A BIBLIOMETRIC ANALYSIS OF ACADEMIC CONTRIBUTIONS TO GREEN TOURISM RESEARCH

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Abstract – This bibliometric study systematically evaluates global research trends in green tourism. Data were retrieved from Scopus for 2015–2025; after screening and data cleaning, 753 documents were analyzed using VOSviewer 1.6.20. The findings show a marked increase in publications after 2020. China, the United States, and Australia ranked highest in publication output, whereas the United Kingdom and South Korea showed particularly high citation impact. The intellectual structure comprises four core clusters: (1) green strategic management and green human resource management; (2) consumer behavior and the psychology of new-generation tourists; (3) green marketing, greenwashing, and trust; and (4) macro-level resilience and adaptation. The study identifies a shift from static sustainability toward dynamic resilience. These findings offer policy and managerial implications for businesses and policymakers seeking to navigate the evolving green tourism landscape.

Keywords - Green tourism; Bibliometric analysis; Sustainable tourism; Greenwashing; Green finance.

1. Introduction

Over recent decades, sustainable development has become a central concern in global policy and academic debates, emphasizing the balance among economic growth, social equity, and environmental protection in response to climate change, ecosystem degradation, and resource depletion [1]. Although tourism is widely expected to drive economic growth, it has also been criticized for contributing to greenhouse gas emissions and increasing pressure on natural resources, particularly through transport and accommodation activities.

The emergence of concepts such as "green tourism," "ecotourism," and "sustainable tourism" reflects attempts to reorient the industry toward more environmentally responsible models, in parallel with changes in tourists' environmental awareness and consumption behavior. Among these concepts, green tourism covers a broad set of industry practices and emphasizes managerial and operational solutions for reducing environmental impacts, including energy use and carbon emissions [2]. At the firm level, particularly in hotels, pressure to reduce energy consumption, water use, and waste has encouraged a wide range of green initiatives; however, a lack of transparency can also increase the risk of greenwashing [3], [4], [5].

From an academic perspective, studies on green tourism, green tourist behavior, and hotel green initiatives have increased rapidly. However, this body of literature remains fragmented, lacks a coherent synthesized structure, and is dispersed across theoretical frameworks and research contexts [6], [7], [8]. Existing review studies often cover data only up to the pre-2023 period and focus mainly on the short-term impacts of COVID-19 and related response strategies. In the post-pandemic context, new practical challenges have become more prominent, including skepticism toward greenwashing, stricter requirements from green finance, and the multidimensional behavior of Generation Z consumers. The intersection of these variables with core themes such as the circular economy and carbon neutrality calls for a major shift in tourism management approaches. In this context, bibliometric analysis is an appropriate method for processing large bodies of literature, reducing dependence on subjective evaluation, and objectively identifying knowledge structures, trends, and research gaps [9].

Based on this rationale, this study conducts a bibliometric analysis of international publications on green tourism during 2015–2025. It has three objectives: (1) to examine publication trends over time, by country, author, and key journal; (2) to analyze thematic structures through keyword co-occurrence networks in order to identify core knowledge clusters; and (3) to identify emerging themes and suggest directions for future research.

2. Research methodology

2.1. Research design and data source

This study applies bibliometric analysis and science mapping, which are rigorous approaches for exploring and analyzing large volumes of scientific data through standardized procedures and visual representations of knowledge networks [10]. The Scopus database was selected because it offers broad coverage, rigorous indexing standards, and reliable citation data for longitudinal analysis.

The 2015–2025 timeframe was chosen to capture the period in which discussions of sustainable development, the Sustainable Development Goals (SDGs), and the impacts of COVID-19 on tourism expanded rapidly.

2.2. Search strategy and selection criteria

The search strategy targeted "green tourism" in titles, abstracts, and keywords and was limited to English-language journal articles published in final form during 2015–2025. The term "green tourism" was selected to focus

on studies examining the integration of environmental values into firms' management strategies, operations, and brand positioning, rather than dispersing the analysis into purely ecological studies. Although green tourism is inherently multidisciplinary, the analysis was limited to the subject area of Business, Management, and Accounting because this study focuses on the managerial, operational, and commercial dimensions of tourism models. The Boolean query was as follows:

TITLE-ABS-KEY ("green tourism") AND PUBYEAR > 2014 AND PUBYEAR < 2026 AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English"))

After the data were exported from Scopus, the dataset was cleaned by removing duplicates, non-English publications, and records with missing relevant information. Author and institutional names were then standardized, and the data were prepared for network analysis.

2.3. Bibliometric analysis and science mapping

VOSviewer 1.6.20 was used to conduct performance analysis, including publication output and citations, and to map networks of co-authorship by country, institution, and author, keyword co-occurrence, and co-citation [10]. Filtering thresholds were set to balance coverage and network clarity: a minimum of five documents per country was required for the country collaboration analysis, and a minimum occurrence threshold was applied for keyword co-occurrence analysis.

3. Results

3.1. Publication trends over time

The Scopus search and selection process, from the initial query to the final cleaned dataset, is presented in Figure 1.

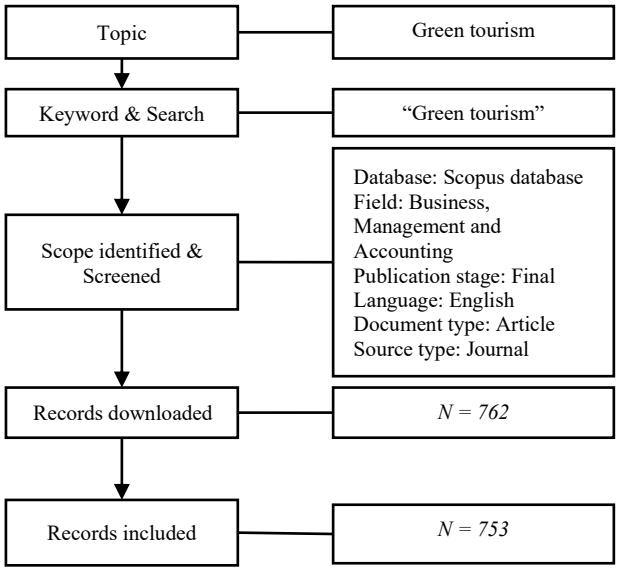

Figure 1. *Flow chart of the literature search and selection process in Scopus*

The results show that the number of publications increased sharply from 35 articles in 2015 to 173 articles in 2025, with a publication boom occurring during 2020–2022 under the impact of COVID-19. The number of articles nearly doubled in 2023 compared with 2022 and reached its highest level in 2025, indicating growing interest in green tourism during the post-pandemic reconstruction period (Figure 2).

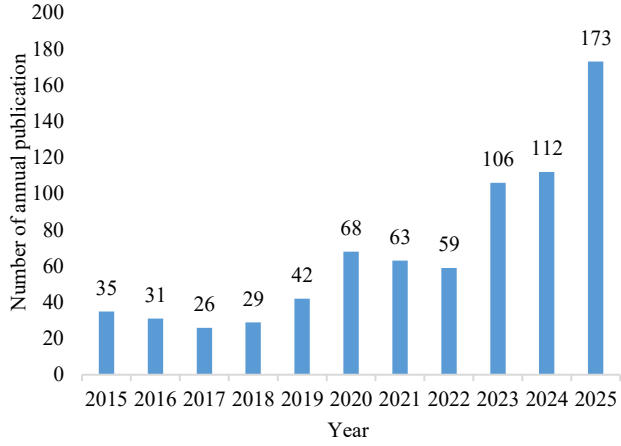

Figure 2. *Annual number of publications on green tourism (2015–2025)*

3.2. Country collaboration

The country co-authorship network, using a threshold of at least five articles, includes 90 countries. Among them, 49 countries formed collaborative links and were grouped into six main clusters.

Table 1. *Leading countries by publication output*

Rank	Country	Publications	Citations	Total link strength	Citations per publication
1	China	119	4015	92	33.74
2	United States	87	2875	59	33.05
3	Australia	60	3560	51	59.33
4	India	59	1946	34	32.98
5	Malaysia	53	2530	80	47.74
6	United Kingdom	44	3528	52	80.18
7	Indonesia	42	251	21	5.98
8	Italy	40	1230	31	30.75
9	South Korea	37	2970	46	80.27
10	Spain	34	1156	20	34.00

China led in publication output with 119 articles, followed by the United States and Australia. The United Kingdom and South Korea showed very high average citations per article, at approximately 80, suggesting strong scientific influence. By contrast, Indonesia produced 42 articles but had a low average citation rate of 5.98 citations per article, which may reflect the local scope of the studies or a lag in their diffusion.

The collaboration network reveals a distinct geographical pattern, including Europe–North America,

East Asia–Pacific, Southeast Asia, and Middle East clusters. China, the United States, and the United Kingdom serve as key connecting hubs across these regions.

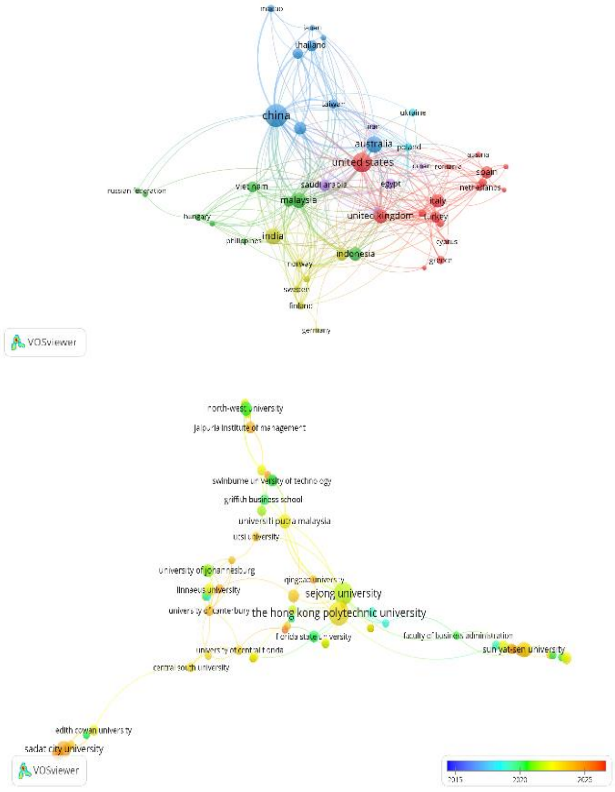

Figure 3. *Country collaboration network in green tourism research. A: cluster structure; B: temporal distribution*

3.3. Key institutions and journals

The analysis of 1,138 institutions shows that 77 institutions engaged in collaboration and were divided into 12 clusters. The Hong Kong Polytechnic University and Sejong University emerged as important centers: the former led in publication output, with 24 articles, whereas the latter led in total citations (2,534) and citations per publication (120.67).

Table 2. Leading contributing institutions

Rank	Institution	Publications	Citations	Total link strength	Citations per publication
1	The Hong Kong Polytechnic University	24	983	19	40.96
2	Sejong University	21	2534	24	120.67
3	Sadat City University	12	210	9	17.50
4	Sun Yat-Sen University	10	176	6	17.60
5	Universiti Putra Malaysia	9	874	16	97.11
6	North-West University	8	643	2	80.38
7	The University of Queensland	8	243	10	30.38
8	King Faisal University	8	84	1	10.50
9	University Of Johannesburg	7	129	6	18.43
10	Prince Of Songkla University	7	56	7	8.00

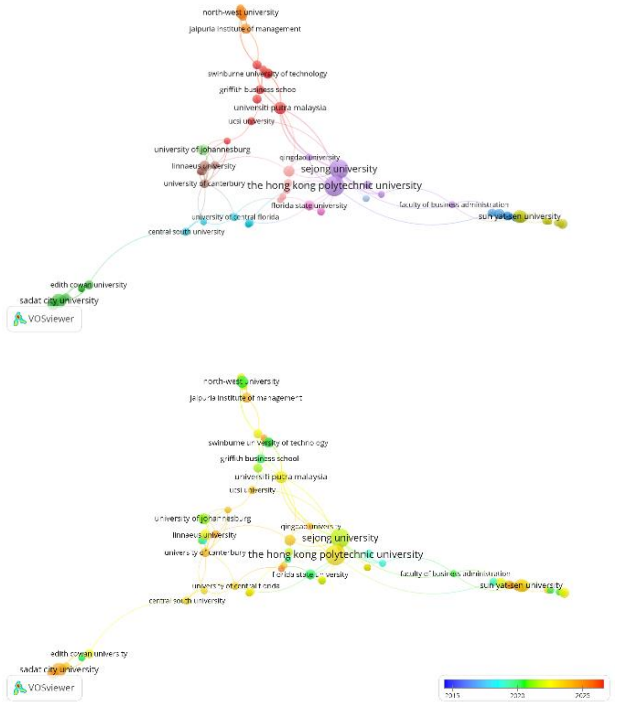

Figure 4. *Collaboration network among research institutions on green tourism. A: cluster structure; B: temporal distribution*

At the journal level, the Journal of Sustainable Tourism was the central outlet, with 62 articles. The Journal of Cleaner Production and Tourism Management had higher h-index values, at 354 and 278, respectively, indicating broader cumulative influence. Most journals in the list are ranked Q1, demonstrating high academic quality.

Table 3. *Leading journals by publication output in green tourism*

Rank	Journal	Publications	Quartile	h-index
1	Journal of Sustainable Tourism	62	Q1	150
2	Journal of Cleaner Production	25	Q1	354
3	African Journal of Hospitality, Tourism and Leisure	22	Q3	26
4	Journal of Hospitality and Tourism Insights	21	Q1	33
5	International Journal of Hospitality Management	19	Q1	186
6	Tourism Management	18	Q1	278
7	International Journal of Contemporary Hospitality Management	17	Q1	139
8	Tourism and Hospitality	16	Q2	13
9	Geojournal of Tourism and Geosites	15	Q1	29
10	Current Issues in Tourism	14	Q1	123

3.4. Key authors

The network of 30 key authors was divided into eight clusters. Han, Heesup served as the central node, with 19 articles and 2,432 citations, acting as a bridge among several research groups, particularly within the Asian cluster.

Table 4. *Authors with notable contributions*

Rank	Author	Publications	Citations	Citations per publication	h-index	Institution
1	Han, Heesup	19	2432	128	96	Sejong University
2	Kim, Seongseop	7	122	17.43	63	The Hong Kong Polytechnic University
3	Chua, Bee Lia	5	140	28	35	Universiti Putra Malaysia
4	Baah, Nancy Grace	4	73	18.25	10	The Hong Kong Polytechnic University
5	Yu, Jongsik	4	149	37.25	29	College of Business, Cheongju University
6	Chi, Xiaoting	3	50	16.67	18	Qingdao University
7	Kim, Jinkyung	3	118	39.33	33	Marriott International
8	Kim, Wansoo	3	131	43.67	38	Dong-A University
9	Manosuthi, Noppadol	3	75	25	15	Chulalongkorn University
10	Lee, Jinsoo	2	66	33	43	Hong Kong Polytechnic University
11	Meng, Bo	2	47	23.5	21	Shanxi University

3.5. Thematic structure and research hotspots

Keyword co-occurrence analysis shows that the central nodes "Tourism," "Sustainable tourism," and "Sustainability" represent overarching themes. More specialized keywords form four main functional clusters: (1) strategic management and green practices; (2) sustainable infrastructure and services, including green hotels and green destinations; (3) market dynamics and social responsibility, including green marketing, green trust, and CSR; and (4) macro-level context and adaptive capacity, including COVID-19, climate change, resilience, and the circular economy.

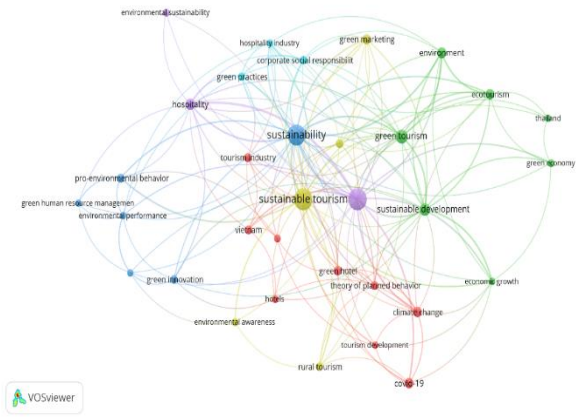

Figure 5. *Keyword co-occurrence network in green tourism research*

Temporal evolution analysis shows that foundational keywords such as "green economy," "environmental management," and "biodiversity" had average publication years of approximately 2018–2019, reflecting the stage of framework establishment and conceptual standardization.

During 2021–2022, "COVID-19," "sustainable tourism," and "green marketing" became more prominent, reflecting the need to rethink tourism models during the crisis and to shift from short-term recovery to long-term transformation toward carbon neutrality.

In 2023–2024, new keywords such as "green finance," "greenwashing," "resilience," and "Generation Z" emerged, with average publication years later than 2023. This pattern indicates a shift from sustainability awareness toward demands for green financial mechanisms, transparency, and resilience.

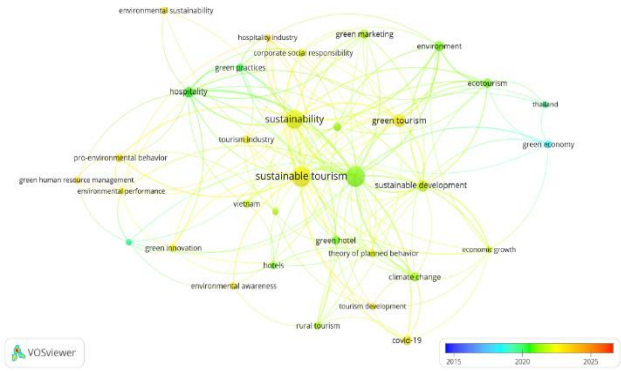

Figure 6. *Temporal keyword co-occurrence network.*

3.6. Co-citation network analysis

The co-citation network is distributed across core theoretical clusters that shape the field. Most notably, the network is led by Ajzen's Theory of Planned Behavior [11], which has the highest total link strength, indicating that behavioral psychology and ecological intention constitute the dominant theoretical foundation. Another strong theoretical branch focuses on green accommodation management practices, particularly tourists' attitudes, participation barriers, and revisit intentions [12], [13]. The dense presence of foundational work on structural equation modeling (SEM) [14] further indicates that the field has mainly developed through quantitative analyses that test and extend green consumer behavior models.

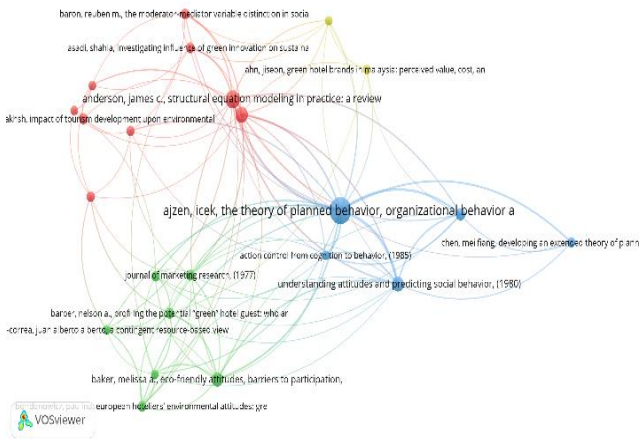

Figure 7. *Results of the co-citation analysis*

4. Discussion

The results reveal that green tourism knowledge has evolved through three stages.

First, the macro-framework establishment stage from 2015 to 2018 focused on the green economy, environmental management, and biodiversity. This development was aligned with global policy efforts such as the 2030 Agenda, particularly SDG 12 and SDG 15, and the EU Circular Economy Action Plan after COP21.

Second, the response to the COVID-19 crisis during 2020–2022 marked a shift toward domestic tourism, nature-based tourism, and green marketing as survival strategies. This event was a turning point that moved sustainable tourism from theory toward concrete action commitments, including assessments of decarbonization plans and Net Zero strategies among tourism organizations [15]. Therefore, the post-pandemic period is often viewed as an opportunity to reimagine tourism toward greater resilience and lower climate impact [16], [17].

Third, the 2023–2024 period emphasized accountability and recovery, with green finance, greenwashing, resilience, and new-generation consumers becoming prominent themes [16]. The macro-level context, including geopolitical risk, has also been recognized as an important factor affecting ecotourism development in emerging economies [18]. The emergence of these themes indicates that investors and customers increasingly demand verifiable evidence rather than marketing slogans.

These findings point to two main research streams. The first, green governance and green financial mechanisms, focuses on supply-side solutions related to operational strategy, human resource management, and substantive financial instruments. The second, market dynamics and adaptive capacity, focuses on demand-side variables and the macro-level context. It examines changes in tourist behavior, particularly among Generation Z, the impacts of external shocks, and the need for transparency to build dynamic resilience across the industry.

From a theoretical perspective, the results indicate a shift from "static sustainability," which emphasizes impact reduction, to "dynamic resilience," which emphasizes adaptive capacity and system restructuring. Viewed through a stakeholder lens, this shift highlights the coordinated roles of businesses, tourists, communities, and the state, as institutional pressures and resource-policy contexts increasingly shape sustainability outcomes [15], [18]. When firms use green marketing campaigns without support from green finance and substantive commitments, they may face skepticism and boycotts from Generation Z. Therefore, the success of green tourism in the coming decade will depend on both substantive financial mechanisms and market-driven pressure for transparency. The convergence of these two factors is central to building dynamic resilience in tourism.

In practical terms, the thematic clusters suggest that: (1) tourism enterprises should invest in green innovation and green human resource management to translate commitments into organizational behavior; (2) green marketing strategies should be linked to corporate social responsibility and verifiable evidence in order to build green trust and avoid greenwashing; and (3) policymakers, especially in emerging economies, should design green financial mechanisms, such as preferential credit, green bonds, and ESG standards, as well as transparent legal frameworks to encourage long-term investment in green tourism and strengthen destination resilience to environmental and geopolitical shocks.

5. Conclusion, limitations, and future research directions

This study provides a comprehensive overview of the development and knowledge structure of global green tourism during 2015–2025. The findings reveal a publication boom after 2020, the central role of several countries and institutions, four core thematic clusters, and emerging trends such as green finance and greenwashing. Theoretically, the study supports the argument that green tourism research is moving from static sustainability toward dynamic resilience. Practically, it emphasizes the need to build substantive trust and to design financial and legal mechanisms that support green transformation.

However, the exclusive use of Scopus and the restriction to English-language publications may have excluded important contributions from local sources. In addition, bibliometric analysis relies mainly on quantitative indicators and does not examine the content of individual articles in depth. Future studies should: (i) expand the dataset to Web of Science; (ii) combine bibliometric analysis with qualitative content analysis or expert interviews; and (iii) further investigate intersecting themes such as the application of artificial intelligence in monitoring environmental impacts, circular economy models in tourism, and Generation Z's green tourism behavior across different cultural contexts.

REFERENCES

[1] D. D'Amato *et al.*, "Green, circular, bio economy: A comparative analysis of sustainability avenues," *J. Clean. Prod.*, vol. 168, pp. 716–734, Dec. 2017, doi: 10.1016/j.jclepro.2017.09.053.

[2] S.-Y. Pan, M. Gao, H. Kim, K. J. Shah, S.-L. Pei, and P.-C. Chiang, "Advances and challenges in sustainable tourism toward a green economy," *Sci. Total Environ.*, vol. 635, pp. 452–469, Sep. 2018, doi: 10.1016/j.scitotenv.2018.04.134.

[3] S. Asadi *et al.*, "Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry," *J. Clean. Prod.*, vol. 258, p. 120860, Jun. 2020, doi: 10.1016/j.jclepro.2020.120860.

[4] H. Han, H. Moon, and S. S. Hyun, "Uncovering the determinants of pro-environmental consumption for green hotels and green restaurants," *Int. J. Contemp. Hosp. Manag.*, vol. 32, no. 4, pp. 1581–1603, Feb. 2020, doi: 10.1108/IJCHM-04-2019-0354.

[5] H. L. T. Trang, J. Lee, and H. Han, "How do green attributes elicit pro-environmental behaviors in guests? The case of green hotels in Vietnam," *J. Travel Tour. Mark.*, vol. 36, no. 1, pp. 14–28, 2019, doi: 10.1080/10548408.2018.1486782.

[6] V. H. Le, T. N. T. Huynh, H. T. T. Nguyen, "Responsible tourism: an approach based on tourist behaviors", *The University of Danang - Journal of Science and Technology,* vol. 21, no. 10, pp. 8-14, 2023.

[7] Y. (Lisa) Gao, A. S. Mattila, and S. Lee, "A meta-analysis of behavioral intentions for environment-friendly initiatives in hospitality research," *Int. J. Hosp. Manag.*, vol. 54, pp. 107–115, Apr. 2016, doi: 10.1016/j.ijhm.2016.01.010.

[8] M. Gürlek and M. Tuna, "Corporate social responsibility and work engagement: Evidence from the hotel industry," *Tour. Manag. Perspect.*, vol. 31, pp. 195–208, Jul. 2019, doi: 10.1016/j.tmp.2019.05.004.

[9] K. Nusair, "Developing a comprehensive life cycle framework for social media research in hospitality and tourism," *Int. J. Contemp. Hosp. Manag.*, vol. 32, no. 3, pp. 1041–1066, Feb. 2020, doi: 10.1108/IJCHM-09-2019-0777.

[10] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, and W. M. Lim, "How to conduct a bibliometric analysis: An overview and guidelines," *J. Bus. Res.*, vol. 133, pp. 285–296, Sep. 2021, doi: 10.1016/j.jbusres.2021.04.070.

[11] I. Ajzen, "The theory of planned behavior," Organ. Behav. Hum. Decis. Process., vol. 50, no. 2, pp. 179–211, Dec. 1991, doi: 10.1016/0749-5978(91)90020-T.

[12] M. A. Baker, E. A. Davis, and P. A. Weaver, "Eco-friendly attitudes, barriers to participation, and differences in behavior at green hotels," Cornell Hosp. Q., vol. 55, no. 1, pp. 89–99, Feb. 2014, doi: 10.1177/1938965513504483.

[13] N. A. Barber, "Profiling the potential 'green' hotel guest: Who are they and what do they want?," J. Hosp. Tour. Res., vol. 38, no. 3, pp. 361–387, Aug. 2014, doi: 10.1177/1096348012451462.

[14] J. C. Anderson and D. W. Gerbing, "Structural equation modeling in practice: A review and recommended two-step approach," *Psychol. Bull.*, vol. 103, no. 3, pp. 411–423, 1988, doi: 10.1037/0033-2909.103.3.411.

[15] M. Guix, J. J. Nájera Sánchez, M. J. Bonilla Priego, and X. Font, "The changing institutional logics behind sustainability reports from the largest hotel groups in the world in 2014, 2018 and 2021," *Tour. Manag.*, vol. 106, p. 105031, Feb. 2025, doi: 10.1016/j.tourman.2024.105031.

[16] M. Tegelberg and T. Griffin, "Remembering for resilience: nature-based tourism, COVID-19, and green transitions," Front. Sustain. Tour., vol. 3, 2024, doi: 10.3389/frsut.2024.1392566.

[17] K. M. Haywood, "A post COVID-19 future - tourism re-imagined and re-enabled," *Tour. Geogr.*, vol. 22, no. 3, pp. 599–609, May 2020, doi: 10.1080/14616688.2020.1762120.

[18] Y. Shang, Y. Lian, H. Chen, and F. Qian, "The impacts of energy resource and tourism on green growth: Evidence from Asian economies," *Resour. Policy*, vol. 81, p. 103359, Mar. 2023, doi: 10.1016/j.resourpol.2023.103359.