

**Sustainable Branding Strategies and Green Consumerism: A Strategic Approach Towards
Environmental Responsibility**

Ayush Gupta
BBA 1st Year
Teerthanker Mahaveer Institute of Management and Technology
Teerthanker Mahaveer University
Moradabad, Uttar Pradesh

Chirag Jain
BBA 1st Year
Teerthanker Mahaveer Institute of Management and Technology
Teerthanker Mahaveer University
Moradabad, Uttar Pradesh

Garvit Jain
BBA 1st Year
Teerthanker Mahaveer Institute of Management and Technology
Teerthanker Mahaveer University
Moradabad, Uttar Pradesh

Abstract

Sustainable branding has emerged as a critical strategy for businesses in response to rising environmental concerns and the growing trend of green consumerism. This paper explores the relationship between sustainable branding strategies and consumer behavior, with an emphasis on how brands can align their values with environmental sustainability. The research investigates various branding approaches adopted by companies to communicate their green values, examines consumer perceptions of eco-friendly brands, and assesses the impact of green branding on consumer loyalty and purchasing decisions. Using a mixed-method approach, this study draws from secondary data and a structured survey to offer insights into effective sustainable branding practices. The findings highlight that authenticity, transparency, and consistent eco-friendly practices are pivotal in building brand trust and influencing green consumer behavior.

Keywords: Sustainable Branding, Green Consumerism, Eco-friendly Marketing, Corporate Social Responsibility (CSR), Brand Trust, Environmental Sustainability

1. Introduction

In an era where environmental concerns are at the forefront of global discourse, businesses are increasingly incorporating sustainability into their branding strategies. The rise of green consumerism has compelled companies to reevaluate their marketing practices and align them with sustainable values. Sustainable

branding refers to the process of creating a brand identity that emphasizes environmental responsibility, ethical practices, and long-term value creation for society and the planet.

This research seeks to explore how companies develop and implement sustainable branding strategies, and how these strategies influence consumer purchasing behavior. The core objective is to assess whether green branding fosters consumer trust, loyalty, and increased market competitiveness.

2. Literature Review

2.1 Sustainable Branding

According to Hartmann et al. (2005), sustainable branding integrates environmental, social, and economic dimensions into brand identity. It requires brands to go beyond traditional CSR by embedding sustainability into their core values and operations.

2.2 Green Consumerism

Peattie (2010) defines green consumerism as the purchasing behavior of consumers who are concerned about the environmental impact of their consumption. Such consumers prefer products that are eco-friendly, biodegradable, and ethically produced.

2.3 Theoretical Framework

The **Theory of Planned Behavior** (Ajzen, 1991) and the **Value-Belief-Norm Theory** (Stern et al., 1999) underpin this study by explaining how personal values and perceived behavioral control influence green consumption choices.

2.4 Brand Trust and Loyalty

Empirical studies (e.g., Chen, 2010) show that consumers are more likely to remain loyal to brands that demonstrate genuine concern for the environment. Transparency in green initiatives plays a key role in building brand trust.

3. Research Objectives

1. To analyze sustainable branding strategies adopted by organizations.
2. To examine consumer perceptions and attitudes toward green brands.
3. To evaluate the influence of sustainable branding on consumer buying behavior.
4. To identify the challenges in implementing sustainable branding practices.

4. Research Methodology

4.1 Research Design

A mixed-method approach combining qualitative and quantitative methods was used to obtain a comprehensive understanding of the topic.

4.2 Data Collection

- **Primary Data:** A structured online survey of 200 respondents aged 18–45 years, selected via stratified random sampling, was conducted.
- **Secondary Data:** Analysis of published case studies, journal articles, and reports from organizations such as UNEP and Greenpeace.

4.3 Data Analysis

Quantitative data was analyzed using descriptive statistics and regression analysis. Qualitative data from case studies were examined through thematic analysis.

4.4 Limitations

The study is limited by sample size and geographic scope, as responses were collected from urban areas in India only.

5. Findings and Discussion

5.1 Consumer Awareness and Preferences

The survey revealed that 72% of respondents consider sustainability an important factor in their purchasing decisions. Consumers are more inclined towards brands that actively promote eco-friendly initiatives.

5.2 Impact of Branding Elements

Eco-labels, green packaging, and sustainability certifications significantly enhance brand image. Respondents ranked transparency in sourcing and production processes as critical to trust.

5.3 Barriers to Green Consumerism

Price sensitivity and skepticism about greenwashing were major deterrents. Many consumers are unsure about the authenticity of green claims made by companies.

5.4 Case Examples

- **Patagonia:** Known for environmental activism, it integrates sustainable practices into every aspect of its branding.
- **The Body Shop:** Promotes ethical sourcing and cruelty-free products, gaining high customer trust and loyalty.

6. Implications for Practice

1. **Authenticity:** Brands must avoid greenwashing and ensure their claims are backed by verifiable data.
2. **Transparency:** Open communication about sustainability goals and achievements enhances credibility.
3. **Consumer Education:** Companies should invest in educating consumers about the environmental impact of their choices.
4. **Innovation:** Sustainable product innovation can differentiate a brand in a competitive market.

7. Conclusion

Sustainable branding is not just a trend but a strategic necessity in today's environmentally conscious market. Businesses that align their brand values with sustainability are more likely to gain consumer trust, foster loyalty, and achieve long-term success. However, the path to effective sustainable branding requires commitment, transparency, and consumer-centric strategies.

References

- Agarwal, P., Jain, V., & Goel, S. (2020). Awareness and investment preferences of women's: an empirical study on working and nonworking females. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 13469-13484.
- Ahmad, A. Y., Jain, V., Verma, C., Chauhan, A., Singh, A., Gupta, A., & Pramanik, S. (2024). CSR Objectives and Public Institute Management in the Republic of Slovenia. In *Ethical Quandaries in Business Practices: Exploring Morality and Social Responsibility* (pp. 183-202). IGI Global.
- Anand, R., Jain, V., Singh, A., Rahal, D., Rastogi, P., Rajkumar, A., & Gupta, A. (2023). Clustering of big data in cloud environments for smart applications. In *Integration of IoT with Cloud Computing for Smart Applications* (pp. 227-247). Chapman and Hall/CRC.

- Anand, R., Juneja, S., Juneja, A., Jain, V., & Kannan, R. (Eds.). (2023). Integration of IoT with cloud computing for smart applications. CRC Press.
- Ansari, S., Kumar, P., Jain, V., & Singh, G. (2022). Communication Skills among University Students. *World Journal of English Language*, 12(3), 103-109.
- Cao, Y., Tabasam, A. H., Ahtsham Ali, S., Ashiq, A., Ramos-Meza, C. S., Jain, V., & Shahzad Shabbir, M. (2023). The dynamic role of sustainable development goals to eradicate the multidimensional poverty: evidence from emerging economy. *Economic research-Ekonomska istraživanja*, 36(3).
- Chawla, C. H. A. N. C. H. A. L., & Jain, V. I. P. I. N. (2021). Teamwork on employee performance and organization Growth. *Journal of Contemporary Issues in Business and Government*, 27(3), 706.
- CHAWLA, C., & JAIN, V. (2017). PROBLEMS AND PROSPECTS OF TOURISM INDUSTRY IN INDIA-WITH SPECIAL REFERENCE TO UTTAR PRADESH. *CLEAR International Journal of Research in Commerce & Management*, 8(9).
- Chawla, C., Jain, V., & Mahajan, T. (2013). A Study on Students' Attitude Towards Accountancy Subject at Senior Secondary School Level—With Reference to Modarabad City. *International Journal of Management*, 4(3), 177-184.
- Chawla, C., Jain, V., Joshi, A., & Gupta, V. (2013). A study of satisfaction level and awareness of tax-payers towards e-filing of income tax return—with reference to Moradabad city. *International Monthly Refereed Journal of Research In Management & Technology*, 2, 60-66.
- Dadhich, M., Pahwa, M. S., Jain, V., & Doshi, R. (2021). Predictive models for stock market index using stochastic time series ARIMA modeling in emerging economy. In *Advances in Mechanical Engineering: Select Proceedings of CAMSE 2020* (pp. 281-290). Springer Singapore.
- Ehsan, S., Tabasam, A. H., Ramos-Meza, C. S., Ashiq, A., Jain, V., Nazir, M. S., ... & Gohae, H. M. (2023). Does Zero-Leverage phenomenon improve sustainable environmental manufacturing sector: evidence from Pakistani manufacture industry?. *Global Business Review*, 09721509221150876.

- Gupta, N., Sharma, M., Rastogi, M., Chauhan, A., Jain, V., & Yadav, P. K. (2021). Impact of COVID-19 on education sector in Uttarakhand: Exploratory factor analysis. *Linguistics and Culture Review*, 784-793.
- Hasan, N., Nanda, S., Singh, G., Sharma, V., Kaur, G., & Jain, V. (2024, February). Adoption of Blockchain Technology in Productivity And Automation Process of Microfinance Services. In *2024 4th International Conference on Innovative Practices in Technology and Management (ICIPTM)* (pp. 1-5). IEEE.
- Jain, V, Agarwal, M. K., Hasan, N., & Kaur, G. ROLE OF MICROFINANCE AND MICROINSURANCE SERVICES AS A TOOL FOR POVERTY ALLEVIATION.
- Jain, V. (2017). Emerging Digital Business Opportunities and Value. *Data Analytics & Digital Technologies*.
- Jain, V. (2021). A review on different types of cryptography techniques “should be replaced by” exploring the potential of steganography in the modern era. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(11), 1139-1146.
- Jain, V. (2021). A review on different types of cryptography techniques. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(11), 1087-1094.
- Jain, V. (2021). An overview of wal-mart, amazon and its supply chain. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(12), 749-755.
- Jain, V. (2021). An overview on employee motivation. *Asian Journal of Multidimensional Research*, 10(12), 63-68.
- Jain, V. (2021). An overview on social media influencer marketing. *South Asian Journal of Marketing & Management Research*, 11(11), 76-81.
- Jain, V. (2021). Information technology outsourcing chain: Literature review and implications for development of distributed coordination. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(11), 1067-1072.
- Jain, V. (2021). Word of mouth as a new element of the marketing communication mix: Online consumer review. *South Asian Journal of Marketing & Management Research*, 11(11), 108-114.

- Jain, V. I. P. I. N., Chawla, C. H. A. N. C. H. A. L., & Arya, S. A. T. Y. E. N. D. R. A. (2021). Employee Involvement and Work Culture. *Journal of Contemporary Issues in Business and Government*, 27(3), 694-699.
- Jain, V., & Ackerson, D. (2023). The Importance of Emotional Intelligence in Effective Leadership. Edited by Dan Ackerson, Semaphore, 5.
- Jain, V., & Garg, R. (2019). Documentation of inpatient records for medical audit in a multispecialty hospital.
- Jain, V., & Gupta, A. (2012). Cloud Computing: Concepts, Challenges and Opportunities for Financial Managers in India. *Amity Global Business Review*, 7.
- Jain, V., & Sami, J. (2012). Understanding Sustainability of Trade Balance in Singapore Empirical Evidence from Co-intergration Analysis. *Viewpoint Journal*, 2(1), 3-9.
- Jain, V., & Singh, V. K. (2019). Influence of healthcare advertising and branding on hospital services. *Pravara Med Rev*, 11, 19-21.
- Jain, V., Agarwal, M. K., Hasan, N., & Kaur, G. (2022). Role of Microfinance and Microinsurance Services As a Tool for Poverty Alleviation. *Journal of Management & Entrepreneurship*, 16(2), 1179-1195.
- Jain, V., Al Ayub Ahmed, A., Chaudhary, V., Saxena, D., Subramanian, M., & Mohiddin, M. K. (2022, June). Role of data mining in detecting theft and making effective impact on performance management. In *Proceedings of Second International Conference in Mechanical and Energy Technology: ICMET 2021, India* (pp. 425-433). Singapore: Springer Nature Singapore.
- Jain, V., Arya, S., & Gupta, R. (2018). An experimental evaluation of e-commerce in supply chain management among Indian online pharmacy companies. *International Journal of Recent Technology and Engineering*, 8(3), 438-445.
- Jain, V., Chawla, C., Agarwal, M., Pawha, M. S., & Agarwal, R. (2019). Impact of Customer Relationship Management on Customer Loyalty: A Study on Restaurants of Moradabad. *International Journal of Advanced Science and Technology*, 28(15), 482-49.
- Jain, V., Chawla, C., Arya, S., Agarwal, R., & Agarwal, M. (2019). An Empirical Study of Product Design for New Product Development with Special Reference to Indian Mobile Industry. *TEST Engineering & Management*, 81, 1241-1254.

- Jain, V., Chawla, C., Arya, S., Agarwal, R., & Agarwal, M. (2019). Impact of Job Satisfaction on relationship between employee performance and human resource management practices followed by Bharti Airtel Limited Telecommunications with reference to Moradabad region. *International Journal of Recent Technology and Engineering*, 8, 493-498.
- Jain, V., Goyal, M., & Pahwa, M. S. (2019). Modeling the relationship of consumer engagement and brand trust on social media purchase intention-a confirmatory factor experimental technique. *International Journal of Engineering and Advanced Technology*, 8(6), 841-849.
- Jain, V., Gupta, S. S., Shankar, K. T., & Bagaria, K. R. (2022). A study on leadership management, principles, theories, and educational management. *World Journal of English Language*, 12(3), 203-211.
- Jain, V., Navarro, E. R., Wisetsri, W., & Alshiqi, S. (2020). An empirical study of linkage between leadership styles and job satisfaction in selected organizations. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(9), 3720-3732.
- Jain, V., Ramos-Meza, C. S., Aslam, E., Chawla, C., Nawab, T., Shabbir, M. S., & Bansal, A. (2023). Do energy resources matter for growth level? The dynamic effects of different strategies of renewable energy, carbon emissions on sustainable economic growth. *Clean Technologies and Environmental Policy*, 25(3), 771-777.
- Jain, V., Rastogi, M., Ramesh, J. V. N., Chauhan, A., Agarwal, P., Pramanik, S., & Gupta, A. (2023). FinTech and Artificial Intelligence in Relationship Banking and Computer Technology. In *AI, IoT, and Blockchain Breakthroughs in E-Governance* (pp. 169-187). IGI Global.
- Jain, V., Sethi, P., Arya, S., Chawla, C., Verma, R., & Chawla, C. (2020). 5 1 Principal, "Project Evaluation using Critical Path Method & Project Evaluation Review Technique Connecting Researchers on the Globe View project Researcher's Achievements View project Project Evaluation using Critical Path Method & Project Evaluation Review Technique,". *Wesleyan Journal of Research*, 13(52).
- Jain, V., Sharma, M. P., Kumar, A., & Kansal, A. (2020). Digital Banking: A Case Study of India. *Solid State Technology*, 63(6), 19980-19988.

- Jain, V., Verma, C., Chauhan, A., Singh, A., Jain, S., Pramanik, S., & Gupta, A. (2024). A Website-Dependent Instructional Platform to Assist Indonesian MSMEs. In *Empowering Entrepreneurial Mindsets With AI* (pp. 299-318). IGI Global.
- Jan, N., Jain, V., Li, Z., Sattar, J., & Tongkachok, K. (2022). Post-COVID-19 investor psychology and individual investment decision: A moderating role of information availability. *Frontiers in Psychology*, 13, 846088.
- Jha, R. S., Jain, V., & Chawla, C. (2019). Hate speech & mob lynching: a study of its relations, impacts & regulating laws. *Think India (QJ)*, 22(3), 1401-1405.
- Jha, R. S., Tyagi, N., Jain, V., Chaudhary, A., & Sourabh, B. (2020). Role of Ethics in Indian Politics. *Waffen-Und Kostumkunde Journal*, 9(8), 88-97.
- Jun, W., Mughal, N., Kaur, P., Xing, Z., & Jain, V. (2022). Achieving green environment targets in the world's top 10 emitter countries: the role of green innovations and renewable electricity production. *Economic research-Ekonomska istraživanja*, 35(1), 5310-5335.
- Kansal, A., Jain, V., & Agrawal, S. K. (2020). Impact of digital marketing on the purchase of health insurance products. *Jour of Adv Research in Dynamical & Control Systems*, 12.
- Kaur, M., Sinha, R., Chaudhary, V., Sikandar, M. A., Jain, V., Gambhir, V., & Dhiman, V. (2022). Impact of COVID-19 pandemic on the livelihood of employees in different sectors. *Materials Today: Proceedings*, 51, 764-769.
- Khan, H., Veeraiah, V., Jain, V., Rajkumar, A., Gupta, A., & Pandey, D. (2023). Integrating Deep Learning in an IoT Model to Build Smart Applications for Sustainable Cities. In *Handbook of Research on Data-Driven Mathematical Modeling in Smart Cities* (pp. 238-261). IGI Global.
- Kumar, A., Kansal, A., & Jain, V. (2020). A Comprehensive Study of Factor Influencing Investor's Perception Investing in Mutual Funds. *European Journal of Molecular & Clinical Medicine*, 7(11), 2020.
- Kumar, S., & Jain, V. (2021). A survey on business profitability for a music artist by advertising on YouTube. *Journal of Contemporary Issues in Business and Government* | Vol, 27(3), 807.
- Liu, L., Bashir, T., Abdalla, A. A., Salman, A., Ramos-Meza, C. S., Jain, V., & Shabbir, M. S. (2024). Can money supply endogeneity influence bank stock returns? A case study

- of South Asian economies. *Environment, Development and Sustainability*, 26(2), 2775-2787.
- Liu, Y., Cao, D., Cao, X., Jain, V., Chawla, C., Shabbir, M. S., & Ramos-Meza, C. S. (2023). The effects of MDR-TB treatment regimens through socioeconomic and spatial characteristics on environmental-health outcomes: evidence from Chinese hospitals. *Energy & Environment*, 34(4), 1081-1093.
 - Liu, Y., Salman, A., Khan, K., Mahmood, C. K., Ramos-Meza, C. S., Jain, V., & Shabbir, M. S. (2023). The effect of green energy production, green technological innovation, green international trade, on ecological footprints. *Environment, Development and Sustainability*, 1-14.
 - Ma, X., Arif, A., Kaur, P., Jain, V., Refiana Said, L., & Mughal, N. (2022). Revealing the effectiveness of technological innovation shocks on CO2 emissions in BRICS: emerging challenges and implications. *Environmental Science and Pollution Research*, 29(31), 47373-47381.
 - Maurya, S. K., Jain, V., Setiawan, R., Ashraf, A., Koti, K., Niranjana, K., ... & Rajest, S. S. (2021). The Conditional Analysis of Principals Bullying Teachers Reasons in The Surroundings of The City (Doctoral dissertation, Petra Christian University).
 - MEHRA, A., & JAIN, V. (2021). A review study on the brand image on the customer's perspective. *Journal of Contemporary Issues in Business and Government* | Vol, 27(3), 773.
 - Meza, C. S. R., Kashif, M., Jain, V., Guerrero, J. W. G., Roopchand, R., Niedbala, G., & Phan The, C. (2021). Stock markets dynamics and environmental pollution: emerging issues and policy options in Asia. *Environmental Science and Pollution Research*, 28(43), 61801-61810.
 - RAJKUMAR, A., & JAIN, V. (2021). A Literature Study on the Product Packaging Influences on the Customers Behavior. *Journal of Contemporary Issues in Business and Government* | Vol, 27(3), 780.
 - Rajkumar, D. A., Agarwal, P., Rastogi, D. M., Jain, D. V., Chawla, D. C., & Agarwal, D. M. (2022). Intelligent Solutions for Manipulating Purchasing Decisions of Customers Using Internet of Things during Covid-19 Pandemic. *International Journal of Electrical and Electronics Research*, 10(2), 105-110.

- Ramos Meza, C. S., Bashir, S., Jain, V., Aziz, S., Raza Shah, S. A., Shabbir, M. S., & Agustin, D. W. I. (2021). The economic consequences of the loan guarantees and firm's performance: a moderate role of corporate social responsibility. *Global Business Review*, 09721509211039674.
- Rao, D. N., Vidhya, G., Rajesh, M. V., Jain, V., Alharbi, A. R., Kumar, H., & Halifa, A. (2022). An innovative methodology for network latency detection based on IoT centered blockchain transactions. *Wireless Communications and Mobile Computing*, 2022(1), 8664079.
- Sasmoko, Ramos-Meza, C. S., Jain, V., Imran, M., Khan, H. U. R., Chawla, C., ... & Zaman, K. (2022). Sustainable growth strategy promoting green innovation processes, mass production, and climate change adaptation: A win-win situation. *Frontiers in Environmental Science*, 10, 1059975.
- Setiawan, R., Kulkarni, V. D., Upadhyay, Y. K., Jain, V., Mishra, R., Yu, S. Y., & Raisal, I. (2020). The Influence Work-Life Policies Can Have on Part-Time Employees in Contrast to Full-Time Workers and The Consequence It Can Have on Their Job Satisfaction, Organizational Commitment and Motivation (Doctoral dissertation, Petra Christian University).
- Shaikh, A. A., Doss, A. N., Subramanian, M., Jain, V., Naved, M., & Mohiddin, M. K. (2022). Major applications of data mining in medical. *Materials Today: Proceedings*, 56, 2300-2304.
- Sharif, S., Lodhi, R. N., Jain, V., & Sharma, P. (2022). A dark side of land revenue management and counterproductive work behavior: does organizational injustice add fuel to fire?. *Journal of Public Procurement*, 22(4), 265-288.
- Sharifi, P., Jain, V., Arab Poshtkahi, M., Seyyedi, E., & Aghapour, V. (2021). Banks credit risk prediction with optimized ANN based on improved owl search algorithm. *Mathematical Problems in Engineering*, 2021(1), 8458501.
- Sharma, A., & Jain, V. (2020). A study on the re-relationship of stress and demographic profile of employees with special reference to their marital status and income. *UGC Care Journal*, 43(4), 111-115.

- Sharma, D. K., Boddu, R. S. K., Bhasin, N. K., Nisha, S. S., Jain, V., & Mohiddin, M. K. (2021, October). Cloud computing in medicine: Current trends and possibilities. In 2021 International Conference on Advancements in Electrical, Electronics, Communication, Computing and Automation (ICAECA) (pp. 1-5). IEEE.
- Sikandar, H., Kohar, U. H. A., Corzo-Palomo, E. E., Gamero-Huarcaya, V. K., Ramos-Meza, C. S., Shabbir, M. S., & Jain, V. (2024). Mapping the development of open innovation research in business and management field: A bibliometric analysis. *Journal of the Knowledge Economy*, 15(2), 9868-9890.
- Sumathi, M. S., Jain, V., & Zarrarahmed, Z. K. (2023). Using artificial intelligence (ai) and internet of things (iot) for improving network security by hybrid cryptography approach.
- Veeraiah, V., Ahamad, S., Jain, V., Anand, R., Sindhwani, N., & Gupta, A. (2023, May). IoT for Emerging Engineering Application Related to Commercial System. In International Conference on Emergent Converging Technologies and Biomedical Systems (pp. 537-550). Singapore: Springer Nature Singapore.
- Verma, A. K., Ansari, S. N., Bagaria, A., & Jain, V. (2022). The Role of Communication for Business Growth: A Comprehensive Review. *World Journal of English Language*, 12(3), 164-164.
- Verma, A., Singh, A., Sethi, P., Jain, V., Chawla, C., Bhargava, A., & Gupta, A. (2023). Applications of Data Security and Blockchain in Smart City Identity Management. In *Handbook of Research on Data-Driven Mathematical Modeling in Smart Cities* (pp. 154-174). IGI Global.
- Verma, C., & Jain, V. Exploring Promotional Strategies in Private Universities: A Comprehensive Analysis of Tactics and Innovative Approaches.
- Verma, C., Sharma, R., Kaushik, P., & Jain, V. (2024). The Role of Microfinance Initiatives in Promoting Sustainable Economic Development: Exploring Opportunities, Challenges, and Outcomes.
- Wang, J., Ramzan, M., Makin, F., Mahmood, C. K., Ramos-Meza, C. S., Jain, V., & Shabbir, M. S. (2023). Does clean energy matter? The dynamic effects of different strategies of renewable energy, carbon emissions, and trade openness on sustainable economic growth. *Environment, Development and Sustainability*, 1-10.

- Zhang, M., Jain, V., Qian, X., Ramos-Meza, C. S., Ali, S. A., Sharma, P., ... & Shabbir, M. S. (2023). The dynamic relationship among technological innovation, international trade, and energy production. *Frontiers in Environmental Science*, 10, 967138.
- Zhengxia, T., Batool, Z., Ali, S., Haseeb, M., Jain, V., Raza, S. M. F., & Chakrabarti, P. (2023). Impact of technology on the relation between disaggregated energy consumption and CO2 emission in populous countries of Asia. *Environmental Science and Pollution Research*, 30(26), 68327-68338.