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Sustainable Management: A Bibliometric Mapping of Global Trends and Thematic Shifts

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ABSTRACT

This study aims to map the global development and thematic evolution of sustainable management research using a bibliometric approach. Data were collected from the Scopus database and analyzed using VOSviewer to examine publication trends, keyword co-occurrence, and the intellectual structure of the field. The results indicate that sustainable development serves as the central theme, supported by dominant topics such as environmental management, environmental impact, and resource efficiency. The analysis also identifies several major research clusters, including circular economy, carbon management, water and waste management, and technology-driven sustainability through artificial intelligence and machine learning. Furthermore, the findings reveal a clear thematic shift from traditional environmental concerns toward more integrated, interdisciplinary approaches that incorporate digital innovation and sector-specific applications. The study highlights the increasing role of technological advancement and regional contributions in shaping sustainable management research. Despite significant progress, gaps remain in the integration of social and governance dimensions, suggesting opportunities for future research to develop more comprehensive and holistic sustainability frameworks. This study contributes to the literature by providing an integrative overview of the intellectual landscape and emerging directions in sustainable management research.

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1. INTRODUCTION

Sustainability has emerged as a central paradigm in contemporary management studies as organizations increasingly face complex environmental, economic, and social challenges. The concept of sustainable management integrates long-term economic performance with responsible environmental stewardship and social accountability. As globalization intensifies resource consumption and environmental pressures, businesses and

institutions are encouraged to adopt management strategies that balance profitability with sustainability objectives. In this context, sustainable management has evolved from a normative concept into a strategic approach that guides organizational decision-making, innovation, and governance practices. Recent academic discourse highlights that sustainability is no longer an optional component of business strategy but a fundamental element shaping corporate competitiveness and resilience in the global economy [1], [2].

Over the past two decades, scholarly interest in sustainable management has expanded significantly across various disciplines, including strategic management, environmental studies, and corporate governance. This growing attention reflects the increasing recognition that sustainable practices can enhance organizational performance while addressing global challenges such as climate change, resource scarcity, and social inequality. Research has increasingly explored themes such as corporate social responsibility, green innovation, stakeholder engagement, and sustainability reporting [3], [4]. These themes demonstrate the interdisciplinary nature of sustainable management and its role in transforming traditional business models toward more responsible and inclusive approaches. The growing body of literature also illustrates how sustainability has become integrated into managerial strategies aimed at improving long-term organizational value and societal well-being.

In addition to the conceptual expansion of sustainable management, technological developments and global policy initiatives have accelerated research in this field. The implementation of frameworks such as the Sustainable Development Goals (SDGs) and Environmental, Social, and Governance (ESG) principles has influenced organizations to adopt more transparent and accountable management practices. As a result, sustainability-related research increasingly addresses topics such as governance structures, environmental performance, and stakeholder participation in decision-making processes. These developments indicate that sustainable management is evolving beyond environmental considerations to encompass broader governance and social dimensions, thereby shaping the future direction of organizational strategies and policies [5], [6].

The rapid expansion of sustainability research has also led to the emergence of diverse thematic areas and research clusters. Scholars have increasingly utilized bibliometric analysis to map the intellectual structure and evolution of sustainability-related studies. Bibliometric approaches enable researchers to systematically examine large volumes of scientific publications, identify influential authors and journals, and detect emerging themes within a research domain. Through techniques such as citation analysis, co-authorship networks, and keyword mapping, bibliometric studies provide valuable insights into how academic knowledge develops over time and how different research topics are interconnected. Such analytical methods are particularly useful in fields like sustainable management, where research output has grown rapidly and spans multiple disciplines.

Recent bibliometric investigations reveal that sustainable management research has experienced substantial growth, particularly since the early 2000s. The increasing number of publications indicates a heightened global interest in exploring sustainability from managerial and organizational perspectives. Studies mapping sustainability research trends highlight the emergence of themes such as circular economy practices, sustainable supply chains, and innovation-driven sustainability strategies. These thematic shifts demonstrate how the research landscape continues to evolve in response to changing economic conditions, environmental challenges, and technological advancements. Understanding these global

trends and thematic transformations is essential for identifying research gaps and guiding future scholarly inquiry in sustainable management.

Despite the rapid growth of literature in sustainable management, the expanding volume of publications has created challenges in understanding the overall structure, development patterns, and thematic evolution of the field. Many studies address specific aspects of sustainability, such as corporate governance, green innovation, or sustainable supply chains, but relatively few investigations provide a comprehensive mapping of the global research landscape and its thematic shifts over time. Without a systematic bibliometric perspective, it becomes difficult to identify influential contributors, dominant research clusters, and emerging topics that shape the direction of sustainable management studies. Therefore, a comprehensive bibliometric mapping is necessary to synthesize existing knowledge, reveal global research trends, and clarify how thematic priorities have evolved within the sustainable management literature.

Based on the above considerations, this study aims to conduct a bibliometric analysis of sustainable management research to map global publication trends and identify thematic shifts within the field.

2. METHODS

This study employs a bibliometric research design to systematically analyze the development, structure, and thematic evolution of sustainable management research. Bibliometric analysis is a quantitative method used to evaluate patterns within scientific literature through statistical and network-based techniques. It enables researchers to examine publication trends, citation structures, and collaborative relationships among authors, institutions, and countries. By applying bibliometric methods, this study seeks to provide a comprehensive overview of the intellectual landscape of sustainable management research and to identify emerging themes and influential contributions within the field. The approach is particularly suitable for studies involving large volumes of academic publications because it allows the mapping of scientific knowledge and research dynamics over time.

The data for this study were obtained from a major international academic database that indexes peer-reviewed journals across multiple disciplines. Relevant publications were retrieved using keyword combinations related to sustainable management, including terms such as “sustainable management,” “sustainability management,” and related concepts. The search was limited to journal articles published in English within a specified time frame to ensure consistency and quality of the dataset. After the initial search, the records were screened to remove duplicates, irrelevant publications, and incomplete entries. The final dataset included bibliographic information such as authors, titles, abstracts, keywords, publication years, and citation counts, which were subsequently exported in a compatible format for bibliometric analysis.

3. RESULT AND DISCUSSION

3.1 Citation Analysis

Table 1. Top Cited Literature

Citations	Authors and year	Title	Source
9,472	[7]	Food security: The challenge of feeding 9 billion people	Science, 327(5967), pp. 812–818
6,412	[8]	A general framework for analyzing sustainability of social-ecological systems	Science, 325(5939), pp. 419–422

6,273	[9]	Global food demand and the sustainable intensification of agriculture	Proceedings of the National Academy of Sciences, 108(50), pp. 20260–20264
6,168	[10]	Catastrophic shifts in ecosystems	Nature, 413(6856), pp. 591–596
5,897	[11]	Sustainable hydrogen production	Science, 305(5686), pp. 972–974
5,661	[12]	Resilience, adaptability and transformability in social-ecological systems	Ecology and Society, 9(2), p. 5
4,943	[13]	From a literature review to a conceptual framework for sustainable supply chain management	Journal of Cleaner Production, 16(15), pp. 1699–1710
4,928	[14]	A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems	Journal of Cleaner Production, 114, pp. 11–32
4,290	[15]	The path towards sustainable energy	Nature Materials, 16(1), pp. 16–22
4,021	[16]	Global biodiversity: Indicators of recent declines	Science, 328(5982), pp. 1164–1168

Source: Scopus Database

3.2 Keyword Co-Occurrence Network Visualization

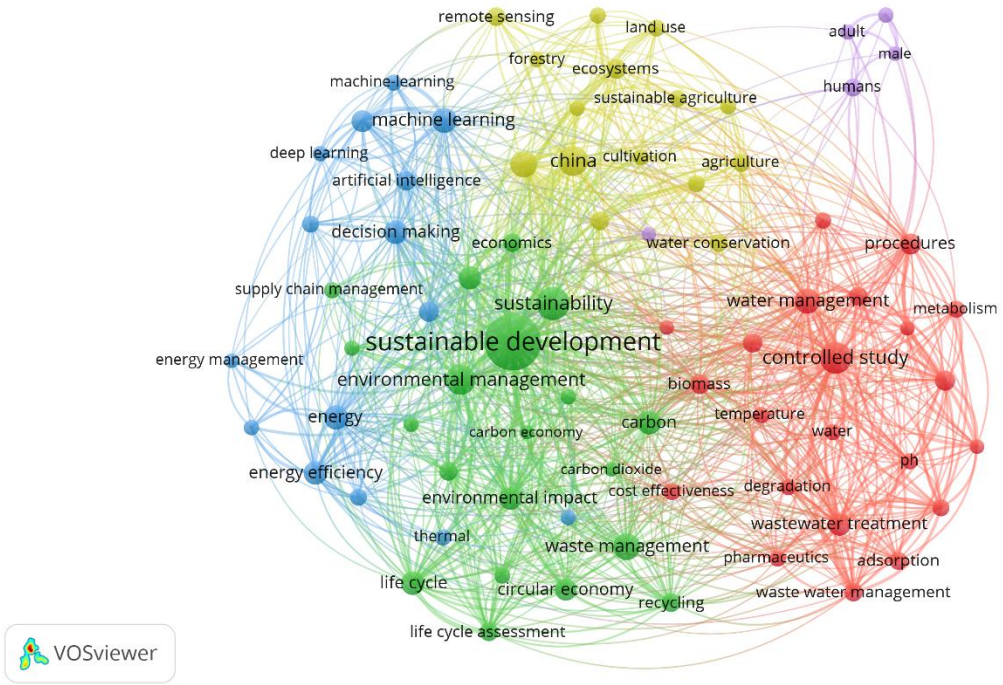

Figure 1. Network Visualization
Source: Data Analysis

Figure 1 illustrates the intellectual structure of sustainable management research through keyword co-occurrence, with "sustainable development" emerging as the central and most dominant node. This indicates that the field is strongly anchored in the broader sustainability discourse, serving as the conceptual core that connects various subthemes. Closely related terms such as environmental management, sustainability, and environmental impact further reinforce that the literature is heavily oriented toward ecological and sustainability-driven management practices. The density and centrality of these nodes suggest a mature and well-established research foundation.

The green cluster represents themes related to environmental sustainability and resource management, including waste management, recycling, circular economy, carbon, and life cycle assessment. This cluster reflects a strong emphasis on operational and applied sustainability practices, particularly those associated with reducing environmental impact and promoting resource efficiency. The presence of terms such as carbon dioxide and environmental impact highlights the growing importance of climate-related concerns, indicating that sustainable management research increasingly aligns with global environmental agendas such as decarbonization and circular systems.

The blue cluster focuses on technological and decision-making aspects, including artificial intelligence, machine learning, decision making, energy efficiency, and supply chain management. This suggests a significant shift toward integrating digital technologies into sustainability practices. The inclusion of AI and machine learning indicates that sustainable management is evolving beyond traditional approaches toward data-driven and intelligent systems. This cluster reflects an emerging trend where organizations leverage advanced technologies to optimize sustainability outcomes, particularly in energy and supply chain contexts.

The red cluster highlights technical and process-oriented research areas, particularly related to water management, wastewater treatment, adsorption, and controlled study. This cluster appears to be rooted in environmental engineering and scientific experimentation, indicating that sustainable management research is also deeply connected to applied sciences. The prominence of terms like water, temperature, and pH suggests a strong methodological and laboratory-based focus, which contributes to the development of practical solutions for environmental challenges, especially in water and waste systems.

The yellow cluster reflects themes associated with agriculture, land use, and regional contexts, including agriculture, forestry, ecosystems, and China. This indicates that sustainable management research also has a strong geographical and sectoral dimension, particularly in relation to agricultural sustainability and ecosystem management. The inclusion of remote sensing and land use suggests the integration of spatial and environmental monitoring technologies.

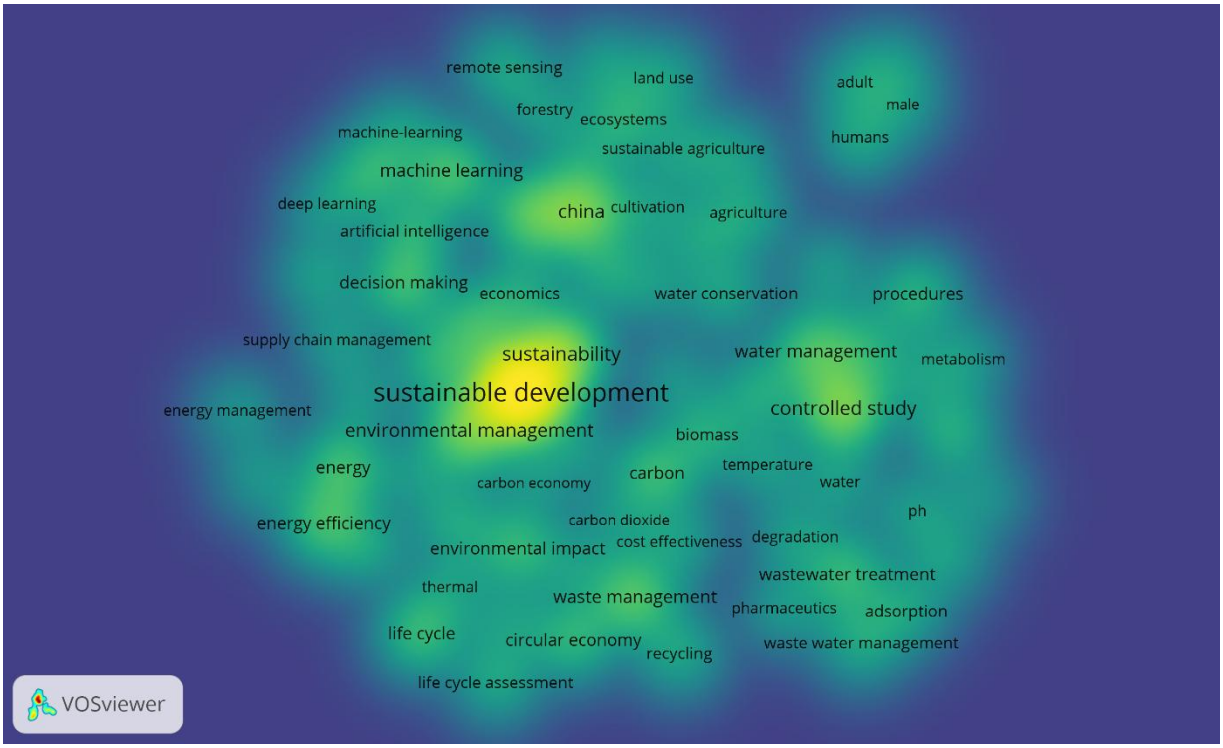

Figure 2. Density Visualization
Source: Data Analysis

Figure 2 highlights the intensity and concentration of research topics within sustainable management, where brighter (yellow) areas indicate higher research frequency and stronger thematic focus. The most prominent hotspot is centered on "sustainable development", confirming its role as the core foundation of the field. Closely surrounding this central theme are sustainability, environmental management, and environmental impact, suggesting that the literature is heavily concentrated on environmental and sustainability-oriented management practices. Additionally, the relatively high density around China indicates a strong geographical contribution, implying that this country plays a significant role in advancing research in sustainable management, particularly in agriculture and environmental domains.

Other moderately dense areas include themes such as machine learning, energy efficiency, waste management, and water management, which reflect key applied and emerging research directions. The presence of artificial intelligence and machine learning suggests a growing integration of digital technologies into sustainability practices, although their density is still lower than the core sustainability themes, indicating that this area is still developing. Meanwhile, topics like wastewater treatment, circular economy, and carbon appear with moderate intensity, showing continued but more specialized interest.

Discussion

The findings of this bibliometric analysis reveal that sustainable management research has evolved into a highly interconnected and multidisciplinary field, with sustainable development serving as its conceptual core. The dominance of this keyword across both network and density

visualizations indicates that the field remains strongly rooted in global sustainability agendas, particularly those aligned with the Sustainable Development Goals (SDGs). This suggests that scholars and practitioners increasingly frame management strategies within broader environmental and societal contexts, moving beyond traditional profit-oriented paradigms toward long-term value creation and sustainability integration.

Furthermore, the prominence of themes such as environmental management, environmental impact, carbon, and waste management highlights that the literature is still largely driven by ecological concerns. These findings reinforce the argument that sustainable management research continues to prioritize environmental preservation and resource efficiency as primary objectives. The strong presence of topics like circular economy and life cycle assessment also indicates a shift toward more systemic and holistic approaches, where organizations aim to minimize environmental footprints through closed-loop systems and sustainable production-consumption models. This aligns with contemporary sustainability frameworks that emphasize resilience and regenerative practices.

At the same time, the emergence of clusters related to artificial intelligence, machine learning, and decision-making reflects a significant transformation in the field. The integration of digital technologies into sustainability practices signals a transition toward data-driven and intelligent management systems. This development suggests that sustainable management is no longer confined to environmental strategies alone but is increasingly influenced by technological innovation. The relatively moderate density of these topics, however, indicates that this is still an emerging area, offering substantial opportunities for future research, particularly in exploring how digital transformation can enhance sustainability performance.

In addition, the analysis highlights the strong presence of sector-specific and applied research areas, particularly in water management, wastewater treatment, and agriculture. The clustering of these topics suggests that sustainable management research is deeply embedded in real-world problem-solving contexts, especially in sectors that are directly impacted by environmental challenges. The visibility of terms such as China, land use, and remote sensing further underscores the importance of geographical and regional contexts in shaping sustainability research. This implies that future studies should consider local environmental conditions, policy frameworks, and socio-economic factors when developing sustainable management models.

4. CONCLUSION

This study provides a comprehensive bibliometric mapping of sustainable management research, demonstrating that the field is firmly anchored in the concept of sustainable development while continuously evolving toward more integrated and interdisciplinary approaches. The findings reveal a strong emphasis on environmental management and resource efficiency, alongside a growing incorporation of technological innovations such as artificial intelligence and data-driven decision-making. In addition, the emergence of sector-specific applications and regional contributions highlights the practical and contextual nature of sustainability research. The study confirms a clear thematic shift from traditional environmental concerns toward a broader paradigm that combines sustainability, technology, and applied management practices. These insights not only enrich the understanding of the intellectual structure of the field but also provide valuable directions for future research to develop more holistic and adaptive sustainable management frameworks.

REFERENCES

[1] A. Jahid, M. H. Alsharif, and T. J. Hall, "The convergence of Blockchain, IoT and 6G: potential, opportunities, challenges and research roadmap," *… Netw. Comput. Appl.*, 2023.

[2] X. Wang, X. Song, and M. Sun, "How Does a Company's ESG Performance Affect the Issuance of an Audit Opinion? The Moderating Role of Auditor Experience," *Int. J. Environ. Res. Public Health*, vol. 20, no. 5, Mar. 2023, doi: 10.3390/ijerph20053878.

[3] I. Meilani Fajarsari, "The Mindset of Msme Actors Towards Online Loan Application (Using The Rubicon Model Perspective)," *Am. J. Econ. Manag. Bus.*, vol. 2, no. 7, pp. 253–258, 2023, doi: 10.58631/ajemb.v2i7.47.

[4] G. Zhao, S. Liu, H. Lu, C. Lopez, and S. Elgueta, "Building theory of agri-food supply chain resilience using total interpretive structural modelling and MICMAC analysis," *Int. J. Sustain. Agric. Manag. Informatics*, vol. 4, no. 3–4, pp. 235–257, 2018, doi: 10.1504/IJSAMI.2018.099236.

[5] E. Kurniawati, U. H. A. Kohar, and K. Pirzada, "Change or destroy: the digital transformation of indonesian msmes to achieve sustainable economy," *Polish J. Manag. Stud.*, vol. 26, no. 2, 2022.

[6] T. I. Ijomah, C. Idemudia, N. L. Eyo-Udo, and K. F. Anjorin, "Innovative digital marketing strategies for SMEs: Driving competitive advantage and sustainable growth," *Int. J. Manag. Entrep. Res.*, vol. 6, no. 7, pp. 2173–2188, 2024.

[7] H. C. J. Godfray *et al.*, "Food security: the challenge of feeding 9 billion people," *Science (80-.).*, vol. 327, no. 5967, pp. 812–818, 2010.

[8] E. Ostrom, "A general framework for analyzing sustainability of social-ecological systems," *Science (80-.).*, vol. 325, no. 5939, pp. 419–422, 2009.

[9] D. Tilman, C. Balzer, J. Hill, and B. L. Befort, "Global food demand and the sustainable intensification of agriculture," *Proc. Natl. Acad. Sci.*, vol. 108, no. 50, pp. 20260–20264, 2011.

[10] M. Scheffer, S. Carpenter, J. A. Foley, C. Folke, and B. Walker, "Catastrophic shifts in ecosystems," *Nature*, vol. 413, no. 6856, pp. 591–596, 2001.

[11] J. A. Turner, "Sustainable hydrogen production," *Science (80-.).*, vol. 305, no. 5686, pp. 972–974, 2004.

[12] B. Walker, C. S. Holling, S. R. Carpenter, and A. Kinzig, "Resilience, adaptability and transformability in social–ecological systems," *Ecol. Soc.*, vol. 9, no. 2, 2004.

[13] S. Seuring and M. Müller, "From a literature review to a conceptual framework for sustainable supply chain management," *J. Clean. Prod.*, vol. 16, no. 15, pp. 1699–1710, 2008.

[14] P. Ghisellini, C. Cialani, and S. Ulgiati, "A review on circular economy: the expected transition to a balanced interplay of environmental and economic systems," *J. Clean. Prod.*, vol. 114, pp. 11–32, 2016.

[15] S. Chu, Y. Cui, and N. Liu, "The path towards sustainable energy," *Nat. Mater.*, vol. 16, no. 1, pp. 16–22, 2017.

[16] S. H. M. Butchart *et al.*, "Global biodiversity: indicators of recent declines," *Science (80-.).*, vol. 328, no. 5982, pp. 1164–1168, 2010.