

## Sustainable Development through Green Entrepreneurship with special reference to Uttar Pradesh

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### Abstract

*This study investigates the relationship between Green Entrepreneurship and sustainable development using convenience sampling with 50 organisations. Green Entrepreneurship has emerged as a crucial strategy for promoting environmental sustainability amidst growing concerns about ecological degradation. The findings reveal a widespread adoption of Green Entrepreneurship practices among enterprises, indicating a shift towards eco-friendly initiatives. Despite challenges such as limited government support and financial assistance, Green Entrepreneurship demonstrates positive impacts on various aspects of sustainable development. These include the creation of employment opportunities, improvement in health and education, and reduction in environmental hazards and pollution. The study highlights the potential of Green Entrepreneurship to foster sustainability and economic growth.*

**Keywords:** Green Entrepreneurship, Green initiatives, Sustainable Development

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### 1. Introduction

With the growth of environmental awareness, the concept of the green market has just emerged. Since India is developing rapidly, concerns relating to environmental protection have risen to the top of the nation's priorities. In this sense, the companies have been forced to place a greater emphasis on environmental issues as a result of having to make eco-friendly products (Sharma & Kushwaha, 2015). Credit goes to the green market and more responsible enterprises that the non-responsible enterprises have found themselves in competition with them, and this has pushed them to provide cleaner products. This seems to require a breakthrough entrepreneur that identifies and takes advantage of new market possibilities. For businesses to benefit from new concept emergence of the green market, the businesses need to emphasize environmental and societal goals as opposed to only economic benefits. The majority of researchers think that green entrepreneurship is a big part of the rise of a new industry. The creation of the green market brings about both economic growth and environmental improvement. Moreover, to

demonstrate the contamination caused by numerous industries, governments, non-profit groups, and for-profit companies a wide variety of policies, regulations, and instruments are in place to encourage firms to more environmentally responsible (Nikolaou et al., 2011). Increasing the number of entrepreneurs who are dedicated to environmental sustainability, in turn, helps to increase the number of younger graduates interested in making a name for themselves in this industry. Both profit and environmental protection can be gained through the market for green businesses. Societal recognition. As such, we might claim that it is not about everything. It is, as it were, a mixture of social and commercial activity. To help protect our natural environment, we provide a precaution. The current study is trying to emphasize how the emergence of green markets is a chance for environmental improvement. The Indian entrepreneurs working for a better environment and livelihood of the nation. The outline of the current study is to provide a theoretical overview of green entrepreneurship, a literature review in which various parameters of sustainable development it has been discovered. Further, to develop the conceptual

model for the concept and highlighting the significant implications for future research.

## 2. Objectives

- 1) To explore the term 'Green Entrepreneurship' and trending Green initiatives in India
- 2) To explore the effects of practices of Green Entrepreneurship with regard to Sustainable Development

## 3. Literature Review

### 3.1. The Concept of Green Entrepreneurship

Green entrepreneurship is a relatively new field of study, even with the overall field of green studies growing rapidly. For example, Pacheco et al. (2010) note that there are some unresolved crossroad conceptual issues from related fields like accounting, finance, entrepreneurship, and business economics. According to O'Neill and Gibbs (2016), entrepreneurs do have difficulty defining what activities qualify as green entrepreneurship. In an effort to resolve this issue, scholars have attempted on several occasions to provide a simple definition or overview of green entrepreneurship. For example, Green Project (2012) defines green entrepreneurship as actions that intentionally address social and environmental needs and problems by putting entrepreneurial ideas into practice while taking significant risks in the hopes of having a net positive impact on the environment and financial sustainability. The researchers go further to claim that a person who sets up and oversees an entrepreneurial endeavor with an emphasis on environmentally friendly processes and goods is a "green entrepreneur." Furthermore, Sunny and Shu (2017) propose that the activities of a firm or the technological line of production that it has adopted should be the basis for the definition of green entrepreneurship. Additionally, Dale (2018) characterizes green entrepreneurship as a narrative process whereby an entrepreneur secures the backing of stakeholders to achieve their goals. Research indicates that because green entrepreneurship is still in its early stages, experts have not been able to come to an agreement on a definition that would be accepted by all (Demirel et al., 2019). As per Buck Consultants (2011), sixty percent of businesses currently measure their efficiency through green programs. Of these, seventy-eight percent achieve power efficiency, two-thirds show savings on heating/cooling and

paper, and sixty percent show savings on water consumption. As a result, 69 percent of respondents overall said they are already investigating green in their various endeavors, which is an increase from the numbers from the previous year. In support of this, Khan (2015) argues that relying on "go green" when establishing a business is the only strategic way for entrepreneurs to solve the sustainability problem and ensure their long-term survival and prosperity. Moreover, the extent to which certain companies utilize marketing gimmicks, or "green-washing," to entice the unwary public to their brand, underscores the importance of green practices in expanding a brand's customer base. For example, studies (e.g., Darnall & Edwards, 2006; Yang et al., 2017) have noted that, in spite of the growing disruption of green-washing, genuine green businesses are certain to enjoy high levels of customer loyalty. Therefore, dishonest companies who portray as environmentally friendly or green in order to gain an unfair competitive advantage can only succeed in the short term. To put it another way, companies that have realized how important it is to go green are now better positioned strategically for long-term market opportunities than those that are only making out that they are incorporating green practices into their management procedures. However, it is important to recognize the difficulty that these young green entrepreneurs are facing in this area. If green entrepreneurship is to be widely accepted, then these obstacles—which include, among other things, the dearth of sufficient government support and the difficulty in evaluating funds and markets—must be addressed. Nonetheless, the determination to operate compassionate and environmentally conscious businesses provided green entrepreneurs with the resilience to overcome these obstacles. Because of their sincere intentions, they have built up a solid image as environmentally friendly companies that provide goods and services that people would be delighted to use. It appears that it is in our best interests to band together in support of the newly formed green firms that advocate for sustainability in all its forms. In other words, it is in the best interests of all stakeholders to ensure that young green-born firms survive and achieve their goals.

### 3.2. Sustainable Development

Sustainable development, along with economic growth and human development, aims to achieve continuous development that goes beyond economic development. An organizing principle of sustainable development is the preservation of finite and non-renewable resources for the benefit of future generations. The goal of sustainable development is to provide human societies with a desirable future where resources are used to meet needs without compromising the stability, beauty, or integrity of essential systems (Garg, 2015). Achieving economic and social development in a way that preserves and enhances the quality of life for people who depend on the ecosystems around them while avoiding the destruction of a nation's natural resources is known as sustainable development.

One of the goals of development, especially sustainable development, is to focus on environmental protection; therefore, sustainable development as a business challenge has always been at the forefront of policy-making over the past two decades (Hall & Leno, 2010). Sustainable development addresses structural, social, and economic mortal patterns of development in order to prevent problems such as natural resource destruction, degradation of biological systems, pollution, climate change, excessive population growth, injustice, and deterioration of quality of life in the present and future. To sum up, sustainable development refers to the utilization of resources, allocation of investments, advancement of technology, and modifications to institutions that align with the requirements of both the present and the future (Singh, 2010).

### 4. Research Methodology

There are a total of 110 green companies residing in Uttar Pradesh. These companies prioritize eco-friendly practices in their operations, products, and services, aiming to minimize their environmental footprint while maximizing positive social impact. From renewable energy firms harnessing solar and wind power to organic agriculture enterprises promoting sustainable farming practices, Uttar Pradesh hosts a diverse range of green companies across various sectors. Additionally, companies specializing in waste management, recycling, and water conservation play a crucial role in mitigating

environmental degradation and promoting resource efficiency. Moreover, eco-tourism ventures focusing on responsible travel and conservation efforts contribute to both environmental preservation and economic growth in the state. For example: Pentair works on water conservation, GreenTree Global works for solutions centred around the concept of energy efficiency, Relief Pad offers innovative, usable, eco-friendly menstrual cloth napkins, Fragrance Specialities produces India's best fragrance, etc.

This research employs a convenience sampling method to investigate the relationship between Green Entrepreneurship and sustainable development. A further study has been made by selecting 50 organizations in the state of Uttar Pradesh randomly. The questionnaire was distributed to the top-level management and middle level management, public relations officers (PROs), and related staff. The allocation of sample respondents is based on the type of business ownership, type of industry, and location (State).

### 5. Green initiatives in India

Green initiatives can generally be classified into two categories based on their outcomes:

- **Impact-reducing initiatives** – These focus on minimizing the harmful effects on the environment and helping the ecosystem recover to a manageable state. The emphasis here is on reducing damage rather than creating a fully green system. Common examples include recycling, reusing materials, and adopting practices that mitigate environmental loss.
- **Impact-enhancing initiatives** – These aim to generate positive environmental outcomes by actively promoting sustainability and driving a complete shift toward greener systems. The focus is on long-term transformation through innovation, new technologies, and eco-friendly business models. Green innovations and creative solutions are prime examples of this approach.

#### 5.1. Green Initiatives of Green (Existing) Businesses

Many major businesses in India are advancing sustainability by adopting eco-friendly technologies, practices, and products that reduce their environmental impact significantly. Here are

examples of specific green initiatives by well-known companies:

- **LG:** LG has introduced energy-efficient LED monitors (E60 and E90 series) that use 40% less power than traditional models and avoid hazardous substances such as halogen and mercury.
- **HCL:** HCL's ME 40 Notebooks are designed without harmful chemicals like polyvinyl chloride (PVC), offering improved energy efficiency compared to conventional laptops.
- **Haier:** Haier's Eco Life series features products such as washing machines, refrigerators, and air conditioners that incorporate energy-saving technologies and eco-friendly branding.
- **Samsung:** Samsung India provides eco-friendly products including LED TVs and backlights, which consume 40% less energy and exclude toxic chemicals like mercury and lead.
- **Tata Consultancy Services (TCS):** TCS has gained global recognition for developing sustainable technologies with agricultural and community benefits, such as smart solutions for resource optimization.
- **Oil and Natural Gas Corporation (ONGC):** ONGC's Mokshada crematoriums replace traditional funeral pyres, reducing smoke emissions, wood consumption (by 60–70%), oxygen use, and overall burning time.
- **IndusInd Bank:** IndusInd Bank promotes paperless banking by using electronic messages instead of paper counterfoils, helping minimize deforestation. The bank also introduced the country's first solar-powered ATM.
- **ITC Limited:** ITC has implemented a "Low Carbon Growth Plan" and cleaner production technologies, including elemental chlorine-free bleaching, benefiting local communities and reducing pollution.
- **Wipro:** Wipro has developed technology aimed at waste reduction and promoting energy savings across its operations.
- **MRF Tyres:** MRF's ZSLK tubeless tires feature silica-based rubber, which is environmentally friendly and increases vehicle fuel efficiency.
- **Idea Cellular:** Idea runs campaigns like "Use mobile, Save Paper" and leads "Green Pledge

Campaigns," encouraging widespread support for sustainable practices.

- **Tamil Nadu Newsprint and Papers Ltd. (TNPL):** TNPL has been recognized for clean development mechanism projects and its wind farm, generating significant carbon emission reductions and earning notable awards for sustainability efforts.
- **Tata Metaliks Ltd. (TML):** TML embeds green practices such as electric bikes, solar-powered canteens, and maintaining green cover within its manufacturing campus.
- **ICICI Bank Ltd.:** ICICI Bank offers Instabanking services (internet, IVR, mobile banking), funds green vehicles and homes with reduced processing fees, and promotes paperless operations for communication and transactions.
- **Other Companies:** Businesses like Godrej, ACC Cements, and Kirloskar Brothers are also recognized for adopting sustainable business models and energy-efficient technologies.

These initiatives reflect a growing commitment among India's leading companies to integrating sustainability into their business strategies and operations, contributing to the larger movement of environmental entrepreneurship.

## 5.2. Green Initiatives of Green-Green (Start-up) Businesses

Green-focused startups in India are founded with the primary objective of creating positive environmental impact and promoting sustainability, often placing profit as a secondary consideration. These "typical green entrepreneurs" design and operate their businesses to avoid any negative effects on the ecosystem, delivering innovative solutions across sectors.

### Examples of Green-Green Startups

- **Digital Green:** Digital Green is a non-profit organization that leverages technology and community engagement to improve agricultural outcomes, health, and nutrition in rural areas.
- **Waste Ventures:** Established in Delhi in 2011, Waste Ventures diverts waste from landfills, produces nutrient-rich compost, and employs waste pickers to separate and process materials safely.



- **EnCashea:** Based in Bengaluru, EnCashea offers cash incentives for segregating recyclable scrap, operates through a convenient app, and helps reduce waste by encouraging proper recycling.
- **Fourth Partner Energy:** Founded in 2010, Fourth Partner Energy facilitates the financing and installation of rooftop solar systems for residential, commercial, and industrial clients, advancing renewable energy adoption.
- **Banyan Nation:** Banyan Nation collects and recycles industrial plastic, enhancing its lifecycle by adding performance boosters and supporting closed-loop manufacturing.
- **SayTrees:** SayTrees is an organization that brings professionals together to organize tree plantation and environmental conservation campaigns, fostering urban green cover.
- **Priti International:** Priti International turns industrial and consumer waste into practical products such as furniture, lamps, and décor items, all crafted from recycled materials.
- **HelpUsGreen:** Kanpur's HelpUsGreen recycles floral waste from temples and rivers into natural products like vermicompost, incense, and bathing bars.
- **D&D Ecotech Services:** D&D Ecotech helps households and organizations adopt rainwater harvesting, tailoring recharge systems according to client needs to conserve water.
- **Feeding India:** Feeding India bridges the gap between food wastage and hunger by delivering surplus cooked food from restaurants and caterers to those in need.
- **The Living Greens:** Operating out of Jaipur, The Living Greens transforms rooftops into urban farms, promoting organic vegetable cultivation, and generating urban carbon credits.
- **Green Ventures:** Green Ventures develops technology for renewable energy projects and energy efficiency schemes, serving large-scale and rural sustainability needs.
- **Graviky Labs:** Graviky Labs innovates in carbon capture, converting air pollution such as soot and raw carbon from vehicle exhausts and chimneys into ink and paint.
- **Sustain Earth:** Sustain Earth supplies clean biogas systems to rural households, which are easy to install, monitor, and maintain, delivering affordable cooking energy.
- **Green Nerds:** Green Nerds creates solutions for litter control, waste segregation, and recycling by manufacturing equipment for scientific waste management and industrial dedusting.
- **Bakeys:** Bakeys produces edible cutlery made from jowar (sorghum) flour, eliminating the need for plastic cutlery and thus reducing plastic pollution.
- **EcoFemme:** EcoFemme, operated by women in Tamil Nadu, manufactures washable cloth pads, educates about menstrual health, and encourages eco-sustainable menstrual practices.
- **Aura Herbal:** Aura Herbal's clothing and textiles use natural dyes and herbs to create chemical-free, organic products, sourcing directly from farmers.
- **ONergy:** ONergy provides decentralized energy solutions for underserved communities, offering solar products such as solar TVs, computers, and microgrids.
- **Sarga:** Sarga manufactures eco-friendly furnishings using organic fibers like bamboo, cotton, and jute, with accessories and processes designed to be environmentally friendly.
- **HonECORE:** HonECORE produces packaging solutions and building materials that replace wood with sustainable alternatives, supporting green construction.
- **Nurturing Green:** Nurturing Green popularizes the idea of gifting potted plants in handcrafted jute pots, promoting ecological awareness.
- **Smart Air Filters:** Smart Air Filters produces affordable purifiers to combat indoor air pollution, making clean air accessible to more households.
- **Log 9 Materials:** Founded by Akshay Singhal, Log 9 Materials focuses on products for water and air purification, as well as efficient energy storage, aiming for positive environmental impact.
- **Pastiwala:** Pastiwala, based in Vadodara, specializes in collecting and recycling waste paper, helping conserve trees and reduce landfill volume.

These startups represent just a portion of the innovators leading the way in environmental entrepreneurship across India, with each contributing distinct solutions for a more sustainable future.

## 6. Findings

The study reveals that almost 90% of the enterprises surveyed have some form of access to Green Entrepreneurship practices, indicating a widespread adoption of eco-friendly initiatives. Additionally, approximately 78% of respondents acknowledge the presence of knowledge and awareness about Green practices among employees, suggesting a high level of environmental consciousness within these enterprises. However, around 22% of respondents disagree or express uncertainty about the employees' awareness, indicating a need for further improvement in this area. Furthermore, approximately 63% of respondents believe that the Green practices undertaken by their enterprise are innovative and unique, while about 33% disagree, suggesting that there is still room for improvement in making these practices more distinctive. The data also indicates that the customer base of enterprises practicing Green Entrepreneurship is growing significantly, with a combined mean score of 3.50, reflecting the positive impact on market presence and customer acquisition. Regarding government support, approximately 62% of respondents report receiving some form of assistance, although this positive response rate is not significantly higher than negative responses. Limited operational problems are faced by the enterprises, indicating higher adaptability to environmental changes. Moreover, approximately 85% of respondents acknowledge the presence of training and awareness programs related to Green Entrepreneurship practices within their enterprises. The study also highlights numerous opportunities in the market for Green Entrepreneurship practices, with a combined mean score of 3.35, indicating a ripe market for eco-friendly products and practices. Additionally, the data shows that employers/owners of these enterprises are highly motivated towards Green Entrepreneurship, with a combined mean score of 2.78, indicating a strong commitment to delivering environmental benefits. The analysis reveals that approximately 45% of responses indicate that

financial assistance is not readily available, while approximately 33% suggest that it is accessible. This indicates a lack of universal availability of financial support for enterprises practicing Green Entrepreneurship. Moreover, a significant proportion (approximately 22%) of respondents admitted to a lack of knowledge regarding the availability of financial assistance. The combined mean score of 2.66 suggests that many employees perceive Green Entrepreneurship as merely a Corporate Social Responsibility (CSR) practice rather than a genuine effort toward environmental improvement. This indicates a need for correcting this perception to foster greater motivation toward eco-friendly practices.

The analysis also reveals several key findings regarding the impact of green entrepreneurship practices on various aspects of sustainability. A combined mean score of 3.20 indicates a significant level of employment opportunities created by green entrepreneurship, contributing positively to sustainable development. Internal policies and organizational complexity have a limited negative effect on green entrepreneurship activities, with a combined mean score of 2.45, suggesting minimal hindrances to green practices within organizations. Green practices have significantly improved overall health, education, and awareness regarding environmental issues, as evidenced by combined mean scores of 3.98, 3.75, and 3.44, respectively, contributing to sustainability efforts. Additionally, green entrepreneurship activities have helped reduce the possibility of natural hazards and pollution, as indicated by combined mean scores of 3.44, 3.79, and 3.68, respectively, enhancing environmental sustainability. Responsible management of natural resources under green entrepreneurship initiatives, with a combined mean score of 3.72, further supports sustainable utilization. Despite these positive impacts, there is uncertainty regarding the effect of green entrepreneurship on local populations, with approximately 52% of negative responses and 16% of "Don't know" responses suggesting limited clarity. However, a combined mean score of 3.37 indicates a significant strengthening of the financial position of enterprises practicing green entrepreneurship, contributing to sustainability efforts. Moreover, green entrepreneurship has positively influenced trade

relations (combined mean score of 3.23) and consumption and production patterns (combined mean score of 3.58), further promoting sustainable development.

## 7. Conclusion

Most businesses are actively engaged in Green Entrepreneurship, with employees demonstrating a strong awareness of these initiatives, often bolstered by training programs. Owners and employers exhibit positive motivation and substantial investment in Green practices, benefiting from a growing market for eco-friendly activities. However, the effects on production and sales vary depending on the efficiency of implementation. While Green Entrepreneurship may offer a competitive edge and enhance reputation, operational challenges persist and require management. Additionally, there is a perception of limited government support and financial assistance, hindering further progress. Moreover, the prevalent view of Green Entrepreneurship as primarily a Corporate Social Responsibility practice underscores the need for a shift towards genuine environmental commitment. Addressing challenges related to financial assistance, perception, and operational issues is crucial to fully realizing the potential benefits of Green Entrepreneurship for both the environment and the economy. Despite challenges, the overall interpretation suggests that Green Entrepreneurship leads to sustainable development at the enterprise level, benefiting both the enterprise and the environment. Thus, Green Entrepreneurship is deemed highly beneficial for enterprises and the environment, enhancing sustainability across various dimensions.

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