

Adopting Green Entrepreneurship for Sustainable Development Practices in Tamil Nadu, India: Opportunities and Challenges

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Abstract

Sustainable entrepreneurship, often referred to as green entrepreneurship, combines social and environmental goals with economic purposes to promote environmentally friendly business activities that minimise ecological risks and resource consumption. This research examines the distinctive challenges of emerging green entrepreneurs in Tamil Nadu, India, particularly their initiatives in sustainable and eco-friendly product production. The study utilises a systematic approach, making use of snowball sampling in gathering information from 175 entrepreneurs using surveys and interviews. SPSS data analysis made available has some important findings: Financial issues have the highest correlation with sustainable development, with access to capital and financial management being key barriers. Administrative issues also have a moderate but significant impact on hindering green entrepreneurship development. The beta value ($\beta = 0.741$) emphasises the high contribution of green entrepreneurship towards environmental sustainability. Even with the existence of monetary support tools such as grants and loans, stringent terms and conditions limit their effectiveness. The research emphasises the need for efficient policies, targeted financial reforms, and enhanced administrative practices to support green entrepreneurs. With these issues in mind, India can leverage the promise of green entrepreneurship to attain sustainable progress and ecological protection.

Keywords: administrative, financial, marketing, personal, sustainable development.

How to Cite: Abdul Sathar, M. B. (2026). Adopting green entrepreneurship for sustainable development practices in Tamil Nadu, India: Opportunities and challenges. *Journal of Management and Entrepreneurship*, 20(1), 14–27.

DOI: 10.70906/20262001014027

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1. Introduction

Eco-friendly entrepreneurship or sustainable business practices is the integration of economic goals with environmental and social aspirations. It encompasses environmentally conscious business strategies aimed at reducing ecological hazards, pollution, and the depletion of resources (Abdollahzadeh & Sharifzadeh, 2009; Ahmad et al., 2015). Eco-friendly entrepreneurship spurs job creation, economic development and drives innovation in the resolution of environmental challenges (Asamani & Mensah, 2013; Aslam & Hasnu, 2016). Schaltegger and Wagner (2011) pointed out that sustainable entrepreneurship generates social, environmental, and economic value. Green entrepreneurship in India is essential for sustainable development. Policies such as the National Solar Mission, Swachh Bharat Abhiyan, and Startup India encourage green business start-ups. Tamil Nadu encourages sustainable industrial development through TIDCO and encourages green farming to improve food security and minimise the load on the environment. Policy inconsistency and bureaucracy still dominate (Ghosh, 2019). Encouraging green entrepreneurs can make India's future green and prosperous.

2. Major Research Works Reviewed:

In recent years, various studies have explored different aspects of sustainable entrepreneurship, green business practices, entrepreneurial challenges, and how green marketing strategies influence the way consumers think, feel, and make purchasing decisions. Some of the studies have been discussed below:

Jennings and McDougald (2007) researched how entrepreneurs balance their work and family responsibilities and identified coping mechanisms employed to manage the issues arising from dual roles. Researchers found that entrepreneurs are likely to have serious challenges balancing work and family roles, leading to adopting a broad spectrum of coping mechanisms such as setting boundaries, seeking social support, and integrating work and family responsibilities.

Hall, J. K., Daneke, G. A., and Lenox, M. J. (2010) seek to survey previous contributions to sustainable

entrepreneurship and suggest future research avenues to improve the incorporation of sustainable practices into entrepreneurial ventures. They found that sustainable entrepreneurship has developed greatly, earning appreciation for the significance of environmentally and socially responsible business operations. Findings highlight the important role of innovation, policy support, and market mechanisms in furthering sustainable entrepreneurship.

Abdollahzadeh and Sharifzadeh (2014) were interested in incorporating sustainability into entrepreneurship and green business. Their research endeavoured to examine sustainable practices embedded in entrepreneurial processes and evaluate the effects on developing green business. They concluded that incorporating sustainability resulted in innovative business models, environmental reduction, while stimulating economic and social performance.

Aslam and Hasnu (2016) analysed the problems facing young entrepreneurs in Pakistan. Their in-depth study identified key challenges like poor access to finance, poor entrepreneurial education, and a lack of government support. They emphasized the importance of special policies to encourage entrepreneurial growth among Pakistani youth.

Belz and Binder (2017) proposed a convergent process model of sustainable entrepreneurship, outlining opportunity recognition stages to sustainable impact. Their research highlighted the functions of stakeholder involvement, resource mobilization, and recurring learning in propelling sustainable entrepreneurship.

Rajkamal, Velmurugan, and Suryakumar (2022) examined the problems of green entrepreneurs, such as regulatory challenges, funding issues, and competition in the market. In spite of these challenges, the research exhibited entrepreneurial resilience and creativity in formulating sustainable business models and embracing technology.

Muchenje et al. (2023) investigated how green marketing strategies affect consumers' behaviour and sustainable marketing achievement. Their work highlighted the power of transparency and environmental responsibility to draw environmentally

mindful consumers, where the ability of firms to foster long-term relations through green business practices was touted.

Thulasipriya (2023) evaluated the efficacy of green marketing strategies in inducing startup growth, finding that although such strategies promote brand image and appeal to environmentally conscious consumers, they cannot ensure exponential growth by themselves. The study addressed the importance of having green marketing within a larger business plan covering market factors and quality of the product. All these studies highlight the dynamic character of sustainable entrepreneurship with its intricacies, challenges, and possibilities of merging sustainability and business operations.

3. Significance of the research

One of the key advancements of the study is that the research specifically examines the unique challenges of the new entrepreneurs within the arena of sustainable and green manufacturing. Although a series of research has shed light on the general challenges of entrepreneurship, the present research studies green processes specifically, and it is an area significantly dominated by the conventional models of business. Through the identification and analysis of these specific challenges, the research seeks to offer specific knowledge that can be used to help young entrepreneurs overcome challenges such as high startup capital, lack of access to sustainable resources, and the intricacy of adhering to environmental policies. The study adopts an interdisciplinary approach that encompasses technological, financial, and regulatory considerations and their impacts on startup sustainability. This innovative element is responsible for providing thorough understanding and provides a thorough understanding that can help to create enhanced support systems and policies, leading to the cultivation of sustainable firms. Finally, the study aims to make a significant contribution to business environmental responsibility and the promotion of eco-friendly entrepreneurial practices.

4. Objectives of the Study

Studies of green entrepreneurship strive to achieve a set of prime objectives, which are

- To determine the efficacy of different green business practices employed by green entrepreneurs.
- To measure the individual problems faced by green entrepreneurs, including work-life balance, stress, and skill enhancement, and suggest personal development and well-being interventions.
- To study the financial challenges of green entrepreneurs and suggest ways to enhance access to finance, financial management, and profitability.
- To analyse the administrative challenges confronting green entrepreneurs and advise on good administrative practices and systems in a bid to optimise efficiency.
- To examine the marketing issues encountered by green entrepreneurs and develop effective strategies to create consumer awareness towards green products and services.

5. Research Questions and Hypotheses Development:

Investigating the issues of emerging entrepreneurs in sustainable and eco-friendly product production entails examining several areas of the entrepreneurial process, starting from idea generation to market entry and beyond. Below are some key research questions that can be used to carry out a thorough study on this theme and based on these questions the hypothesis emerged as follows:

5.1 Green entrepreneur and Sustainable Environment

Green entrepreneurs seek to build up businesses that address environmental concerns by taking innovative measures, resulting in the creation of eco-friendly products, services, and processes. Green entrepreneurs play a crucial part in driving the transition to a greener, more sustainable economy (Schaper, 2010; Hall et al., 2010). By using practices to lower environmental footprints and save natural resources, green entrepreneurs contribute greatly towards this shift (Brundtland, 1987; Gibbs, 2009).

RQ 1: How does building environmentally friendly businesses help grow the economy and improve people's livelihoods?

Drawing from the foregoing literature review, the hypothesis that follows is developed:

H1: Green entrepreneurship contributes positively to environmental sustainability.

5.2 Personal challenges and Green entrepreneurship

Managing the entrepreneurial needs of a business while balancing personal and family obligations is a major challenge, and poor family support or ignorance may act to further enhance the stress experienced by green entrepreneurs. The high expectations of entrepreneurship may pose obstacles to sustaining a stable work-personal life balance, culminating in stress and burnout (Jennings & McDougald, 2007; Shelton, 2006).

RQ 2: How do entrepreneurs achieve and sustain work life balance and company culture with a focus on sustainability?

Considering the insights from prior studies, the following hypothesis is put forward:

H2: Personal challenges have a negative impact on the Green products producing entrepreneurs.

5.3 Financial challenges and Green entrepreneurship

Green entrepreneurs often struggle to find initial capital and deal with the increased operating expenses of sustainable strategies. Such companies are also seen as riskier investments since they rely on new technologies and a greater time before any returns are generated (Hall & Wagner, 2012). Thus, green entrepreneurs face distinctive financial challenges that may make it difficult for their businesses to grow and sustain themselves.

RQ 3: What are the main financial barriers to entrepreneurs in the sustainable manufacturing industry?

Therefore, the following hypothesis has been developed:

H3: Inadequate access to funding is the main financial barrier to entrepreneurs in the sustainable manufacturing industry.

5.4 Administrative challenges and Green entrepreneurship

Green start-ups usually have scarce financial and human resources. The absence of incentives and policies favourable to green firms can also undermine their development and growth. Green entrepreneurs also have to deal with complicated and changing environmental regulations that are difficult to grasp and follow (Schaper, 2010).

RQ 4: What regulatory challenges do sustainable product producers encounter?

From this literature review, the following hypothesis has been established:

H4: Administrative difficulties have a negative influence on the development and sustainability of emerging eco-friendly product manufacturers.

5.5 Green entrepreneurship and challenges of marketing

Green entrepreneurs frequently experience strong competition from firms not following sustainable approaches but at lower prices (Belz & Binder, 2017). Most consumers lack in-depth information about the benefits and presence of green products, creating challenges for emerging green entrepreneurs to drive demand (Pacheco, Dean, & Payne, 2010).

RQ 5: What are the difficulties of communicating the environmental and practical value of eco-friendly products to customers?

Following these reviews, the following hypothesis has been created:

H5: Entrepreneurs involved in the manufacture of eco-friendly products are negatively influenced by marketing difficulties.

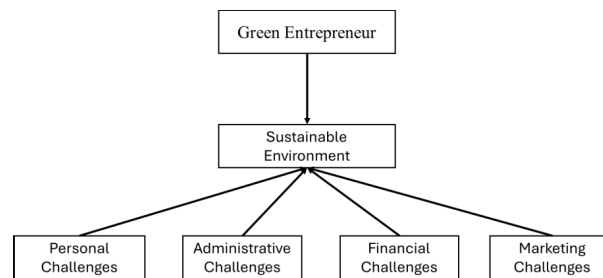
These hypotheses and research questions can lead a full-fledged study on challenges confronted by nascent entrepreneurs involved in sustainable and eco-friendly product manufacturing.

6. Methodology for the Research

The study entitled “Exploring Challenges Faced by Budding Entrepreneurs in Sustainable and Eco-Friendly Product Manufacturing” intends to investigate the distinctive challenges that newly established entrepreneurs are facing in the green products industry. In doing so, data will be gathered from a sample of 175 entrepreneurs who are presently actively involved in sustainable and eco-friendly product manufacturing in Tamil Nadu. The snowball sampling technique will be employed, as it is particularly suitable for reaching niche groups through referrals from initial respondents. However, it is acknowledged that snowball sampling may lead to potential bias or limited representativeness, as participants are often drawn from interconnected networks. To minimise this limitation, efforts will be made to ensure diversity among initial respondents across different sectors and regions, thereby enhancing the inclusiveness of the sample. A standardised survey form will be used as the main survey instrument. The information gathering process will integrate both interviews and scheduled methods. In addition, to test the hypotheses, the collected data will be analysed using SPSS. The questionnaire has been prepared on the conceptual model described in the Fig 1

Figure 1

Conceptual Model of Challenges Affecting Sustainable Environment in Green Entrepreneurship



The above conceptual model illustrates that green entrepreneurs aim to promote a sustainable environment by integrating ecological, economic and social considerations into their corporate procedures (Ahmed et al., 2015; Hall et al., 2010). Their success is shaped by four main challenges: Personal challenges such as limited skills and sustainability knowledge (Shelton, 2006), Administrative challenges including regulatory compliance and operational management (Aslam & Hasnu, 2016), Financial challenges such as funding constraints and higher costs (Vasilescu et al., 2022) and Marketing challenges involving the promotion of eco-friendly products and consumer awareness (Muchenje et al., 2023). Dealing with these challenges effectively is necessary for green entrepreneurs to achieve their sustainability goals. All variables were measured on Likert-type 5-point scale such as Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree.

7. Analysis and Interpretation

Table 1

Socio-Demographic information of the respondents

Demographic factor	Categories	Frequencies (N = 175)	Percentages
Sex	Male	116	66.3
	Female	59	33.7

Age	30 and Below years	20	11.4
	31-40 years	55	31.4
	41-50 years	63	36.0
	51-60 years	23	13.1
	61 or above	14	8.0
Marital Status	Married	103	58.9
	Unmarried	72	41.1
Educational Qualification	HSC	37	21.1
	Diploma	15	8.6
	Graduate	86	49.1
	Post Graduate	17	9.7
	Professional	20	11.4
No. of earning members	One	90	51.4
	Two	47	26.9
	Three	18	10.3
	More than three	20	11.4
Total Annual Income	Upto Rs. 2.5 lakhs	34	19.4
	Rs. 2.5 lakhs – Rs. 5 lakhs	79	45.1
	Rs. 5 lakhs – Rs. 10 lakhs	35	20.0
	Rs. 10 lakhs and above	27	15.4
Green Span	6 months – 1 year	51	29.1
	1 year – 2 years	38	21.7
	2 years – 3 years	12	6.9
	3 years – 4 years	34	19.4
	4 years – 5 years	40	22.9
Eco-Drive	Passion for Sustainability	50	28.6
	Role model inspiration	22	12.6
	Knowledge gained from ED training programme	31	17.7
	Government schemes and Subsidies	60	34.3
	Family influence	12	6.9
Funding venture	Own money	75	42.9
	External funding	36	20.6
	Both personal and external	64	36.6
Product Certifications	Yes	35	20
	No	140	80

Source: Primary Data

The data were gathered from 175 participants who were engaged in the manufacturing of green or eco-friendly products. Out of them, 66.3% were male, and 33.7% of them were female. Most of the participants were aged between 41 to 50 years and were mostly married. According to educational qualifications, the highest number of the participants were graduates followed by HSC holders, professional course holders, postgraduates, and diploma holders. When looking at the number of earning members in their families, most were from single-earner families. When looking at income levels, most respondents had an annual income ranging from ₹2.5 lakhs to ₹5 lakhs. When looking at experience in green product production, most respondents (the majority) was inexperienced, with 6 months to 1 year of experience. This was followed by 22.9% of respondents with 4–5 years of experience. Reasons for choosing this career as green entrepreneurs

were One-third of the respondents mentioned government schemes and subsidies as their main reason, some were motivated because they had passion for sustainability, while others were driven by entrepreneurial programs attended. Concerning Sources of business investment, most respondents used their own resources, with 37% using personal savings and outside funds. Just 21% relied solely on outside capital to finance their activities. The above information offers an in-depth breakdown of the demographics and motivational characteristics that shape green entrepreneurs.

Table 2*Respondents' opinions about Green Entrepreneurship*

FACTOR 1: GREEN ENTREPRENEUR		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Producing green and environmentally friendly items for consumption promotes environmental sustainability.	N	43	80	07	24	21
	%	24.6	45.7	4.0	13.7	12.0
A career in green products offers significant personal satisfaction.	N	73	85	03	10	04
	%	41.7	48.6	1.7	5.7	2.3
Government programs aimed at promoting green entrepreneurship.	N	43	80	07	24	21
	%	24.6	45.7	4.0	13.7	12.0
The green products market is highly competitive.	N	71	86	03	09	06
	%	40.6	49.2	1.7	5.1	3.4
Consumers are increasingly interested in purchasing green products.	N	56	98	07	08	06
	%	32.0	56.0	4.0	4.6	3.4

Source: Primary Data

Green entrepreneurship plays a vital role in reducing environmental pollution and enhancing overall environmental quality by adopting eco-friendly business practices, thereby supporting environmental health (Verma & Kumar, 2022). Growing green entrepreneurial activities have a positive impact on all three dimension of sustainability such as social, economic and environmental (Dhahri et al., 2021). Closely linked to sustainable business practices, green entrepreneurship is seen as an effective approach to mitigating environmental harm. It serves as a central driver for a firm's holistic development, benefiting the economy, society and the environment alike (Shafique et al., 2021).

As illustrated in the table, that 80% of the respondents agreed that the production of green products promotes environmental sustainability. Over 90% of the respondents expressed that producing green products provides a sense of satisfaction, and many concurred that government programs increasingly focus on promoting green entrepreneurship, thereby encouraging its growth. Furthermore, most respondents highlighted that green markets are highly competitive. Due to increased consumer awareness, a growing number of consumers are now concerned about purchasing green merchandise, leading to a higher demand for their production.

Table 3*Respondents' opinions about Personal Challenges towards Green Entrepreneurship*

FACTOR 2: PERSONAL CHALLENGES		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Unwavering encouragement from my family for my entrepreneurial activities.	N	55	102	03	07	08
	%	31.4	58.3	1.7	4.0	4.6
Effective communication within my team is a challenge.	N	83	71	06	05	10
	%	47.4	40.6	3.4	2.9	5.7

Challenges in offering competitive salaries and benefits to employees.	N	40	80	10	24	21
	%	22.9	45.7	5.7	13.7	12.0
Maintaining a positive workplace culture is challenging.	N	81	77	08	05	04
	%	46.2	44.0	4.6	2.9	2.3
High employee turnover is a significant challenge for my business.	N	43	80	07	24	21
	%	24.6	45.7	4.0	13.7	12.0

Source: Primary Data

Green entrepreneurs may suffer from several barriers such as still building their understanding of green technologies, dealing with high start-up and implementation costs, having limited financial resources and struggling to enter the market because of the significant expenses involved (Kaur et al., 2023). Family can provide emotional support by listening, offering encouragement, and being there when needed. Family can help with brainstorming, marketing materials, and other tasks. Finding the right talent to hire can be difficult and managing employees can be the biggest challenge.

From the above table, 89.7% of the respondents indicated that their family serves as their primary support system for entrepreneurial activities. However, with regard to team support, the majority of entrepreneurs reported challenges in establishing effective communication with their teams and offering competitive salaries to employees. Green entrepreneurs, in particular, often face issues related to high labor turnover and maintaining a positive workplace culture, which significantly contributes to their stress levels. Only about one-third of the entrepreneurs are able to offer attractive salaries and effectively reduce labor turnover in the course of their business operations.

Table 4

Respondents' opinion about Administration Challenges towards Green Entrepreneurship

FACTOR 3: ADMINISTRATION CHALLENGES		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Obtaining the necessary licenses and permits for my business was a straightforward process.	N	25	70	03	45	32
	%	14.3	40.0	1.7	25.7	18.3
The cost of regulatory compliance was manageable for my business.	N	21	80	07	24	43
	%	12.0	45.7	4.0	13.7	24.6
The tax registration process for my business was straightforward.	N	73	85	03	07	07
	%	41.7	48.6	1.7	4.0	4.0
The patenting and trademark registration process was efficient.	N	44	20	07	82	22
	%	25.1	11.4	4.0	46.9	12.6
Online registration systems were more efficient than traditional methods.	N	55	102	03	07	08
	%	31.4	58.3	1.7	4.0	4.6

Source: Primary Data

Green entrepreneurs are also challenged to do business in a complex and asymmetrical regulatory framework, including licensing, taxation, environmental regulation, and trade barriers. The challenges vary by industry, location, and firm size, causing increased costs, delays and uncertainties. These challenges tend to dampen innovation and competition in the green business.

The information provided above highlights that 54.3% of the respondents are in favour of the procedure and permissions required for getting a license, finding it an easy process, while 43% face hurdles in the process.

Furthermore, 59.5% of the respondents find it difficult to get patents and trademarks for their products, and 38.3% are concerned about the regulatory compliance costs. The majority of the respondents, nonetheless, are very satisfied with the online tax registration process.

Table 5

Respondents' opinions about Financial Challenges towards Green Entrepreneurship

FACTOR 4: FINANCIAL CHALLENGES		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Banks and financial institutions were supportive in providing loans to my business.	N	80	77	06	08	04
	%	45.7	44.0	3.4	4.6	2.3
I found it easy to keep track of my business finances.	N	43	78	09	24	21
	%	24.6	44.6	5.1	13.7	12.0
Government grants and subsidies were readily accessible for my business.	N	83	77	06	05	04
	%	47.4	44.0	3.4	2.9	2.3
The terms and conditions of business loans were reasonable.	N	30	65	07	37	36
	%	17.1	37.1	4.0	21.1	20.6
Economic conditions did not significantly hinder my business's financial stability.	N	73	88	03	07	04
	%	41.7	50.3	1.7	4.0	2.3

Source: Primary Data

Finance constraints are a key impediment to smaller SMEs, particularly in cities (Purwandari et al., 2021). Green companies have greater initial expenses, extended payback terms, and speculative returns than traditional ones. Investors are often not confident in the viability of green projects, making it difficult for entrepreneurs to acquire finance. Firms that sell green products have high revenues, increasing turnover, and are most likely to be established in industrialised nations (Vasilescu et al., 2022).

The table above discloses that 89.7% of the respondents stated that banks and financial institutions helped provide loans, whereas 91.4% reported that government grants and subsidies were easily available. Additionally, 92% concurred that their socio-economic status did not compromise their financial stability in business. Nevertheless, 71% of the respondents were dissatisfied with the terms and conditions of the loans, although they were available.

Table 6

Respondents' opinions about Marketing Challenges towards Green Entrepreneurship

FACTOR 5: MARKETING CHALLENGES		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The cost of conducting market research was reasonable and within my budget.	N	33	61	07	43	31
	%	18.9	34.9	4.0	24.6	17.7
Creating a unique value proposition for my business was straightforward.	N	73	88	03	07	04
	%	41.7	50.3	1.7	4.0	2.3
Building a strong brand identity for my business was manageable.	N	40	77	07	24	27
	%	22.9	44.0	4.0	13.7	15.4
Social media marketing was effective in promoting my business.	N	55	102	03	07	08
	%	31.4	58.3	1.7	4.0	4.6
My business received positive word-of-mouth referrals from satisfied customers.	N	83	77	06	05	04
	%	47.4	44.0	3.4	2.9	2.3

E-commerce platforms were easy to integrate into my business model.	N	43	80	07	24	21
	%	24.6	45.7	4.0	13.7	12.0

Source: Primary Data

Green businesspeople will have to fundamentally adapt their current business practices in order to gain trust and prove themselves to be committed to sustainability. People may not be conscious of the ecological footprints of their consumption, so green business people need to educate them about the environmental issues their products address. Promotion involves paid advertising, public relations, sales promotions, direct marketing and on-site promotions. Green marketers can strengthen environmental credibility by employing green marketing and communication tools and approaches.

The table above indicates that more than three-fourths of the respondents reported difficulty in developing a value proposition and establishing a strong brand image for their enterprises. Green entrepreneurs reported satisfaction with launching e-commerce websites and assistance from social media in promoting their enterprises more efficiently. Furthermore, 91.4% of the respondents overwhelmingly endorsed word-of-mouth advertising as an effective tool for business promotion.

Table 7

Respondents' opinions about Sustainable Development towards Green Entrepreneurship

FACTOR 6: SUSTAINABLE DEVELOPMENT		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Human well-being should not be improved at the cost of harming the environment.	N	10	53	68	24	20
	%	5.7	30.3	38.9	13.7	11.4
The company should protect natural resources from damage.	N	73	88	03	07	04
	%	41.7	50.3	1.7	4.0	2.3
The company should ensure a good quality of life for both present and future generations.	N	43	80	07	24	21
	%	24.6	45.7	4.0	13.7	12.0
The company should support the social and cultural development of society.	N	73	88	03	07	04
	%	41.7	50.3	1.7	4.0	2.3
The company should balance economic, social and environmental responsibilities in its operations.	N	56	98	07	08	06
	%	32.0	56.0	4.0	4.6	3.4

Source: Primary Data

Sustainability is at the centre of business strategies, essential for future success. SMEs, the backbone of economies in the majority of nations, contribute immensely to GDP and employment. With growing environmental concern, consumers opt for eco-friendly products. Green entrepreneurship addresses social and environmental challenges by providing innovative solutions. Green marketing elements such as green products, design, supply chains, and production have a positive effect on green entrepreneurship and sustainable development (Soomro et al., 2024). According to the above table, most respondents who manufacture green products believe it is the social obligation of manufacturers to produce products without harming society. A total of 92% of respondents confirmed that firms should assist in improving society's social and cultural welfare. Furthermore, a majority of respondents pointed out that production should be conducted in such a way as not to deplete the natural resources of our country. To wrap up, green product manufacturers concurred that social and ethical responsibility is the guiding principle for producers of green or environmental products.

Table 8*Descriptive statistics: Means, standard deviations, and zero-order correlations*

	Mean	S.D.		Green Entrepreneur	Personal Challenges	Administrative Challenges	Financial Challenges	Marketing Challenges	Sustainable Development
Green Entrepreneur	3.91	.857	R	1					
			Sig.						
Personal Challenges	3.97	.837	R	.750**	1				
			Sig.	.000					
Administrative Challenges	3.81	.717	R	.731**	.593**	1			
			Sig.	.000	.000				
Financial Challenges	3.91	.859	R	.851**	.762**	.540**	1		
			Sig.	.000	.000	.000			
Marketing Challenges	3.91	.749	R	.684**	.793**	.621**	.719**	1	
			Sig.	.000	.000	.000	.000		
Sustainable Development	3.81	.730	R	.695**	.865**	.654**	.677**	.663**	1
			Sig.	.000	.000	.000	.000	.000	

Source: Generated through SPSS

The statistical results, including means, standard deviations and zero-order correlations, are displayed in Table 8. The correlation matrix exhibits a significant and affirmative relation between sustainable development and the challenges faced by green entrepreneurs, such as personal, administrative, financial and marketing challenges. The preliminary analysis of the correlation matrix reveals that the highest correlation was 0.865 between sustainable development and personal challenges, followed by a correlation of 0.851 between green entrepreneur and financial challenges. The administrative challenges of green entrepreneurs were moderately correlated with an r value of 0.593.

Table 9*Regression Analysis of challenges faced by green entrepreneurs for sustainable development*

Independent Variable: Personal Challenges, Financial Challenges, Administrative Challenges and Marketing Challenges, Green Entrepreneur

Dependent Variable: Sustainable Development

Model Summary				
Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.871 ^a	.759	.752	.363

Regression Coefficient

Factors	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta	B	Std. Error
(Constant)	.689	.165		4.175	.000
Personal Challenges	.099	.073	.113	1.355	.177
Administrative Challenges	.106	.055	.104	1.936	.045
Financial Challenges	-.028	.066	-.033	-.428	.669
Marketing Challenges	-.009	.065	-.009	-.137	.892
Green Entrepreneur	.632	.060	.741	10.599	.000

Source: Generated through SPSS

Based on the analysis above, the R value of Multiple correlation of 0.871 means that the relation between the variables analysed in this study, namely the independent and dependent variables indicates a strong relationship, being close to 1. The relationship between the dependent and independent variable accounts for 75.9% of the variance.

The beta values of independent variable green entrepreneur ($\beta = 0.741$, $t = 10.599$ and $p = .000$), and self-management and administrative challenges ($\beta = 0.104$, $t = 1.936$ and $p = .045$) has highest beta coefficient. It is considered as the most significant independent variable contributing to the sustainable development of green entrepreneurship.

8. Research Findings

The study provides several findings supporting the hypotheses: Financial challenges (0.851) exhibit the strongest correlations with sustainable development, supporting the notion that these factors significantly impact green entrepreneurship (H2). Administrative challenges showed a moderate correlation ($r = 0.593$), indicating their role in affecting the growth of eco-friendly ventures (H4). The beta value for green entrepreneurship ($\beta = 0.741$) highlights its critical role in contributing to environmental sustainability (H1). While grants and loans are accessible, terms and conditions remain a barrier, pointing to financial systems needing reform to support green entrepreneurs effectively (H2).

9. Suggestions

To strengthen green entrepreneurship in India, a comprehensive approach addressing personal, administrative, financial and marketing challenges is essential. Implementing practical measures in these areas has the potential to lead to an enabling situation that promotes sustainability, innovation and economic growth.

- **Personal and Skill Development Challenges:** Aspiring green entrepreneurs often lack confidence, technical know-how and management skills. The government and educational institutions should collaborate to offer entrepreneurship and sustainability training programs. Establishing incubation

centres and online learning platform can enhance innovation and business planning especially among youth and women entrepreneurs.

- **Administrative and Regulatory Challenges:** Simplifying business registration and environmental clearance through a single-window system can reduce bureaucratic hurdles. Additionally, providing advisory and technical support can help entrepreneurs meet environmental standards efficiently.
- **Financial Challenges:** Access to finance remains a major barrier. The creation of dedicated Green entrepreneurship funds, low-interest loans and more subsidies can encourage investment in sustainable ventures. Public-private partnerships and venture capital initiatives should be promoted, along with financial literacy programs to improve financial management skills.
- **Marketing and Awareness Challenges:** Greater consumer awareness of sustainable products is needed. National campaigns, exhibitions and green fairs should frequently organised, which help to promote eco-friendly products and build market linkages. Support for digital marketing, eco-labelling will also expand customer acceptance of sustainable products.

By implementing these measures, the Indian government can create an enabling ecosystem that encourages innovation, supports sustainability and drives inclusive economic growth.

10. Conclusion

Emerging green entrepreneurs are conscious of the environmental advantages of green products, advocating for green designs, sustainable manufacturing, and green trade. Nevertheless, emerging entrepreneurs face challenges in managing the workforce, financial accessibility, regulatory adherence, and brand positioning. Government assistance and financial institutions offer help, but unattractive loan terms are an issue. Consumer perception and electronic marketing strategies,

including social media and word-of-mouth promotion, increase business exposure. The results confirm the research aims, affirming that sustainable business operations are driven by personal, financial, administrative, and marketing issues. Statistical tests support the hypotheses, showing a strong association between environmentally conscious entrepreneurship and long-term development.

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