
| RESEARCH ARTICLE

Trends and Gaps in the Literature about Green Washing in Asia

Andi Silvan¹✉, Rudi Zulfikar², Lia Uzliawati³ and Yeni Januarsih⁴

¹²³⁴Accounting Science Doctoral Program, Faculty of Economic and Business, Sultan Ageng Tirtayasa University, Banten, Indonesia

Corresponding Author: Andi Silvan, E-mail: 7783230001@untirta.ac.id

| ABSTRACT

This bibliometric study explores the trends and gaps in the literature on greenwashing in Asia, analyzing key research patterns, thematic clusters, and geographical contributions. The results highlight an increasing scholarly focus on greenwashing, particularly from 2021 onwards, reflecting growing awareness of environmental issues and deceptive corporate sustainability practices. China and India emerge as leading contributors, with institutions like Shandong University and Massey University playing prominent roles in advancing the research. Thematic clusters emphasize topics such as corporate social responsibility, green marketing, sustainable development, and circular economy, with "greenwashing" serving as a central concept linking these themes. Despite the rising volume of research, gaps persist in understanding the effectiveness of regulatory frameworks, consumer perceptions, and cross-sectoral impacts of greenwashing. This study underscores the need for interdisciplinary approaches and actionable strategies to address greenwashing, supporting authentic sustainability practices and policies.

| KEYWORDS

Greenwashing, Sustainability, Corporate Social Responsibility, Sustainable Development, Asia, Bibliometric Analysis

| ARTICLE INFORMATION

ACCEPTED: 05 January 2026

PUBLISHED: 24 January 2026

DOI: 10.32996/jefas.2026.8.3.1

1. Introduction

Over the past few decades, environmental sustainability has become a critical concern globally, with governments, businesses, and consumers increasingly prioritizing eco-friendly practices. In response, many companies have adopted green marketing strategies to highlight their environmental credentials. However, this trend has also given rise to "greenwashing," a deceptive practice where organizations exaggerate or falsely claim environmental benefits to appeal to environmentally conscious consumers [1]. Greenwashing undermines the credibility of genuine sustainability efforts and creates confusion among stakeholders, making it an important issue in the field of environmental governance and corporate ethics.

Asia, home to some of the fastest-growing economies in the world, has become a focal point in the global discourse on sustainability. Countries such as China, India, Japan, and South Korea are not only key players in international trade but also significant contributors to global environmental challenges, including carbon emissions and resource consumption [2], [3]. The region's rapid industrialization and urbanization have spurred a growing awareness of environmental issues, leading to an increased demand for sustainable products and services. Consequently, businesses in Asia are increasingly embracing green marketing strategies. However, the rise of these strategies has also been accompanied by a proliferation of greenwashing practices, creating a complex landscape that warrants further investigation [4], [5].

The regulatory environment surrounding green claims in Asia varies significantly across countries. While some nations have introduced stringent laws and guidelines to prevent misleading environmental advertising, others lack robust regulatory frameworks [6]. For instance, Japan and South Korea have established clear standards for environmental labeling, whereas many developing countries in the region struggle with weak enforcement mechanisms. This disparity highlights the need for a more comprehensive understanding of how greenwashing manifests in diverse regulatory and cultural contexts across Asia.

Copyright: © 2026 the Author(s). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) 4.0 license (<https://creativecommons.org/licenses/by/4.0/>). Published by Al-Kindi Centre for Research and Development, London, United Kingdom.

Consumer perceptions of greenwashing also differ across Asian countries, influenced by cultural, economic, and social factors. Research suggests that consumers in developed economies such as Japan and Singapore are more likely to scrutinize environmental claims than their counterparts in developing nations [7], [8]. This disparity underscores the importance of cultural and socioeconomic dimensions in shaping consumer attitudes toward greenwashing. Understanding these nuances can provide valuable insights into the effectiveness of green marketing strategies and the prevalence of greenwashing in different Asian markets [9]. The academic discourse on greenwashing in Asia has grown in recent years, but significant gaps remain. While existing studies have explored the concept from various angles, including corporate behavior, consumer awareness, and regulatory frameworks, there is a lack of comprehensive research that synthesizes these perspectives. Moreover, most studies have focused on individual countries, leaving a gap in cross-regional analyses. Addressing these gaps is essential to develop effective strategies for combating greenwashing and promoting genuine sustainability efforts across Asia.

Despite the increasing attention to greenwashing in academic and policy circles, the literature on this subject in the Asian context remains fragmented and uneven. Existing studies often lack a holistic approach, focusing on specific industries, countries, or aspects of greenwashing without considering broader regional trends or interconnections. This fragmented nature of the research not only limits our understanding of the phenomenon but also hampers the development of effective policies and interventions to address it. Furthermore, the dynamic nature of greenwashing practices, driven by technological advancements and evolving consumer expectations, necessitates continuous monitoring and analysis. Without a comprehensive understanding of the trends and gaps in the literature, efforts to combat greenwashing in Asia may remain ineffective or misdirected. The objective of this study is to analyze trends and identify gaps in the existing literature on greenwashing in Asia. By synthesizing findings from a wide range of studies, this research aims to provide a comprehensive overview of how greenwashing manifests in the region, the factors driving its prevalence, and the challenges in addressing it. Additionally, the study seeks to highlight areas where further research is needed, thereby contributing to the academic discourse on sustainability and informing policy and corporate strategies to combat greenwashing effectively.

2. Defining Greenwashing : Concepts and Frameworks

The concept of greenwashing has been extensively discussed in the literature, with scholars offering various definitions and frameworks to understand this phenomenon. Greenwashing is commonly defined as the act of misleading consumers regarding the environmental practices or benefits of a product, service, or company [3]. [10] further categorize greenwashing into two primary forms: claim greenwashing, where misleading information is provided through marketing or advertising, and executional greenwashing, which involves the selective presentation of information to create a false impression of environmental responsibility. These frameworks serve as a foundation for examining the various manifestations of greenwashing and its implications.

Recent studies have sought to expand the theoretical understanding of greenwashing by integrating it into broader discussions on corporate social responsibility (CSR) and business ethics. For instance, [11] argue that greenwashing represents a deviation from authentic CSR practices, undermining stakeholder trust and the broader goal of sustainability. Scholars have also proposed typologies to categorize greenwashing strategies, such as the seven sins of greenwashing model, which includes sins like vagueness, irrelevance, and hidden trade-offs [1]. These conceptual frameworks provide valuable tools for analyzing the prevalence and impact of greenwashing in various contexts, including Asia.

2.1 Greenwashing in the Asian Context

The phenomenon of greenwashing has gained significant attention in Asia due to the region's rapid economic development and growing environmental challenges. Research highlights that the prevalence of greenwashing in Asia is influenced by diverse factors, including regulatory environments, cultural attitudes, and market dynamics [12]. For instance, in China, the lack of stringent environmental regulations and enforcement mechanisms has been linked to the widespread practice of greenwashing among businesses [13]. Conversely, countries like Japan and South Korea, with more robust regulatory frameworks, tend to exhibit lower levels of greenwashing [14].

Cultural factors also play a crucial role in shaping greenwashing practices and perceptions in Asia. Studies suggest that collectivist cultures, which prioritize group harmony and social responsibility, may be less tolerant of overt greenwashing practices [15]. However, the effectiveness of green marketing strategies in these cultures often depends on the level of environmental awareness among consumers. For example, a study by [16] found that consumers in Singapore and Japan are more likely to critically evaluate environmental claims, whereas those in developing countries like Indonesia and Vietnam are less likely to scrutinize such claims due to lower levels of environmental literacy.

2.2 Drivers of Greenwashing in Asia

The drivers of greenwashing in Asia are multifaceted, encompassing economic, regulatory, and social dimensions. Economically, the growing demand for sustainable products and services has incentivized companies to adopt green marketing strategies, often leading to exaggerated or false claims to gain a competitive edge [17]. This trend is particularly evident in industries such as fashion, cosmetics, and electronics, where consumers are increasingly valuing eco-friendly attributes. Regulatory factors also significantly influence greenwashing practices in Asia. While some countries have implemented stringent laws to curb deceptive environmental claims, enforcement remains a challenge in many parts of the region. For instance, in India, the Advertising Standards Council has issued guidelines for environmental claims, but compliance levels remain inconsistent [18]. Similarly, in Southeast Asia, the lack of standardized regulations on environmental advertising contributes to the proliferation of greenwashing [19].

Social factors, including consumer behavior and awareness, further contribute to the prevalence of greenwashing in Asia. Research indicates that consumers with low environmental literacy are more susceptible to greenwashing, as they are less equipped to critically evaluate environmental claims [20]. This vulnerability is compounded by the lack of accessible information and resources to educate consumers about sustainability issues. Additionally, the influence of social media and digital platforms has amplified greenwashing practices, as companies increasingly rely on these channels to promote their environmental credentials.

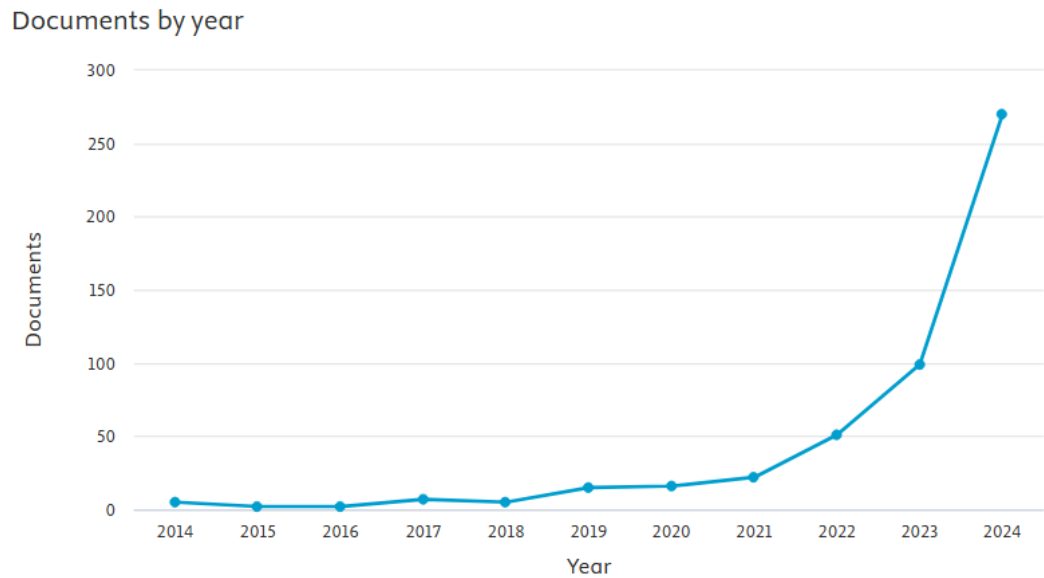
2.3 Impact of Greenwashing

The impact of greenwashing extends beyond misleading consumers; it also undermines genuine sustainability efforts and erodes trust in businesses and regulatory systems. In the Asian context, greenwashing has been shown to negatively affect consumer trust and brand loyalty, particularly when deceptive practices are exposed [9]. This erosion of trust poses significant challenges for companies seeking to establish long-term relationships with environmentally conscious consumers. Moreover, greenwashing has broader implications for environmental governance and policy-making in Asia. By creating a false sense of progress, greenwashing can divert attention and resources away from genuine sustainability initiatives. For instance, studies have highlighted how greenwashing in the renewable energy sector can obscure the actual environmental impacts of certain technologies, such as biofuels and solar panels. This misdirection hinders the development of effective policies and strategies to address pressing environmental challenges in the region.

3. Methodology

This study employs a bibliometric analysis to examine the trends and gaps in the literature on greenwashing in Asia. Bibliometric analysis is a quantitative research method used to analyze and visualize patterns in academic publications, including citation networks, co-authorship, and keyword co-occurrence [21]. The data for this study were extracted from Scopus Database, covering peer-reviewed articles published between 2014 and 2024. Keywords such as "greenwashing," "sustainability," "Asia," and related terms were used to identify relevant publications. The analysis involved mapping the evolution of greenwashing research over time, identifying the most influential authors, journals, and institutions, and exploring thematic clusters within the literature.

4. Result and Discussion
Yearly Publication Trends

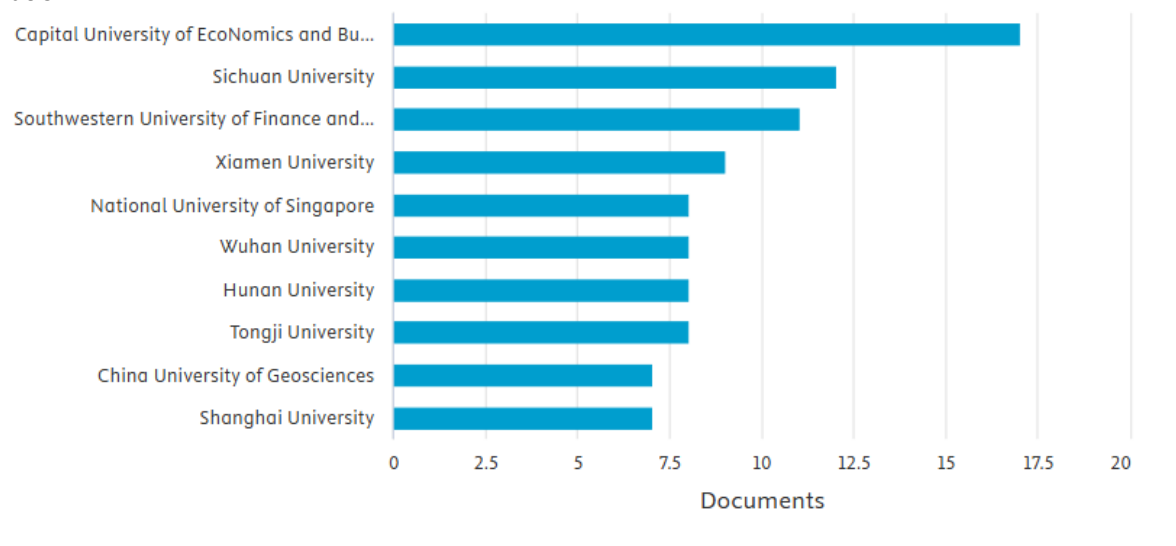


Source: Scopus, 2025

Figure 1. Documents by Year

The line graph illustrates the number of academic documents published on the topic of greenwashing from 2014 to 2024. The data shows a slow and relatively stable growth in publications from 2014 to 2020, with minimal fluctuations. However, starting from 2021, there is a noticeable upward trend in the number of documents, indicating a growing interest in the topic. This surge becomes even more pronounced in 2023 and 2024, with a steep increase in publications, reaching nearly 300 in 2024. The exponential growth suggests that greenwashing has gained significant attention in recent years, likely due to increasing global concerns about corporate sustainability practices, regulatory scrutiny, and consumer demand for transparency. Researchers and policymakers may be focusing more on identifying and addressing misleading environmental claims as sustainability becomes a key driver in business and policy-making.

Top Affiliation

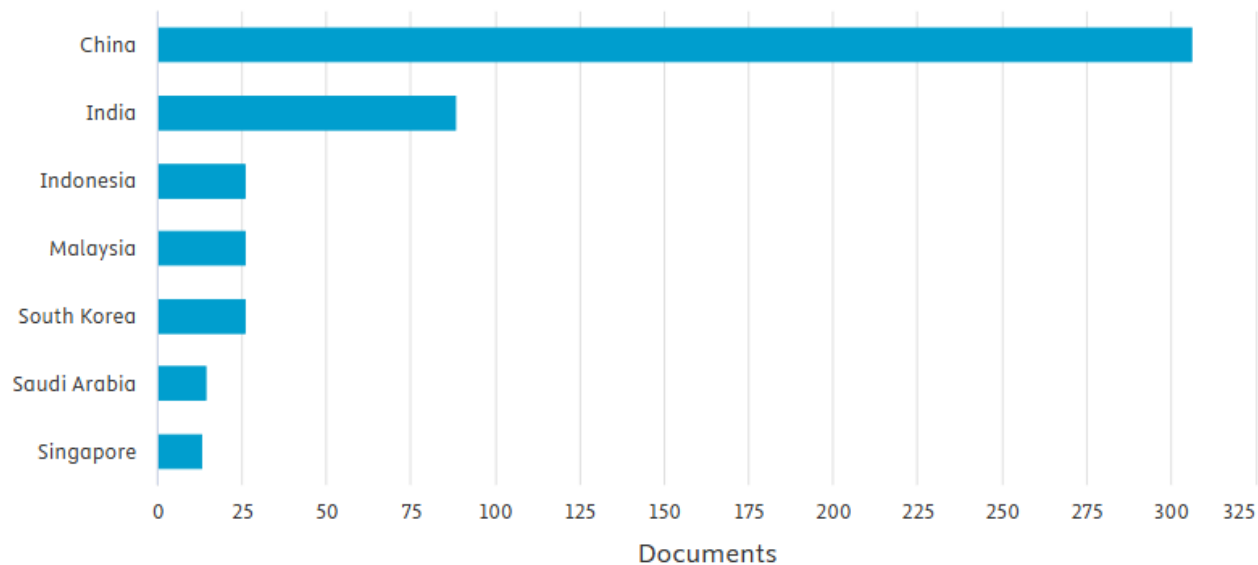


Source: Scopus, 2025

Figure 2. Documents by Affiliation

The horizontal bar chart displays the number of academic documents related to greenwashing produced by various universities. Capital University of Economics and Business leads with the highest number of publications, indicating a strong research focus on greenwashing within their academic framework. Sichuan University and Southwestern University of Finance and Economics follow closely behind, contributing significantly to the literature on this topic. Other institutions, such as Xiamen University, the National University of Singapore, and Wuhan University, have also made notable contributions, reflecting growing interest across multiple regions, particularly in China and Southeast Asia. The presence of universities from diverse academic backgrounds suggests that greenwashing is being examined from various perspectives, including business ethics, environmental policy, and corporate social responsibility. This trend underscores the increasing academic emphasis on understanding and addressing the implications of misleading environmental claims in business practices.

Top Country

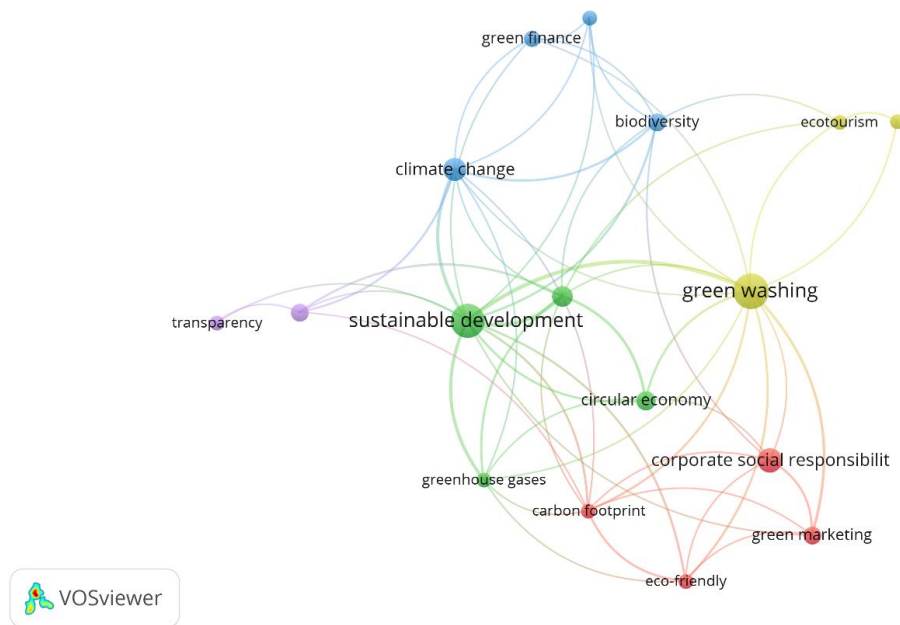


Source: Scopus, 2025

Figure 3. Documents by Country

The bar chart illustrates the number of academic documents related to greenwashing across various countries. China leads with the highest number of publications, significantly surpassing other countries, indicating a strong research focus and growing concern about greenwashing practices within the region. India follows as the second-largest contributor, reflecting its increasing engagement in addressing environmental sustainability and corporate accountability issues. Other countries such as Indonesia, Malaysia, and South Korea have a relatively smaller but notable presence in greenwashing research, suggesting emerging awareness and academic efforts to tackle the issue. Saudi Arabia and Singapore contribute the least, indicating limited research output in this area. The dominance of China and India in greenwashing-related publications may be attributed to their rapid industrialization, regulatory pressures, and the need to balance economic growth with environmental sustainability. The data suggests that while greenwashing is a global concern, it is being studied more intensively in countries with significant environmental challenges and regulatory frameworks.

Keyword Co-Occurrence Network



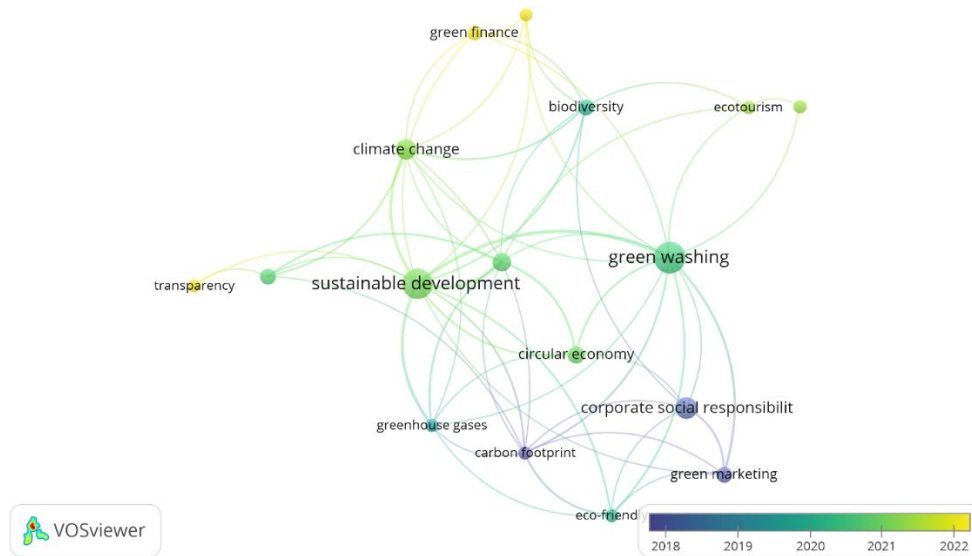
Source: Data Analysis, 2025

Figure 4. Network Visualization

The image is a bibliometric visualization showing a network of interconnected terms related to green washing. The size of the nodes represents the prominence of a term, while the connecting lines illustrate relationships between different concepts. The network is color-coded into different clusters, indicating groups of related terms that frequently co-occur in research or discussions. The central term in the visualization is "green washing," suggesting that it is a key topic linking various subtopics. One prominent cluster, marked in green, revolves around "sustainable development" and includes terms like "circular economy," "greenhouse gases," and "carbon footprint." This cluster emphasizes the environmental aspects of sustainability, focusing on reducing emissions, adopting circular production models, and minimizing ecological impact. The presence of "greenhouse gases" and "carbon footprint" indicates the role of sustainability in climate change mitigation, while "circular economy" highlights an alternative economic model based on resource efficiency and waste reduction.

Another notable cluster, colored in blue, includes "climate change," "green finance," and "biodiversity." This cluster suggests a strong relationship between financial mechanisms and climate action, where "green finance" plays a role in funding sustainability initiatives. The link to "biodiversity" highlights how climate policies also intersect with ecological conservation efforts. The connections between these terms suggest that sustainable finance mechanisms are increasingly being integrated into environmental strategies. The yellow cluster is centered around "green washing," which refers to deceptive corporate practices where companies present themselves as more environmentally friendly than they actually are. This cluster also connects to "ecotourism," suggesting concerns about whether certain tourism practices genuinely promote sustainability or merely exploit environmental themes for marketing purposes. The presence of "green washing" in the network indicates that skepticism towards corporate sustainability claims remains a significant research area.

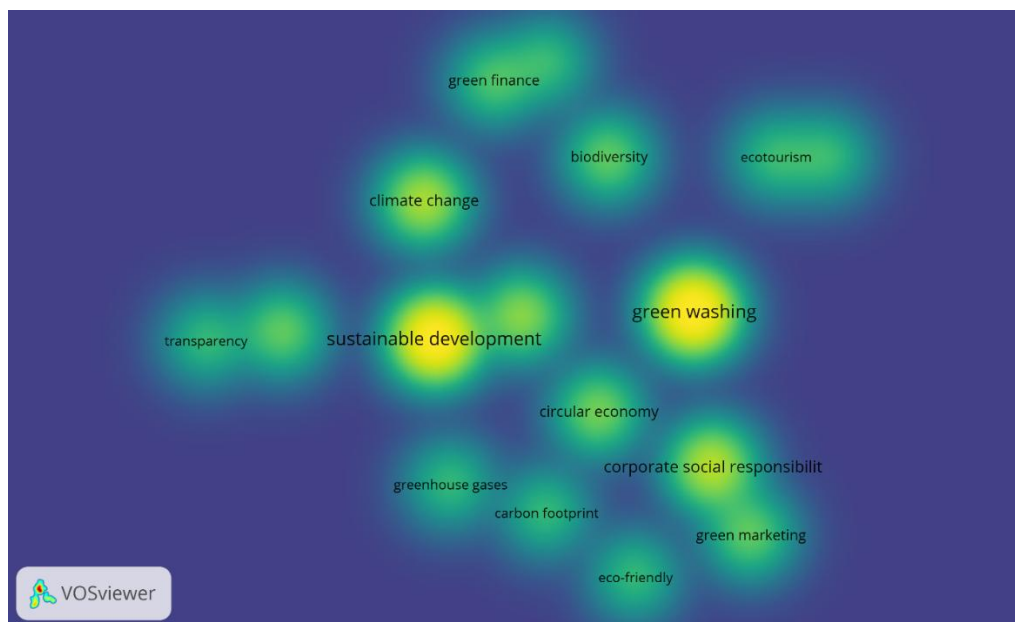
The red cluster focuses on "corporate social responsibility" (CSR), "green marketing," and "eco-friendly" branding. These terms highlight the role of businesses in sustainability efforts, whether through genuine CSR initiatives or strategic marketing. The connection between CSR and "green washing" suggests a critical perspective on corporate sustainability efforts, where companies may engage in sustainability initiatives primarily for public relations rather than substantive environmental impact. This network visualization, therefore, provides a broad overview of sustainability-related discussions, revealing both opportunities and challenges in achieving genuine environmental progress.



Source: Data Analysis, 2025

Figure 5. Overlay Visualization

The term is closely linked to "corporate social responsibility" (CSR) and "green marketing," suggesting that businesses often engage in sustainability branding, but there is skepticism regarding the authenticity of their efforts. The presence of "eco-friendly" and "carbon footprint" in this cluster further emphasizes concerns about whether companies genuinely reduce their environmental impact or merely create the illusion of sustainability. The color gradient in the visualization, ranging from blue (2018) to yellow (2022), indicates the temporal evolution of research on these topics. "Green washing" appears in green, suggesting that discussions around this issue have been active in recent years, particularly around 2020–2021. This aligns with increased public scrutiny of corporate sustainability claims, regulatory efforts to combat misleading environmental messaging, and the rise of sustainable finance. Additionally, the strong links between "green washing," "sustainable development," and "circular economy" imply that while businesses promote sustainable initiatives, there is an ongoing debate about their actual commitment to sustainability principles.

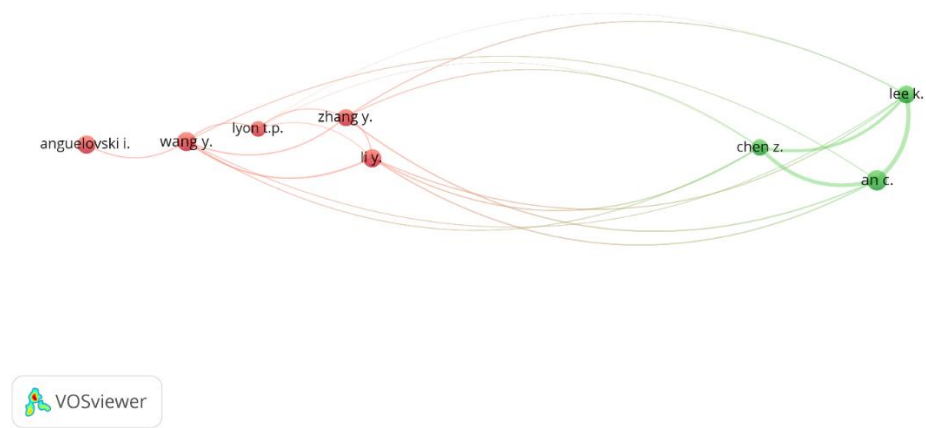


Source: Data Analysis, 2025

Figure 6. Density Visualization

The heatmap visualization r highlights the intensity of research focus on green washing. The bright yellow regions represent the most frequently occurring or co-occurring terms, while the green areas indicate moderate attention, and the dark blue background signifies less frequent mentions. "Sustainable development" and "green washing" stand out as the most prominent topics, suggesting that discussions around sustainability often intersect with concerns about misleading environmental claims. The strong emphasis on "green washing" indicates growing scrutiny regarding corporate sustainability practices, reinforcing its significance in recent research. Other terms such as "corporate social responsibility," "climate change," and "green finance" also appear with moderate intensity, showing their relevance in the broader sustainability discourse. The connection between "green washing" and "corporate social responsibility" suggests a critical perspective on businesses that claim to be environmentally responsible. Meanwhile, the presence of "ecotourism" and "biodiversity" in the heatmap implies that concerns about misleading sustainability claims extend beyond corporate sectors to tourism and conservation.

Co-Authorship Visualization



Source: Data Analysis, 2025

Figure 7. Author Collaboration

The visualization represents a co-authorship network related to the topic of greenwashing. The nodes represent authors, while the links between them indicate collaborative relationships in academic publications. The network is divided into two clusters, colored red and green, suggesting distinct research groups or thematic focuses within the field. The red cluster, including authors such as Anguelovski I., Wang Y., and Zhang Y., likely explores greenwashing from an environmental justice or urban sustainability perspective. Meanwhile, the green cluster, featuring authors like Lee K. and An C., may focus on corporate strategies, regulatory frameworks, and consumer perceptions of greenwashing. The connections between clusters imply interdisciplinary collaboration and knowledge sharing, highlighting the multifaceted nature of greenwashing research across different domains such as business ethics, environmental management, and corporate social responsibility.

Citation Analysis

Table 1. Top Cited Literature

Citations	Authors	Title
326	[22]	The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern
307	[8]	How the Market Values Greenwashing? Evidence from China
218	[18]	Bad greenwashing, good greenwashing: Corporate social responsibility and information transparency
208	[23]	Past, present, and future of sustainable finance: insights from big data analytics through machine learning of scholarly research
178	[24]	Green purchase intention: Effects of electronic service quality and

		customer green psychology
160	[19]	Is corporate social responsibility reporting a tool of signaling or greenwashing? Evidence from the worldwide logistics sector
158	[25]	Green financial system regulation shock and greenwashing behaviors: Evidence from Chinese firms
142	[26]	How environmental regulations affect the development of green finance: Recent evidence from polluting firms in China
140	[20]	All that glitters is not green: Creating trustworthy ecofriendly services at green hotels

Discussion

Yearly Publication Trends

The significant increase in publications on greenwashing from 2021 to 2024 underscores the growing academic and societal interest in this topic. Prior to 2020, research activity was sporadic, suggesting a lack of widespread recognition of greenwashing as a critical issue. However, the rapid growth in publications from 2021 onwards aligns with global trends in sustainability and heightened public awareness of environmental issues. This surge can also be attributed to increased regulatory scrutiny and consumer activism demanding greater corporate accountability. The COVID-19 pandemic may have further accelerated this trend, as the crisis highlighted the importance of genuine sustainability practices in rebuilding resilient economies. For Asia, a region characterized by rapid industrialization and significant environmental challenges, the rise in academic output reflects the urgent need to address greenwashing practices within the context of sustainability transitions. Despite this growth, the relatively low number of publications in earlier years suggests that greenwashing remained a peripheral topic within broader sustainability research. This highlights an opportunity for future studies to examine the historical evolution of greenwashing practices in Asia, particularly in industries such as manufacturing, energy, and tourism, which have long faced sustainability scrutiny. Additionally, future research could explore how cultural, economic, and regulatory differences across Asian countries influence the prevalence and perception of greenwashing.

Institutional Contributions

Shandong University's prominence in greenwashing research highlights its leadership in advancing the field. As the top contributor, the university's efforts may reflect the broader interest of Chinese academia in addressing sustainability-related challenges. Other leading institutions, such as Massey University, the National University of Singapore, and Hebron University, have also contributed significantly to the discourse, suggesting an emerging global and regional collaboration in tackling greenwashing. However, the limited number of documents from many other institutions indicates that greenwashing research remains concentrated among a few key players. This concentration underscores the need for broader participation from a diverse range of institutions, particularly those in developing countries that may lack the resources to invest in greenwashing studies. The involvement of institutions such as the Bank of Zambia and the Hana Institute of Finance highlights the interdisciplinary nature of greenwashing research. These contributions suggest that the issue transcends traditional environmental studies to encompass economics, finance, and governance. Encouraging further collaboration between academic institutions and industry stakeholders could provide more practical insights into how greenwashing impacts consumer behavior, corporate reputation, and regulatory frameworks.

Country-Level Contributions

The country-level analysis reveals China as the dominant contributor to greenwashing research, followed by India. This finding is unsurprising given the economic significance and environmental challenges of these nations. Both countries have experienced rapid industrialization, which has often been accompanied by environmental degradation and increased scrutiny of corporate sustainability claims. The Chinese government's recent emphasis on achieving carbon neutrality and promoting green development has likely spurred academic interest in greenwashing, as scholars and policymakers grapple with the challenges of distinguishing genuine sustainability efforts from deceptive practices. India's growing contribution reflects its dual challenge of balancing economic development with environmental protection. Indian researchers have likely been motivated by the need to address greenwashing in key sectors such as agriculture, textiles, and energy. Singapore, South Korea, and the United Arab Emirates also feature prominently in the analysis, suggesting that greenwashing is a critical issue across diverse economic and regulatory contexts. However, the relatively lower contributions from countries like Indonesia, Malaysia, and Palestine highlight a gap in regional representation. This gap underscores the need for more inclusive research efforts that account for the unique socio-economic and cultural contexts of underrepresented nations.

Thematic Insights from Keyword Co-Occurrence

The keyword co-occurrence network provides a nuanced understanding of the thematic focus within greenwashing research. The prominence of terms such as “sustainable development,” “circular economy,” and “green finance” reflects the interconnected nature of greenwashing with broader sustainability goals. The clustering of these terms into distinct thematic groups highlights the multifaceted challenges of addressing greenwashing. For example, the green cluster’s focus on environmental sustainability emphasizes the role of greenwashing in undermining efforts to reduce greenhouse gas emissions and transition to circular production models. This finding suggests that greenwashing is not merely a corporate malpractice but also a significant obstacle to achieving global environmental targets. Similarly, the blue cluster’s emphasis on financial mechanisms highlights the role of green finance in promoting sustainability while raising concerns about the potential for financial institutions to engage in greenwashing. These insights point to the need for stricter regulatory standards and transparency mechanisms to ensure that sustainability claims in financial markets are credible. The red cluster’s focus on corporate social responsibility (CSR) and green marketing underscores the critical role of businesses in shaping sustainability narratives. The connection between CSR and greenwashing highlights a growing skepticism toward corporate sustainability initiatives, particularly when these efforts prioritize public relations over substantive environmental impact. This skepticism is further supported by the presence of terms such as “eco-friendly” and “green branding,” which indicate that consumers are increasingly questioning the authenticity of sustainability claims. Future research could explore the effectiveness of regulatory interventions, such as mandatory sustainability reporting, in mitigating greenwashing and restoring consumer trust.

Temporal Trends and Emerging Research Areas

The overlay visualization reveals the temporal evolution of greenwashing research, with terms such as “circular economy” and “green finance” gaining prominence in recent years. This temporal shift suggests that greenwashing research is adapting to emerging sustainability challenges, such as the integration of circular economic models and the role of financial mechanisms in driving environmental progress. The growing prominence of these terms highlights the need for interdisciplinary approaches that bridge environmental science, economics, and business studies. However, the visualization also reveals persistent gaps in the literature. For instance, while terms related to climate change and biodiversity appear in the network, their connections to greenwashing remain relatively underexplored. This indicates a need for more comprehensive studies that examine how greenwashing practices impact biodiversity conservation and climate adaptation efforts. Additionally, the limited focus on social dimensions, such as the role of greenwashing in perpetuating environmental injustices, represents another critical gap in the literature.

Research Intensity and Collaboration Patterns

The density visualization highlights the centrality of greenwashing within the broader sustainability discourse. The prominence of terms such as “sustainable development” and “greenwashing” reflects the growing academic interest in understanding and addressing deceptive sustainability practices. However, the lower intensity of terms related to specific industries, such as tourism and agriculture, suggests that these sectors remain underrepresented in greenwashing research. Given the significant environmental and social impacts of these industries, future studies should prioritize sector-specific analyses to provide actionable insights for policymakers and practitioners. The co-authorship visualization reveals a fragmented but collaborative research landscape. The presence of distinct research clusters suggests that greenwashing is being studied from multiple perspectives, including environmental justice, corporate strategies, and consumer behavior. While this diversity is a strength, the limited connections between clusters indicate a need for greater interdisciplinary collaboration. Bridging these gaps could lead to a more holistic understanding of greenwashing and its implications for sustainability transitions.

Implications for Policy and Practice

The findings of this study have several implications for policymakers, businesses, and consumers. For policymakers, the growing academic focus on greenwashing highlights the need for robust regulatory frameworks to combat deceptive sustainability claims. Policies such as mandatory disclosure of environmental performance, third-party certification of sustainability claims, and penalties for false advertising could help mitigate greenwashing and promote genuine corporate accountability. For businesses, the findings underscore the importance of adopting transparent and verifiable sustainability practices. Companies should prioritize substantive environmental and social impact over superficial branding efforts to build consumer trust and avoid reputational risks associated with greenwashing. Additionally, businesses can benefit from collaborating with academic institutions and non-governmental organizations to develop innovative sustainability strategies that align with global environmental goals. For consumers, the study highlights the importance of critical engagement with corporate sustainability claims. Public awareness campaigns and educational initiatives can empower consumers to make informed decisions and hold companies accountable for their environmental impact. Furthermore, the growing prominence of green finance suggests that individual investors can play a role in driving corporate sustainability by prioritizing investments in genuinely sustainable enterprises.

5. Conclusion

This study on trends and gaps in greenwashing research within Asia reveals a growing scholarly interest in the topic, particularly in the past few years. The findings highlight the increasing significance of greenwashing as both an academic and practical concern, reflecting its critical role in sustainability discourses. While research has expanded across multiple countries and institutions, the concentration of contributions from China and India underscores their pivotal role in shaping the regional dialogue on greenwashing. Notably, the thematic clusters emphasize corporate social responsibility, sustainable development, and the intersection of green marketing with consumer skepticism. However, significant gaps remain in addressing the effectiveness of regulatory frameworks, the role of public awareness, and the cross-sectoral implications of greenwashing practices. Future research should prioritize interdisciplinary approaches to bridge these gaps and develop actionable strategies to combat greenwashing, ultimately fostering more authentic and impactful sustainability initiatives.

Funding: This research received no external funding.

Conflicts of Interest: "The authors declare no conflict of interest."

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

- [1] G. Nyilasy, H. Gangadharbatla, and A. Paladino, "Perceived greenwashing: The interactive effects of green advertising and corporate environmental performance on consumer reactions," *J. Bus. ethics*, vol. 125, pp. 693–707, 2014.
- [2] W. S. Laufer, "Social accountability and corporate greenwashing," *J. Bus. ethics*, vol. 43, pp. 253–261, 2003.
- [3] M. A. Delmas and V. C. Burbano, "The drivers of greenwashing," *Calif. Manage. Rev.*, vol. 54, no. 1, pp. 64–87, 2011.
- [4] R. M. Rotman, C. J. Gossett, and H. D. Goldman, "Greenwashing no more," *Adm. Law Rev.*, vol. 72, no. 3, pp. 417–443, 2020.
- [5] T. D. Gallicano, "A critical analysis of greenwashing claims," *Public Relat. J.*, vol. 5, no. 3, pp. 1–21, 2011.
- [6] S. V. de Freitas Netto, M. F. F. Sobral, A. R. B. Ribeiro, and G. R. da L. Soares, "Concepts and forms of greenwashing: A systematic review," *Environ. Sci. Eur.*, vol. 32, pp. 1–12, 2020.
- [7] N. E. Furlow, "Greenwashing in the new millennium," *J. Appl. Bus. Econ.*, vol. 10, no. 6, p. 22, 2010.
- [8] X. Du, "How the market values greenwashing? Evidence from China," *J. Bus. Ethics*, vol. 128, pp. 547–574, 2015.
- [9] T. Miller, *Greenwashing culture*. Routledge, 2017.
- [10] F. Bowen and J. A. Aragon-Correa, "Greenwashing in corporate environmentalism research and practice: The importance of what we say and do," *Organization & Environment*, vol. 27, no. 2. Sage Publications Sage CA: Los Angeles, CA, pp. 107–112, 2014.
- [11] Z. Yang, T. T. H. Nguyen, H. N. Nguyen, T. T. N. Nguyen, and T. T. Cao, "Greenwashing behaviours: Causes, taxonomy and consequences based on a systematic literature review," *J. Bus. Econ. Manag.*, vol. 21, no. 5, pp. 1486–1507, 2020.
- [12] P. Aggarwal and A. Kadyan, "Greenwashing: The darker side of CSR," *Indian J. Appl. Res.*, vol. 4, no. 3, pp. 61–66, 2014.
- [13] P. Seele and L. Gatti, "Greenwashing revisited: In search of a typology and accusation-based definition incorporating legitimacy strategies," *Bus. Strateg. Environ.*, vol. 26, no. 2, pp. 239–252, 2017.
- [14] S. Szabo and J. Webster, "Perceived greenwashing: the effects of green marketing on environmental and product perceptions," *J. Bus. ethics*, vol. 171, pp. 719–739, 2021.
- [15] G. Hofstede, "Culture's consequences: Comparing values, behaviors, institutions and organizations across nations," Thousand Oaks, 2001.
- [16] C. Santos, A. Coelho, and A. Marques, "A systematic literature review on greenwashing and its relationship to stakeholders: state of art and future research agenda," *Manag. Rev. Q.*, vol. 74, no. 3, pp. 1397–1421, 2024.
- [17] R. Bazillier and J. Vauday, "The greenwashing machine: Is CSR more than communication," 2009.
- [18] Y. Wu, K. Zhang, and J. Xie, "Bad greenwashing, good greenwashing: Corporate social responsibility and information transparency," *Manage. Sci.*, vol. 66, no. 7, pp. 3095–3112, 2020.
- [19] A. Uyar, A. S. Karaman, and M. Kilic, "Is corporate social responsibility reporting a tool of signaling or greenwashing? Evidence from the worldwide logistics sector," *J. Clean. Prod.*, vol. 253, p. 119997, 2020.
- [20] A. Gupta, S. Dash, and A. Mishra, "All that glitters is not green: Creating trustworthy ecofriendly services at green hotels," *Tour. Manag.*, vol. 70, pp. 155–169, 2019.
- [21] N. Donthu, S. Kumar, N. Pandey, N. Pandey, and A. Mishra, "Mapping the electronic word-of-mouth (eWOM) research: A systematic review and bibliometric analysis," *J. Bus. Res.*, vol. 135, pp. 758–773, 2021.
- [22] L. Zhang, D. Li, C. Cao, and S. Huang, "The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern," *J. Clean. Prod.*, vol. 187, pp. 740–750, 2018.
- [23] S. Kumar, D. Sharma, S. Rao, W. M. Lim, and S. K. Mangla, "Past, present, and future of sustainable finance: insights from big data analytics through machine learning of scholarly research," *Ann. Oper. Res.*, pp. 1–44, 2022.
- [24] W. Ahmad and Q. Zhang, "Green purchase intention: Effects of electronic service quality and customer green psychology," *J. Clean. Prod.*, vol. 267, p. 122053, 2020.
- [25] D. Zhang, "Green financial system regulation shock and greenwashing behaviors: Evidence from Chinese firms," *Energy Econ.*, vol. 111, p. 106064, 2022.
- [26] Y. Xu, S. Li, X. Zhou, U. Shahzad, and X. Zhao, "How environmental regulations affect the development of green finance: Recent evidence from polluting firms in China," *Renew. Energy*, vol. 189, pp. 917–926, 2022.