

Green Innovation and Sustainable Development of SMEs: The Moderating Role of Government Support

Rajani H Pillai

*School of Commerce, Mount Carmel College, Autonomous, Bengaluru, India
rajani.h.pillai@mccblr.edu.in*

Deeksha S

*Department of Commerce, Bengaluru City University, Karnataka, India
raju.deeksha1994@gmail.com/*

Roopa Adarsh

*School of Humanities and Social Sciences, Mount Carmel College, Karnataka, India
roopa.adarsh@mccblr.edu.in/*

Arpita Sastri

*Department of Management, Primus School of Management Studies, Karnataka, India
sastriarpita08@gmail.com*

T. Shirmila

*Madras Christian College, Affiliated to University of Madras, Chennai, India
shirmilastanley@mcc.edu.in*

Animesh Saha

*Research Scholar, Department of Commerce, Assam University, Silchar, Assam, India
brganimeshsaha@gmail.com*

[Abstract] Small and medium enterprises (SMEs) in India face significant obstacles, including limited access to financial resources, technological constraints, and restricted market prospects. However, the growing recognition of the imperative for sustainable growth has prompted SMEs to embrace environmentally conscious innovation strategies. These approaches not only yield environmental advantages but also result in financial savings and enhanced competitiveness. Government support is crucial in facilitating SMEs to address these challenges and effectively execute environmentally sustainable innovation plans. By providing financial incentives, technical support, and policy frameworks, the government can create a conducive atmosphere for SMEs to adopt sustainable practices and contribute significantly to the nation's broader objectives of green development.

The current study aims to analyze how SMEs can improve their sustainable development (SD) by adopting green innovation techniques. Additionally, it seeks to explore how government assistance affects the moderating effect of SD for SMEs. The proposed study follows a descriptive research design. A purposive sample of 76 SMEs that adopt green innovation in their firms is considered for the study. A well-structured questionnaire is constructed with statements relating to green innovation practices, Government support, and SD, adapted from previous studies. The study utilizes AMOS software for Structural Equation Modeling (SEM) analysis, and moderation analysis is conducted using Process Macros.

This study holds significant importance for policymakers and stakeholders as it aims to enhance their understanding of the potential impact of green innovation methods on promoting sustainable growth within SMEs. By shedding light on the effectiveness of existing policy frameworks and identifying areas for improvement, this research aims to facilitate targeted interventions that encourage SMEs to embrace sustainable practices. Ultimately, the findings of this study may contribute to creating a future where environmental concerns are prioritized, and the economy thrives in tandem with sustainable practices.

[Keywords] green Innovation, sustainable development, SMEs, government support

Introduction

SMEs in India are categorized by their yearly revenue and capital expenditures on equipment (Shelly et al., 2020). Medium-sized businesses, small businesses, and micro-businesses are all defined by the MSME Development Act. A small business must invest between INR 1 and 10 crores in plants and machinery. A company is considered medium-sized if its yearly revenue is between INR 100 and INR 250 crores. Medium-sized businesses require an investment of at least INR 50 crores. There are micro-businesses in addition to the more common small- and medium-sized companies. Their annual sales are below INR 5 crores. In India, all these businesses fall under the umbrella term "Micro, Small, and Medium" (or "MSMEs") (Saluja, 2012).

SMEs play a significant role in providing employment opportunities for a substantial portion of India's labor force. This figure corresponds to approximately 40%, constituting a workforce of approximately 80 million individuals. Approximately 40% of India's export business is attributed to them, constituting a substantial portion of the country's manufacturing output, which amounts to 45%. India possesses the second-largest quantity of SMEs globally, with China being the sole nation surpassing it in this regard (Kumar, 2017). The significance of SMEs in the Indian economy is often underestimated. SMEs play a significant role in propelling India's progress by generating employment, fostering possibilities, and driving economic growth, in both the manufacturing and service sector (Sohal et al., 2022). The impact of the trickle-down phenomenon on individuals of lower socioeconomic status is more pronounced in the context of SMEs. The prosperity of this sector is directly linked to an enhancement in the overall well-being of individuals in the general population (Joseph & Dhanabhakym, 2022).

The term "Green Innovation" is used to describe any new idea that helps protect the planet and make the most efficient use of its resources (Alraja et al., 2022). It's one method that boosts businesses' economic and environmental standing. Reduced energy consumption, trash recycling, pollution control, sustainable resource usage, and environmentally friendly product design are all important aspects to think about (Purwanto, 2022). Green innovation is classified into three categories based on the mode of implementation and potential outcomes (Singh & Srivastava, 2022). This includes:

- Green innovation that tackles the company's environmental challenges. (by reducing the amount of potentially dangerous substances used) (Jun et al., 2019)
- Green innovation creates eco-friendly products and uses efficient techniques. (by consuming less energy or materials)

SD within the context of SMEs refers to the conceptual framework and operational approach adopted by these organizations to conduct their operations in a socially responsible manner (Khan et al., 2021; Tsvetkova et al., 2020). The concept of SD in SMEs encompasses the harmonious integration of environmental preservation, social accountability, and economic advancement (Šebestová, 2020). The aforementioned objective can be realized by adopting environmentally sustainable measures, including waste reduction and carbon emission mitigation, alongside promoting equitable remuneration and avenues for professional development within the local community (Das et al., 2020). Through proactive engagement with these challenges, SMEs have the potential to make valuable contributions towards fostering a sustainable and inclusive economy that serves the interests of both current and future generations (Abisuga-Oyekunle et al., 2020).

When it comes to regulating the connection between environmentally responsible innovation strategies and the long-term profitability of SMEs in terms of sustainable development, the engagement of governmental aid is of highest importance (Ullah et al., 2021; Pu et al., 2021). Governments to SMEs that adopt and execute environmentally friendly practices provide financial incentives, tax exemptions, and subsidies (Yacob et al., 2019). Furthermore, government regulations and policies help to establish fair circumstances for SMEs, making sure that those who invest in environmentally sustainable innovations are properly recognized and rewarded (Anwar & Li, 2021). SMEs benefit greatly from government aid that encourages the adoption of environmentally friendly policies and strategies for long-term success (Sharma, et al., 2021; Bakar et al., 2020).

Within this framework, the present research aims to examine how environmentally conscious creative practices affect the long-term success of SMEs and how government backing influences this relationship.

Literature Review

The approach of the study consisted of conducting a systematic literature analysis in order to analyze both background reviews and independent studies that were related to green innovation. Using the criteria of include only English-language studies that were published during the previous five years, a total of 34 publications were found and chosen for inclusion in the review. The selection process was based on the criteria. After obtaining the unabridged versions of the relevant research works, a total of 24 different pieces of published research were chosen for the aim of carrying out an in-depth analysis of the quality of the research presented in each of the individual pieces. Because of iterative processes and concerns regarding the studies' overall quality, we decided not to include four of them in our analysis. The foundation of this study is a careful analysis of twenty different scholarly sources that are pertinent to the topic at hand.

Green Innovative Practices

SMEs in developing countries are adopting green practices due to environmental awareness. Thus, it is crucial to identify the main hurdles to green practices in SMEs (Fahad et al., 2022). A three-phase framework classifies significant barriers/obstacles and strategies to reduce them in green innovation uptake. Reviewing literature and expert comments revealed 25 barriers and 15 remedies. The effects of green innovation on the three facets of knowledge management (acquisition, dissemination, and responsiveness) are investigated in this research (Polas et al., 2023). Assumptive statistical induction was employed with positivism. Environmental consciousness acted as a mediator between the dissemination of knowledge and green innovation, according to the results. Knowledge acquisition and reactivity to new information were not mediated by environmental consciousness in relation to green innovation.

SMEs are crucial to economic progress, especially in emerging nations. Such economic growth demands eco-friendly corporate methods to meet SMEs' green innovation ambitions. To explore green innovation success predictors, 1121 Chinese SME employees were surveyed. Green creative human resource practices and company innovation performance are strengthened by increased green organizational commitment. Several theoretical and practical consequences arise from this study (Iqbal et al., 2021).

The environmental issue for SMEs has grown globally in recent years. Customers now realize their purchases affect the environment. This research also identified barriers to green business in SMEs and sustainable growth (Chien et al., 2021). Green innovation hurdles include goods, processes, and management; therefore, SMEs should have few limits on clean technology implementation.

Policymakers and managers today realize the need for green innovation for sustainable company success as environmental issues become more incorporated into corporate performance. Sustainable growth and environmental preservation depend on the car parts industry (Muangmee et al., 2021). Few studies have studied how green entrepreneurial orientation and innovation affect SME success. Green innovation is a strategic capacity of SMEs in this resource-based perspective theory research. Additionally, green entrepreneurialism and innovation may assist SME managers understand company sustainability.

SD of SME's

Asian SMEs boost economic growth and sustainable development. SMEs boost Asian exports, create jobs, and distribute income fairly. This paper also suggests additional study to help Asian SMEs achieve SD (de Sousa et al., 2020). Scholars have published more sustainability and sustainable development studies in recent years. A tripartite systematic review provides a cutting-edge literature evaluation on SD in SMEs, which make up 99% of all firms (Prashar, 2020). Since they identify areas for additional research and suggest research subjects, the findings have major implications for the field of sustainable growth in SMEs. The findings support additional research in this area (Prashar, 2020).

Limited resources, experience, and the large upfront investment needed for sustainable solutions were the main hurdles. For qualitative and quantitative examination of SME sustainability hurdles, the paper advises dividing the 175 barriers into "sector," "sustainability tool," and "internal/external" (Matinaro et al., 2019).

SMEs are crucial to national sustainability goals; thus, governments worldwide are stressing their social and environmental effect. Despite support of SMEs in this region, many struggle to integrate socio-environmental aspects into their operations. SMEs' low grasp of sustainability's costs and benefits, as well as time, money, and skills and expertise restrictions, inhibit SD integration. This study examines stakeholder collaboration to improve SME sustainability adoption and overcome barriers. This study found that trainers, analysts, coordinators, specialists, and financiers support SMEs' sustainability initiatives (Journeault et al., 2021).

Research Gap

The study has also highlighted a research gap in comprehending the precise mechanisms by which government funding impacts the adoption and efficacy of environmentally friendly innovative practices in SMEs. Additional investigation is required to delve into the various forms of governmental assistance, such as monetary incentives or regulatory structures, and their influence on SMEs capacity to adopt and derive advantages from environmentally friendly innovations. Gaining a comprehensive understanding of this correlation would yield significant insights for policymakers and SMEs seeking to foster sustainable growth in alternative urban areas or regions.

Research Objectives

- To examine how green innovation affects SME growth.
- The study examines how government funding moderates the impact of green innovative practices on SME growth.

Methodology

The current research is of a descriptive character and takes a deductive method approach; it focuses on SMEs in Bangalore. The top management of SMEs is the only participants in this survey. In order to obtain a convenience sample of 76 SME Top management, a total of 120 questionnaires were handed out, and 96 replies that were considered legitimate were collected. The current study is based on the data from 76 top managers of SMEs in Bangalore after excluding any extreme cases. To adapt to the findings of the prior investigations, a thorough and well-structured questionnaire was produced. The questions for Green innovative practices and sustainable growth of SME's were adopted from previous studies (Journeault et al., 2021; Matinaro et al., 2019).

The rule of thumb for cronbach alpha is " $>$ ". A score of 9 indicates an excellent performance (George & Mallery, 2003). The value of 8 is considered to be good, the validity and reliability of the questionnaire in the present model have been established, since all dimensions have been checked and all constructs match the criteria for validity. The data analysis was performed utilizing the SPSS and AMOS software applications. In doing moderation analysis, the Andrew Hayes process macros- model 1 was employed.

Data Collection

Profile of the SME's in the Study

Approximately 54.4% of the surveyed businesses were classified as small firms, while the remaining 46% were affiliated with medium-sized business units. The majority of SMEs in the present study primarily engage in service-oriented activities, accounting for 41.6% of the sample. Manufacturing units, on the other hand, constitute 37.9% of the SMEs included in the study. A total of 23.1% of SMEs have been established for 8 years or more. This is followed by 20.2% of enterprises that are between 4 and 6 years old, 19.7% that are less than 2 years old, and 18.9% that are between 6 and 8 years old. 61% of the SMEs were founded. In contrast, a portion of these enterprises, approximately 24.5%, were inherited, while a smaller percentage, around 14.5%, were acquired from existing enterprises. Approximately 50.5% of the enterprises surveyed were classified as sole proprietary enterprises, while 41.1% were identified as private limited companies. A mere 7.7% of the organizations were found to be based on partnership structures. A significant proportion

of SMEs rely on internal sources of funding, accounting for 36% of the total. Additionally, a considerable percentage of SMEs (36.9%) utilize a combination of internal money and external loans to finance their operations. Additionally, a significant number of SMEs relied heavily on loans as their primary means of financing (27.1) for their businesses.

Item Analysis for Green Innovation, SD of SMEs and Government Support

The item analysis showed that the mean score for Green innovative practices is 3.91 indicating neutral to agreement range of responses, the SD of SME's statements had a mean score of 4.18 indicating the importance of SD and a mean score of 3.12 indicates that the responses have neutral to agree range of responses for Government support. The calculated standard deviation of the data set is less than 1.500, suggesting a lower degree of variability in the observed responses. Skewness and kurtosis serve as statistical metrics for assessing the normality of a distribution, and in this case, they demonstrate conformity to the acceptable standards.

Hypothesis Testing

The implementation of environmentally friendly and innovative methods has a substantial influence on the SD of SMEs (Thomas et al., 2022; Musaad et al., 2020; Singh, et al., 2020). Hence, the hypothesis 1

H1- There is a significant impact of Green innovative practices on the SD of SME's (Anwar & Li, 2021).

The involvement of governmental assistance is of utmost importance in regulating the correlation between environmentally conscious innovation strategies and the long-term viability of SMEs in terms of SD (Ullah et al., 2021). Governments incentivize SMEs to prioritize sustainability by offering financial incentives, tax exemptions, and subsidies for the adoption and implementation of green practices (Bakar et al., 2020). Moreover, governmental regulations and policies serve to foster equitable conditions for SMEs, guaranteeing that individuals who allocate resources towards environmentally sustainable advancements are duly acknowledged and incentivized (Yacob, et al., 2019; Pu et al., 2021). This support serves to bridge the divide between environmental consciousness and economic viability, enabling SMEs to thrive in a manner that is both ecologically responsible and economically sustainable (Sharma et al., 2021). Hence, the hypothesis 2

H2 –SD and green innovation in SMEs are moderated by government support.

Analyses of Hypotheses

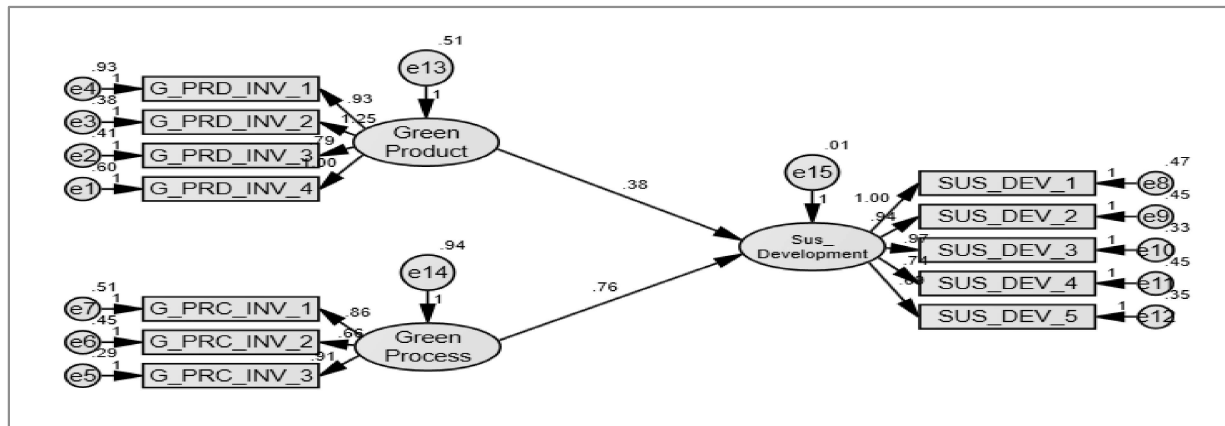
Testing of Hypothesis

H1- There is a significant impact of Green innovative practices on the SD of SME's

The important statistics for model fit are presented in the table that may be found above. The permissible range for the chi-square test is 3, and the value that was obtained when it was divided by the total number of degrees of freedom was 3.658. The calculated value of the Goodness of Fit (0.816) is higher than the qualities that were proposed. The RMR has been estimated to have a value of 0.071 because of the boundary estimation. The model in question has received considerable praise from members of the academic community, and the metrics of fitness that it incorporates are acceptable, to say the least.

Figure 1

Structural Relationship - Impact of Green Innovative Practices on the SD of SME's



Green innovation is positively associated with SME attaining SD, according to the study's results. The coefficient of (B=0.38, B=0.34, P=0.000), suggesting that one unit increase in mean scores of green product innovation will lead to increase in mean scores of SD by 38 units. Similarly, The coefficient of (B=0.76, B=0.93, P=0.000), suggesting that one unit increase in mean scores of Green process innovation will lead to increase in mean scores of SD by 76 units. This indicates a strong positive impact of using green process innovation on sustainable growth and development of SME's.

Table 1

Unstandardized and Standardized Co-Efficient - Impact of Green Innovative Practices on the SD of SME's

			Unstd Estimate	Std Estimate	P
Sus_Development	<---	Green_Product	0.381	0.345	***
Sus_Development	<---	Green_Process	0.759	0.933	***

According to the study's findings, a strong positive association exists between SMEs achieving SD and the production of eco-friendly goods. This demonstrates that SMEs are more likely to aid in the achievement of SD goals if they prioritize the creation of eco-friendly goods. Because of the potential impact on environmental and economic sustainability in the long run, these results highlight the need of supporting and promoting the development of environmentally friendly goods by SMEs. Government laws and subsidies should encourage SMEs to engage in SD initiatives and invest in green product creation.

Although innovations in both products and processes that are environmentally friendly are important, the impact of green process innovation on the long-term success of SMEs is more substantial. People refer to this as "green process innovation." It entails lowering energy and trash consumption in industrial operations for a more sustainable future. In the long run, this helps SMEs save money while reducing human impact on the environment. Green practices may provide a competitive advantage and contribute to a more sustainable future for SMEs.

This demonstrates that eco-friendly process innovation enhances the long-term prosperity of SMEs. This demonstrates the importance of green process innovation for SMEs in promoting sustainable growth. Policymakers and business leaders should back and promote environmentally conscious practices since they are good for the planet and for SMEs. By highlighting the advantages of eco-friendly activities, these findings help decision-makers build effective sustainability programs for SMEs.

H1 – The significant impact of green innovative practices on the sustainable development (SD) of SMEs is confirmed.

Further analysis was conducted to explore the moderating role of government support in the relationship between green innovative practices and the sustainable development of SMEs.

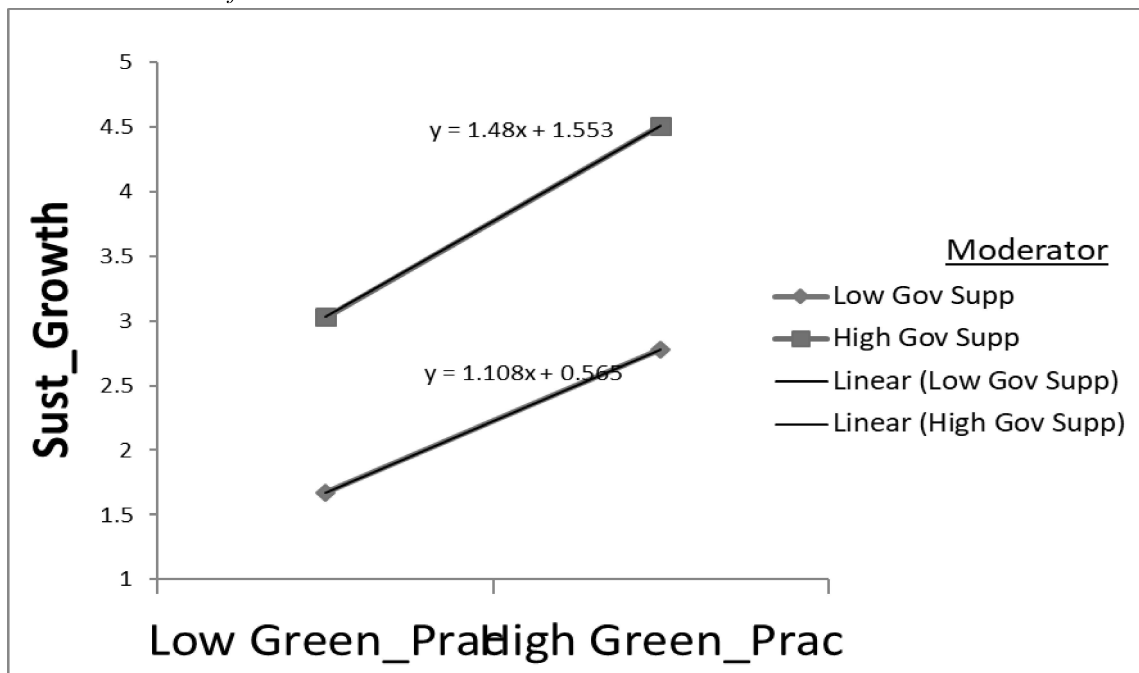
H2 - SD and green innovation in SMEs are moderated by government support.

The moderation analysis shows that the Interaction value of 0.0985 is statistically significant indicating the effect of moderating variable. The R square change of 0.0073 is also significant at $p=0.040$. Government support has a crucial moderating role in achieving sustainable growth of SMEs via Green innovation Practices. To encourage green innovation practices among SMEs, government support in the form of subsidies and other resources may be made available. This can include financial aid in the form of grants, tax breaks, and other subsidies that reduce the overall financial burden of putting environmentally responsible practices and technologies into practice. In addition, the government can play a regulatory role by establishing environmental standards and then enforcing those requirements, which would ensure that SMEs are held accountable for the environmental impact they have.

In general, the assistance of the government is crucial for SMEs to manage the hurdles that come with transitioning to a more sustainable and environmentally friendly business model. The regression equation in Figure 2 presents the size of effect caused by Government support on SD.

Figure 2

Regression Equation– Moderating Role of Government Support on Relationship between Green Innovative Practices and SD of SME’s



The line Graph indicates that with Government support, the Green innovative practices can lead to enhanced sustainable growth of the SME’s. The equation of $y=1.48x+0.1.553$ shows that the effect of relationship moves upwards and is steeper when compared to achieving sustainable growth without government support. Based on this equation, it appears that with the assistance of the government, the relationship between y and x can become more fruitful and meaningful. Because the coefficient is 1.48, it can be deduced that the value of y will increase by 1.48 units for each one-unit increase in x. In addition, the fact that the y-intercept

is 0.1553 suggests that there is still a positive value for y even in the absence of any x value. This is something that might be linked to the intervention of the government in the process of encouraging sustainable growth. As a result, it has been seen that the backing of the government has a substantial impact on the expansion of y . It is possible that the relationship between y and x would not be as strong, and that y 's growth would not be as large if the government did not intervene. This underscores how important support from the government is in terms of achieving positive outcomes for the economy and creating growth that is both sustainable and long-term.

H2 - SD and green innovation in SMEs are moderated by government support is accepted.

Conclusion

According to the study findings, environmentally friendly and creative business practices in manufacturing and processing have contributed to the expansion of sustainable SMEs in Bangalore. Data from SMEs also indicated that government support has a moderating effect on SD driven by innovative green practices. Not only has the implementation of environmentally friendly and creative approaches to materials and processes helped SMEs to grow in a sustainable way, but the important role that government support plays in that growth this acquisition has also been revealed. The results of the study show that the positive impact of environmentally friendly innovations on small and medium enterprises is further enhanced with active government involvement and support. This highlights the need for SMEs to continuously engage with the government to support SD using environmentally friendly practices. These partnership SME financial incentives to drive change towards entrepreneurial practices less vulnerable to environmental, regulatory - Apart from the government approach providing flexibility and technical assistance, the study findings indicate that government assistance helps to create a favorable environment for SMEs to acquire resources they need to collaborate with many other players in the green sector. Besides the city management and SMEs in Bangalore can encourage innovation, reduce their environmental impact, collaborate, and contribute to the overall SD of the city, research also highlights the importance of SMEs.

Contribution

The importance and support of government policies for the promotion of environmentally friendly innovations among SMEs is focused through these factors on. This means that a supportive legal environment and financial incentives can encourage small and medium-sized businesses to adopt environmentally friendly practices, ultimately contributing to SD in the city. This study provides useful information that can help policy makers and other stakeholders develop successful strategies to promote environmentally friendly alternatives and promote SD permanent presence in small and medium enterprises.

Future Research

Further research is likely to inform the coordination of policies and efforts by governments to deepen environmentally friendly innovation in SMEs and the role they play in fostering a green economy through the impact of these practices on the overall environmental performance of SMEs testing will provide important and informative information Furthermore, the barriers faced by SMEs in other practices can be explored without compromising environmental adoption and implementation to facilitate the identification of areas for improvement and possible strategies. Use qualitative research including the views and experiences of SME owners and managers, which provides a comprehensive understanding of it those involved in environmental practices Analysis can reveal the underlying reasons that motivate individuals to adopt sustainable practices, as well as provide insight into the barriers encountered in the implementation process It is to help develop specific strategies to overcome barriers.

References

Abisuga-Oyekunle, O. A., Patra, S. K., & Muchie, M. (2020). SMEs in sustainable development: Their role in poverty reduction and employment generation in sub-Saharan Africa. *African Journal of*

- Science, Technology, Innovation and Development*, 12(4), 405-419. doi: 10.1080/20421338.2019.1656428.
- Alraja, M. N., Imran, R., Khashab, B. M., & Shah, M. (2022). Technological innovation, sustainable green practices and SMEs sustainable performance in times of crisis (COVID-19 pandemic). *Information Systems Frontiers*, 24(4), 1081-1105. doi: 10.1007/s10796-022-10250-z.
- Álvarez Jaramillo, J., ZarthaSossa, J. W., & Orozco Mendoza, G. L. (2019). Barriers to sustainability for small and medium enterprises in the framework of sustainable development—Literature review. *Business Strategy and the Environment*, 28(4), 512-524. doi: 10.1002/bse.2261.
- Anwar, M., & Li, S. (2021). Spurring competitiveness, financial and environmental performance of SMEs through government financial and non-financial support. *Environment, Development and Sustainability*, 23, 7860-7882. doi: 10.1007/s10668-020-00951-3.
- Bakar, M. F. A., Talukder, M., Quazi, A., & Khan, I. (2020). Adoption of sustainable technology in the Malaysian SMEs sector: does the role of government matter?. *Information*, 11(4), 215. doi: 10.3390/info11040215.
- Chien, F., Kamran, H. W., Nawaz, M. A., Thach, N. N., Long, P. D., & Baloch, Z. A. (2021). Assessing the prioritization of barriers toward green innovation: small and medium enterprises Nexus. *Environment, Development and Sustainability*, 1-31. 10.1007/s10668-021-01513-x.
- Das, M., Rangarajan, K., & Dutta, G. (2020). Corporate sustainability in SMEs: an Asian perspective. *Journal of Asia Business Studies*, 14(1), 109-138. doi: 10.1108/jabs-10-2017-0176.
- de Sousa Jabbour, A. B. L., Ndubisi, N. O., & Seles, B. M. R. P. (2020). SD in Asian manufacturing SMEs: Progress and directions. *International Journal of Production Economics*, 225, 107567. doi: 10.1016/j.ijpe.2019.107567.
- Fahad, S., Alnor, F., Su, F., & Deng, J. (2022). Adoption of green innovation practices in SMEs sector: evidence from an emerging economy. *Economic research-Ekonomska istraživanja*, 35(1), 5486-5501. doi: 10.1080/1331677x.2022.2029713.
- Fornell, C., & Cha, J. (1994). Partial Least Squares. *Advanced Methods of Marketing Research*, RP Bagozzi.
- George, D., & Mallery, P. (2019). *IBM SPSS statistics 26 step by step: A simple guide and reference*. Routledge.
- Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107-123. doi: 10.1504/ijmda.2017.10008574.
- Iqbal, S., Akhtar, S., Anwar, F., Kayani, A. J., Sohu, J. M., & Khan, A. S. (2021). Linking green innovation performance and green innovative human resource practices in SMEs; a moderation and mediation analysis using PLS-SEM. *Current Psychology*, 1-18. doi: 10.1007/s12144-021-02403-1.
- Joseph, E., & Dhanabhakya, M. M. (2022). Role of Digitalization Post-Pandemic for Development of SMEs. In *Research anthology on business continuity and navigating times of crisis* (pp. 727-747). IGI Global. doi: 10.46382/mjbas.2022.6106.
- Journeault, M., Perron, A., & Vallières, L. (2021). The collaborative roles of stakeholders in supporting the adoption of sustainability in SMEs. *Journal of environmental management*, 287, 112349. doi: 10.1016/j.jenvman.2021.112349.
- Jun, W., Ali, W., Bhutto, M. Y., Hussain, H., & Khan, N. A. (2019). Examining the determinants of green innovation adoption in SMEs: A PLS-SEM approach. *European Journal of Innovation Management*, 24(1), 67-87. doi: 10.1108/ejim-05-2019-0113.
- Khan, S. A. R., Godil, D. I., Jabbour, C. J. C., Shujaat, S., Razaq, A., & Yu, Z. (2021). Green data analytics, blockchain technology for sustainable development, and sustainable supply chain practices: evidence from small and medium enterprises. *Annals of Operations Research*, 1-25. doi: 10.1007/s10479-021-04275-x.

- Kumar, V. (2017). An Analysis of Growth of MSMEs in India and Their contribution in Employment and GDP of the Country. *International Journal of Interdisciplinary and Multidisciplinary Studies*, 4(2), 187-191. doi: 10.14445/23939125/ijems-v7i8p124.
- Matinaro, V., Liu, Y., & Poesche, J. (2019). Extracting key factors for SD of enterprises: Case study of SMEs in Taiwan. *Journal of cleaner production*, 209, 1152-1169. doi: 10.1016/j.jclepro.2018.10.280
- Muangmee, C., Dacko-Pikiewicz, Z., Meekaewkunchorn, N., Kassakorn, N., & Khalid, B. (2021). Green entrepreneurial orientation and green innovation in small and medium-sized enterprises (SMEs). *Social Sciences*, 10(4), 136. doi: 10.3390/socsci10040136.
- Musaad O, A. S., Zhuo, Z., Siyal, Z. A., Shaikh, G. M., Shah, S. A. A., Solangi, Y. A., & Musaad O, A. O. (2020). An integrated multi-criteria decision support framework for the selection of suppliers in small and medium enterprises based on green innovation ability. *Processes*, 8(4), 418. doi: 10.3390/pr8040418.
- Polas, M. R. H., Tabash, M. I., Bhattacharjee, A., & Dávila, G. A. (2023). Knowledge management practices and green innovation in SMES: the role of environmental awareness towards environmental sustainability. *International Journal of Organizational Analysis*, 31(5), 1601-1622. doi: 10.1108/ijoa-03-2021-2671.
- Prashar, A. (2020). A bibliometric and content analysis of SD in small and medium-sized enterprises. *Journal of cleaner production*, 245, 118665. doi: 10.1016/j.jclepro.2019.118665.
- Pu, G., Qamruzzaman, M. D., Mehta, A. M., Naqvi, F. N., & Karim, S. (2021). Innovative finance, technological adaptation and SMEs sustainability: the mediating role of government support during COVID-19 pandemic. *Sustainability*, 13(16), 9218. doi: 10.3390/su13169218.
- Purwanto, A. (2022). The role of green innovation and green supply chain management on the sustainability of the performance of SMEs. Available at SSRN 4219607. doi: 10.5267/j.jfs.2022.9.003.
- Saluja, D. (2012). Role of MSME's in Economic Development of India. *Journal of Economics, Commerce and Research (JECR)*, 2(1), 1-9. doi: 10.24247/1233445556
- Šebestová, J. (2020). SD goals and SMEs decisions: Czech Republic vs. Poland. *Journal of Eastern European and Central Asian Research (JEECAR)*, 7(1), 39-50. doi: 10.15549/jeecar.v7i1.418.
- Sharma, N. K., Govindan, K., Lai, K. K., Chen, W. K., & Kumar, V. (2021). The transition from linear economy to circular economy for sustainability among SMEs: A study on prospects, impediments, and prerequisites. *Business Strategy and the Environment*, 30(4), 1803-1822. doi: 10.1002/bse.2717.
- Shelly, R., Sharma, T., & Bawa, S. S. (2020). Role of micro, small and medium enterprises in Indian economy. *International Journal of Economics and Financial Issues*, 10(5), 84. doi: 10.32479/ijefi.10459.
- Singh, A., & Srivastava, Y. (2022). *Patent Law, Green Technology and Innovation*. Routledge.
- Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological forecasting and social change*, 150, 119762. doi: 10.1016/j.techfore.2019.119762.
- Sohal, A., Nand, A. A., Goyal, P., & Bhattacharya, A. (2022). Developing a circular economy: An examination of SME's role in India. *Journal of Business Research*, 142, 435-447. doi: 10.1016/j.jbusres.2021.12.072.
- Thomas, A., Scandurra, G., & Carfora, A. (2022). Adoption of green innovations by SMEs: An investigation about the influence of stakeholders. *European Journal of Innovation Management*, 25(6), 44-63. doi: 10.1108/ejim-07-2020-0292.
- Tsvetkova, D., Bengtsson, E., & Durst, S. (2020). Maintaining sustainable practices in SMEs: Insights from Sweden. *Sustainability*, 12(24), 10242. doi: 10.3390/su122410242.

- Ullah, R., Ahmad, H., Rehman, F. U., &Fawad, A. (2021). Green innovation and SD Goals in SMEs: The moderating role of government incentives. *Journal of Economic and Administrative Sciences*. doi: 10.1108/jeas-07-2021-0122
- Yacob, P., Wong, L. S., &Khor, S. C. (2019). An empirical investigation of green initiatives and environmental sustainability for manufacturing SMEs. *Journal of Manufacturing Technology Management*, 30(1), 2-25. doi: 10.1108/jmtm-08-2017-0153.