



Review

# A Review Research on Tourism in the Green Economy

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**Abstract:** Following the publication of the 2011 United Nations Environment Programme (UNEP) Green Economy Report, the UNWTO published the Tourism in the Green Economy report as clear evidence of the tourism sector's growing influence on green economy. This paper provides the first narrative review on green tourism economy based on all available published research. The paper synthesizes existing knowledge, reviews responses and initiatives on green tourism, and suggests future research and methodological approaches to help advance this field. The Scopus and WoS databases were used for the bibliometric study. The results are structured into three sections—challenges, opportunities, and enabling conditions—which comprehensively cover the main themes.

**Keywords:** green economy; tourism; sustainable development; hospitality; energy



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## 1. Introduction

The 1992 United Nations (UN) Conference on Environment and Development held in Rio de Janeiro formally adopted the sustainable development concept that the 1987 Brundtland Commission Report defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland and Khalid 1987). Twenty years later, the UN’s Rio+20 conference drew attention to the green economy approach, or more precisely, how economies can achieve “green growth” to transition away from business as usual, take action to end poverty, address environmental destruction and build a bridge to a sustainable future (Barbier 2012). The green economy concept that has entered the mainstream of policy debates does not replace that of sustainable development but rather encompasses it, expressing the need for the right economy to achieve sustainable development (Loiseau et al. 2016; UNEP 2011). Green economy is an umbrella concept that includes elements from areas such as circular economy and bioeconomy. Some of the most cited articles in the field of green economy are included in the category of bioeconomy, for example, D’Amato et al. (2017), which to date, is cited 327 times. Specifically, circular economy and bioeconomy focus on resources, while the green economy encompasses all processes and incorporates the social dimension, for example, aspects relating to local communities and ecotourism.

Tourism could significantly drive global economic growth. Before the COVID-19 pandemic, in 2019, travel and tourism was one of the world’s largest sectors, accounting for 10.4% of the global GDP (USD 9.2 trillion), 10.6% of all jobs (334 million), and was responsible for creating one in four of all new jobs across the world (WTTC 2021). Moreover, the transversal nature and connection of tourism with many sectors in the destinations where it operates, and its global scope, mean that changes in tourism practices towards greening may have significant effects beyond the direct and immediate impact on tourism.

“Tourism in the green economy refers to tourism activities that can be maintained, or sustained, indefinitely in their social, economic, cultural, and environmental contexts:

sustainable tourism” ([UNWTO 2012](#)). Sustainable tourism is not a particular form of tourism; rather, all forms of tourism can strive to address this approach, taking into account the needs of visitors, industry, the environment and host communities ([OECD 2020](#)).

There is growing recognition of the tourism sector’s potential contribution to the green economy through more sustainable practices, climate change mitigation and ecotourism ([Reddy and Wilkes 2015](#)). Greening tourism involves policies and programmes that take into account not only tourists’ expectations for the responsible management of natural resources but also the needs of the communities that tourism schemes support or affect. Therefore, sustainable tourism aims to increase efficiency in the use and conservation of energy, to minimize waste and to increase awareness and support for the sustainable use of natural resources such as water, to conserve biodiversity, cultural heritage and traditional values, and to generate local income and strengthen local communities with a view to improving livelihoods and reducing poverty ([UNWTO 2012](#)).

The contribution and influence of the tourism industry on the green economy is gaining attention from academics, practitioners and policymakers. In this sense, research and the scientific literature have produced a substantial and growing body of knowledge about tourism in the green economy that highlights the challenges and opportunities that open up to the green economy and its specific applications.

In this context, this paper examines and evaluates the existing literature on tourism in the green economy. Through a systematic literature review, 327 articles from the Web of Sciences (WoS) and Scopus databases are analysed and synthesized into an integrative framework that links the green economy of tourism with its background and consequences. The bibliometric analysis and the narrative review that is carried out on the articles in the sample offers a twofold contribution. First, it provides scholars and practitioners with a synthesis of the state of the art of the issue, in which the main lines of knowledge and the development towards greener tourism are indicated. Second, it helps to identify gaps and research directions that academics need to address in order to further develop the existing body of knowledge on tourism in the green economy.

## 2. Methodology

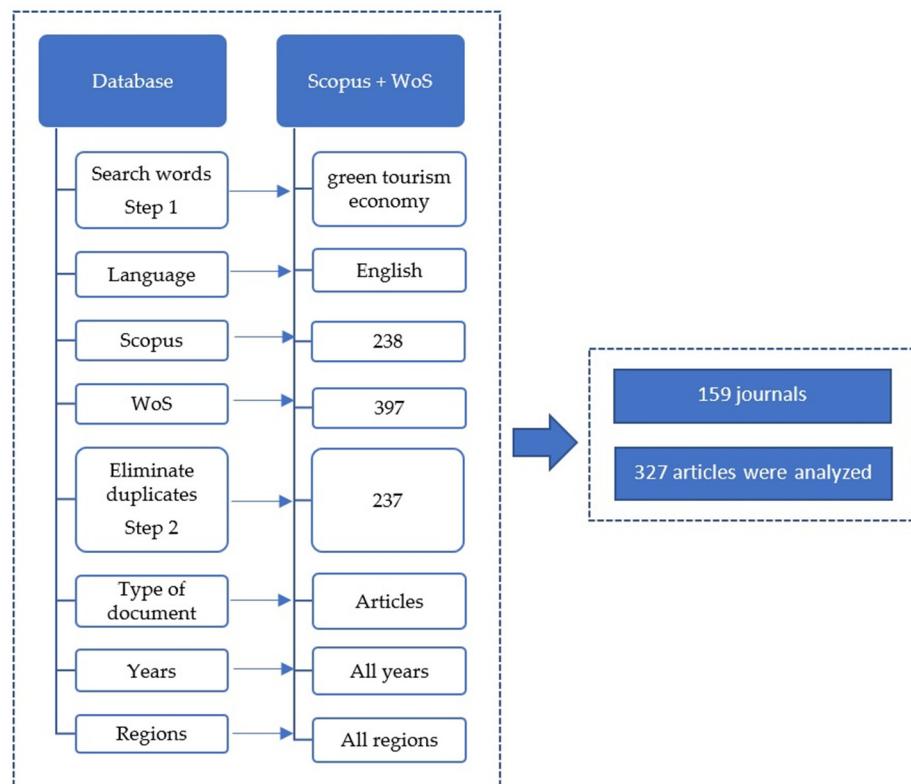
This paper aims to analyse academic and scientific research on tourism in the green economy. Figure 1 shows the steps of the data collection procedure for articles on green tourism economy (GTE) in the Scopus and WoS databases. Publications other than the articles such as book chapters and conference proceedings were not included in the study with the aim of analysing the most relevant works published in high-impact journals. All articles published and accepted in print proof from 1990 to 2022 were collected. A search with the string of words “green tourism economy” in the titles, abstracts and keywords yielded 238 articles on Scopus and 397 on WoS. After eliminating duplications, the total sample amounted to 327 works. The 327 papers have been published in 159 journals. Most of the articles found were published after 2010, which shows the novelty of the topic (see Table 1).

Data analysis follows two methods: (1) bibliometric analysis for which the variables of keywords and abstracts have been considered; and (2) analysis of deductive content applied to the articles’ titles, abstracts and keywords and analysis of correlation of the most studied topics. The analysis process involved two main steps: developing a coding matrix and coding the data into the categories of the matrix. Words were adopted as the unit of record, and frequency was the main enumeration rule for coding. QSR NVivo 11 was used in the analysis process. Finally, an analysis of intraclass correlation coefficient (ICC) was performed using the Pearson  $\rho$  statistic. This coefficient is used as the probability of establishing a linear equation between two variables; for each unit change in one of them, a correlative unit change in the other is expected, without taking into account either the variables’ magnitude or the measurement scale ([Zhou et al. 2016](#)). The ICC exists to quantify the concordance between different measurements of a numerical variable and

extends its use to cases where more than two observations per subject are available. It indicates the reliability of a single measurement determined by the following expression:

$$\rho = \frac{\text{Var}(\pi)}{\text{Var}(\pi) + \text{Var}(\varepsilon)} \quad (1)$$

The ICC values can range from 0 to 1 so that the maximum possible agreement corresponds to a value of  $\text{ICC} = 1$ . The  $\text{ICC} = 0$  value is obtained when the observed concordance is equal to that which would occur only by chance.



**Figure 1.** The data collection steps.

**Table 1.** Search performed in Scopus and WoS to delimit the study sample.

Year	Scopus		WoS	
	Articles	%	Articles	%
2022	13	5.5%	14	3.5%
2021	42	17.6%	91	22.9%
2020	28	11.8%	66	16.6%
2019	14	5.9%	47	11.8%
2018	24	10.1%	42	10.6%
2017	20	8.4%	32	8.1%
2016	18	7.6%	25	6.3%
2015	17	7.1%	25	6.3%
2014	10	4.2%	14	3.5%
2013	9	3.8%	9	2.3%
2012	8	3.4%	8	2.0%
1991–2011	35	14.7%	24	6.0%
Total	238		397	

### 3. Results

First, the most productive journals on the subject under study are analysed. Ten journals published more than five articles, with *Sustainability* standing out from the others with 36 articles on GTE. Of the group of the 10 most productive journals, 4 of them are included in the journal citation reports (JCR), all included in the second or first quartile of this ranking (see Table 2). Regarding publishers, only MDPI has two journals in this top ten.

**Table 2.** Journals with the largest number of publications in the area of study.

#	Journals	Cite Score	Cuartil	Articles	Category	Editorial
1	<i>Sustainability</i>	3.251	Q2 (JCR)	36	Environmental studies; Green and sustainable science and technology	MDPI
2	<i>Environmental Science and Pollution Research</i>	0.85	Q2 (SJR)	13	Environmental science	Springer Science + Business Media
3	<i>International Journal of Environmental Research and Public Health</i>	3.390	Q2 (JCR)	11	Public, environmental and occupational health; Environmental sciences	MDPI
4	<i>Journal of Cleaner Production</i>	1.94	Q1 (SJR)	11	Business, management and accounting; Energy; Engineering; Environmental science	Elsevier Ltd.
5	<i>Journal of Sustainable Tourism</i>	7.968	Q1 (JCR)	10	Hospitality, leisure, sport and tourism; Green and sustainable science and technology	Taylor and Francis Ltd.
6	<i>Monthly Notices of the Royal Astronomical Society</i>	2.06	Q1 (SJR)	7	Earth and planetary sciences; Physics and astronomy	Oxford University Press
7	<i>Fresenius Environmental Bulletin</i>	0.18	Q4 (SJR)	6	Environmental science	Parlar Scientific Publications
8	<i>Astronomy Astrophysics</i>	-	-	5	-	-
9	<i>Tourism Economics</i>	4.438	Q1 (JCR)	5	Economics; Hospitality, leisure, sport and tourism	SAGE Publications Inc.
10	<i>Journal of Environmental Management and Tourism</i>	0.3	Q3 (SJR)	5	Business, management and accounting; Economics, econometrics and finance; Environmental science	ASERS Publishing House

The authors, affiliations and countries with the most works in the sample are analysed (Table 3), as well as the most repeated keywords (Figure 2). Regarding the authors, Tsai, S. B. (China) and Walker, A. R. (United Kingdom) are the most productive, publishing five articles each. Research is highly fragmented regarding authors' affiliations; for example, the academic institutions with the highest number of published papers are University of California System (16 papers), University of Illinois System (13), University of Illinois Urbana–Champaign (13), Chinese Academy of Sciences (12) and University of Johannesburg (12). Regarding territory, China stands out in research on tourism in the green economy, with 32.1% of articles published, followed by the United States, with 25% of publications. The next countries in the ranking are England, Spain, Germany and Australia, all with more than 30 papers published (Figure 2).

**Table 3.** Ranking of authors and affiliations with more publications on GTE.

Authors	No. Articles	Affiliation	No. Articles
Tsai, S. B.	5	University of California System	16
Woosnam, K. M.	5	University of Illinois System	13
Law, A.	4	University of Illinois Urbana–Champaign	13
Chien, F. S.	4	Chinese Academy of Sciences	12
Filimonau, V.	4	University of Johannesburg	12
Lee, C. H.	4	Max Planck Society	11
Le, X.	4	University of London	11
Lipman, G.	4	Texas A&M University College Station	10
		Texas A&M University System	10
		University of California Berkeley	10
		University System of Georgia	10

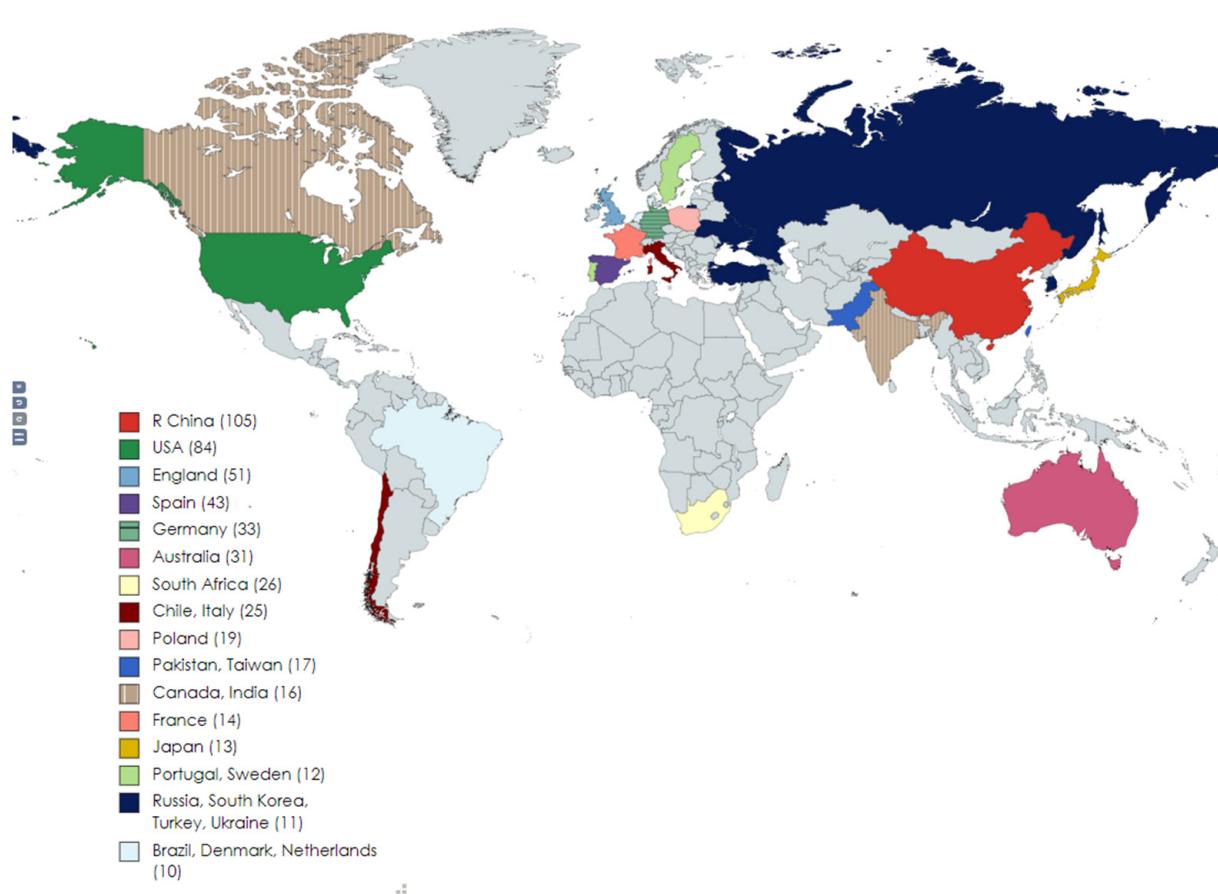
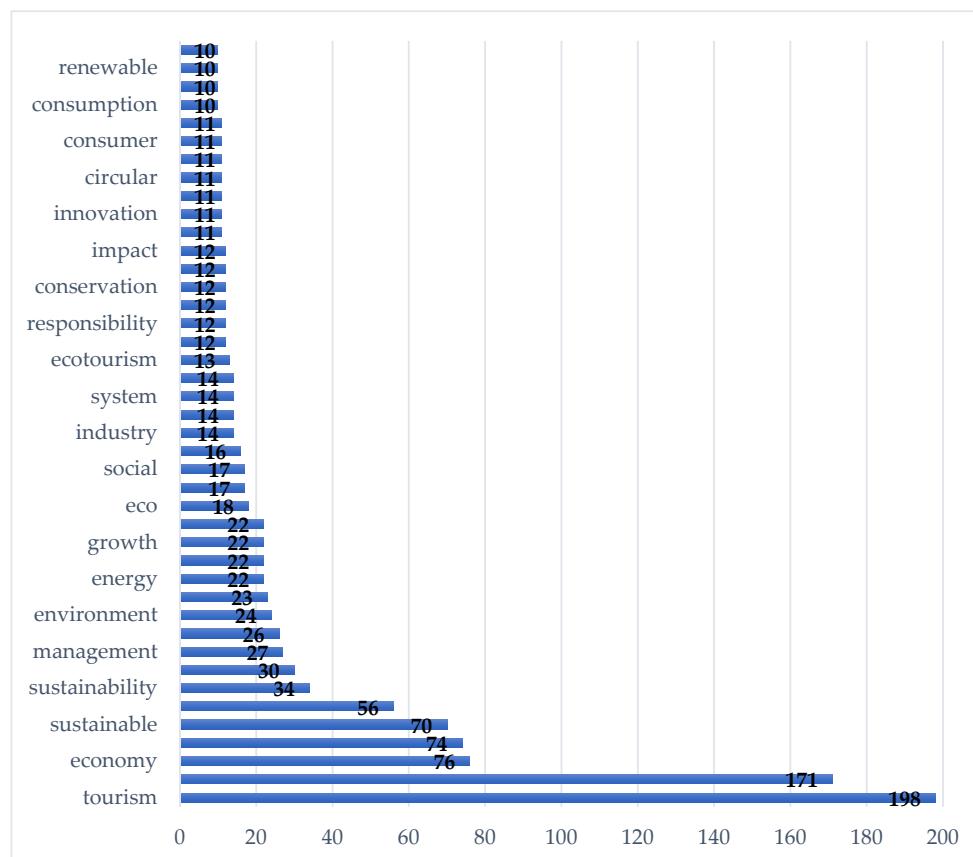
**Figure 2.** Ranking of countries/regions with the highest number of publications on GTE.

Table 4 shows the 10 most cited articles in the study area, with a brief summary of each, and the number of citations received at the time of writing.

**Table 4.** Ten most cited articles on GTE.

Article	Summary	Cites
Smetacek, V., & Zingone, A. (2013). Green and golden seaweed tides on the rise. <i>Nature</i> , 504(7478), 84–88.	Sudden beaching of huge seaweed masses smother the coastline. These ‘seaweed tides’ can harm tourism-based economies or disrupt traditional artisanal fisheries.	417
D’Amato, D., Droste, N., Allen, B., Kettunen, M., Lähtinen, K., Korhonen, J., . . . & Toppinen, A. (2017). Green, circular, bio economy: A comparative analysis of sustainability avenues. <i>Journal of Cleaner Production</i> , 168, 716–34.	Harvesting the macroalgae, a valuable raw material, before they beach could well be developed into an effective solution.	327
Kang, K. H., Stein, L., Heo, C. Y., & Lee, S. (2012). Consumers’ willingness to pay for green initiatives of the hotel industry. <i>International Journal of Hospitality Management</i> , 31(2), 564–72.	This article comprehensively analyses the diversity within and between the concepts of Circular Economy, Green Economy and Bioeconomy. The results are drawn from a bibliometric review of almost two thousand scientific articles published within the last three decades.	311
Hjalager, A. M. (1996). Agricultural diversification into tourism: Evidence of a European Community development programme. <i>Tourism Management</i> , 17(2), 103–11.	This paper examines hotel guests’ willingness to pay a premium for environmentally friendly and sustainable practices of the U.S. hotel industry. Guests with higher degrees of environmental concerns declare a higher willingness to pay premiums for hotels’ green initiatives.	169
Pham, N. T., Tučková, Z., & Jabbour, C. J. C. (2019). Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. <i>Tourism Management</i> , 72, 386–99.	This article discusses the impact of rural tourism on agricultural holdings. It is shown that the financial returns most often do not measure up either to the expectations of the politicians or to that of the farmers.	131
Hens, L., Block, C., Cabello-Eras, J. J., Sagastume-Gutierrez, A., Garcia-Lorenzo, D., Chamorro, C., . . . & Vandecasteele, C. (2018). On the evolution of “Cleaner Production” as a concept and a practice. <i>Journal of Cleaner Production</i> , 172, 3323–33.	Drawing on Ability-Motivation-Opportunity theory, this study develops and tests direct and interactive effects of green human resource management practices on organizational citizenship behavior for the environment	102
Prideaux, B., Thompson, M., & Pabel, A. (2020). Lessons from COVID-19 can prepare global tourism for the economic transformation needed to combat climate change. <i>Tourism Geographies</i> , 22(3), 667–78.	This paper provides a review of essentials that contributed to the fundamental changes in “Cleaner Production” (CP). The links between CP and green and circular economy are indicated, and CP for sustainable tourism is discussed in more detail.	91
Cazcarro, I., Hoekstra, A. Y., & Choliz, J. S. (2014). The water footprint of tourism in Spain. <i>Tourism Management</i> , 40, 90–101.	For the tourism industry to thrive in a post-COVID-19 world, it must look beyond the temptation of adopting strategies based on a return to the pre-pandemic normal of the past and instead seek to understand how it should respond to the emerging transformation of the global economy to carbon neutrality.	67
Park, E., & Boo, S. (2010). An assessment of convention tourism’s potential contribution to environmentally sustainable growth. <i>Journal of Sustainable Tourism</i> , 18(1), 95–113.	This study complements the water footprint estimations for Spain, incorporating insights of the process analysis and input–output analysis. The virtual water trade of agricultural and industrial products is evaluated, but also of services, especially through tourism.	64
Duffy, R. (2015). Nature-based tourism and neoliberalism: Concealing contradictions. <i>Tourism Geographies</i> , 17(4), 529–43.	This research assesses the current environmental position of the convention industry in the U.S. and formulates suggestions for future direction in regard to “green” concepts by examining behavioral intentions of three groups: convention attendees, meeting planners, and convention suppliers.	63
	This paper examines the claims around tourism as ‘green economy’ can produce environmentally sustainable economic growth. It is discussed how nature-based tourism, simultaneously produces and conceals the contradictions of capitalism.	

It is also interesting to identify the keywords most commonly used in order to obtain information on research areas related to GTE (Figure 3). “Tourism” is the most common keyword, followed by “economy” and “sustainable/sustainability”, as well as “management”, “environment” or “energy”, which are terms closely linked to the subject of study.



**Figure 3.** Most common keywords in research on GTE.

After a frequency analysis of the words in the titles of the total sample, it is observed that the main terms used are the same as in the keywords: tourism, green, economy, development, sustainable and environmental (Figure 4). Therefore, to obtain more detailed information on the subject, a content analysis of the articles’ abstracts by the most prolific authors in this area is carried out (Table 5). Thus, we found that, regarding tourism in the green economy, the main topics studied focus on the following.

- Reducing energy consumption and carbon emissions in the logistics chain (air and rail transport).
- The importance of including green development in rural and mountain development policies.
- Analysis of the local population’s perception of tourism, tourist rental housing and economic advantages/disadvantages that tourism brings to destinations.
- Analysis of tourists’ perceptions of hotel chains implementing green measures.
- Transformation of tourism towards green economies, both in rural areas and in small and large tourism enterprises.
- Waste management in hotel chains and tourist destinations.
- Transition to a green economy in the tourism sector as well as supporting decision-making.



**Figure 4.** Word cloud of the articles' titles in the sample.

**Table 5.** Content analysis of the articles of the most prolific authors on the subject under study.

Author	Topics
Tsai, S. B.	Air transport, energy conservation, emission reduction, local economy, economic revenues, carbon emissions, energy consumption in logistics, high-speed rail network, supply chain.
Woosnam, K. M.	Perception of the local community about tourism, advantages and disadvantages, economic and non-economic factors in the perception of tourism, residents' perceptions about the holiday rental business.
Law, A.	Green economy in tourist destinations, economic crisis in rural areas, analysis of economic indicators in rural areas, transformation of tourism towards green economy.
Chien, F. S.	Economic growth and carbon emissions, role of human capital, green energy and economic growth, fiscal policies and energy efficiency, environmental awareness, barriers to green economy in small and medium-sized enterprises.
Filimonau, V.	Tourism growth and waste management, energy conservation in large hotels, food and waste management
Lee, C. H.	Development plans in mountain villages, waste management, sustainable production.
Le, X.	Guests' perceptions of green practices in hotels.
Lipman, G.	Transition to green economy, green economy as part of tourism management, green growth as support for tourism decision-making.

A more detailed analysis of keywords is also carried out, focusing on those that show some link with the green economy and tourism (Table 6). Thus, in addition to the word "tourism", the themes that have attracted the greatest interest in this field are "development", "sustainability", "rural areas", "economic growth", "energy use and consumption", "carbon consumption", "governance", "hotel business" and "green economic development in urban areas", among others.

Finally, once the topics most studied in GTE were identified, possible correlations or thematic associations between them were analysed. This methodology has been applied in previous research in other areas of economics (Porte et al. 2018). After applying Pearson's  $\rho$  statistic, the results closest to 1 indicate the strongest correlations (see Table 7). It is observed that the works dealing with tourism are about green, economy and environment. Articles that explicitly address the subject of green also explore tourism and energy. Articles focusing on rural areas address carbon emissions, management, energy consumption and

ecosystems. In addition, one of the concerns of hotel management is the environment. Figure 5 shows graphically the thematic correlations of the different areas of study.

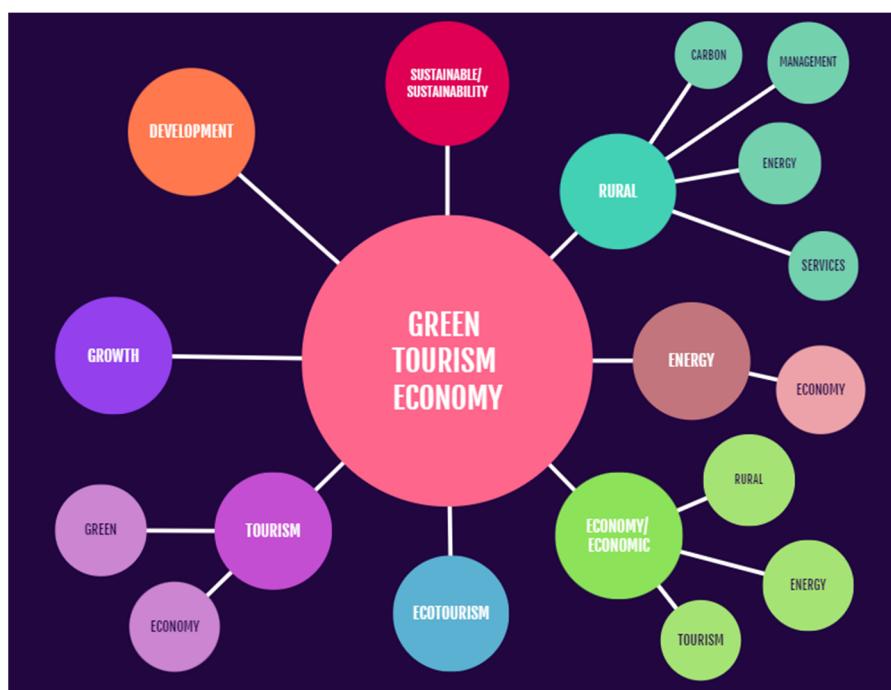
**Table 6.** Frequency analysis of keywords linked to tourism in the green economy ( $n = 2288$ ). Ranking of words with frequency greater than 7.

Rank	Keyword	Frequency	Rank	Keyword	Frequency
1°	tourism	143	23°	change	11
2°	green	136	24°	system	11
3°	economy	61	25°	industry	11
4°	development	54	26°	climate	11
5°	sustainable	50	27°	blue	10
6°	environmental	37	28°	analysis	10
7°	sustainability	26	29°	circular	9
8°	rural	23	30°	city	9
9°	economic	22	31°	innovation	9
10°	environment	18	32°	conservation	8
11°	growth	17	33°	land	7
12°	carbon	17	34°	impact	7
13°	management	16	35°	emissions	7
14°	energy	16	36°	waste	7
15°	services	15	37°	resources	7
16°	ecological	14	38°	data	7
17°	eco	14	39°	panel	7
18°	hotel	14	40°	marketing	7
19°	urban	14	41°	tourist	7
20°	ecosystem	14	42°	renewable	7
21°	ecotourism	13	43°		index 7
22°	model	12			

**Table 7.** Correlations between the most common research topics in GTE.

T	G	EC	DE	SU	EN	SUST	RU	ECO	ENV	GRO	CAR	MAN	ENE	SER	ECOL	HO	UR	ECOS	ECOT	
T	1.00	1.00	1.00	0.99	0.96	1.00	0.97	0.98	0.97	0.96	0.94	0.97	0.99	0.98	0.98	0.96	0.97	0.97	0.61	
G	1.00	1.00	0.99	0.99	0.94	0.99	0.97	0.99	0.98	0.94	0.94	0.98	1.00	1.00	0.99	0.99	0.94	0.99	0.99	0.56
EC	1.00	0.99	1.00	0.99	0.98	1.00	0.97	0.96	0.96	-0.06	0.93	0.95	0.97	0.97	0.96	0.97	0.98	0.95	0.95	0.67
DE	0.99	0.99	0.99	1.00	0.95	0.99	0.97	0.97	0.93	0.93	0.98	0.96	0.97	0.97	0.97	0.97	0.93	0.97	0.97	0.55
SU	0.82	0.94	0.98	0.95	1.00	0.97	0.97	0.88	0.91	0.99	0.89	0.86	0.90	0.90	0.89	0.90	0.99	0.87	0.87	0.77
EN	0.96	0.99	1.00	0.99	0.97	1.00	0.97	0.97	0.97	0.96	0.96	0.94	0.96	0.98	0.98	0.97	0.97	0.96	0.96	0.64
SUST	0.97	0.97	0.99	0.99	0.97	0.97	1.00	0.95	0.89	0.89	0.99	0.95	0.95	0.95	0.96	0.94	0.89	0.96	0.96	0.48
RU	0.98	0.99	0.96	0.97	0.88	0.97	0.95	1.00	0.97	0.89	0.93	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.47
ECO	0.97	0.98	0.96	0.93	0.91	0.96	0.89	0.97	1.00	0.95	0.84	0.96	0.98	0.98	0.97	0.98	0.95	0.95	0.95	0.64
ENV	0.96	0.94	-0.06	0.93	0.99	0.96	0.89	0.89	0.95	1.00	0.83	0.87	0.91	0.91	0.89	0.91	1.00	0.86	0.86	0.82
GRO	0.94	0.94	0.93	0.98	0.89	0.94	0.99	0.93	0.84	0.83	1.00	0.93	0.92	0.92	0.93	0.91	0.83	0.95	0.95	0.39
CAR	0.97	0.98	0.95	0.96	0.86	0.96	0.95	1.00	0.96	0.87	0.93	1.00	0.99	0.99	1.00	0.99	0.87	1.00	1.00	0.43
MAN	0.99	1.00	0.97	0.97	0.90	0.98	0.95	1.00	0.98	0.91	0.92	0.99	1.00	1.00	1.00	1.00	0.92	0.99	0.99	0.52
ENE	0.99	1.00	0.97	0.97	0.90	0.98	0.95	1.00	0.98	0.91	0.92	0.99	1.00	1.00	1.00	1.00	0.92	0.99	0.99	0.52
SER	0.98	0.99	0.96	0.97	0.89	0.97	0.96	1.00	0.97	0.89	0.93	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.47
ECO	0.98	0.99	0.97	0.97	0.90	0.98	0.94	1.00	0.98	0.91	0.91	0.99	1.00	1.00	1.00	1.00	0.92	0.99	0.99	0.53
HO	0.96	0.94	0.98	0.93	0.99	0.97	0.89	0.89	0.95	1.00	0.83	0.87	0.92	0.90	0.92	1.00	0.87	0.87	0.81	
UR	0.97	0.99	0.95	0.97	0.87	0.96	0.96	1.00	0.95	0.86	0.95	1.00	0.99	0.99	1.00	0.99	0.87	1.00	1.00	0.42
ECOS	0.97	0.99	0.95	0.97	0.87	0.96	0.96	1.00	0.95	0.86	0.95	1.00	0.99	0.99	1.00	0.99	0.87	1.00	1.00	0.42
ECOT	0.61	0.56	0.67	0.55	0.77	0.64	0.48	0.47	0.64	0.82	0.39	0.43	0.52	0.52	0.47	0.53	0.81	0.42	0.42	1.00

T: tourism; G: green; EC: economy; DE: development; SU: sustainable; EN: environmental; SUST: sustainability; RU: rural; ECO: economic; ENV: environment; GRO: growth; CAR: carbon; MAN: management; ENE: energy; SER: services; ECOL: ecological; HO: hotel; UR: urban; ECOS: ecosystem; ECOT: ecotourism.



**Figure 5.** Main thematic correlations in the area of study.

#### 4. Discussion and Conclusions

After the bibliometric study, a narrative review was carried out based on the 327 articles published on GTE. We explain the existing knowledge on the subject and discuss the findings presented in the most recent research work. We can group the articles that have addressed the topic into three broad areas.

The first group of articles address the contribution and interaction of tourism with the green economy as a real challenge. The role of tourism in the green economy is in its early stages, and consequently, research in this area is still very recent. For example, about 80% of the sample articles in this study were published between 2015 and 2022. The tourism industry faces a number of challenges that it must address to move towards a green economy. Some of these challenges are common to other productive areas, such as energy consumption, waste management and carbon emissions, but others are clearly specific to the tourism sector, such as those related to passenger transport or the management and use of natural resources.

The second group of articles that have been identified in the narrative review addresses the opportunities for green economy commitments, both for the tourism sector itself and for strengthening the roadmap to a green economy in general. In this sense, the global scope of the tourism sector and its transversal nature makes it an enabler for others in transforming the economy and the green transition. Conversely, a significant number of studies address the potential of the green economy applied to tourism for social development and ultimately for sustainable development of local communities. For example, 28.4% of the studies in the sample address the sustainable development as one of the main issues. Many of these studies (13.1% of the articles) focus on the rural context, thus pointing out the opportunities for rural tourism companies to adopt green economy practices.

The third largest group of articles are those regarding issues related to the enabling elements or conditions for implementing the green economy in tourism. In this respect, the papers emphasize the involvement and commitment of multi-stakeholders, for example, tourists' perceptions and their involvement in using green actions, cooperation structures between the different actors, the use of quality certification, governance measures, legal and planning aspects and in general, all types of policies aimed at the main objective of establishing a green economy in the tourism sector. In this sense, the practical attitude of

the research is evident; for example, 43% of the articles analysed contain policy proposals of various kinds—fiscal, legal, financial and social.

Below we carry out a more detailed analysis of these three fields.

#### 4.1. Challenges

Five key challenges have been identified for tourism to meet the proposed objectives of a green economy. These challenges directly relate to the natural environment, and given the strong human behaviour component of tourism, the different possibilities for social interaction will bring benefits or potential damage to terrestrial and marine biodiversity. These challenges are as follows:

1. energy consumption and treatment and adopting renewable energy sources;
2. studies related to greenhouse gas (GHG) emissions and the main role of tourism in the passenger transport industry;
3. efficient waste management;
4. excessive water consumption; and
5. emerging risks and vulnerabilities climate change causes.

Energy consumption and treatment is a key issue within the challenges of the green economy in tourism. Energy is a relevant concept in about 35% of the articles in the sample. Specifically, the concepts of “energy consumption”, “renewable energy”, “energy conservation” and “energy efficiency” are addressed in 11.6% of the articles. Numerous articles address the challenge of saving and conserving energy in tourism, which is closely related to the analysis of carbon emissions and low-carbon technology schemes (Lu et al. 2018; Ma et al. 2022; Salehi et al. 2021). Energy saving analyses are applied both at the general level and in specific areas such as rural areas (Dzhusibalieva et al. 2016; Majdak and de Almeida 2022; Llinàs et al. 2021; Li et al. 2005). In general, green energy plays a leading role in transitioning to a green economy (Potts et al. 2019), particularly in tourist destinations in emerging economies (Tazikhina et al. 2022; Huang et al. 2021). Several articles study various initiatives in the adoption of renewable energy sources (Khan et al. 2022; Janjua et al. 2021; Lucrezi and Saayman 2017); with 102 citations, Hens et al. (2018) authored the most cited articles in the area. On the demand side, the behaviour of energy consumption is also a frequently analysed aspect (Ohajionu et al. 2022), with specific studies carried out on energy consumption during the COVID-19 pandemic (Strielkowski et al. 2021).

As we have mentioned, energy conservation analyses are closely related to studies of carbon emissions. Data on GHG emissions from tourism was identified as one of the critical gaps (Law et al. 2016, 2017). In this sense, it is worth highlighting the studies on the effects of tourism development and green innovation on economic growth (Ghosh 2022; Razzaq et al. 2021; Deng et al. 2020). Tourism’s main role in transport and the problems of mobility and infrastructure resulting from the intense international flow of passengers is also one of the outstanding challenges the research addresses (Scorza and Fortunato 2021; Sharif et al. 2020; Salvino et al. 2018). A number of papers address CO<sub>2</sub> emissions related to traffic and transport (Lee et al. 2018; Ma et al. 2022) and cruise tourism (Ye et al. 2019).

Several studies explore mass tourism’s responsibility for polluting nature reserves and coastal areas and the damage it causes to biological and marine ecosystems. In this sense, efficient waste management is one of the main challenges to face (Mena-Nieto et al. 2021; Voukkali et al. 2021); this problem is more evident in developing countries, which are highly dependent on tourism (Manomaivibool 2015; Filimonau and Tochukwu 2020). Catering businesses face the problem of food waste management; several studies analyse the determinants of consumers and suppliers’ food waste mitigation (Filimonau et al. 2019, 2020). Another major challenge is managing excessive water consumption. Tourism is often a water-intensive sector (Mimbs et al. 2020; Hause 2016) with an important water footprint (Cazcarro et al. 2014). Managing water conservation and preservation is present in recent studies (Torres-Bagur et al. 2020; Gabarda-Mallorquí et al. 2018).

Finally, the studies analysed address the emerging risks and vulnerabilities climate change causes. The anthropogenic origin of GHG emissions places tourism as an important

sector regarding its effect on nature and biodiversity, and the potential risks to society and local ecosystems (Lee et al. 2018; Karani and Faille 2020; Cashman et al. 2012). Regarding adaptation, economic policies and the development of management plans should help to provide the most exposed stakeholders with the tools to minimise threats and capitalise on opportunities in a sustainable way in the three areas—economic, social and environmental (Prideaux et al. 2020; Pearce and Schott 2010; Olcina Cantos and Vera-Rebollo 2016).

#### 4.2. Opportunities

There is a very close relationship between the green economy and the concept of sustainable development, which incorporates aspects of ecological, social and economic development that do not harm the biological diversity and environmental quality of the tourist destination and the socio-cultural fabric of the host community (UNWTO 2012). In line with the green economy approach, gains from using protected areas should be reinvested in local livelihoods and employment (Catibog-Sinha 2015).

The tourism industry is a favourable sector for proposing the change to a green economy, and it can even be considered as a standard bearer of the transition process in search of wellbeing opportunities and possibilities for sustainable development (Prideaux et al. 2020; Arnedo et al. 2021; McKinley et al. 2019; Sevastiyanov et al. 2014; Law et al. 2012; Mestanza-Ramón et al. 2019). Green tourism can ensure viable long-term economic operations in host communities in ways that bring wealth to all stakeholders and that socio-economic benefits are fairly distributed. This implies stable employment, income-generating opportunities and social services that contribute to poverty alleviation. The closed loop perspective applied to community-based tourism has a strong potential to facilitate the transformation towards a green economy as closed loop systems can lead to significant efficiencies in production and sustainable consumption of resources.

Numerous studies in the area of tourism in different locations focus on the efforts to be made in the process of transitioning to a green economy (Sharif et al. 2020; Ahmad et al. 2020; Pongsakornrungsilp and Pongsakornrungsilp 2021; Pimonenko et al. 2021). This transformation is not straightforward and requires a number of challenges for tourism stakeholders. Various articles propose how to reconcile the vocation of tourism's continuous growth with the strengthening towards an economy of sustainable development. In this sense, there is a need for a much more radical change (Law et al. 2016; Stroebel 2015; Denona Bogovic and Grdic 2020; Hein 2014).

The term sustainability is found in the topic of 55% of the sample studies (title, abstract and keywords), and the concept “sustainable development” is in 28.3% of the articles. The focus on the economy is clearly seen as an opportunity for social development, as evidenced by the abundant number of studies focusing on local communities in various world regions. Specifically, the number of studies carried out in rural areas and oriented towards poverty alleviation is relevant (Drăgoi et al. 2017; Hoefle 2016; de Sousa and Kastenholz 2015; Anand et al. 2012; Hashimoto and Telfer 2010; Ye et al. 2003; Holm et al. 2013).

#### 4.3. Enabling Conditions

Realising tourism's potential in the green economy requires a number of enabling mechanisms that provide appropriate instruments for achieving sustainable development. Government administrations' involvement through implementing development plans and strategies is key in this process. In this area, the narrative review highlights the importance of studies on green governance, planning and roadmap strategy design (Law et al. 2016; Koide and Akenji 2017; Loia et al. 2021) and the development of green marketing practices in tourism (Hanna et al. 2018; Temperini et al. 2012).

Regarding the private sector, the increasing importance of corporate social responsibility exemplifies the leading role of tourism businesses in the goal of sustainable development. This is especially the case for small businesses, as the predominance of small and medium-sized enterprises in tourism, their central role in human activities and their

growing importance in sustainable tourism development suggest that these entities can help tourist destinations move towards sustainability goals (Toubes et al. 2021).

A considerable number of research studies focus on the adoption of quality certifications (eco-certification and eco-labelling programmes). These certificates follow certain standards; for example, the ISO has established a number of general global quality and environmental management standards for manufacturing and service industries that are also applied in the hospitality industry, such as ISO 9001 (quality management), ISO 14001 (environmental management), OHSAS 18001 (occupational health and safety) and ISO 22000 (food safety standard). In general, the benefits of green certification in tourism to environmentally sustainable growth are acknowledged in the research (Lebe and Vrečko 2015), mainly in the application of eco-certification in international tourist hotels (Chen 2019; Bandara et al. 2018; Abdou et al. 2020; Trišić et al. 2021). Voluntary compliance of tourism businesses with sustainability certification is also a way to gain competitiveness against local competitors (Panzer-Krause 2017; DeBoer et al. 2017).

Several studies address consumers and users' perceptions regarding the application of the requirements of a green economy (Lucrezi et al. 2017; Lee et al. 2016; Tao and Chen 2016). This research explores the adoption of green measures in hotels and holiday apartments, the growth in consumer demand for green tourism products and services and tourists' willingness to pay an extra for these services (Nelson et al. 2021; Fudurich and Mackay 2020). The role of green human resource practices (training, empowerment and rewarding for pro-environmental behaviors) in fostering employees' green recovery performance is also a key element that makes an appreciable contribution to maintaining or restoring environmental quality (Luu 2018; Pham et al. 2019; Nhamo 2010)].

The green economy could contribute to human wellbeing by fostering a more holistic approach to tourism development, quality oriented, cautious and compliant with social and environmental factors, more humanized and committed to protecting the cultural and natural values of the territories. The implementation of a new model of sustainable and circular tourism will only be possible with the involvement of all the actors that make up the economy and are interconnected: public administrations, businesses, tourists and the local community.

#### 4.4. Gaps in Existing Studies for Potential Future Research

A central debate is on the compatibility of a green economy's objective with indiscriminate economic growth. Some authors argue for the need for major changes and a global economic structure that ensures environmental boundaries are not transgressed (Stroebel 2015). A genuine green economic future for tourism is based on the idea of steady-state economics. Steady-state tourism is a tourism system that encourages qualitative development but not aggregate quantitative growth to the detriment of natural capital (Hall 2010). According to this approach, the focus of responding to climate and environmental change must be on development, which is a measure of quality, rather than growth, which is a measure of quantitative change. The COVID-19 epidemic has highlighted the greater need to address changes to achieve a true green economy (Gössling et al. 2020).

As early as 1973, Schumacher (1973) concluded that government efforts should focus on sustainable development. The bioregional economy also focuses on strengthening local values and resources, such as local businesses, training local workers, improving the natural and cultural environment, to achieve a better place to live (Cato 2013). Holden (2013) argued that routine measures are not enough to address the environmental challenges facing the tourism industry, and that without a stronger environmental ethic in the market, it will be difficult to impose controls on tourist behaviour designed for environmental conservation. Therefore, there is a need for further research on ethical issues and to deepen the debate on social justice, inequities in global trade and the risk of "greenwashing" (Hall 2015; Newton 2015).

Deepening the sustainability challenges and effects of climate change is also an important area for future research. Specifically, the urgency of implementing climate change

mitigation and adaptation measures to minimize the harmful impact on ecosystems and biodiversity on which personal and economic well-being depends. There is strong evidence that the global tourism system is highly wasteful of resources and that significant mitigation efforts in addressing climate change would have no overall negative economic effect (Gössling 2020). Understanding the implications of climate change for a destination requires developing an integrated systems approach that holistically considers supply and demand effects and adaptation options. Future research must also consider how climate change will interact with other major influencing variables in the tourism sector, such as fuel prices, increasing travel safety and health concerns, aging populations in industrialised countries, increased environmental and cultural awareness, advances in transportation technology and environmental constraints, water supply and pollution, among others.

Finally, significant gaps in knowledge remain about how environmental effects and measures are perceived. We find that the study of tourists and visitors' environmental behaviour is a research area that needs to be addressed in order to more accurately estimate potential changes in long-term tourism demand.

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