



**Green Entrepreneurship and Transformative Change Towards Green Economy:
Challenges and Prospects
(A Study of selected Manufacturing and Service Sector Enterprises in Karnataka)**

***M. V. Shruthi**, Assistant Professor,
Haranahalli, Ramaswamy Institute of Higher Education, Hassan – 573 201 Karnataka.
shruthimallipatna@gmail.com

ABSTRACT

Green entrepreneurship is connected with the idea of green economy oriented at increase in social welfare, social justice, at the same time reducing environmental risk and ecological problems. The main reason behind the emergence and development of the concept of green economy is the movement towards a more integrated and comprehensive approach to incorporating the environment in economic processes. This concept is aiming at increasing the economic activities keeping in mind the climatic problems and deficiency in natural resources, mainly through resource and energy efficient technological innovations. A green economy is one where economic growth is accompanied by reduced carbon emissions and pollution, enhanced energy and resource efficiency, and maintained ecosystem services including biodiversity. Such an economy could address important global economic and development issues. In this regard the proposed study aims at understanding the challenges and opportunities of the green entrepreneurship by identifying and analyzing the critical factors influencing green entrepreneurship in transformation towards sustainable development of green economy. The study also intends to examine the green strategies adopted by the existing entrepreneurs and starts up in the selected manufacturing sectors.

Introduction

“Green entrepreneurship is the activity of consciously addressing an environmental/social problem/need through the realization of entrepreneurial ideas with a high level of risk, which has a net positive effect on the natural environment and at the same time, is financially sustainable.” The terms “green entrepreneurship, “eco entrepreneurship” and “ecopreneurship” are used interchangeably, although they have a slight difference. Green business is environmentally, socially and economically sustainable, as it draws upon a holistic approach, hence it is assumed that the three terms can be used interchangeably.

Most authors mention the following characteristics as inherent to green entrepreneurs: They act as entrepreneurs, realizing ideas with a high level of risk

- They have strong internal motivation related to a heightened sensitivity to environmental problems
- They address an environmental/social problem/need consciously and this is at the core of their business activity



- Their business activities have a net positive effect on the natural environment and at the same time they are financially sustainable
- They consciously strive to contribute to a more sustainable future, contributing both with their social and environmental values

The concept of Green entrepreneurship should be known by every manager top executive and every entrepreneur and adopt in their daily business life. The world is moving towards green telling us the importance of creating environmental conscience in various fields, from past two decades. The companies and the government have to take initiatives in going green and framing green policies for a sustainable green economy. It is just about taking action to address the problem in the day-to-day activities of the companies. It can be as simple and creative, like recycle and reuse of materials to more complex or advanced in using techniques of reducing emissions of gases or wastes on production or using cleaner energy from the renewable sources.

There are instances of companies taking actions to become “greener” and friendly environment. Many governments are also creating laws and policies to create awareness and consciousness among entrepreneurs. Efforts are also being put by the non-profit organizations by telling people that they can help reduce the problems, by purchasing goods and services from those companies which create policies that are eco-friendly.

When we speak about Green Economy, the most suitable definition is given by United National Environmental Programme: “A green economy is one where economic growth is accompanied by reduced carbon emissions and pollution, enhanced energy and resource efficiency, and maintained ecosystem services including biodiversity. Such an economy could address important global economic and development issues. These are support of economic growth while decoupling it from increasing use of natural resources; mitigation and adaptation to climate change; creation of employment, promotion of the Millennium Development Goals, and poverty eradication. The green economy concept is not uncontested. One reason for this is the fact that the development agendas of industrialized, transition, and developing countries differ considerably. Industrialized countries are mainly concerned with overcoming the economic crisis, creating jobs, and addressing climate change. Transition countries have increased investment in energy-efficient economies, but their growth targets may outweigh these efforts. Green economy in developing countries is mainly linked to poverty, social security, and food security. Achieving a global green economy will require harmonizing these agendas, and the concept itself.”

Green entrepreneurship is connected with the idea of green economy oriented at increase in social welfare, social justice, at the same time reducing environmental risk and ecological problems. The main reason behind the emergence and development of the concept of green economy is the movement towards a more integrated and comprehensive approach to incorporating the environment in economic processes. This concept is aiming at increasing the



economic activities keeping in mind the climatic problems and deficiency in natural resources, mainly through resource and energy efficient technological innovations.

Literature Review

1. Ali Ozgur Karagulle, in his paper “Green business for sustainable development and competitiveness: an overview of Turkish logistics industry” explains the green business practices in logistics and how green business is a tool for sustainable development and competitiveness. He says that Turkish logistics companies focus on environmentally friendly operations to reduce cost and they have quality management systems to meet the standards. They have an active role in environmental protection, waste management and energy efficiency by framing environmentally friendly strategies for long term, sustainable development.
2. Ashish Sharda, Abhishek Goel, Ankit Mishra, Satish Chandra, in their article “Green Entrepreneurship in India: Global Evaluation, Needs Analysis, and Drivers for Growth”, they have studied the positive and negative aspects of starting and operating a green business. They have analysed the rigid procedural requirements encountered by the entrepreneurs in starting a green venture. They have also highlighted the opportunities for FDI in green sector in India and government, university and corporate contribution. They have critically analysed the government regulations and procedures encouraging the green entrepreneurship.
3. Dr. Mrudula Trivedi (2015), in her article “The New era of ecopreneurs: Case Study of Mitti Cool”, says that the two pillars - Limited natural resource and desire for healthy life drives ecopreneurs. She discuss on the issues like energy and resource use efficiency and maximization, service related to protection of ecosystem and natural resources, natural step principles, eco-efficiency and eco-effectiveness, the ecopreneurs must have the ability to innovate and work in adverse conditions and make use of effective networking and marketing strategy.
4. Nelson Oly Ndubisi, Sumesh R. Nair, in their article, “Green Entrepreneurship and Green Value Added: A Conceptual Framework”, discuss the conceptual framework in two models – GVA (Green Value Added) system model and GVA process model, which depicts the details of development of GVA and its value addition to stakeholders and natural environment and its process. Green inbound logistics, green operations, green outbound logistics, green marketing and sales, green services are discussed for better understanding of green value addition. Internal support activities like green infrastructure development, green human resource management, green technology adoption and green procurement is discussed as a primary business activities which have a wide impact on green performance. They also show that external support activities like economic conditions, NGO partnership, public support and governmental policy is also powerful in supporting the growth of green entrepreneurship and GVA.



5. Robert Isaak, in his book “Green Logic – Ecopreneurship, Theory and Ethics” has narrated the Eco-Theories and Government Regulation towards Ecopreneurship. He says that global trends towards privatization and corporate restructuring have created pace for ecopreneurs to advance their technology and make arrangements in such a way that it balance the ecology and business. He has analysed the case of Germany in assuring the environmental responsibility of business with starts up and opines that the thrust should be towards eco-efficiency system transformation to create new green businesses and receive EMAS certification.
6. Satrajit Dutta, in his article “Green Economy- in the context of Indian Economy”, opines that environmental sustainability is becoming a growing challenge along the India’s projected growth trajectory and thus, a low-emission, resource-efficient greening of the economic strategy is needed. It may come at a slightly higher price tag for the economy but it promises to deliver greater benefits with decrease in carbon emissions rates, poverty levels and greater local environmental protection.
7. Sharma N K and Kushwaha G S, in their article “Emerging Green Market as an opportunity for Green Entrepreneurs and Sustainable Development in India”, says that the consumers are now health and environment conscious, and because of this the concept of green product and green marketing are emerging. They have discussed the green marketing concepts and philosophies and Indian market scenario for entrepreneurs. They suggest that managers and practitioners has to understand the opportunities emerging in the field of green marketing and there is a need of much more focus on green market, green entrepreneurship for sustainable development.

Objectives of the Study

The primary objective of the present study is to understand the challenges faced by the entrepreneurs in going green and their contribution towards sustainable economic development. Specifically, the study pursues the following objectives:

1. To identify and analyse the critical factors influencing the green entrepreneurship transformation towards sustainable development of green economy
2. To examine the extent of adoption of green strategies by the entrepreneurs across the selected manufacturing sector enterprises.
3. To understand the challenges and opportunities of the manufacturing enterprises towards green entrepreneurship
4. To examine the implications of green entrepreneurship for sustainable development of green economy.

Methodology

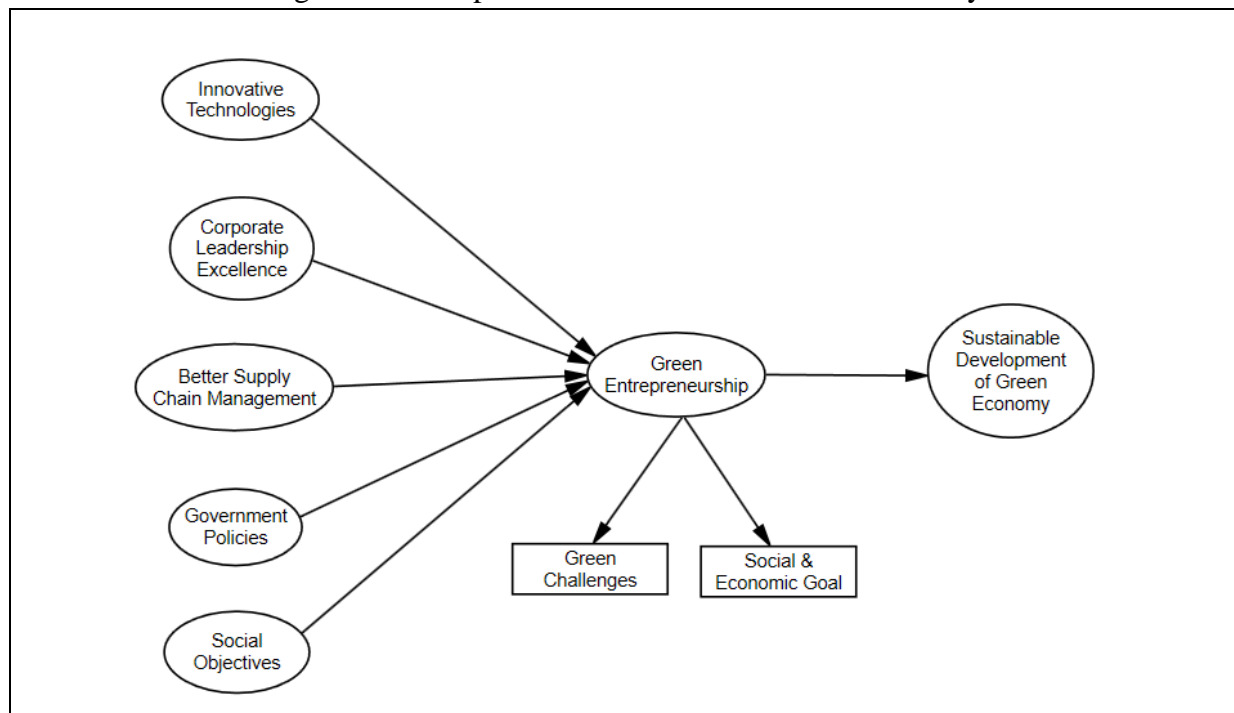
The approach consists of theory building by reviewing the literature and examining the gaps and limitations. The researcher will conduct a structured questionnaire with the expertise

for quantitative information as well as structured, focused group interviews with the expertise for qualitative information. The participants for the interview will be selected based on structured snowballing and random sampling. As far as statistical technique is concerned, basically Structural Equation Model (SEM) approach is considered. However, this model has been customised to the need of the present research study.

Conceptual Framework

Review of literature reveals that most studies on sustainability, green industry, green marketing, green consumers, green brands etc. have been conducted in developed countries and very few of them have been done from developing countries and especially from emerging economies like India. In India studies have been conducted on green marketing, green consumers and green product. Very few studies have been done on green entrepreneurship transformation towards green economy for sustainable development. On the basis of the study of literatures and identification of various significant ingredients, a conceptual model has been proposed. Figure 1, represent the conceptual model.

Figure 1: Conceptual Framework of the Research Study



Based on the above conceptual framework, the following Hypotheses are formulated:

- H₁: *Implementation of innovative Technologies* has a significant influence/impact on greater opportunities for green entrepreneurship.
- H₂: *Better corporate leadership excellence* has a significant influence/impact on greater opportunities for green entrepreneurship.



- H₃: *Better supply chain Management system* results in greater opportunities for green entrepreneurship.
- H₄: *Better Government Policies* has a significant influence/impact on greater opportunities for green entrepreneurship.
- H₅: *Social Objectives* has a significant influence/impact on greater opportunities for green entrepreneurship.
- H₆: *A greater opportunity for green entrepreneurship* has a significant influence/impact on Sustainable Development of Green Economy.

Research Methodology

The research survey questionnaire for the present research was designed based on literature reviews. In the present study, a total of 28 Likert based questions were designed asking the respondents to rank their importance of agreement on a scale of 1 to 5 with '1 Strongly Disagree' and '5 as Strongly Agree'. As far as data collection is concerned, a total of 150 respondents were interviewed through a structured online questionnaire from randomly selected respondents working in manufacturing and service sectors.

Descriptive Statistics

A sample of 15 manufacturing and service-based industries functioning in Bengaluru, Managlore and Hubli cities of Karnataka was selected. Among them, 60 % of industries were under manufacturing sector while 40% of them are into service sector. With respect to Capital Investment & Annual Turnover of the organization, 83 % of the manufacturing units selected had less than Rs 10 crores as capital investment while 13% of industries had more than Rs 10 crores of investments. Now, on the sample respondent's characteristics, 55 % of respondents belong to less than 40 years of age group, while 31 % of sample representation is in age of 40 to 50 Years and 14 % are above 50 years. On educational status, 37.0 % of them are postgraduates, 56 % of them completed their graduation and 7 % of them completing their primary education. On the work experience, 32% of them have less than 5 Years of work experience; 38% and remaining 30% of respondents having more than 10 years of work experience.

Analysis and Results

Table 1 presented the relevant items, their standardized loading (correlation coefficients), and the composite reliability and Cronbach Alpha results through *Confirmatory Factor Analysis* (CFA) technique that was adopted to validate the hypothesized measurement model consisting of five dimensions/factors shown in Figure 1.



Table 1: Reliability and Item Loadings of Constructs influencing Green Entrepreneurship and sustainable development of green economy

Factor	Item/Indicators	Loading	CR	CA	AVE
<i>Innovative Technologies (INO_TEC)</i>	Reducing Environmental footprint	0.648	0.789	0.789	0.483
	Cost savings & long-term sustainability	0.683			
	Influence better waste management practices	0.710			
	Supports development of eco-friendly products and services	0.736			
<i>Corporate Leadership Excellence (CO_LD_EX)</i>	Strategic decision making in green practices	0.673	0.786	0.786	0.478
	Allocation of adequate resources	0.701			
	Collaboration with external stakeholders	0.667			
	Effective Environmental policies	0.724			
<i>Better Supply chain Management (BT_SPC_MG)</i>	Supply chain strategies to reduce carbon footprint	0.723	0.825	0.825	0.543
	Better waste reduction in supply chain	0.810			
	Environmentally friendly practices	0.736			
	Improves overall co., sustainability performances	0.671			
<i>Government Policies (GOV_POLY)</i>	Clear incentives for green sustainable practices	0.738	0.819	0.819	0.532
	Environmental regulations enforcing green operations	0.784			
	Tax benefits for environment friendly practices	0.689			
	Regulatory framework to encourage innovation in green technology	0.702			
<i>Social Objectives (SOC_OBJ)</i>	Integral to co.'s green initiatives and sustainability	0.722	0.806	0.806	0.509
	Enhance ability to implement green practices	0.751			
	Social responsibility into business practices	0.676			
	Environmental objectives strengthen co's., reputation as green enterprise	0.704			
<i>Green Challenges (GRN_ENT)</i>	Challenge in cost of green technology	0.689	0.807	0.807	0.511
	Finding suppliers meeting green standards	0.703			
	Return on Investment for adoption of green technology	0.752			



	Keeping up with evolving green standards and technologies	0.713			
<i>Sustainable Development of Green Economy (SUS_DV_GE)</i>	Investment in green enterprise contribute to long-term economic development	0.707			
	Organisation’s green initiatives effectively balance environmental, economic and social objectives	0.717			
	Green business attract investment due to their commitment to sustainability	0.682	0.802	0.803	0.504
	Collaborative efforts b/w business, Govt., & communities vital for sustainable development in a green economy	0.733			

Note: CR - Composite Reliability, CA - Cronbach Alpha, AVE – Average Variance Explained

Table 2: Discriminant Validity of independent dimensions:

	<i>INO_TEC</i>	<i>CO_LD_EX</i>	<i>BT_SPC_MG</i>	<i>GOV_POLY</i>	<i>SOC_OBJ</i>
<i>INO_TEC</i>	0.695*				
<i>CO_LD_EX</i>	0.429	0.691*			
<i>BT_SPC_MG</i>	0.372	0.483	0.737*		
<i>GOV_POLY</i>	0.316	0.519	0.421	0.729*	
<i>SOC_OBJ</i>	0.452	0.608	0.486	0.317	0.713*

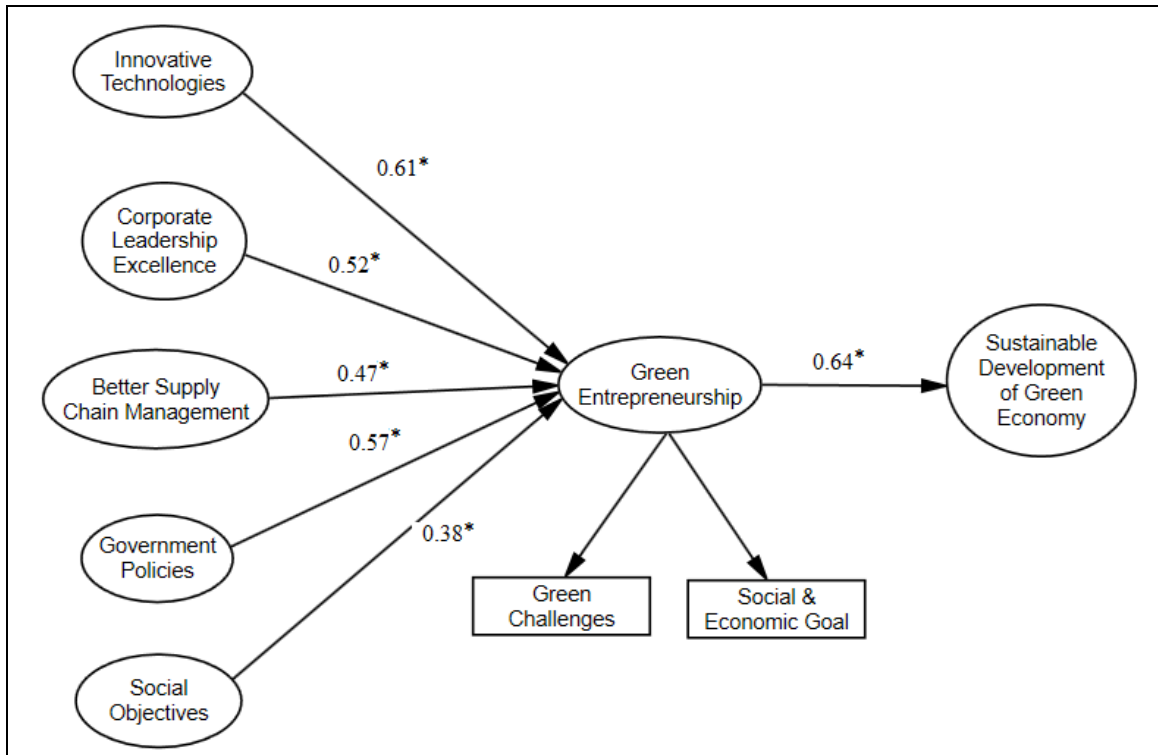
* Square Root of AVE values shown in Table 2

First, the Cronbach’s alpha reliability coefficient was calculated in order to assess the psychometric properties of the questionnaire. Cronbach’s alpha value ranges from 0 to 1, with value closer to 1 indicating greater stability and consistency, however for basic research the cut-off value is 0.60 (Nunnally, 1978) [Kalthom Abdullah & Others, 2012]. The results of Cronbach’s alpha are depicted in Table 1 indicating an acceptable consistency and stability of the instrument. Secondly, with respect to composite reliability it is observed from Table-1, it is observed that majority of the items demonstrated a loading greater than 0.50 clearly validating the convergence. Also the cronbach alpha values of each dimension are above 0.60, more than the accepted value. Similarly Discriminate Validity result is depicted in Table 2 establish the discriminant validity among the latent variables in that they do not statistically overlap each other [since the inter-item correlation values are less than the square root of AVE value] and are free from the problem of multicollinearity.

SEM analysis result:

After running the CFA to check the reliability and validation of the items (questions), the defined research hypotheses shown in conceptual frame work (Fig 1) is tested for path analysis and the results are shown in Figure 2 and table 3.

Fig 2: SEM result of dimensions influencing Green Entrepreneurship and sustainable development of green economy



* Significant at 5 % level

Table 3: Standardized Regression weights for direct relationship between dimensions Green Entrepreneurship and sustainable development of green economy

			Standard Estimate	C.R.	P	Remark
Green Entrepreneurship	<---	Innovative Technologies	0.616	3.343	0.000*	H ₁ Supported
Green Entrepreneurship	<---	Corporate Leadership Excellence	0.523	3.016	0.000*	H ₂ Supported
Green Entrepreneurship	<---	Supply Chain Management	0.469	2.684	0.013*	H ₃ Supported
Green	<---	Government Policies	0.572	3.138	0.000*	H ₄ Supported



			Standard Estimate	C.R.	P	Remark
<i>Entrepreneurship</i>						
<i>Green Entrepreneurship</i>	<---	<i>Social Objectives</i>	0.381	2.715	0.012*	H ₅ Supported
<i>Sustainable Development of Green Economy</i>	<---	<i>Green Entrepreneurship</i>	0.639	3.823	0.000*	H ₆ Supported

* Significant at 5% level

The findings of SEM indicated that the research model almost satisfied the requirement of model fit with chi-square/df showed value of 2.230. The GFI, CFI and GFI are close to standard cutoff of above 0.90. RMSEA with a value of 0.067 fulfilled the cut-off value of 0.10. On the regression analysis result depicted in Table 3, *Innovative Technologies* has a significant (with p-value of 0.000, $p < 0.05$) influence on *Green Entrepreneurship*. Thus hypothesis H₁ is accepted at 95 % level of confidence. The regression ($\beta = 0.616$) indicate for every additional 10 respondents agreeing on the statements of *Innovative Technologies*, one would expect on average of six respondents rating on agreement on *Green Entrepreneurship* dimension. Similarly, remaining four independent dimensions such as *Corporate Leadership Excellence*, *Supply Chain Management*, *Government Policies* and *Social Objectives* have significant influence on perceived value and the hypotheses are accepted at 5 % level of significance. Finally, it emerge that the overall *Green Entrepreneurship* has about 60% ($\beta = 0.614$) influence on *Sustainable Development of Green Economy*, with a statistically significant level of 5% as perceived by respondents employed in manufacturing and service sector.

Discussion and Conclusion

The industrialization in India has led to the development of various types of enterprises representing different sectors of industries but, these industries have posed a threat to the environment. Continuous efforts of environmentalists, policy makers and committees to protect the environment gave rise to the environment protection policies and programs. Besides enactment of several environmental protection acts, India’s policies have also improved in terms of regulatory measures since past two decades. With the current trend towards economic liberalization and efforts to attract FDI there is a need to shift to an integrated socio-economic environment approach – an approach creating awareness amongst entrepreneurs to go green.

U.S. Bureau of Labour Statistics (BLS) has put forth a comprehensive definition of green economy initiatives which encompass “economic activities that help protect or restore the environment or conserve natural resources.” Today there is a growing concern on the effects of the products on earth and human health, resulting in the adoption of the concept of green entrepreneurship. The potential of green entrepreneurship in near future is more, for both



existing enterprise as well as the start-ups. Therefore, the study attempts to create awareness and understand the challenges and opportunities faced by the enterprises in going green and achieving sustainable development.

While analysing the set of statements designed to assess various dimensions of how innovative technology affects green enterprises, from operational efficiency to environmental impact it revealed that Innovative technology helps green enterprises reduce their environmental footprint. The adoption of new technologies improves the energy efficiency of green enterprises. It contributes to more sustainable resource management in green enterprises. Green enterprises experience cost savings as a result of implementing innovative technologies. New technological advancements enhance the ability of green enterprises to comply with environmental regulations. The use of innovative technology increases the overall effectiveness of green practices in enterprises. Green enterprises are more likely to invest in innovative technology due to its environmental benefits. Innovative technology facilitates better waste management practices in green enterprises. The integration of new technologies supports the development of eco-friendly products and services. Therefore, is believe that innovative technology is essential for the long-term sustainability of green enterprises.

Corporate leadership prioritizes environmental sustainability in strategic decision-making. Corporate leadership allocates adequate resources for environmental sustainability projects. If the Company's leadership team sets, clear goals and targets for reducing the company's environmental impact. Leaders and the organization team has to be provided with regular training on sustainability for employees. Some of the corporates is committed to investing in eco-friendly technologies and innovations. Most of the companies actions of corporate leaders reflect a genuine commitment to environmental responsibility and encourage collaboration with external stakeholders on sustainability issues.

Better supply chain management practices improve the environmental sustainability of our supply chain. The integration of better supply chain strategies reduces the carbon footprint of our operations. Implementing better supply chain practices has led to better waste reduction in company's supply chain. Better supply chain management encourages suppliers to adopt more environmentally friendly practices. Many organizations has seen cost savings as a result of implementing environment friendly better supply chain management strategies and it the development of sustainable supply chain relationships. The use of eco-friendly supply chain management has improved several company's overall sustainability performance.

Government policies provide clear incentives for green enterprises to adopt sustainable practices. Environmental regulations enforced by the government positively impact the operations of green enterprises. Government subsidies for eco-friendly technologies encourages corporates for going green. Government policies are effectively communicated to green enterprises so that it helps them in achieving sustainable goals more effectively. The regulatory framework set by the government encourages innovation in green technologies and compliance with government environmental policies is manageable and supports our green initiatives.



Government also provide tax benefits for environmentally friendly practices which in turn contribute to the company's financial performance. The policies framed helps to reduce the costs associated with implementing green technologies. This show there is adequate government support for green enterprises in accessing sustainable resources and technologies.

Companies' commitment to social responsibility enhances the ability to implement green practices effectively. Engaging with local communities becomes the key component of green enterprise strategy. Employees must be more motivated and engaged when our company aligns with social and environmental goals. It helps in building stronger relationships with stakeholders who support green practices. The alignment of social and environmental objectives strengthens our company's reputation as a green enterprise.

Sustainable development practices are essential for the growth of a green economy. Investing in green technologies contributes positively to long-term economic development. Organization's green initiatives effectively balance environmental, economic, and social objectives. Sustainable development in the green economy requires strong government policies and incentives. The adoption of green practices leads to significant improvements in environmental quality. Green businesses are more likely to attract investment due to their commitment to sustainability in near future. Education and training on sustainable practices are crucial for advancing the green economy. Collaborative efforts between businesses, governments, and communities are vital for sustainable development in a green economy.

Bibliography

1. Ali Ozgur Karagulle. "Green business for sustainable development and competitiveness: an overview of Turkish logistics industry." *ELSEVIER Procedia - Social and Behavioral Sciences* 41, (2012): 456 – 460
2. Ashish Sharda, Abhishek Goel, Ankit Mishra, Satish Chandra, "Green Entrepreneurship in India: Global Evaluation, Needs Analysis, and Drivers for Growth", *Springer Publications*.
3. Division for Sustainable Development. UNDESA, *A guidebook to the Green Economy, Exploring green economy policies and international experience with national strategies*", UNDESA publications, November 2012.
4. Dr. Mrudula Trivedi, "The New era of ecopreneurs: Case Study of Mitti Cool". *EPRA International Journal of Economic and Business Review* 3, no. 8, (August 2015): 29 – 32.
5. Farinelli F. et al., "Green entrepreneurship: the missing link towards a greener economy." *ATDF JOURNAL* 3/4, no. 8, (2011).
6. Fulvia FARinelli, Marino Bottini, Sule Akkoyunlu, Philipp Aerni, "Green Entrepreneurship: The Missing Link Towards a Greener Economy". *ATDF Journal* 8, no. 3 / 4, (2011).
7. Gibbs D. *Sustainability entrepreneurs, ecopreneurs and the development of a sustainable economy*. Greenleaf Publishing Ltd. 2009.



8. Isaak, R. *Green Logic: Ecopreneurship Theory and Ethics*. Sheffield, UK: Greenleaf Publishing, 1998.
9. Nelson Oly Ndubisi, Sumesh R. Nair. “Green Entrepreneurship and Green Value Added: A Conceptual Framework.” *International Journal of Entrepreneurship* 13, Special Issue, (2009): 21 – 34.
10. Sharma N K and Kushwaha GS, “Emerging Green Market as an Opportunity for Green Entrepreneurs and Sustainable Development in India.” *S Journal of Entrepreneurship & Organization Management* 4, no. 2 (2015): 1-7.