TIJSBM

Techno India Journal of the Strategic Business Mind

International Peer-Reviewed Open Access Journal

ARTICLE TITLE

Strategic Thinking and Competitive Advantage in Green Startups: A Conceptual Framework for Sustainable Entrepreneurship

ARTICLE TYPE

Research Article	*Review Article*	***Case Study***	***Conceptual Paper***	*Policy Paper*	*Short Communication*

THEMATIC CATEGORY

Category A: **Strategy & Leadership** | Category B: Technology & Digital Business | Category C: Finance & Economics

Category D: Marketing & Consumer Studies | Category E: Human Capital & Organizations | Category F: **Sustainability & ESG**

Category G: **Entrepreneurship & Emerging Markets** | Category H: Operations, Analytics & Supply Chain

AUTHOR(S) DETAILS

#	Full Name	Affiliation & Country	Email Address	ORCID iD	Role
1	*Dr. Nilanjana Roy Chowdhury**	Assistant Professor, Department of English, Techno India University, WB	nilanjana.r@technoindiaeducation.com	0009-0004-7096-3870	Corresponding
2	Sounak Ghosh	MBA, International Business, University of Greenwich, London	rivu.195@gmail.com	NA	Co-author

CORRESPONDING AUTHOR

Name: Dr. Nilanjana Roy Chowdhury | Postal Address: Department of English, Techno India University,West Bengal

Tel: +91 7908664703 | Email: nilanjana.r@technoindiaeducation.com

AUTHOR CONTRIBUTIONS (CRediT Taxonomy)

☐ Conceptualisation	☐ Data Curation	✔ Formal Analysis
☐ Funding Acquisition	✔ Investigation	☐ Methodology
☐ Project Administration	☐ Resources	☐ Software
☐ Supervision	✔ Validation	☐ Visualisation
✔ Writing – Original Draft		✔ Writing – Review & Editing

AUTHOR CONTRIBUTIONS (CRediT Taxonomy)

✔ Conceptualisation	✔ Data Curation	☐ Formal Analysis
☐ Funding Acquisition	☐ Investigation	✔ Methodology
☐ Project Administration	☐ Resources	☐ Software
☐ Supervision	☐ Validation	☐ Visualisation
✔ Writing – Original Draft		☐ Writing – Review & Editing

FUNDING DECLARATION

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

COMPETING INTERESTS DECLARATION

The authors declare no competing interests.

DATA AVAILABILITY STATEMENT

The research paper is built on three case studies whose data is taken from TechnoServe (2023).

Strategic Thinking and Competitive Advantage in Green Startups: A Conceptual Framework for Sustainable Entrepreneurship

ABSTRACT

Purpose	*This paper aims to develop a conceptual framework integrating strategic thinking with competitive advantage in green startups, focusing on sustainable entrepreneurship within the Indian context.*
Design / Methodology / Approach	*The study employs a qualitative, explanatory theory-building design, combining inductive and deductive approaches. Insights from existing literature are synthesized to construct the framework, which is validated through empirical case studies of Indian green startups.*
Findings	*Strategic thinking is identified as a key driver for integrating Environmental, Social, and Governance (ESG) principles, mediated by innovation capabilities, leading to competitive advantage. The framework is supported by case studies demonstrating how strategic planning, ESG integration, and innovation collectively foster sustainable competitive advantages.*
Research Limitations	*The study relies on secondary data and qualitative case analyses, limiting generalizability. The small number of case studies and the lack of quantitative validation restrict empirical testing of the framework's relationships.*
Practical / Policy Implications	*Entrepreneurs are encouraged to embed sustainability in core strategic decisions. Policymakers can develop ESG-linked incentives and innovation funding to support green startups. Investors may use the framework to evaluate startups' sustainable strategic orientation and long-term value.* .
Originality / Value	*The paper contributes theoretically by merging the Resource-Based View, Dynamic Capabilities, Triple Bottom Line, and Stakeholder theories into a unified framework explaining sustainable competitive advantage in green startups. It highlights strategic thinking as a higher-order capability linking ESG and innovation for sustainable entrepreneurship.*

KEYWORDS

Sustainability • ESG • Innovative Capability • Competitive Advantage • Green Start-up

1. Introduction

The post-pandemic era has witnessed a major shift in human thought processes towards a more constructive world with a low carbon footprint. A structural transformation has been observed in the global economic landscape, as sustainability has become a central pillar of business strategy. This shift in the paradigm of thinking has accelerated in response to concerns about climate change, biodiversity loss, and resource depletion. The dire experience of human beings has intensified the need for environmentally responsible business models. In recent years, a growing awareness of environmental, social, and Governance (ESG) issues has been observed in this sustainable shift. According to de Souza, Puglieri, and de Francisco (2024), "today sustainability is not just a choice but an urgent necessity". Sustainable practices have proved to provide competitive advantages to companies (Walse and Dodds, 2017; Xu, 2023; Souza, Puglieri, and de Francisco, 2024). Furthermore, eco-friendly startups develop products or services that align with the goals of a sustainable economy, contributing to the reduction of greenhouse gas emissions, improving energy efficiency, and adopting a circular economy approach (Bergset and Fitcher, 2015). These businesses operate at the crossroads of entrepreneurship and sustainability by utilizing eco-friendly technologies and circular economic frameworks. The World Economic Forum (2022) highlights that startups play a

crucial role in fostering global economic growth by generating value and serving as key players in the innovation ecosystem. Sustainable startups are instrumental in creating jobs, advancing technology, and promoting economic growth with a low carbon footprint. The WEF (2022) also indicates that around 68% of startups globally integrate ESG principles from the early stages of their development, showcasing a proactive alignment between sustainability and strategic decision-making. Transitioning the economy to be more eco-friendly requires a strategy centered on sustainable transitions and substantial changes in the production and consumption of goods (UNEP, 2011). A key element in addressing the complex challenge of sustainable transitions involves developing, implementing, and disseminating either entirely new or significantly improved products, processes, or practices that reduce natural resource consumption and minimize the emission of harmful substances throughout their life cycle. As a result, sustainable innovation and its dissemination are considered vital components of any strategy aimed at transforming society towards sustainable development and a green economy (Bergset & Fitcher, 2015).

ESG investing has emerged as a crucial framework for evaluating enterprises based on their environmental and social impact, along with their financial performance and startup scalability.
Green startups have been recognized as vital in meeting the United Nations' Sustainable Development Goals, in promoting sustainable production and supporting climate objectives (Philips, 2026). The United Nations Environment Programme (UNEP) defines a green economy as one that minimizes carbon emissions, efficiently uses resources, and promotes social inclusivity. Studies show that countries with higher levels of green entrepreneurship tend to experience more significant GDP growth and demonstrate stronger economic resilience during financial crises (Watson et al., 2023). Furthermore, sustainability reporting and ESG disclosures have become critical tools for enhancing transparency and stakeholder engagement. Sustainability Accounting Standards Board (2020) have reported that organizations worldwide are adopting standardized ESG frameworks to assess their sustainability performance, which helps in gaining investors' confidence and corporate reputation.
The Indian Government has introduced various programs, such as Startup India, the ATAL Innovation Mission, and the Production Linked Incentive (PLI) Scheme, to create a supportive atmosphere for green entrepreneurship by promoting innovation, providing financial incentives, and backing clean technologies (Naroju and Chandrasekhar, 2025).These programs are designed to align with both global and national priorities, such as the Sustainable Development Goals (SDGs), Intended Nationally Determined Contributions (INDCs), and the target of achieving Net Zero emissions by 2070 (Naroju and Chandrasekhar, 2025). Moreover, they back the Atmanirbhar Bharat (self-reliant India) initiative and the long-term vision of Viksit Bharat 2047. Government efforts, like the Green Energy Open Access Rules (2020), PMKUSUM, and solar rooftop initiatives, aim to boost the growth of startups in the solar cell manufacturing, assembly, and installation sectors. The Ministry of New and Renewable Energy (MNRE) has initiated the Green Hydrogen Mission with a funding allocation of 19,700 crore, aiming to establish the nation as a global frontrunner in green hydrogen. Additionally, a recent call for proposals worth 100 crore has been issued to support startups working on hydrogen production, innovation, storage, transportation, and utilization technologies (Naroju and Chandrashekar, 2025). The ministry also hosts annual startup expos and green hydrogen conferences to encourage startups focused on green hydrogen (Singh and Sidhu, 2021; Naroju and Chandrashekar, 2025). These initiatives are pivotal in facilitating a clean and green transition.

Current research highlights the crucial impact of green startups in promoting sustainable development and gaining a competitive edge through innovation, strategic planning, and the integration of sustainability. Nonetheless, there is still a disconnect between conceptual frameworks and these essential systems. This research seeks to create a conceptual framework that combines strategic planning with competitive advantages in green startups. The study specifically focuses on the Indian demographic, with an emphasis on Indian green startups.

2. Research Methodology

The study aims to develop a conceptual framework that integrates sustainability and strategic management, drawing on existing literature. This section presents the methodological framework adopted to investigate the role of strategic thinking as a source of competitive advantage in green startups.

2.1 Research Philosophy and Design

It is a qualitative study that relies on an explanatory theory-building research design.
The research approach combines inductive and deductive methods that utilize the insights from existing literature to construct a conceptual framework, which is then reanalyzed and confirmed through empirical case studies.

2.2 Validity and Reliability

The validity of the research is ensured through existing literature reviews. The internal validity is matched through pattern matching in the case studies. The reliability is assured through transparent research procedures.

2.3. Ethical Considerations

The study maintains ethical research standards through proper citations and referencing, and no data manipulations.

3. Discussion

The dominant paradigms that play a key role in successful green startup developments are ESG integration, strategic thinking, innovation capability, and competitive advantages.

3.1. Strategic thinking and ESG integration

Sustainable entrepreneurship requires strategic thinking alongside market awareness and adaptability (Kahupi et al., 2021). It has been observed that founders who apply strategic thinking often integrate Environmental, Social, and Governance criteria early on.

Sinnaiah, Adam, and Mahadi (2023) state that “the term strategy indicates the implementation of two segments, which are important to achieve the organization’s objectives and goals”. They are:
The first segment of strategic management is the effective action programs for the systematic and continuous governance and functioning of the organization (Sinnaiah, Adam, and Mahadi, 2023).
The second segment is the resource allocation pattern that addresses the critical issues with solutions that best fit the current environmental factors and ensures the vitality and image of the organization (Sinnaiah, Adam, and Mahadi, 2023).

Therefore, alongside financial measures, environmental and social achievements also count for organizational profitability. These can only be achieved through strategic thinking and proper implementation of plans and strategies. “The effectiveness of the strategies employed can indicate the organization’s performance in achieving its objectives and goals” (Sinnaiah, Adam, and Mahadi, 2023). The better the organizations can implement their strategies, the better they have chances of meeting their goals and objectives in a faster and smoother way.

Hence, it can be deduced from the literature that strategic thinking is a critical orientation for green startups seeking sustainability. Strategic thinking, together with strategic planning and management, helps in implementing ESG. It, in turn, helps in gaining competitive advantages in the market. Jung, Ko, and Kim (2025) state that companies that increasingly align their innovation activities with ESG principles to attract investors and customers," using collaborations and absorptive capacity, overcome resource constraints easily. This indicates that strategic planning helps in the integration of ESG by incorporating long-term environmental objectives, which enhances social legitimacy and increases investors' trust in green startups.

Organizations are in a constant process of developing new and purposeful strategies to be more innovative, competitive, and effective in the globalized world (Bauhali et al., 2015; Asoobe, 2021). Therefore, strategic thinking with proper strategic planning and management helps in gaining a competitive advantage in the market. "Thinking strategically aims to find new and imaginative strategies that can be used to shape the level of competition" (Steptoe-Warren, Howat, and 2011; Thahrim et al., 2024).

3.2. Innovation Capabilities

The integration of ESG requires innovative capabilities. It has been observed that startups that focus on sustainability always invest in eco-innovations. Sajid, Iqbal, and Ilyas (2025) in their empirical study show that "green innovation capabilities are valuable and distinctive organizational resources that provide sustainable competitive advantage". In other words, when companies strategically incorporate ESG criteria, they often innovate by creating new products or processes, such as energy-efficient designs or circular services, that enhance both their performance and environmental impact. Moreover, sustainability-driven innovations are helpful in cost savings and making a difference in society. Jung, Ko, and Kim (2025) state that sustainability-focused firms gain "long-term competitive advantages through enhanced operational efficiency, cost reductions, and market differentiation." Thus, innovation capabilities can be assumed to act as a bridge between strategic thinking, ESG, and competitive advantage for green startups.

3.3. Competitive Advantage

Green startups are often advantageous in the case of funding. This leads to an easy step towards competitive advantages. Green startups frequently get into specialized markets and secure funding that traditional companies cannot, supporting Porter's idea of an advantage based on differentiation (Kahupi et al., 2021). Awasthy and Suresh (2023) state that green sustainability practices help green startups in achieving competitive advantages by establishing hierarchies of enabling factors, i.e., from management support to green designs. Furthermore, from the resource-based perspective, development of dynamic capabilities through strategic ESG implementation allows companies to swiftly respond to environmental shifts, while CSR-focused initiatives, such as green management, act as distinctive assets that provide a long-lasting competitive edge (Li, Sun, and Gao, 2022). Therefore, startups that strategically incorporate sustainability into their operations transform ESG into an integrated capability. This approach not only meets the expectations of stakeholders, including investors, customers, and regulators, but also develops unique processes and offerings that align with the principles of core competitive advantage theory.

3.4. Discussions and Implications

The above sections can be easily used to draw implications that highlight or acknowledge the conceptual framework that strategic thinking incorporates ESG goals, which in turn is mediated by innovation capabilities and leads to competitive differentiation.

The mediated pathway that has come out of the analysis is as follows:

Strategic Thinking → ESG Integration → Innovation Capability → Competitive Advantage
Therefore, strategic thinking and long-term planning are not an optional extra but the very first step towards sustainability-led success. The entrepreneurs who incorporate ESG goals find it easier to innovate and subsequently win investment or market share.

4. Case Study Reports

This section validates the given conceptual framework proposed in this study with real green startups in India. The analysis demonstrates how strategic thinking incorporates ESG and innovation, which ultimately leads to competitive advantages in case studies of Indian green startups. The data of the case studies are sourced from TechnoServe (2023). Furthermore, established theories are used to substantiate the conceptual framework.

4.1. Case Study 1: Brisil

Brisil turns the rice ash husk into eco-friendly silica. It helps customers reduce carbon emissions through eco-friendly products such as tires, rubber, paint, footwear, etc. Brisil'sbusiness model aligns with the Resource-Based View (RBV) theory, which suggests that firms achieve sustained competitive advantage through valuable, rare, inimitable, and non-substitutable (VRIN) resources (Barney, 1991). Brisil transforms agricultural wastes into high-value silica for industry demand, demonstrating superior resource utilization capabilities. It reflects its strategic thinking, which exhibits system thinking and long-term orientation. This reflects the Triple Bottom Line (TBL) theory approach, which emphasizes the integration of environmental, social, and economic value creation (Elkington, 1997). The firm has also witnessed the need to adapt innovation techniques to upgrade itself with new technological ideas, which helped it compete with larger silicon-producing companies. This aligns with Dynamic Capabilities Theory, which highlights the importance of adapting and reconfiguring resources in changing environments (Teece, Pisano, and Shuen, 1997).

Brisil confirms the proposed conceptual framework, which suggests that strategic thinking enables ESG-driven innovation, leading to sustained competitive advantage for green startups.

4.2. Case Study 2: RCube Recycling

RCube Recycling specializes in recycling printer cartridges and offers them to businesses at a reduced cost. The company exemplifies Dynamic Capabilities Theory by identifying opportunities in electronic waste management, capitalizing on them through a circular business model, and adapting its operations to enhance efficiency (Teece, 2007). RCube addresses the expectations of both corporate needs and environmentally conscious customers. This is a case of targeting multiple stakeholders according to Stakeholder Theory (Freeman, 1984).

The firm's primary business model is innovation and the circular economy. Innovation business model is a key driver for competitive advantage in sustainable enterprises (Boons and Ludeke-Freund, 2013). It gains a competitive advantage through differentiation in cost reduction and environmental sustainability.

This case study supports the argument that green startups achieve a competitive advantage through sustainable innovation and the incorporation of ESG.

4.3. Case Study 3: Ekam Eko

Ekam Eko is a firm that targets the need for waterless sanitation solutions, which align with global sustainability goals, particularly SDG 6 (UN Sustainable Development Goal number six). It aligns with the Triple Bottom Line framework by addressing environmental (water conservation), social (sanitation), and economic (cost efficiency) dimensions simultaneously (Elkington, 1997).
The firm's innovation capabilities align with Dynamic Capabilities Theory, as it continuously develops and refines sustainable technologies to respond to environmental challenges (Teece, 2007). It even targets multiple stakeholder needs like governments and institutions, supporting Stakeholder Theory (Freeman, 1984).

Ekam Eko's innovative technologies and sustainable management planning keep it at a competitive advantage in the market. It incorporates strategic thinking with ESG and innovative mediator capabilities in achieving a higher rank among the stakeholders. This aligns with the conceptual framework proposed in this study.

5. Interpretation of Findings

The findings across the three case studies strongly align with the established theories used in them. Strategic thinking leads to an innovative mediating factor that integrates resources (RBV), which in turn enables adaptability (Dynamic Capabilities), ensures sustainability (TBL), and aligns stakeholder interests (Stakeholder Theory).

This, in turn, aligns with the conceptual framework that green startups achieve competitive advantage and sustainability through strategic thinking, innovation capabilities, and incorporation of ESG.

6. Conclusion

The results indicate that strategic thinking is the key driver for green startups to secure a sustainable competitive edge. Companies that implement long-term, system-focused strategies are more successful in integrating ESG principles into their main operations, thereby improving efficiencies and building stakeholder trust. Innovation capability acts as a bridge, converting sustainability strategies into marketable solutions such as circular business models and eco-friendly products. These findings confirm that competitive advantage arises from aligning sustainability with innovation, emphasizing that sustainability is crucial for value creation in entrepreneurial ecosystems.

The study offers a significant theoretical contribution by merging the Resource-Based View (RBV), Dynamic Capabilities Theory, Triple Bottom Line (TBL), and Stakeholder Theory into a unified framework that elucidates sustainable competitive advantage in green startups. By identifying strategic thinking as a higher-order capability, the research expands the existing literature on sustainable entrepreneurship and underscores the interconnected roles of ESG and innovation as mediating factors. Practically, the study provides actionable insights for entrepreneurs, policymakers, and investors. Entrepreneurs are advised to integrate sustainability into core strategic decision-making rather than treating it as a secondary function. Policymakers can use these insights to create targeted support mechanisms, such as ESG-linked incentives and innovation funding, to promote green entrepreneurship. Investors, especially those focused on impact investing, can apply the framework to assess startups based on their strategic sustainability orientation and long-term value potential.

The study acknowledges certain limitations. It depends on secondary data and qualitative case analysis, which limits its generalizability across different contexts. The limited case studies, while offering depth, may not fully represent green startup ecosystems. The absence of quantitative validation restricts the testing of relationships within the conceptual framework. Although it provides theoretical insights, further empirical validation is necessary.

Future research should empirically test the framework using Structural Equation Modeling to explore relationships between strategic thinking, ESG integration, innovation capability, and competitive advantage. Longitudinal studies could investigate how these relationships develop as startups grow. Industry-specific studies in renewable energy, sustainable fitness, and circular manufacturing would offer deeper insights. Comparative studies between emerging and developed economies could uncover contextual differences. Research might also explore moderating variables like government policy, digital transformation, and market uncertainty to understand external factors influencing sustainable competitive advantage.

. References

1. Asobee, M. S. (2021). Exploring the importance of strategic thinking to strategic planning in the strategic management process. *Journal of Business and Management Sciences, 9*(2), 68–70. https://doi.org/10.12691/jbms-9-2-2

2. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

3. Bergset, L., & Fichter, K. (2015). Green start-ups – A new typology for sustainable entrepreneurship and innovation research. *Journal of Innovation Management*, 3(3), 118–144. http://hdl.handle.net/10216/80026

4. Bouhali, R., Mekdad, Y., Lebsir, H., &Ferkha, L. (2015). Leader roles for innovation: Strategic thinking and planning. *Procedia – Social and Behavioral Sciences, 181*, 72–78. https://doi.org/10.1016/j.sbspro.2015.04.865

5. Elkington, J. (1997). *Cannibals with forks: The triple bottom line of 21st century business*. Capstone.

6. Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman

7. Government of India, Ministry of Power. (2020). *Electricity (Green Energy Open Access) Rules*, 2020. https://powermin.gov.in

8. Jung, J., Ko, H., & Kim, Y. J. (2025). How do startups drive innovations towards sustainability? *Sustainability, 17*(4), 1693. https://doi.org/10.3390/su17041693

9. Kahupi, I., Hull, C. E., Okorie, O., & Millette, S. (2021). Building competitive advantage with sustainable products: A case study perspective of stakeholders. *Journal of Cleaner Production, 289*, 125699. https://doi.org/10.1016/j.jclepro.2020.125699

10. Li, W., Sun, Y., & Gao, Y. (2022). Relationship between green entrepreneurship orientation, integration of opportunity and resource capacities and sustainable competitive advantage. *Frontiers in Psychology, 13*, 1068734. https://doi.org/10.3389/fpsyg.2022.1068734

11. Martins de Souza, A., Puglieri, F. N., & de Francisco, A. C. (2024). Competitive Advantages of Sustainable Startups: Systematic Literature Review and Future Research Directions. *Sustainability*, 16(17), 7665. https://doi.org/10.3390/su16177665

12. Naroju, B., & Chandrashekar, K. (2025, November 27–28). *Green startups as catalysts for a green economy: Prospects and challenges*. Paper presented at the 10th International Conference on Economic Growth and Sustainable Development: Emerging Trends, Shri DharmasthalaManjunatheshwara Institute for Management Development, Mysuru, India.

13. Phillips, P.A. (2026). *Sustainable Strategic Management: Leadership with Purpose* (1st ed.). Routledge. https://doi.org/10.4324/9781003516774

14. Sajid, A. N., Iqbal, A., & Ilyas, R. M. A. (2025). Green innovation for sustainable competitive advantage: A resource-based view perspective on SMEs in Pakistan. *Pakistan Journal of Humanities and Social Sciences*, *13*(3), 47–58. https://doi.org/10.52131/pjhss.2025.v13i3.2954

15. Sinnaiah, T., Adam S., Mahadi B. (2023). A strategic management process: the role of decision-making style and organisational performance. *Journal of Work-Applied Management*, Vol. 15 No. 1 pp. 37–50, doi: https://doi.org/10.1108/JWAM-10-2022-0074

16. Sreenivasan, A., & Suresh, M. (2023). Factors influencing sustainability in start-ups operations 4.0. *Sustainable Operations and Computers*, *4*, 105–118. https://doi.org/10.1016/j.susoc.2023.03.002

17. Steptoe-Warren, G., Howat, D., Hume, I. (2011). Strategic thinking and decision making: literature review". *Journal of Strategy and Management*, 4(3) pp. 238–250, doi: https://doi.org/10.1108/17554251111152261

18. Sustainability Accounting Standards Board. (2020). SASB standards. https://www.sasb.org/standards-overview/

19. TechnoServe. (2023). *Green startups in India*. Retrieved from https://www.technoserve.org/blog/green-startups-india/

20. Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509–533.

21. Teece, D. J. (2007). Explicating dynamic capabilities. *Strategic Management Journal*, *28*(13),1319–1350.

22. Thahrim, M., Hasyim, A. W., Abdulhaji, S., & Fahri, J. (2024). Consequences of strategic thinking: A systematic literature review. *Library Progress International*, *44(3)*, 15952–15965.

23. United Nations Environment Programme (UNEP). (2011). Towards a green economy: Pathways to sustainable development and poverty eradication. https://sdgs.un.org/publications/unep-2011-towards-green-economy-pathways-sustainable-development-and-poverty

24. Walsh, P. R., & Dodds, R. (2017). Measuring the choice of environmental sustainability strategies in creating a competitive advantage. *Business Strategy and the Environment*, 26(5), 672–687. https://doi.org/10.1002/bse.1949

25. Watson, R., Nielsen, K. R., Wilson, H. N., Macdonald, E. K., Mera, C., & Reisch, L. A. (2023). Policy for sustainable entrepreneurship: A crowdsourced framework. *Journal of Cleaner Production*, 383, 135234. https://doi.org/10.1016/j.jclepro.2022.135234

26. World Economic Forum. (2022). *Chief Economists Outlook: May 2022*. Geneva: *World Economic Forum.*

27. Xu, Z. (2023). Environmental dynamics and corporate social responsibility: An empirical analysis based on Chinese manufacturing listed companies. *Sustainable Futures*, 6, 100124. https://doi.org/10.1016/j.sftr.2023.100124