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TRENDS AND DEVELOPMENTS IN GREENWASHING PRACTICES AND SUSTAINABILITY ACCOUNTING: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

This study aims to map the trends, developments, and patterns of research in greenwashing and sustainability accounting practices using a bibliometric analysis approach. Research data were obtained from the Scopus database with a publication period from 2007 to 2025. This study uses bibliometric analysis assisted by R-Packages software and Web Interface Biblioshiny. This study identifies the development of greenwashing and sustainability accounting practices through an analysis of annual publication trends. In practice, greenwashing and sustainability accounting are the same form but have different implications. This study is driven by the need to understand the greenwashing practice trends and developments in sustainability accounting, which make important contributions to the development of global business. The results of the study show an increase in global interest in the issue of greenwashing and sustainability accounting, with a dominant contribution to research from developed countries such as China, the United States, the United Kingdom, Italy, and India. The gap in research participation between developed and developing countries indicates the need for a more inclusive and collaborative approach. The results also show the importance of international collaboration, consumer education, and a clear regulatory framework in preventing greenwashing practices and supporting the implementation of transparent and accountable sustainability accounting. This research is expected to be a basis for further research and more appropriate policy making in efforts to encourage global sustainability through sustainable development and a green economy. This study makes an academic contribution by identifying influential themes, authors, and citation patterns in the field. Practically, it highlights the need for stronger regulation, public awareness, and cross-country collaboration to prevent greenwashing. Future research should explore the role of technology in detecting greenwashing and expand the analysis to developing regions.

Keywords : *Greenwashing; Sustainability Accounting; Green Economy; Sustainability Development; Bibliometrics*

INTRODUCTION

Global awareness of sustainability issues and the environmental impact of business activities has grown significantly in recent decades. Pressure from various stakeholders, including governments, international organizations, consumers, and civil society, has pushed companies to adopt more responsible and transparent business practices (R. Yu et al. 2025). In this context, sustainability accounting

becomes an important instrument that helps companies measure, report, and improve environmental, social, and corporate governance performance (Donkor, Mensah, and Amponsah 2025). Sustainability accounting is not only a means for companies to demonstrate their commitment to sustainability goals, but also a tool for stakeholders to assess the integrity and accountability of the company (Feghali, Najem, and Metcalfe 2025). Through sustainability accounting, companies can systematically identify and disclose the impacts of their business activities and formulate more environmentally friendly and sustainable strategies (Journey 2025).

However, as public expectations for sustainable business practices increase, the phenomenon of greenwashing has emerged (Altintzoglou et al. 2025). Greenwashing is the practice of companies conveying a false or misleading image about their environmental sustainability (J. Yu, Yang, and Wang 2025). By using communications that emphasize "green" or environmentally friendly aspects, companies that engage in greenwashing are actually covering up the fact that they have not made significant improvements to their environmental impact (Kinnunen 2020). This practice is often done through advertising, biased sustainability reports, or claims that are not supported by verifiable data and facts (Li, Saleh, and Huang 2025). Greenwashing poses a serious threat to global efforts to achieve sustainability because it undermines public trust and creates confusion among consumers and investors (Kudlak 2024). Furthermore, greenwashing practices can hinder the initiatives of other companies that are truly committed to sustainability (Zhan, Lian, and Dai 2025). Therefore, it is important to understand how greenwashing and sustainability accounting practices develop and are integrated into academic research, as well as to identify trends and gaps in the existing literature.

Bibliometric analysis is an appropriate approach to review and map research trends in this topic (Ezeh and Dube 2025; Nefla and Jellouli 2025). Through bibliometrics, quantitative analysis can be conducted on scientific publications related to greenwashing and sustainability accounting, including publication patterns, collaborations between authors and institutions, frequently used keywords, and key topics of research focus (Alsmadi et al. 2022; Zhang, Quoquab, and Mohammad 2024). The results of this analysis will provide valuable insights into how this field has developed, the issues that are often, and and the direction of future research (Meseguer-Sánchez et al. 2021). This study aims to contribute to a comprehensive understanding of the dynamics and development of

research in the field of greenwashing and sustainability accounting. Thus, the results of this study are expected to be a foundation for future researchers in identifying unexplored themes, for business practices in increasing transparency and accountability in sustainability reporting, and for policymakers in formulating a clear regulatory framework to encourage authentic sustainability practices and prevent greenwashing.

RESEARCH METHOD

This study uses a bibliometric analysis approach to identify trends and developments in research related to greenwashing and sustainability accounting practices. Research data were obtained from basic data of Scopus-indexed International Journals. Literature searches were conducted using primary keywords such as “greenwashing”, “green washing”, “sustainability accounting”, and “sustainable accounting” in the title, abstract, and keywords of the articles. The research period is limited from 2007 to 2025 to capture the latest developments in this field; there are 726 articles from 348 journal sources. The data obtained were then selected based on inclusion criteria, namely English-language scientific journal articles that have gone through a peer-review process, and excluded non-journal publications such as conference proceedings, editorials, and books. As part of the data preprocessing stage, identification and handling of data duplication, typographical errors, and irrelevant entries are carried out to ensure that the data analyzed is accurate, consistent, and in accordance with the research focus, by conducting automatic and manual filtering of publication metadata, such as checking DOI, article title, and author names to avoid duplication; correcting writing inconsistencies (e.g. variations in author names or institutions); and excluding irrelevant documents based on publication type, language, and topic suitability to predetermined keywords.

Furthermore, the data were analyzed using R-Packages software and Biblioshiny Web Interface with a focus on analyzing publication trends per year, keywords, collaborations between authors and institutions, and citation analysis to identify the most influential articles and authors. The results of this analysis will provide a comprehensive Figure of the patterns and dynamics of research in the field of greenwashing and sustainability accounting, as well as identify gaps and opportunities for future research development.

RESULTS AND DISCUSSION

Sample Overview

Figure 1 Sample Overview
Source: R-Packages and WebInterface Biblioshiny (2025)

The results of the bibliometric analysis (Figure 1) show that research on greenwashing and sustainability accounting has experienced significant growth in the period 2007 to 2025. The number of sources used reached 348 journals, with a total of 726 documents analyzed, indicating a very broad database. The annual publication growth of 32.29% reflects the increasing academic interest and urgency to explore this issue in more depth. In terms of author participation, there were 1,885 authors involved, with 104 of them writing alone, while the majority were the result of collaboration, reflected by an average of 3.04 co-authors per document. International collaboration itself was recorded at 26.45%, indicating cross-country cooperation, but it still has room for improvement.

The variety of keywords used, as many as 2,145, and the high number of references used (45,012) indicate the complexity and richness of the literature supporting this research. The relatively young average age of the documents, which is 2.65 years, and the average citation per article reaching 29.29, confirm that the theme of greenwashing and sustainability accounting is a dynamic, relevant topic, and has a significant impact on the academic community. These results overall emphasize the importance of further research and closer global collaboration, especially from developing countries, to produce more transparent and accountable sustainability reporting practices.

Trends and Developments in Greenwashing and Sustainability Accounting Research

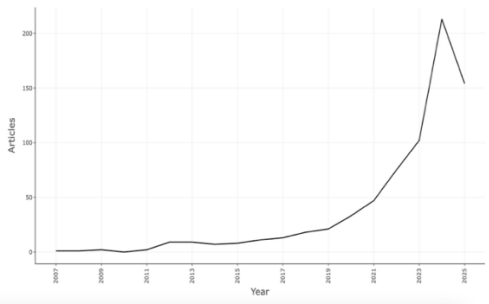

Figure 2 Trend Number of Articles Greenwashing and Sustainability Accounting
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 2 shows the trend in the number of articles discussing the issue of greenwashing and sustainability accounting from 2007 to 2025. At the beginning of the period, namely 2007 to around 2011, the number of articles published was still very small and relatively stagnant. The trend began to show a slight increase in the period 2012–2018, although the growth rate was

still low. Since 2019, the publication trend has begun to increase more significantly, and a very rapid spike was seen in the period 2021–2023. The number of articles published peaked in 2024, with more than 200 articles, before declining slightly in 2025.

This pattern reflects the increasing interest and urgency of research on greenwashing and sustainability accounting in the past decade, along with the increasing global awareness of sustainability, stricter regulations, and demands for transparency in business practices. This surge in publications indicates that the issue of greenwashing and sustainability accounting has become an important agenda that has attracted the attention of the academic community and practitioners in various countries.

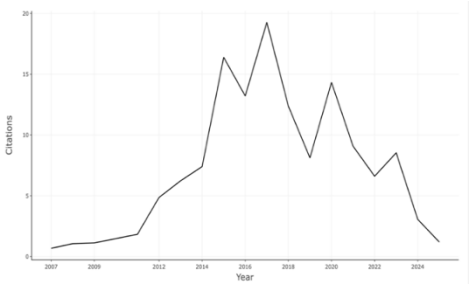

Figure 3 Trends in the Number of Citations of Greenwashing and Sustainability Accounting Articles
Source: R-Packages and Web Interface Biblioshiny (2025)

Figure 3 shows the trend of the number of citations of articles on greenwashing and sustainability accounting from 2007 to 2025. In the early period, especially 2007–2012, the number of citations was still low and showed a gradual increase. The citation trend then experienced a significant spike in the period 2013–2017, peaking around 2016–2017 with more than 15 citations per year. After that period, the graph shows a fluctuation pattern, where the number of citations decreased and increased again several times until around 2020. Starting in 2021, the citation trend again experienced a fairly consistent decline until 2025. This phenomenon shows that early publications in the field of greenwashing and sustainability accounting became the main references at their peak, then were gradually replaced by newer studies or shifts in research focus. This trend also indicates the importance of conducting periodic literature evaluations to understand how research focus and the relevance of academic findings change over time.

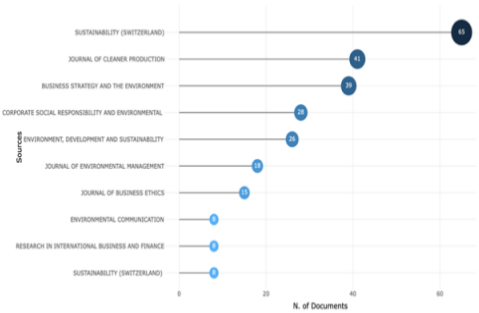

Figure 4 Distribution of Greenwashing and Sustainability Accounting Documents
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 4 illustrates the distribution of documents related to

greenwashing and sustainability accounting published by various leading journals. The journal Sustainability (Switzerland) is in the top position with a contribution of 65 documents, confirming its significant role as the main source of publications on this theme. Followed by the Journal of Cleaner Production with 41 documents, and Business Strategy and the Environment, which contributed 39 documents. In addition, Corporate Social Responsibility and Environmental Management and Environment, Development and Sustainability each contributed 28 and 26 documents. Other journals such as the Journal of Environmental Management and the Journal of Business Ethics also appear with quite significant contributions, 18 and 15 documents, respectively.

Meanwhile, several other journals, such as Environmental Communication, Research in International Business and Finance, and Sustainability (Switzerland), each contributed 8 documents. These data show that the topic of greenwashing and sustainability accounting is supported by various reputable journals, especially those that focus on environmental and sustainability issues. This distribution also indicates that publications related to this theme are quite diversified, thus encouraging cross-disciplinary academic discourse.

Figure 5 Word Cloud Greenwashing and Sustainability Accounting
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 5 is a word cloud depicting the main keywords that often appear in publications on greenwashing and sustainability accounting. The keywords "sustainability," "greenwashing," and "sustainable development" dominate, reflecting the primary focus of research on these issues. In addition, there are other significant keywords, such as "green economy", "corporate social responsibility", and "environmental protection", which indicate that research focuses not only on greenwashing practices but also on aspects of corporate social responsibility and environmental protection. Other issues that also receive attention are "environmental economics", "climate change", "marketing", and "stakeholder", which illustrate that this research covers economic, social, and communication aspects. This word cloud as a whole provides an overview of the diversity of focus and multidisciplinary research on

greenwashing and sustainability accounting, which is increasingly relevant in facing the challenges of sustainable development in the global era.

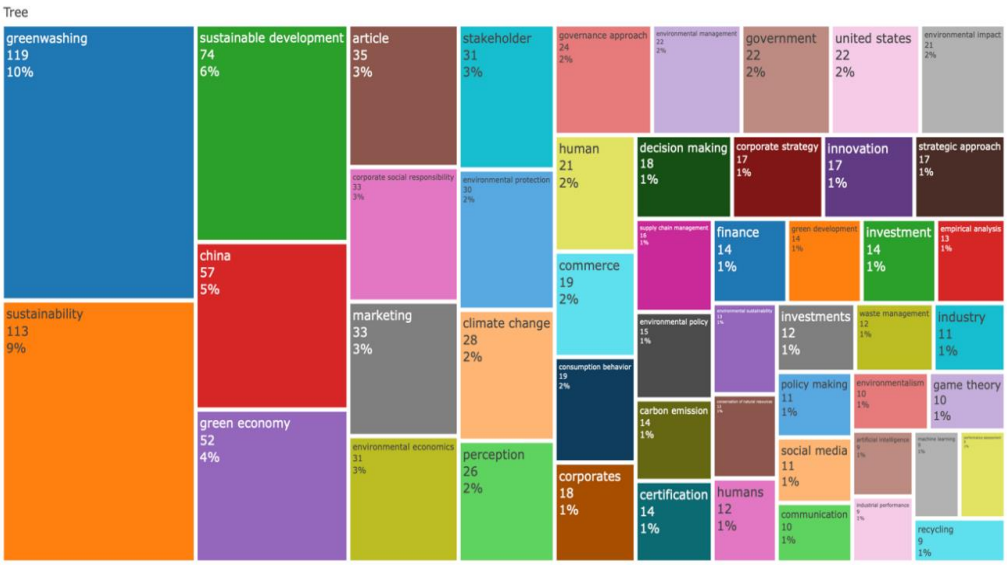

Figure 6 Treemap
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 6 shows a treemap of the main keywords in research related to greenwashing and sustainability accounting. “Greenwashing” is the most prominent keyword, with a share of 10%, followed by “sustainability” (9%) and “sustainable development” (6%), which confirms the dominant focus on the main theme of the research. The keyword, “green economy” (4%) shows a special attention to the specific context and topics that appear in the publications. In addition, other themes, such as “stakeholder,” “corporate social responsibility,” and “environmental protection,” appear significantly, each contributing around 2–3%, indicating a close relationship between the issue of greenwashing and the role of stakeholders, as well as the push for more responsible governance.

Furthermore, topics such as “marketing”, “climate change”, and “finance” that also appear in this treemap show the relationship between greenwashing practices and aspects of communication, climate change, and finance. The keywords “innovation”, “governance approach”, and “human” also broaden the research perspective by including social elements and innovation as an important part of the greenwashing discourse. Overall, this treemap shows that research on greenwashing and sustainability accounting is multidisciplinary and covers a variety of related topics. This emphasizes that

the issue of greenwashing and sustainability is not limited only to the environment but also involves social, economic, political, and communication dimensions.

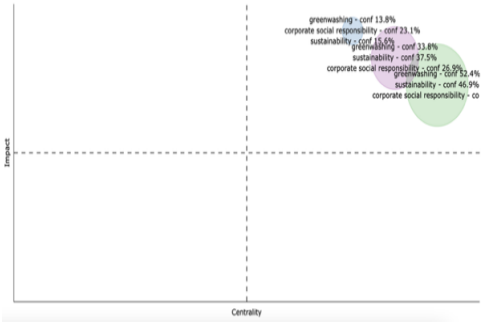

Figure 7 Keywords
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 7 shows the cumulative development of key keywords used in research publications on greenwashing and sustainability accounting from 2007 to 2025. It can be seen that the keywords "sustainability" and "sustainable development" experienced a significant spike after 2020, reflecting the increasing interest and urgency of sustainability issues at the global level. The keyword "greenwashing" also showed rapid growth, especially since 2021, indicating increasing attention to misleading practices related to green claims. In addition, keywords such as "corporate social responsibility" and "stakeholder" also showed an upward trend, although at a lower intensity, indicating that these topics are still important concerns in the context of greenwashing and accountability. The keyword "green economy" also recorded a consistent increase, highlighting the significant geographic and economic focus on developing countries and the ongoing green economy transformation.

This trend shows that since 2020, awareness of greenwashing and sustainability issues has become stronger, driven by regulatory developments, consumer demands, and the business world's need for transparency and social responsibility. These overall trends confirm that research in the field of greenwashing and sustainability accounting is becoming increasingly relevant and in-depth, and reflects the close relationship between economic, social and environmental aspects that are increasingly being considered in the current era.

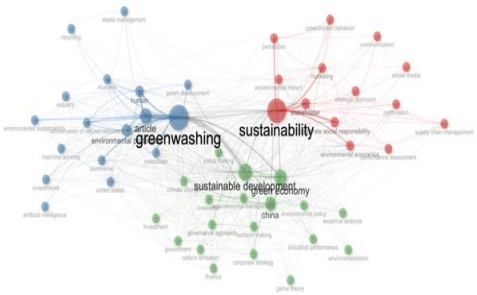

Figure 8 Relationship of Key Concepts
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 8 is a visualization showing the relationship between key concepts related to "greenwashing" and "sustainability". With "greenwashing" as the central theme, surrounded by other terms such as "sustainability", "stakeholder", and

"sustainable development", the visualization illustrates how different ideas are connected. For example, the relationship between "sustainability" and "stakeholder" shows the importance of stakeholders in sustainability issues. This network provides a clear Figure of the complexity of discussions around sustainability and greenwashing practices, helping us understand the interactions between different concepts and relevant environmental issues.

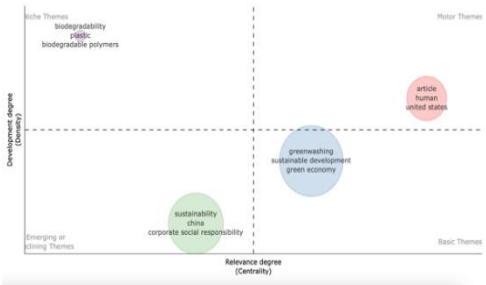

Figure 9 Thematic Map
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 9 is a thematic map used to analyze the dynamics of research themes based on two main dimensions: level of development (density) and level of relevance or connectedness (centrality). This map is divided into four quadrants. The upper right quadrant shows motor themes, which are important and well-developed themes, such as "article", "human", and "united states", which reflect dominant and established topics in the research literature. The upper left quadrant includes niche themes such as "biodegradability", "plastic", and "biodegradable polymers" which, although strongly developed internally, have little connection with other themes and are therefore specialist. In the lower right quadrant, there are basic themes such as "greenwashing", "sustainable development", and "green economy" which have high connections with other fields but have not been developed in depth, thus becoming a potential basis for further exploration.

Meanwhile, the lower left quadrant contains emerging or declining themes such as "sustainability", "China", and "corporate social responsibility", which are currently underdeveloped and less relevant, potentially being new themes that are emerging or old themes that are starting to be abandoned. The size of the circles indicates the number of related publications, where themes such as "greenwashing" carry significant weight, reflecting the amount of academic attention paid to the topic. The map as a whole provides a strategic overview of the position and potential development of various themes in the research field analyzed.

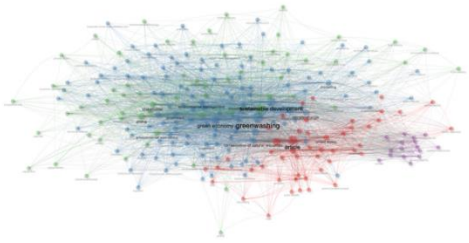

Figure10 keyword co-occurrence network visualization
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 10 is a visualization of a keyword co-occurrence network commonly used in bibliometric analysis to identify relationships between keywords in scientific literature. Each node represents a keyword, while the lines connecting the nodes indicate the frequency of co-occurrence of the keywords in the same document. The color of the node indicates thematic groups or clusters formed based on the strength of the relationship between keywords. In this visualization, there are several dominant color, groups such as blue, green, red, and purple, that indicate different sub-themes or research domains.

Keywords such as "greenwashing," "green economy," and "sustainable development" stand out due to their larger size, indicating that these words have high frequency and centrality in the network. The blue cluster, which is the densest, shows a focus on issues related to sustainable development and the green economy. Meanwhile, the red cluster seems to focus on more technical or administrative aspects, characterized by keywords such as "human," and "publication." The green cluster may refer to a specific theme such as "corporate social responsibility," while the purple cluster refers to a more specialized topic. Overall, this visualization reveals that themes such as greenwashing and sustainable development are central to this research network, with strong connections to other sub-themes, reflecting the importance of sustainability and environmental responsibility in current scientific discourse. The dense network structure also suggests that the field has strong connections between themes, indicating high interdisciplinarity.

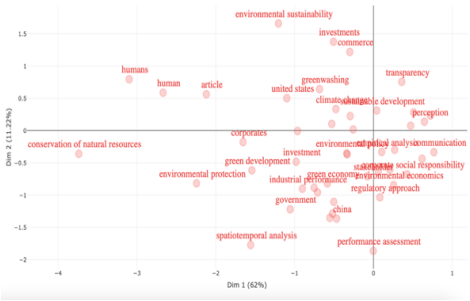

Figure 11 Correspondence Analysis (CA)
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 11 is the result of Correspondence Analysis (CA) analysis used to explore the association relationship between keywords in a bibliometric dataset. Each point on the graph represents a keyword, while the distance between the points indicates the degree of similarity or association: the closer two keywords are, the more often they appear together in the same document. The two main dimensions shown, Dimension 1 (62%) and Dimension 2 (11.2%), explain a total variation of about 73.2% of the entire data structure, with Dimension 1 as the main explanatory factor. On the right side of the graph (positive Dim

1 values), there are keywords such as “transparency”, “sustainable development”, “communication”, and “corporate social responsibility” which tend to be associated with themes related to accountability, corporate ethics, and social issues.

On the left side (negative Dim 1 values), we see keywords such as “conservation of natural resources”, “humans”, and “environmental protection”, which are more closely related to environmental issues and nature protection. Meanwhile, at the top (positive Dim 2), terms such as “environmental sustainability” and “investments” appear, which may illustrate the relationship between environmental sustainability and financial aspects. At the bottom (negative Dim 2), keywords such as “spatiotemporal analysis” and “performance assessment” indicate a more technical or geographically focused approach. Overall, this map provides insight into how different themes in the literature are interconnected and form conceptual clusters. It shows that there is a spectrum of topics covering the social, economic, technical and ecological sides of sustainability and greenwashing issues, and how each keyword occupies a strategic position in the broader academic discourse.

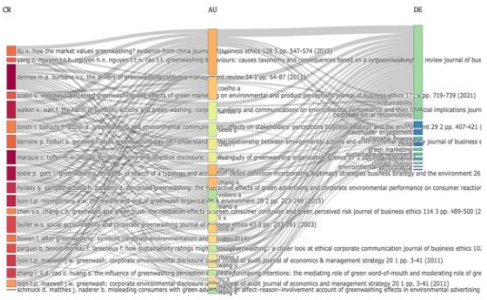

Figure 12 Sankey diagram visualization
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 12 is a visualization of the Sankey diagram in a bibliometric context, illustrating the relationships between documents (CR - Cited References), authors (AU - Authors), and publication sources (DE - Document Sources/Journals) in research on the topic of greenwashing. The diagram shows how important literature in this field is interconnected through citations, author contributions, and publication media used. The left column (CR) shows the most frequently cited works in the greenwashing literature, such as the work of Du, X., Yang, Z., and Delmas, MA, indicating that their work has a great influence as an academic foundation. The middle column (AU) shows the main authors who are active contributors to this study, showing the relationship between them and some of the documents and references they contributed. The right column (DE) shows the journals or publication sources in which the works were published, such as the Journal of Business Ethics, Journal of Business

Research, and Journal of Consumer Behaviour, which appear to be the main outlets for greenwashing research.

The flow connecting each element shows the relationship between the cited work, its authors, and its publication venue. For example, a frequently cited important work may contribute to several articles by different authors, which are then spread across different journals. This reflects the knowledge structure in the field of greenwashing, where a few seminal works are at the center of academic discourse and spread through multiple scholarly channels. This diagram is thus very useful for understanding how knowledge is disseminated and who the key actors and channels are in the development of the literature on greenwashing.

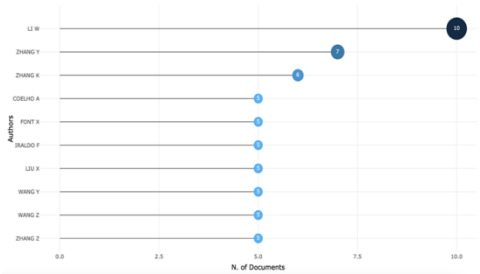

Figure 13 horizontal bar chart visualization
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 13 is a horizontal bar chart visualization showing the number of publications per author on a particular research topic, most likely related to greenwashing or sustainability, given the context of the previous figures. The horizontal axis shows the number of documents (N. of Documents), while the vertical axis lists the names of the authors. From this graph, it can be seen that Li W is the most prolific author with a total of 10 publications, followed by Zhang Y with 7 publications, and Zhang K with 6 publications. Meanwhile, several other authors, such as Coelho A, Font X, Iraldo F, and several others, have each written as many as 5 documents. This graph provides an overview of the main contributors to the literature in the field, highlighting who the most active researchers are. These top authors are likely to have a significant influence on shaping academic discourse and knowledge development on the topic, and can serve as important references for further studies. This data also helps in identifying potential collaborators or primary literature sources for deeper research.

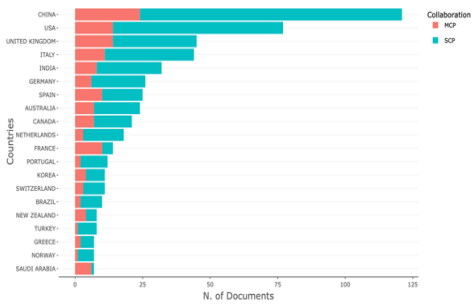

Figure 14 horizontal bar chart visualization
Source: R-Packages and WebInterface Biblioshiny (2025)

Figure 14 is a horizontal bar chart visualization showing the country contribution in the number of

scientific publications related to a topic, the possibility of greenwashing or sustainability and the pattern of international collaboration based on two categories: SCP (Single Country Publications) and MCP (Multiple Country Publications). It can be seen that China is the largest contributor with more than 120 documents, followed by the United States with around 75 documents, and then the United Kingdom, Italy, and India. The turquoise color (SCP) indicates publications conducted by researchers from a single country, while the pink color (MCP) represents publications resulting from international collaborations between countries. From this graph, it can be concluded that although China dominates the number of publications, most of them come from domestic collaborations (SCP). In contrast, countries such as the United States, the United Kingdom, and Germany have a larger proportion of international collaborations (MCP), reflecting a more open research approach to cross-country cooperation.

Overall, this graph not only identifies the most active countries in the research field but also highlights the level of internationalization of research conducted, which is important for a global understanding of issues such as greenwashing and sustainability. Cross-country collaboration (MCP) is an important indicator of global academic networks and knowledge exchange. Leading authors in green and sustainable marketing (see Figure 4) focus a significant portion of their research on greenwashing and green brand trust, as well as the factors that influence green purchase intentions.

Greenwashing and Corporate Social Responsibility (CSR)

The relationship between greenwashing and Corporate Social Responsibility (CSR) is an important issue in corporate sustainability studies, reflecting the tension between image and substance in corporate social responsibility practices (Zervoudi, Moschos, and Christopoulos 2025). CSR is theoretically designed to be a framework that encourages companies to contribute positively to the environment and society (Mu and Lee 2023). Through CSR, companies are expected to be able to integrate economic, social, and environmental aspects into their business processes and long-term strategies (Moodaley and Telukdarie 2023). However, in practice, not all companies implement CSR with sincere intentions. Some companies actually use CSR as an image tool to gain public legitimacy without making substantial changes to their business operations (de Magalhães Silva et al. 2025). This phenomenon is known as greenwashing, which is a corporate communication strategy that deliberately presents itself as caring

about the environment, even though its contribution to sustainability is very minimal or even merely cosmetic (Cinceoglu and Strauss 2024).

This condition poses a risk to the credibility of CSR as a whole because the public finds it difficult to distinguish between companies that are truly committed to sustainability and those that are simply exploiting it for reputational purposes (Gorovaia and Makrominas 2024). Therefore, it is important for every CSR practice to be accompanied by measurable sustainability indicators, information transparency, and accountability mechanisms so that the potential for greenwashing can be minimized (Mu and Lee 2023). Contemporary studies emphasize the need for independent regulation and oversight to ensure that CSR does not become a manipulative instrument, but rather functions in a real way to drive transformation towards sustainability (Yao, Liu, and Shi 2022).

Sustainable Development and Green Economy

The concept of sustainability and sustainable development is a philosophical and practical basis for efforts to maintain a balance between the needs of current and future generations (Winston 2022). In this framework, the green economy is present as a policy, and it is an economic approach that seeks to operationalize the principles of sustainability through the transformation of economic structures towards a more environmentally friendly and socially inclusive model (Ferraz et al. 2021). A green economy is generally defined as an economy that results in increased human well-being and social equity, while significantly reducing environmental risks and resource scarcity (Devi, Raju, and Kar 2025). This approach involves the integration of green technologies, energy efficiency, sustainable production and consumption practices, and economic instruments that encourage the transition from a high-carbon economy to a low-carbon economy (Uwaga Monica Adanma and Emmanuel Olurotimi Ogunbiyi 2024).

Thus, sustainable development functions as a normative goal, while the green economy becomes a means or mechanism to achieve it (Judijanto and Nastiar 2025). Both are functionally interrelated. The development of a green economy is expected to be able to overcome the trade-off between economic growth and environmental protection, which has been a paradox in conventional development (Astadi et al. 2022). In addition, this approach also emphasizes the aspect of inclusivity by encouraging community participation, social justice, and reducing inequality in the distribution of development benefits (Ali, Anufriev, and Amfo 2021;

Gebrekidan et al. 2025). Effective implementation of the green economy requires comprehensive policy support, including the formulation of a national low-carbon development strategy, fiscal incentives for green innovation, and strengthening institutional capacity (Zhang et al. 2022). Therefore, synergy between state actors, the private sector, and civil society is a key factor in the success of the transition to sustainable development (Poiriazi et al. 2025).

Sustainability Development and Greenwashing

The relationship between sustainable development and greenwashing reflects a fairly complex dynamic in the modern era, where demands for sustainable practices are increasingly at the center of global attention (Donkor et al. 2025). Sustainable development itself is a concept that emphasizes the importance of economic development that maintains environmental sustainability and social welfare, in order to ensure a balance between the present and future generations. This principle has become the basis for many business policies and initiatives, leading to the implementation of environmentally friendly technologies, the use of renewable energy, and the wise management of natural resources. However, as public demand and regulations supporting sustainable development increase, the phenomenon of greenwashing has also emerged, a manipulative practice in which companies or organizations claim to support sustainability only to improve their image or gain market advantage (Jaiswal et al. 2022).

Companies that engage in greenwashing often only emphasize the sustainability narrative through advertising or annual reports, but do not implement real changes in their operations (Cinceoglu and Strauss 2024). As a result, greenwashing actually hinders the essence of sustainable development because it creates a false illusion of sustainability, misleads consumers, and influences decision-making that should support genuine sustainability efforts (Elshaer et al. 2025). Furthermore, greenwashing has the potential to undermine public trust in authentic sustainability efforts (Feghali et al. 2025). When consumers and stakeholders realize that real actions do not back up sustainability claims, this can lead to widespread skepticism towards all sustainable initiatives, even those that are genuinely positive and impactful. In this context, greenwashing becomes a serious threat because it not only slows down the pace of sustainable development but also reduces the credibility of companies and institutions that are actually committed to the principles of sustainability.

Environmental Economics and Environmental Policy

Environmental economics is a branch of economics that focuses on how economic activity affects the environment (Jaiswal et al. 2022), and how economic instruments can be used to address various environmental problems efficiently and fairly (Zhang et al. 2022). This field provides a theoretical and analytical framework for understanding and assessing the impacts of environmental externalities and for designing policies that internalize environmental costs into economic decision-making (Abouarab, Mishra, and Wolfe 2024). From . By assigning economic value to natural resources and ecosystem services, environmental economics enables more rational, evidence-based decision-making (Allam et al. 2022).

Furthermore, this approach also contributes to strengthening environmental governance by emphasizing the importance of transparency, public participation, and incentive mechanisms in natural resource management (R. Yu et al. 2025). Thus, environmental economics is not only a technocratic analysis tool, but also acts as a bridge between science, policy, and public interest (Mestanza-Ramón et al. 2022). In the current context of the global climate crisis and environmental degradation, the integration of environmental economics into the policy-making process becomes increasingly urgent (Mu and Lee 2023). Governments and international institutions are expected to use this approach to design policies that are not only economically efficient, but also socially and ecologically just and sustainable (Moodaley and Telukdarie 2023).

CONCLUSION

This study highlights the growing global interest and significant academic engagement in the issue of greenwashing and sustainability accounting. The steady increase in the number of publications from 2007 to 2025, awareness of sustainability practices and transparency in corporate environmental and social performance reporting has become an important focus in academic research and business practice. This trend reflects the growing global concern for corporate accountability and the risks of greenwashing, reinforced by consumer demands, regulations, and shifting societal values towards more ethical business practices. The analysis also reveals that the largest research contributions come from developed countries such as China, the United States, the United Kingdom, Italy, and India, while developing countries, especially in Africa and parts of Southeast Asia, are underrepresented. This geographical gap suggests the need for a more inclusive and collaborative research

approach internationally. In addition, the key themes that emerge, such as greenwashing, sustainability reporting, policy influence, and innovation in sustainability accounting, demonstrate the complexity of the dynamics involved and the importance of cross-disciplinary integration to address misleading practices that undermine public trust.

Based on these findings, it is recommended that future research focus on the context of developing countries, which face unique challenges in implementing sustainability accounting and preventing greenwashing. International collaboration, knowledge exchange, and strengthening research capacity in underrepresented regions are essential to support the adoption of truly sustainable business practices. Based on these findings, this study provides several practical implications. For researchers, bibliometric mapping offers a platform to explore under-researched areas, such as the role of new technologies in detecting greenwashing or cross-country comparative studies. For business practitioners, these results highlight the need to implement transparent sustainability reporting, supported by verifiable data and third-party audits. For policymakers, this study emphasizes the urgency of developing and enforcing clearer regulatory frameworks and disclosure standards to combat greenwashing and foster accountability. Together, these efforts can strengthen stakeholder trust and contribute to more authentic and globally impactful sustainability practices.

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