

Sport, Business, and Sustainability: Trends and Insights from Bibliometric Analysis

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Abstract

Environmental concerns have increasingly influenced global attention, with both national and international institutions working to address and mitigate their impact. As businesses are central to economic systems, their relationship with environmental sustainability has become a key area of study, particularly within the context of sports. This paper explores the intersection of business, sports, and environmental issues, investigating how these fields have been examined in academic research over time. Using bibliometric analysis, the study identifies key trends, prominent sources, and influential works in this growing area of research. The findings reveal a significant rise in publications over recent years, particularly in the past few years, indicating a strong and increasing focus on sustainable practices in the sports industry. Additionally, the study highlights the dominant role of certain countries and academic institutions in contributing to this field.

Keywords

Business, bibliometric analysis, sustainability, sport

Introduction

Environmental issues have risen to prominence as one of the most critical global concerns, engaging governments, businesses, and individuals alike. This heightened focus stems from the growing visibility and tangible impacts of environmental challenges, which affect communities across the world in profound ways. Extreme weather events, for instance, have become more frequent and severe, illustrating the urgent need for sustainable interventions. Droughts, as observed in studies, have caused significant disruptions in certain regions, impacting agriculture, water resources, and livelihoods (Taufik et al., 2020; Marengo et al., 2021). Conversely, other areas have grappled with extreme cold and heavy snowfall, creating challenges for infrastructure, transportation, and daily life (Zhang, 2005; Zhu, 2019). These stark contrasts underscore the complex and diverse nature of environmental issues globally.

As environmental concerns take center stage, the role of businesses in addressing these challenges has gained increasing attention. Businesses, as fundamental drivers of economic systems, have a significant environmental footprint. Many studies have illuminated the strong interconnection between environmental sustainability and economic systems, emphasizing that sustainable practices are essential for long-term economic stability (Destek & Sinha, 2020; Erat et al., 2023). However, economic growth has often been pursued at the expense of environmental well-being. For instance, industrial expansion has been linked to air pollution, which not only exacerbates environmental degradation but also increases health-related expenditures (Chen & Chen, 2021). Historically, there has been a lack of awareness and understanding regarding the causes and effects of environmental degradation, particularly within the business community and broader society (Kumar et al., 2021). This limited awareness has impeded the adoption of sustainable practices. However, recent years have witnessed a paradigm shift. Environmental concerns have gained significant traction, becoming a flourishing topic of discussion and research. This shift reflects a growing recognition of the need to balance economic development with environmental stewardship.

Against this backdrop, the present study delves into the intersection of sports, business, and environmental issues. Sports, as a global industry and cultural phenomenon, occupy a unique position within the broader economic and environmental discourse. From mega-events with substantial environmental footprints to the integration of sustainability in sports management practices, the intersection of these fields offers rich avenues for exploration. The objective of this study is to examine existing research that spans these interconnected domains, providing insights into how sports, business, and environmental considerations interact and influence one another. Employing bibliometric analysis facilitates a rigorous investigation through the application of statistical methodologies. By leveraging this analytical approach, the present study seeks to make a substantive contribution to the scholarly discourse on sustainability. Furthermore, it aims to uncover actionable insights and opportunities for promoting environmentally responsible practices within the sports industry, thereby fostering a deeper integration of sustainable principles into this dynamic sector.

Method and Data

This study investigates the body of research that explores the intersection of sports, business, and environmental issues, utilizing bibliometric analysis to uncover significant trends, influential contributors, and thematic developments in the literature. Bibliometric analysis provides a quantitative framework for understanding the structure and evolution of academic fields, offering insights that go beyond the surface-level quantitative summaries of research activity. As Donthu et al. (2021) highlight, bibliometric methods enable scholars to systematically map the cumulative scientific knowledge in established academic domains, offering a detailed understanding of research trajectories, collaborations, and knowledge diffusion. Unlike traditional qualitative methods, bibliometric analysis uses quantitative measures to assess the performance and impact of publications, journals, authors, and institutions. This approach not only highlights the volume of academic output but also sheds light on shifts in thematic priorities, geographic trends, and collaboration networks within the literature. By examining citation patterns and keyword analyses, bibliometric methods reveal how the field has evolved over time and where it is heading.

The focus of this study is on the intersection of sport, business, and environment, spanning the period from 1987 to 2024. This timeframe captures over three decades of scholarly work, enabling an in-depth exploration of long-term trends and developments in this multidisciplinary domain. To achieve this, the Bibliometrix software, a powerful and widely-used tool for bibliometric analysis (Aria & Cuccurullo, 2017), was employed. This software facilitated the extraction and visualization of key metrics, such as annual publication growth, co-authorship networks, and thematic clusters. Data for this analysis was sourced from the Web of Science, a leading citation database renowned for its comprehensive coverage of high-quality academic publications. The use of this database ensures the inclusion of peer-reviewed articles, reviews, and other scholarly outputs, providing a reliable foundation for analysis. The systematic approach adopted in this study allows for the identification of pivotal works, emerging research topics, and influential institutions and authors in the field. Additionally, it offers insights into the interplay between sports, business practices, and environmental sustainability, contributing to the broader discourse on sustainable development and interdisciplinary collaboration.

Through this bibliometric investigation, the study aims to provide a holistic understanding of the research landscape at the intersection of these three domains, offering valuable insights for researchers, policymakers, and practitioners. By analyzing how this field has grown and evolved over time, the study not only identifies current knowledge gaps but also points to future research directions that can further enhance the integration of sustainability within sports and business practices.

Table 1. Main information about data

| | |
|---------------------------------|-----------|
| Timespan | 1987:2024 |
| Sources (Journals, Books, etc) | 143 |
| Documents | 184 |
| Annual Growth Rate % | 5.4 |
| Document Average Age | 7.66 |
| Average citations per doc | 17.38 |
| References | 9239 |
| DOCUMENT CONTENTS | |
| Keywords Plus (ID) | 429 |
| Author's Keywords (DE) | 667 |
| AUTHORS | |
| Authors | 513 |
| Authors of single-authored docs | 39 |
| AUTHORS COLLABORATION | |
| Single-Authored Docs | 42 |
| Co-Authors Per Doc | 2.89 |
| International Co-Authorships % | 19.02 |
| DOCUMENT TYPES | |
| Article | 144 |
| Article; Book Chapter | 3 |
| Article; Early Access | 2 |
| Book | 1 |
| Editorial Material | 1 |
| Proceedings Paper | 27 |
| Review | 6 |

The dataset spans 37 years, from 1987 to 2024, showcasing long-term research trends in sports, business, and the environment. It includes 184 documents sourced from 143 journals, books, and other outlets, reflecting a steady annual growth rate of 5.4%. The documents have an average age of 7.66 years, indicating a mix of recent and moderately older works, and they receive an average of 17.38 citations each, highlighting their influence. With a total of 9239 references, the research appears to be well-supported by extensive background studies.

The dataset contains 429 Keywords Plus, generated automatically from citation networks, and 667 author-provided keywords, demonstrating a broad and diverse thematic coverage. A total of 513 authors have contributed to the documents, with only 39 writing single-authored works, suggesting a strong trend toward collaborative research. On average, nearly three authors (2.89) collaborate per document, and 19.02% of the papers involve international co-authorships, indicating significant global engagement in the field.

The majority of the publications are research articles (144), with additional contributions from proceedings papers (27), reviews (6), book chapters (3), early-access articles (2), and a single book and editorial material. This diversity in publication types underlines the academic and practical relevance of the research.

Results

The evolution of the literature in this field has been illustrated in Figure 1, which provides a visual representation of the development and trends in scholarly research from 1987 to 2024. The earliest recorded publication dates back to 1987 with just one article, and the subsequent years until the mid-1990s show little to no activity, suggesting minimal research focus during this period. From 1997 onward, there is a gradual increase in output, with occasional fluctuations.

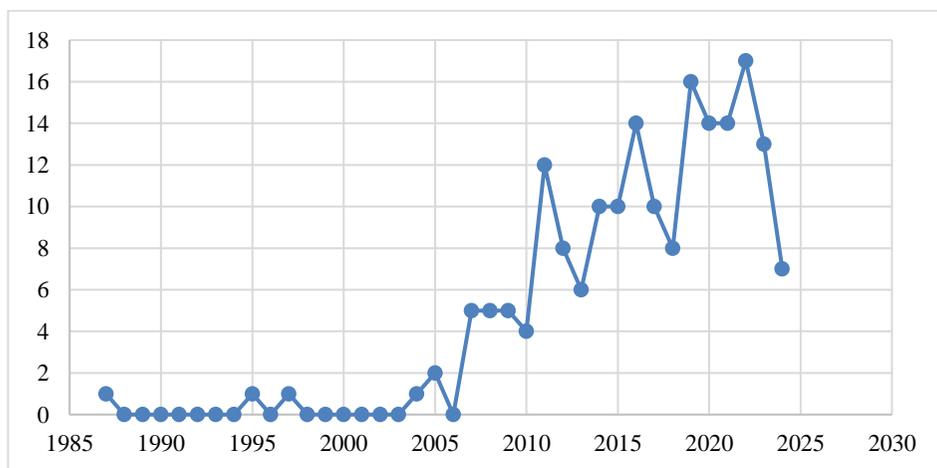


Fig 1. Annual scientific production

The earliest recorded publication dates back to 1987 with just one article, and the subsequent years until the mid-1990s show little to no activity, suggesting minimal research focus during this period. From 1997 onward, there is a gradual increase in output, with occasional fluctuations. Significant growth becomes evident starting in the mid-2000s, particularly from 2007, when the annual production consistently rises. A notable surge occurs in 2011, which saw 12 articles published, marking a turning point in research intensity. Subsequent years maintain a relatively high and increasing output, peaking in 2022 with 17 articles. The trend reflects a sustained interest in this research area, likely driven by growing recognition of the interconnections between sports, business, and the environment. The slight dip in 2023, with 13 articles, and the current count of 7 articles in 2024 may reflect an incomplete data year for 2024.

Table 2. Most relevant sources

| Journals | Articles |
|---|-----------------|
| European Sport Management Quarterly | 7 |
| Sport in Society | 6 |
| Journal of Hospitality Leisure Sport /& Tourism Education | 4 |
| Journal of Sport Management | 4 |
| Sport Business and Management-An International Journal | 4 |
| İnşıneme Ekonomika-Engineering Economics | 3 |
| Journal of Applied Sport Management | 3 |
| Sport Management Education Journal | 3 |
| Annals of Applied Sport Science | 2 |
| Economy and Market Communication Review | 2 |

The table 2 highlights the most relevant sources contributing to research in the fields of sports, business, and the environment. European Sport Management Quarterly stands out as the leading source, contributing 7 articles, reflecting its central role in this area of study. Sport in Society follows closely with 6 articles, indicating its relevance to exploring the societal dimensions of sports. Three journals, including Journal of Hospitality Leisure Sport & Tourism Education, Journal of Sport Management, and Sport Business and Management-An International Journal, each contributed 4 articles, demonstrating a balanced focus on management and business-related aspects of sports.

Inzinerine Ekonomika-Engineering Economics and Journal of Applied Sport Management contributed 3 articles each, alongside Sport Management Education Journal, showcasing their emphasis on economics, management, and education within the sports sector. Lastly, Annals of Applied Sport Science and Economy and Market Communication Review provided 2 articles, reflecting a smaller but notable contribution. These journals represent a mix of sport-specific and interdisciplinary sources, highlighting the diverse academic interest and the broad thematic scope of research in this field.

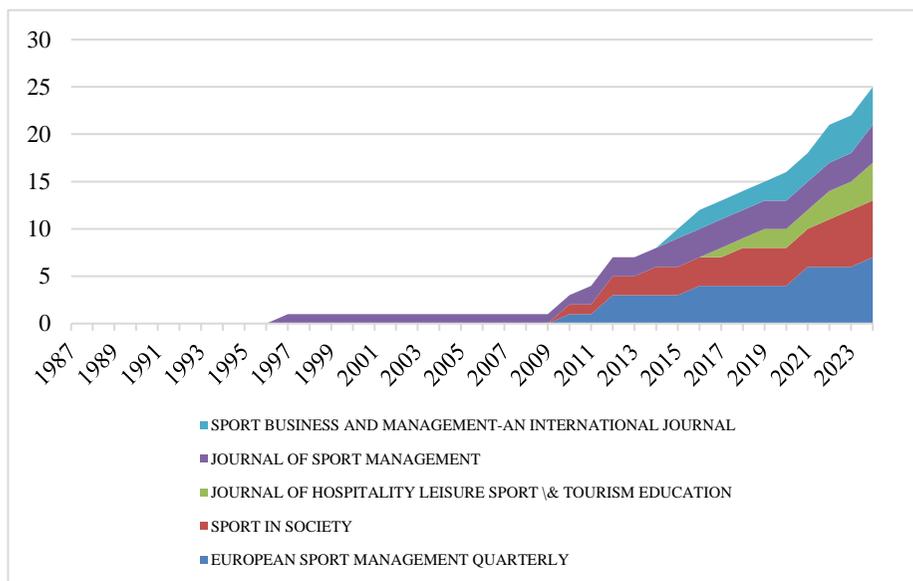


Fig 2. Sources production over time

The figure 2 outlines the annual contribution of five prominent journals to the field of sports, business, and environment research from 1987 to 2024. Early contributions were minimal, with most journals showing no publications until the mid-2000s. For instance, the Journal of Sport Management began publishing consistently in 1997, while other journals did not contribute until later. European Sport Management Quarterly and Sport in Society demonstrate steady growth starting from 2010, with their contributions rising notably in recent years.

European Sport Management Quarterly reached a peak of 7 articles in 2024, while Sport in Society increased its output to 6 articles annually by 2023 and 2024. Contributions from the Journal of Hospitality Leisure Sport & Tourism Education began in 2017, growing slowly to reach 4 articles in 2024. The Journal of Sport Management consistently contributed from 1997, maintaining a steady output of 3-4 articles annually since 2015. Similarly, Sport Business and Management-An International Journal started contributing later but reached a consistent level of 4 articles annually by 2022.

Table 3. Most relevant authors

| Authors | Articles |
|---------------------|-----------------|
| Ratten V | 6 |
| Escamilla-Fajardo P | 3 |
| Ahonen A | 2 |
| Drayer J | 2 |
| Fletcher D | 2 |
| Jones P | 2 |
| Karpavicius T | 2 |
| Larsen Ch | 2 |
| Littlewood M | 2 |
| Martin Aj | 2 |

The table 3 highlights the most relevant authors contributing to the field of sports, business, and the environment. Ratten V stands out as the most prolific author, with six articles, indicating their significant influence and active engagement in this research area. Following this, several authors, including Escamilla-Fajardo P, contributed three articles, demonstrating a notable, though slightly smaller, impact. A group of authors, including Ahonen A, Drayer J, Fletcher D, Jones P, Karpavicius T, Larsen CH, and Littlewood M, each contributed two articles. This reflects a collaborative and distributed pattern of authorship within the field, where multiple researchers make meaningful contributions. The data suggests that while a few authors have emerged as key contributors, the research area benefits from a diverse pool of scholars, enriching the interdisciplinary exploration of sports, business, and environmental topics.

Table 4. Most relevant affiliations

| Affiliation | Articles |
|------------------------------------|-----------------|
| Deakin University | 10 |
| Islamic Azad University | 8 |
| National Taiwan Sport University | 7 |
| University of Valencia | 7 |
| La Trobe University | 6 |
| University of Loughborough | 6 |
| University of the Peloponnese | 6 |
| University of Sebelas Maret | 6 |
| Brunel University | 5 |
| Manchester Metropolitan University | 5 |

The table 4 presents the most relevant affiliations contributing to the field of sports, business, and environmental research. Deakin University leads with 10 articles, showcasing its prominent role in advancing the field. Islamic Azad University follows closely with 8 articles, indicating active research output. Both National Taiwan Sport University and University of Valencia contributed 7 articles each, underlining their significant engagement in this interdisciplinary area. Institutions such as La Trobe University, University of Loughborough, University of the Peloponnese, and University of Sebelas Maret each contributed 6 articles, reflecting balanced participation from universities in various regions. Additionally, Brunel University and Manchester Metropolitan University each contributed 5 articles, further illustrating their commitment to this research domain.

The distribution of affiliations highlights a diverse and international landscape of research, with key contributions coming from institutions in Australia, Asia, and Europe. This global collaboration underscores the universal relevance of topics at the intersection of sports, business, and environmental studies.

Table 5. Most cited papers

| Paper | Total Citations | TC per Year |
|--|------------------------|--------------------|
| Babiak, K., & Trendafilova, S. (2011). CSR and environmental responsibility: motives and pressures to adopt green management practices. | 533 | 38,071 |
| Gully, S. M., Devine, D. J., & Whitney, D. J. (1995). A Meta-Analysis of cohesion and performance | 312 | 10,4 |
| Henriksen, K., Schinke, R., Moesch, K., McCann, S., Parham, W. D., Larsen, C. H., & Terry, P. (2020). Consensus statement on improving the mental health of high performance athletes | 202 | 40,4 |
| Fletcher, D., & Wagstaff, C. R. D. (2009). Organizational psychology in elite sport: Its emergence, application and future. | 192 | 12 |
| Golby, J., & Sheard, M. (2004). Mental toughness and hardiness at different levels of rugby league. | 106 | 5,047 |
| Relvas, H., Littlewood, M., Nesti, M., Gilbourne, D., & Richardson, D. (2010). Organizational structures and working practices in elite european professional football clubs: Understanding the relationship between youth and professional domains. | 86 | 5,733 |
| Giulianotti, R., Armstrong, G., Hales, G., & Hobbs, D. (2015). Sport mega-events and public opposition. | 72 | 7,2 |
| Heath, J. (2007). An Adversarial Ethic for Business: or When Sun-Tzu Met the Stakeholder | 59 | 3,277 |
| Jenny, S. E., Keiper, M. C., Taylor, B. J., Williams, D. P., Gawrysiak, J., Manning, R. D., & Tutka, P. M. (2018). Esports venues: A new sport business opportunity | 58 | 8,285 |
| Aage, T., & Belussi, F. (2008). From fashion to design: Creative networks in industrial districts. | 50 | 2,941 |

The table 5 presents the most-cited academic papers in the field of sports, business, and environmental studies, emphasizing their influence based on total citations and annual citation rates. The leading paper, Babiak & Trendafilova (2011), explores corporate social responsibility and environmental practices, accumulating an outstanding 533 citations with an average of 38.07 citations per year, demonstrating its seminal role in understanding green management motives in sports.

By displaying the prominence of specific terms, the word cloud provides a quick overview of the primary concerns and evolving discussions in this multidisciplinary area of study. The most frequently occurring term is "management" (24 occurrences), emphasizing its central role in research within these fields. "Performance" (19) follows, reflecting a strong interest in optimizing outcomes, whether in sports, organizations, or environmental initiatives. Terms like "impact" (12) and "model" (11) suggest a focus on evaluating the effects of practices and developing theoretical frameworks. Corporate social responsibility (CSR) is a significant topic, appearing as "corporate social-responsibility" (8) and "csr" (7), underscoring the relevance of ethical and sustainable practices. Other notable terms include "quality," "future," and "tourism" (7 each), indicating research interest in enhancing standards, forecasting trends, and exploring sports tourism. Specific areas such as "football" (6) and "framework" (6) also emerge as focal points. Psychological and organizational aspects are reflected in terms like "stress," "behavior," "experience," "innovation," and "organizations" (5 each), showing a multidimensional approach to research. Broader societal issues, such as "globalization," "governance," and "diversity" (4 each), highlight the contextual factors influencing these domains. Additionally, specialized topics like "environmental sustainability," "education," "health," "leadership," and "customer satisfaction" (3 each) showcase the diverse research interests. Themes like "transformational leadership" and "absorptive-capacity" (2 each) indicate emerging areas of study.

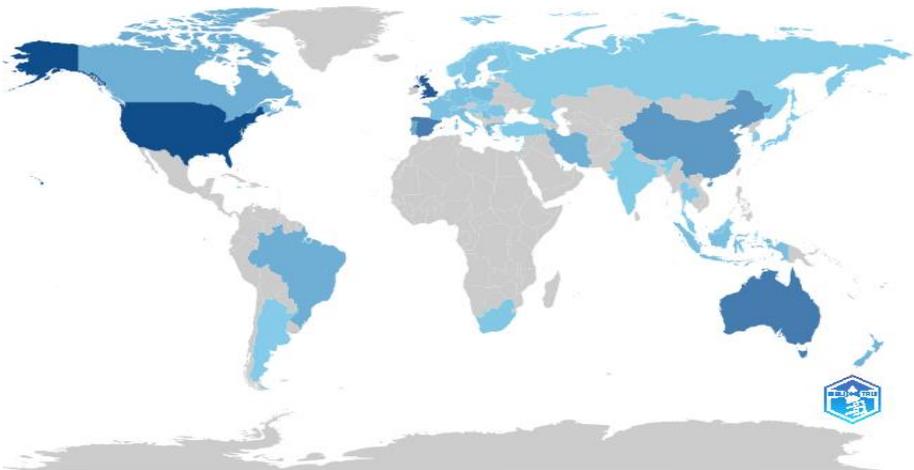


Fig 4. Country scientific production

The data reveals a global distribution of contributions to research in sports, business, and the environment, with the United States leading with 80 studies, followed closely by the United Kingdom with 71. These two countries demonstrate strong research capacity and academic focus in this field. Other significant contributors include Australia (50), Spain (49), and China (32), highlighting their active participation in exploring the intersections of sports, business, and environmental sustainability. A notable feature is the regional diversity, with contributions spanning Europe (e.g., Portugal, Greece, Germany, Italy), Asia (e.g., Iran, Indonesia, Malaysia), Oceania (e.g., New Zealand), and South America (e.g., Brazil, Argentina). Mid-level contributors like Portugal (24), Brazil (19), and Greece/Iran (18 each) suggest an increasing academic interest and infrastructure in these regions. However, countries like Hungary, Jamaica, and Argentina show minimal contributions, possibly due to limited resources or research emphasis in this area. Europe stands out with a strong presence, with several countries actively contributing, reflecting the continent's established tradition of academic research in these domains. Overall, while the USA and UK dominate, the data highlights a growing global engagement in the study of sports, business, and the environment, emphasizing the interdisciplinary and universal relevance of these topics.

Conclusion

Environmental issues have increasingly attracted attention in recent years, prompting both national and international institutions to take preventive measures and formulate strategies aimed at mitigating the impact of these concerns. As businesses are integral to the global economy, they too are inextricably linked with environmental sustainability. The growing recognition of this connection has resulted in a significant body of literature that explores the intersection of business, sports, and environmental issues. In Aygün (2023) study, it is stated that macro development has also led to an increase in studies in the field of sports. Within this context, research on the role of business in sports and its environmental implications has been an area of particular interest. This study seeks to investigate the relationship between these themes by analyzing a total of 184 academic documents spanning from 1987 to 2024. These documents were sourced from 143 distinct publications, all retrieved from the Web of Science database, utilizing the Bibliometrix software for bibliometric analysis.

The findings indicate a notable increase in the volume of research on this topic over time, with a particularly sharp rise in publications during 2023. It is important to note that no documents from 2024 are included in the dataset due to the fact that data collection occurred before the conclusion of that year. The analysis also highlights that *European Sport Management Quarterly* and *Sport in Society* are among the most prominent sources in this field, publishing a significant proportion of the research related to the intersection of sports, business, and environmental concerns. Furthermore, Deakin University and Islamic Azad University emerge as the most influential academic affiliations, contributing the largest number of studies to the literature.

Among the various academic papers, the work by Babiak & Trendafilova (2011) stands out as the most widely cited publication in this area, reflecting its substantial impact on the field. The analysis of key terms reveals that 'management' and 'performance' are the most frequently used terms across the studies, indicating that the focus of research has primarily centered on the management of sports organizations and their performance in relation to environmental sustainability. In terms of geographic influence, the United States and the United Kingdom are identified as the leading countries in this field, contributing a significant portion of the research. This reflects the prominent role these nations play in both the sports and environmental sectors, as well as their capacity to generate and disseminate scholarly work on the topic. In conclusion, the analysis indicates a significant growth in the body of literature exploring the intersection of sports, business, and the environment over time.

The observed upward trajectory underscores the likelihood of continued expansion and diversification of research within this domain in the foreseeable future. A comprehensive investigation into this area is of critical importance, as it offers a robust foundation for advancing subsequent scholarly endeavors. Moreover, such an inquiry facilitates a nuanced understanding of the field's evolution, addressing its emerging complexities and challenges. By contributing to the refinement of theoretical frameworks and the development of evidence-based practices, this research aids in ensuring that the discipline remains adaptive and responsive to the broader societal and global imperatives it seeks to address. As environmental concerns increasingly intersect with business practices in the sports industry, the demand for academic inquiry into sustainable strategies and their implications is likely to grow.

Author contributions

The author contributed to the manuscript's conceptualization, analyzed, editing, and finalization.

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Ethical statement

This article does not contain any studies with human participants performed by any of the authors.

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