept of green entrepreneurship is grounded in the larger framework of sustainable development as proposed by the United Nations' Sustainable Development Goals (SDGs). Previous studies have highlighted the potential of green entrepreneurship in driving innovation, creating jobs, and reducing environmental impact (Cohen & Winn, 2007). However, the challenges vary across nations depending on their regulatory frameworks, cultural attitudes, and economic conditions. In the Indian scenario, scholars such as Singh and Dube (2019) have emphasised the role of government incentives in promoting renewable energy startups, while others such as Rao and Patel (2021) argue that grassroots innovations and local entrepreneurship are equally critical. A gap remains in bridging financial support mechanisms with grassroots entrepreneurial initiatives, which this paper seeks to explore.

Research Objectives:

This study seeks to achieve the following objectives:

1. To identify the major challenges faced by green entrepreneurs in India.
2. To examine the role of government, the private sector, and civil society in supporting green entrepreneurship.
3. To analyze successful case studies of green businesses in India.
4. To propose practical solutions for strengthening green entrepreneurship in the Indian scenario.

Research Methodology:

This research adopts a qualitative methodology based on secondary data sources. Relevant academic articles, government policy documents, and industry reports were analysed to identify the current challenges and solutions. The paper also incorporates case studies of Indian green startups operating in renewable energy, sustainable agriculture, and waste management. The qualitative nature of this study allows for a holistic analysis of the issues at hand.

Findings and Discussion:

The findings of this research highlight multiple challenges faced by Indian green entrepreneurs:

Here's a detailed explanation of each point with relevant examples, suitable for inclusion in a research paper, classroom presentation, or academic report on green entrepreneurship in India.

Challenges and Opportunities in Green Entrepreneurship in India:

Challenges

1. Financial Barriers: Limited access to financing is one of the biggest challenges facing Indian green businesses. Green initiatives, like eco-friendly manufacturing, sustainable agriculture, or renewable energy, can call for large upfront capital expenditures for infrastructure, equipment, and certification. However, there are few finance choices available because traditional financial institutions view these projects as long-term, high-risk investments.

For example, installing a biogas generating unit or a solar photovoltaic (PV) plant has significant upfront expenses, with profits occurring over a number of years. Venture funding, low-interest loans, and green credit lines are rarely available to small and medium-sized businesses (SMEs).

Example: Many small-scale entrepreneurs in the renewable energy sector struggle to obtain funding without government subsidies or support from non-banking financial institutions such as SIDBI or NABARD's Green Climate Fund.

2. Consumer Awareness: Market demand is greatly impacted by a lack of customer education and understanding of the advantages of eco-friendly products. Cost and convenience are still given precedence over sustainability by many customers, which deters companies from creating environmentally friendly substitutes.

Example: At first, the Indian market for electric vehicles (EVs) encountered opposition since buyers were not aware of the vehicles' long-term financial and environmental benefits. Similar to this, consumers frequently view organic food goods as pricey or doubt their validity since they are unaware of the labels, which keeps them in the niche market. Although awareness has increased thanks to government and non-governmental organisation initiatives like the Green Good Deeds campaign and the Swachh Bharat Mission, widespread behavioural change is still taking time.

3. Regulatory Gaps: India has put in place a number of regulations pertaining to sustainability, including the Energy Conservation Act, the National Electric Mobility Mission, and the National Solar Mission. But progress is frequently hampered by uneven enforcement, delayed policies, and bureaucratic red tape. Getting permissions, land approvals, and compliance certifications can be difficult for entrepreneurs, which lengthens project timeframes and raises expenses. For instance, ambiguous waste management laws and competing duties between public and private entities have caused numerous waste-to-energy (WTE) projects in Indian towns to be postponed or abandoned. Private involvement in green projects is discouraged as a result.

4. Technological Limitations:

India's green technology ecosystem is still largely dependent on imports, particularly in areas like battery technology, wind turbines, and solar panels. Innovation and affordability are hampered by the scarcity of domestic research and development (R&D).

Example: More than 80% of India's solar cells and modules are imported from nations like Malaysia and China. This reliance exposes the market to global price swings in addition to increasing project costs. Moreover, startups working in sustainable construction or clean manufacturing often lack access to advanced materials and technical know-how for large-scale implementation.

To address this, government initiatives like "Make in India" and Technology Incubation Centers are encouraging local innovation, but results remain gradual.

5. Inadequate Infrastructure: Networks for the distribution of renewable energy, waste segregation systems, and effective supply chains are essential to the success of

green firms. However, scaling sustainable companies is challenging due to India's infrastructure deficiencies, particularly in rural areas.

Example: Home waste segregation is still lacking, which has an impact on recycling and waste-to-resource businesses. In a similar vein, poor cold storage facilities lead to enormous food waste, which jeopardises sustainable farming and food security initiatives.

Green business owners frequently encounter logistical challenges, such as inadequate e-waste collection facilities in smaller locations or erratic transportation for bio-based items.

Opportunities:

1. Public-Private Partnerships (PPPs): Partnerships between public and private organisations are working well to advance sustainability. PPPs bring together private sector innovation and investment with governmental assistance and policy backing.

For instance, the PPP-developed Rewa Ultra Mega Solar Project in Madhya Pradesh has grown to be one of the biggest solar power plants in India, providing reasonably priced renewable energy to cities and industry alike.

These concepts demonstrate how India's shift to a green economy can be accelerated through shared responsibility.

2. Green Financing Tools: The availability of funding for ecologically conscious enterprises is steadily increasing thanks to financial innovations like climate funds, carbon credits, and green bonds.

For instance, in 2018, $650 million in green bonds were issued by the State Bank of India (SBI) to fund low-carbon, wind, and solar projects. Furthermore, enterprises can exchange energy efficiency certifications through the Perform, Achieve and Trade (PAT) programme, which generates financial incentives for sustainability.

Green venture capital and impact investment funds are anticipated to increase accessibility to financing for startups and small business owners as awareness rises.

3. Digital Technologies: Emerging digital tools—such as artificial intelligence (AI), the Internet of Things (IoT), and blockchain—are transforming sustainability practices by increasing transparency, traceability, and efficiency.

Examples: With the use of AI-based irrigation systems, farmers can maximize crop productivity and minimize water waste.

Smart grids with IoT capabilities effectively distribute electricity while lowering transmission losses.

Blockchain technology guarantees supply chain sustainability and transparency in carbon trading (e.g., tracking organic certification).

Digital innovation helps close the gap between commercial viability and sustainability objectives.

4. Successful Case Studies:

Several Indian enterprises exemplify how green entrepreneurship can combine profit with purpose.

Examples: SELCO India empowers low-income communities by offering reasonably priced solar lighting solutions to rural households, hence decreasing reliance on kerosene lamps.

Goonj is a social venture that gathers clothing and other urban garbage and turns it into resources that rural communities may

use. It is a prime example of inclusive growth and the circular economy.

Bare Necessities demonstrates the expanding demand for sustainable lifestyle items by promoting zero-waste consumer goods like bamboo toothbrushes and natural soaps.

The following fixes are suggested in light of the findings:

1. Strengthening Green Financing: Creating green funds and startup incentives specifically for green initiatives.
2. Awareness Campaigns: National initiatives to raise consumer knowledge of environmentally friendly goods.
3. Policy Reforms: Making regulatory frameworks simpler and giving green enterprises tax breaks.
4. Technology Support: lowering dependency on imports and promoting domestic R&D.
5. Infrastructure Development: Investing in sustainable transport, renewable energy networks, and waste management systems.
6. Multi-Stakeholder Collaboration: Strengthening collaboration among academic institutions, corporations, NGOs, and the government.

Conclusion:

In India, green entrepreneurship has enormous potential to solve environmental issues and spur economic expansion. Innovative companies are becoming leaders in waste management, sustainable agriculture, and renewable energy despite obstacles like low policy backing, customer knowledge gaps, and financial impediments. India can create a flourishing environment for green entrepreneurs by putting solutions like green finance, public-private partnerships, and legislative changes into practice. This change is crucial for maintaining long-term ecological balance and inclusive economic growth, in addition to helping the nation reach its sustainable development goals.

References:

1. Cohen, B., & Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. Journal of Business Venturing, 22(1), 29-49.
2. Singh, R., & Dube, S. (2019). Green entrepreneurship in India: Policy frameworks and case studies. International Journal of Entrepreneurship and Innovation, 20(3), 211-225.
3. Rao, K., & Patel, A. (2021). Grassroots innovations for sustainable development: An Indian perspective. Journal of Cleaner Production, 285, 124-139.
4. United Nations (2015). Transforming our world: The 2030 Agenda for Sustainable Development. United Nations General Assembly.
5. World Bank (2020). Promoting green entrepreneurship in emerging economies. Washington, DC: The World Bank.