

## The Challenges and Opportunities for Green Entrepreneurship in India

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### Abstract

At present, the world is at a crossroads where environmental degradation and climate change are pushing economies to adopt green solutions. Green Business or sustainable business focus on technologies that promote sustainability, reduce resource consumption, and minimize waste. India, with its growing economy and commitment to green goals, has become an important place for startups that aim to tackle environmental challenges while driving economic growth.

Green entrepreneurship means to the creation and management of businesses that focusing environmental sustainability alongside profitability. These ventures focus on minimizing environmental impact through eco-friendly practices, sustainable resource usage, and innovative solutions that address ecological challenges. In India, the push towards green entrepreneurship is gaining momentum due to growing awareness of stakeholders, customers, environmentalists and governmental incentives aimed at promoting sustainable development. In the rapidly evolving business landscape of India, entrepreneurs are shifting their focus towards environmental sustainability. Thus, Green entrepreneurship, a rising trend, goes beyond profit margins, aiming to integrate economic activities with ecological well-being. This article explores how sustainable business practices can transform new ventures in India, highlighting the benefits, challenges, opportunities, strategic approaches, and the various governmental initiatives and incentives available to the aspiring green entrepreneurs.

## **PRELUDE**

According to The International Labour Organization (ILO) definition of the term Green entrepreneurship is “green enterprises are those that address climate change and/or have a positive environmental value either through the process of delivering products/services (e.g., utilizing clean technologies) or by providing products or services in a green sector (e.g., waste management). As noted by the ILO, “usually, green entrepreneurs consider both aspects in their business models, creating additional decent employment through the use of more environmentally friendly processes, while reducing the overall environmental impact as a result of people or companies using the final product or service.”

Hence, Green entrepreneurship simply refers to the creation and management of businesses that prioritize environmental sustainability along with profitability. These endeavors focus on minimizing environmental impact through eco-friendly practices, sustainable resource usage, and innovative solutions that address ecological challenges. In India, the push towards green entrepreneurship is gaining momentum due to growing pressure to curb emissions, awareness among environmentalists, customers, socialist, and governmental incentives aimed at promoting sustainable development.

To put into in a different way "Green" or sustainable businesses (aim to) have a minimal negative impact or potentially a positive effect on the global or local environment, and business modality can be adopted to support these objectives. Thus, a sustainable business participates in green activities to ensure that all its processes, products, and manufacturing activities adequately taken care of current environmental concerns while maintaining a profit. In other words, it is a business that "meets the needs of the present world without compromising the ability of future generations to meet their own needs."

India is now the world's most populous country, boasting 1.45 billion citizens. With a median age of just 29 years, and is set to add 133 million people to its working-age population by 2050. Mass scale employment generation is important to engage this young population productively, and to drive inclusive growth. Further," The economic survey 2023-24 major highlights with regard to Green business are 1. The focus will be on bottom-up reforms, job and skill creation, MSME development, green transition, and addressing inequality. 2. India energy needs are projected to grow 2 to 2.5 times by 2047, with significant progress in renewable energy and emissions reduction.

MrChandrajit Banerjee, Director General, CII said, "India stands at a unique juncture where its demographic dividend presents a tremendous opportunity to propel economic growth and social transformation. Employment generation is a critical pillar in this journey." But creation of employment initiative possible not only through enhancing the number of entrepreneurs to venture into the small and medium scale businesses but also increasing the Corporate initiative to keep environmental sustainability by starting green business practices.

The Brundtland Report emphasized that sustainability is a three-legged stool of people, planet, and profit. Sustainable businesses within the supply chain try to balance all three through the triple-bottom-line concept—using sustainable development and sustainable distribution to affect the environment, business growth, and society. In general, a business is described as green if it matches the following four criteria:

1. It incorporates principles of sustainability into each of its business decisions.
2. It supplies environmentally friendly products or services that replace demand for no green products and/or services.
3. It is greener than traditional competition.
4. An enduring commitment to environmental principles in business operations.

### **Field of Green Energy Business**

Field of Green or Sustainable Energy Business Ventures: 1. Low Carbon Energy. 2. Land and Ocean Management 3. Transportation. 4. Water and Waste Management. 5. Build Environment. 6. Sustainable Forestry. 7. Waste Management. 8. Circular Economy. 9. Disaster Management. 10. Renewable Energy. 11. Cleaner fuels. 12. Eco Tourism.

### **Forms of Sustainable Business Practices**

Businesses can adopt a wide range of green business practices. One of the most common examples of a "green" business practice is the act of "going paperless" or sending electronic correspondence instead of paper when possible. On a higher level, examples of sustainable business practices include: refurbishing used products (e.g., tuning up lightly used commercial fitness equipment for resale); revising production processes to eliminate waste (such as using a more accurate template to cut out designs), and choosing nontoxic raw materials and processes. Sustainable business leaders also take into account the life cycle costs for the items they produce. Input costs must be considered regarding regulations, energy use, storage, and disposal. Designing for the environment (DFE) is also an element of sustainable business. This process enables users to consider the potential environmental impacts of a product and the process used to make that product. Some companies have resorted to "greenwashing" instead of making meaningful changes, merely marketing their products in ways that suggest green practices.

### **Benefits of Sustainable Business Models**

1. **Market Differentiation:** Sustainable business models allow new ventures to stand out in a competitive market. Consumers are increasingly favoring brands that demonstrate a commitment to environmental endeavor. By adopting green practices, businesses can attract a loyal customer base that values sustainability.
2. **Cost Savings:** Implementing sustainable practices often leads to cost savings in the long run. Energy-efficient operations, waste reduction, and resource optimization can

significantly lower operational expenses. For instance, utilizing renewable energy sources can reduce electricity costs, while efficient waste management can decrease disposal fees.

3. **Regulatory Compliance:** As governments tighten environmental regulations, businesses that proactively adopt sustainable practices are better positioned to comply with these laws. This not only avoids Carbon tax but also enhances the company's reputation as a responsible corporate citizen.
4. **Access to Funding and Incentives:** There is a growing pool of Impact investors interested in funding sustainable ventures. Additionally, governments and international organizations offer grants, subsidies, and tax incentives to businesses that prioritize sustainability. These financial benefits can be availed for new ventures seeking to establish themselves in the market.

**Challenges:** The main challenges faced in the sustainable business practices implementation by entrepreneurs in India include lack of skilled personnel, technological challenges, socio-economic challenges, organizational challenges and lack of proper policy framework.

- a) **Limited access to finance:** It is reported that limited access to finance or growth capital is the main challenge facing green entrepreneurs in India. However, the issue does not appear to be the lack of financial support providers namely, investors rather this challenge reflects a mismatch in the type of capital available and the needs of many green entrepreneurs. Therefore, many service-oriented and hardware-based green SGBs have had a particularly challenging time securing funding. There is a mismatch between supply and demand for capital. The primary issue with access to finance is not a lack of investors but rather a lack of available capital for green entrepreneurs in their earliest stages.
- b) **Non - familiarity with green business models:** Many financiers have a limited understanding of green business models, increasing the risk-aversion of potential investors in green entrepreneurship and the collateral requirements of banks. Commonly investors are more experienced in dealing with software companies that have a clear growth path and history of profitability. However, many green SGBs, particularly those addressing adaptation, require significant up-front investment and R&D resources to reach the point of profitability. Yet another challenge was a limited number of green business models which are perceived as investment ready by financiers. This points towards a need for ESOs to support enterprises providing innovative solutions which tackle climate challenges but do not have the expertise to develop investment ready business models.
- c) **Limited collaboration between stakeholders and policymakers** Limited collaboration between stakeholders was a top challenge for green entrepreneurs in India. And an unsupportive policy environment as a key challenge.
- d) **Fragmented Policy of the Government:** There is a need for more policy considerations for green SGBs. Existing policies are fragmented and do not adequately address the challenges that green businesses face, especially those in their earliest stages. Large

corporations and small entrepreneurs face different challenges; hiring and retaining the right talent and paying levies to comply with government regulations can be more burdensome to earlier-stage ventures than to businesses operating at scale. There could be more support extended to the private sector, for example by reducing subsidies on products which are in direct competition with those of green SGBs or leaning more heavily on private enterprises for the provision of services where possible.

- e) **Lack of collaboration between stakeholders:** There is a need for stakeholders to collaborate strategically, bringing together their collective strengths towards greater impact, such as happened in the off-grid renewable energy sector with the establishment of the Clean Energy Access Network a decade ago. Equity being the most common form of financing offered by support organizations does not mean that more SGBs are financed by equity deals than any other forms of financing.
- f) **Collaboration to improve policies for green enterprises**As of now, there are multiple policies working in a fragmented manner to develop and improve the ecosystem at different levels. Central and state nodal agencies can work in coordination to implement these policies and programmes. This can be done by identifying government schemes and programmes with specific sector focus. Also an implementation cell can be formed to oversee monitoring and implementation, mobilize resources, and ensure coordination among different government departments.
- g) **Lack of Tools and support for Impact Measurement and Management (IMM)** As more financiers and donors seek to measure the environmental impact of their investments, the demand for quality IMM has increased. However, many green entrepreneurs do not have the human or financial resources to conduct quality IMM and need support to integrate IMM systems into their operations. Entrepreneurs often lack the know-how to conduct IMM, and many support organizations also do not have in-house human resources and expertise to support entrepreneurs adequately in building out IMM systems. Measuring impact is especially challenging for climate change adaptation as most tools are designed for mitigation, for which there are common indicators and methodologies for measurement. Climate adaptation metrics also need to account for indicators that bear importance locally.
- h) **Requirement of High Initial Investments:**Developing and deploying green technologies can be capital-intensive. The entrepreneurs are facing problems to mobilization of large scale investment. Many organizations concerned about the environmental impact of their business are taking initiatives to invest in sustainable business practices. But the investment in sustainable business needs more funds and the Union Government incentives are not sufficiently meet the growing needs of entrepreneurs.
- i) **Market Level Changes:**Businesses trying to implement sustainable business need to have insights on balancing the social equity, economic prosperity and environmental quality elements. Educating consumers and stakeholders about the benefits of sustainable products and practices is essential. Without adequate environmental awareness, the market

for green products may remain limited, impacting the business's growth potential. Educating consumers about the benefits of adopting green technologies remains a significant challenge.

- j) **Changes in the Existing Business Model:** If an organization's current business model is inherently unsustainable, becoming truly sustainable requires a complete makeover of the business model (e.g. from selling cars to offering car sharing and other mobility services). This can present a major challenge due to the differences between the old and the new model and the respective skills, resources and infrastructure needed.
  - k) **Technological Challenges:** Invention of new mode of manufacturing and technological upgradation requires technically skilled workforce. But in India of late platform workers and digital workers are enhancing but engineering focus is less and this will be a big challenge for sustainable business endeavor.
  - l) **Organisational Challenges:** Organizational challenges to the implementation of sustainable business activities arise from the difficulties associated with the planning, implementation and evaluation of sustainable business models. It need to begin by analyzing the whole value chain of the business rather than focusing solely on the company's internal operations.
  - m) **Inappropriate Policy Framework and Regulatory Hurdles:** Another major challenge is the lack of an appropriate policy framework for sustainable business. Companies often comply with the lowest economic, social and environmental sustainability standards.
  - n) **Supply Chain Issues:** Establishing a sustainable supply chain can be challenging. Finding suppliers that adhere to green practices and ensuring the sustainability of raw materials can complicate the logistics for new businesses.
- Despite these challenges, Green business in India are thriving due to their resilience, innovation, and commitment to sustainability.

### **Opportunities**

- a) **Utilizing Corporate Social Responsibility (CSR) Funds:** In India, the Companies Act, 2013 mandates that certain companies spend at least 2% of their average net profits on CSR activities. This requirement opens a significant avenue for funding green projects through CSR funds.
- b) **Aligning Projects with CSR Goals:** To tap into CSR funds, green entrepreneurs should design projects that align with the CSR objectives of potential corporate partners. Projects focused on environmental sustainability, renewable energy, and waste management are highly attractive to companies looking to fulfill their CSR obligations.
- c) **Building Partnerships:** Developing partnerships with corporations can provide access to CSR funds. Entrepreneurs should engage with CSR departments of large companies, presenting their green projects as viable solutions to meet CSR goals while also delivering tangible environmental benefits.

- d) **Leveraging CSR Networks:** Participating in CSR forums and networks can help green entrepreneurs connect with companies that have active CSR programs. These platforms often facilitate collaborations between businesses and startups, providing a channel for funding and support
- e) **Focus on Innovation:** Innovation is at the heart of green entrepreneurship. Developing innovative technologies, products, or services that address environmental challenges can create significant market opportunities. For example, startups focusing on waste-to-energy solutions, sustainable agriculture, or eco-friendly packaging can capture niche markets and drive growth.
- f) **Partnerships and Collaborations:** Building partnerships with like-minded organizations can enhance a green venture's capabilities. Collaborating with NGOs, research institutions, and other businesses can provide access to resources, knowledge, and networks essential for implementing sustainable practices.
- g) **Consumer Engagement:** Engaging with consumers to build awareness and trust is crucial. Transparent communication about the environmental impact of products and the company's sustainability efforts can build a loyal customer base. Utilizing social media and digital marketing can effectively reach and educate a broader audience.
- h) **Sustainable revenue opportunities:** According to the Department for Business, Innovation and Skills the UK green economy will grow by 4.9 to 5.5 percent a year by 2015, and the average internal rate of return on energy efficiency investments for large businesses is 48%. A 2013 survey suggests that demand for green products appears to be increasing: and to customers are buying sustainable products. Furthermore, sustainable business practices may attract new talents and generate tax concessions.
- i) **An increasing number of financiers focused on green start-ups** Of late, there is a presence of Impact Investors and they focus their attention to the Green business models. The Indian government has introduced several initiatives to promote sustainability and green entrepreneurship. These programs offer financial and technical support to green ventures, making it easier for new businesses to adopt sustainable practices.**Entrepreneurs leading the way in sustainable business endeavor can make use of the following opportunities offered by the Union and State Government. These opportunities are listed below:**

#### **Central Government Initiatives**

1. **CIP's Green Entrepreneurship Council:** As part of India's premier business association, CII GBC is at the epic-center of this narrative, supporting and amplifying the voices of green trailblazers and collectively scripting a story of sustainable prosperity for the nation. It's Green Entrepreneurship Council (GEC) emerges as a crucial catalyst, addressing critical needs to bridge the gap between groundbreaking clean-tech concepts and their widespread implementation by emphasizing on lowering the cost of customer acquisition and bolstering brand positioning. The Council works toward accelerating the



growth of startups by cultivating an interactive ecosystem that brings together innovators, implementers and mentors.

## **2. Accelerating Clean-tech Enterprises**

3. The Acceleration of Clean-tech Enterprises (ACE) program of CII's Green Entrepreneurship Council is a unique initiative that offers tangible benefits to entrepreneurs and building stakeholders, including access to upcoming innovative technologies, enhanced market competitiveness, triple bottom line impact and the opportunity to develop tailored solutions for organizational needs.
4. **National Solar Mission:** Launched under the National Action Plan on Climate Change, this initiative aims to promote the use of solar energy for power generation and other applications. The mission provides subsidies and incentives for the installation of solar panels and other solar energy projects.
5. **Startup India:** This initiative aims to build a strong ecosystem for nurturing innovation and startups in the country, including those focusing on green and sustainable technologies. Benefits include tax exemptions, simplified compliance, and access to a dedicated fund for startups.
6. **Green India Mission:** Part of the National Action Plan on Climate Change, this mission focuses on protecting, restoring, and enhancing India's diminishing forest cover. It supports afforestation and eco-restoration projects that can be integrated into green business models. International Mobility Authority under the Ministry of External Affairs could facilitate G2G collaborations for helping Indian youth tap the overseas employment opportunities. The authority could also work with the Ministry of Skill Development and Entrepreneurship to help develop skill development programs aligned with global opportunities. In addition to technical skills, the programs should also include cultural training, and foreign language skills. Government initiatives like the National Green Hydrogen Mission and subsidies for renewable energy projects are providing a conducive environment for GreenTech innovation. GreenTech startups in India have seen a surge in funding as investors increasingly prioritize sustainability. Venture capitalists and angel investors are drawn to the long-term impact and profitability of these businesses. Funding trends indicate a growing interest in startups that focus on renewable energy, carbon capture technologies, and sustainable agriculture, aligning with global sustainability goals.
7. **State Government Initiatives**
8. **Maharastra State Innovation Society (MSInS):** MSInS offers financial support and incentives for startups focusing on sustainability and green technologies. The society provides grants, mentorship, and incubation support to green entrepreneurs.
9. **Kerala Startup Mission (KSUM):** KSUM supports green startups through various initiatives, including seed funding, innovation grants, and access to technology labs. The mission promotes sustainable entrepreneurship through its network of incubators and accelerators across the state.



10. **Gujarat Clean-tech Innovation Fund:** This fund aims to promote clean technologies and sustainable development in Gujarat. It provides financial support to startups and SMEs working on innovative solutions for renewable energy, water conservation, and waste management. Further, there is an institutional setup in the private sector to promote the Green Business practices in India. They facilitate to start and implement the sustainable green business. Entrepreneurs one who wish to start the green tech or sustainable energy outfit can approach the following agencies/institutions to formulate and implement the green business.

**I. For Renewable Energy Solutions: Startups are increasingly focusing on solar, wind, and biogas technologies to provide clean energy alternatives. In this respect the following institutions can help to the entrepreneurs.**

**a. Log9 Materials:** is revolutionizing the **renewable energy** space with advanced aluminum fuel cells and sustainable energy storage solutions. Their innovative battery technology is designed to make electric vehicles more efficient and eco-friendly.

**b. Chakr Innovation:** specializing in reducing air pollution, Chakr Innovation has developed devices that **capture emissions from diesel generators**. Their ground breaking technology converts these pollutants into usable ink, addressing two problems simultaneously

**c. Oorjan Cleantech:** Oorjan is a leading player in the solar energy sector, providing easy access to **solar power solutions** for homes and businesses. Their platform combines technology with financing options to encourage solar adoption in urban and rural areas.

**d. Ecozen Solutions:** Ecozen focuses on sustainable agriculture through innovative **cold chain solutions** powered by solar energy. Their energy-efficient products have transformed agricultural supply chains while reducing dependency on fossil fuels.

**e. Kheyti :** Aiming to support small-scale farmers, Kheyti has introduced the 'Greenhouse-in-a-Box,' an affordable and **efficient farming solution**. This technology not only increases crop yields but also minimizes water usage, addressing critical agricultural challenges.

**II. For Circular Economy:** Innovations in recycling and waste management are driving a shift toward a circular economy, reducing resource consumption.

**a. Carbon Masters:** Carbon Masters works towards **reducing food waste and converting organic waste** into clean energy and bio-fertilizers. Their innovative biogas systems are helping industries and households reduce their carbon footprint.

**b. Blue Planet Environmental Solutions:** Blue Planet focuses on **waste management and recycling** by leveraging technology to convert waste into valuable resources. Their holistic approach to managing industrial and municipal waste contributes significantly to sustainability.

**III. Affordable Sustainability:** GreenTech startups are designing solutions that are both eco-friendly and cost-effective, encouraging adoption among diverse consumer groups.

a. **AtherEnergy**Ather Energy is redefining urban mobility with its electric scooters and charging infrastructure. Their focus on sustainable design and advanced battery technology has made them a prominent GreenTech startup in India.

IV. **AI and IoT Integration:** AI-driven platforms and IoT devices are enabling efficient energy management and real-time monitoring of environmental parameters.

a.. **Greene Robotics:** Greene Robotics focuses on sustainable urban living by providing AI-powered energy management systems. Their products enable cities and communities to reduce energy consumption and achieve sustainability goals.

b. **ZunRoof:**ZunRoof specializes in smart solar rooftop solutions for residential and commercial buildings. Their IoT-based platforms optimize energy consumption, making solar energy adoption seamless and cost-effective.

## II. CONCLUSIONS

This article presents a comprehensive view of the Green business or sustainable energy. It highlights the challenges to be faced by the green business entrepreneurs, opportunities are available and current facilities available to the green business entrepreneur's. India aims to achieve sustainable economic growth while meeting its climate commitments. The success of these efforts will depend on continued government support, international cooperation, and the active participation of all stakeholders in the journey towards a sustainable energy or green business in future.

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