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BIBLIOMETRIC ANALYSIS OF LITERATURE IN RENEWABLE ENERGY AND CLIMATE FINANCE: FUTURE RESEARCH TRENDS AND STRATEGIC ROADMAP

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Abstract

Renewable energy and climate finance are among the areas increasingly discussed and researched in the context of sustainable development, energy transition, and climate change mitigation. This study presents a comprehensive bibliometric analysis covering 100 scientific articles in English indexed in SCI, SCI-Expanded, and ESCI and scanned in the Web of Science database between 2010 and 2024. According to the analysis, the journal "Energy Policy" has the most publications in its field and has created a central platform for scientific discussions on sustainable energy policy and financing. This underlines the journal's reach and effectiveness. The intensive contributions of Swiss researchers on these topics reflect the country's international activity and academic interest in renewable energy and climate finance. In addition, the most frequently occurring keywords in the analysis are "renewable energy," "policy," and "finance," indicating that the studies focus on these topics. These terms show that most research focuses on developing renewable energy sources, integrating these processes with policy, and improving financial mechanisms. These analyses have identified potential gaps shaping the future research agenda and highlighted new research opportunities.

Keywords: Renewable energy, Climate finance, Bibliometric analysis

Jel Kodları: Q5, Q50, Q54.

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1. Introduction

Global climate change has become a problem for all living things because it affects consumer societies, all humanity, and all living things on Earth. For this reason, many studies are being carried out to slow down this transformation. However, in addition to the ever-increasing world population, the fact that our primary energy source is still fossil fuels makes this change difficult. The inadequacy of current energy needs and global climate change have led the world to alternative energy sources, such as nature-friendly, sustainable, and renewable energy sources. However, most energy production systems still use fossil fuels. The biggest obstacle to using renewable energy resources is financing. For this reason, many countries support this transformation through bank loans, incentives, and grants to finance investments in renewable energy resources.

Countries have developed policies and set targets in the fight against climate change. The source of finance has become one of the most critical issues in implementing policies and achieving goals. The United Nations Development Program defines climate finance as "financial resources and instruments to support actions to address climate change." The United Nations Climate Change Organization defines "climate finance" as financing from public, private, and alternative sources at the local, national, or transnational level to support climate change mitigation and adaptation actions. This definition ensures that the topics of climate finance and renewable energy, which are becoming increasingly important in the current situation, are among the most prominent and frequently discussed topics in the literature.

According to Chirambo (2017), to achieve sustainable development resistant to climate change, it is essential to increase the level of climate finance and balance the financing levels for mitigation and adaptation of climate change. Additionally, renewable energy technologies need to be encouraged, especially in developing countries. In this context, climate finance and renewable energy issues are frequently discussed in today's literature, and a significant increase in academic studies has been observed in recent years.

Bibliometric analysis is of great importance in academic studies. Such analyses map scientific knowledge networks, uncover interdisciplinary connections and systematically reveal current trends, key topics, prominent authors, journals, and relationships between countries in a particular field of research. The bibliometric analysis indicates future research directions, identifies potential areas of development in the field, and,alerts researchers to important gaps in the literature. It also shows the frequency of keywords used in studies on this area in the literature, cited articles, and links between research areas. This makes it

possible to determine which topics are at the forefront of the scientific world and which new research areas are emerging. It is, therefore, clear that such analyses not only summarise the current state of research but also provide important indications of how the relevant areas will be shaped in the future. The bibliometric analysis sheds light on current policy and practice by identifying knowledge gaps in academic studies on renewable energy and climate finance. These analyses support the development of more effective and targeted solutions while showing how investments in renewable energy technologies, especially in developing countries, can be supported more efficiently with climate finance. For these reasons, these studies are crucial to accelerate the pace of the global energy transition. In this context, bibliometric analysis on dynamic and rapidly evolving topics such as renewable energy and climate finance can help scientists, policymakers, and investors make more informed decisions.

This study undertakes a bibliometric analysis of renewable energy and climate finance literature. The main purpose of this study is to assess the basic research findings on these two topics, which are of increasing importance today. In addition, it aims to provide a guiding framework for combating climate change and making more effective use of renewable energy resources.

This study is designed in five sections. After the introduction section, which is the first section, literature research is included in the second section. The method of the study is mentioned in the third section. The findings obtained from the study are presented in the fourth section. The final section of the study includes the conclusion and discussion.

2. Literature Review

In this section of the study, studies in the literature that deal with renewable energy and climate finance using bibliometric analysis methods are presented under two separate headings. The third and final heading of the section provides a general assessment of the studies in the literature.

2.1. Bibliometric Literature on Renewable Energy

The studies in the literature show that the topic of renewable energy resources is treated from the perspective of different disciplines. In this context, some studies that deal with renewable energy using bibliometric analysis methods are listed below.

Azevedo et al. (2019) examined the studies that investigated the relationship between supply chain performance and renewable energy between 2005 and 2015 using a bibliometric analysis. In the study, which examined the studies obtained from the Scopus database, the

authors identified the effective countries, authors, journals, and articles. As a result of the study, they concluded that the USA, Italy, and the UK were the most effective countries and the most cited articles related to the spatial distribution of bioenergy production units and process networks.

Choifin et al. (2021) examined the literature on renewable energies and solar panels in their study. The study, which examined 1598 studies in the Scopus database for 1989-2020, found that the number of publications increased over the years. In the study, in which important keywords such as solar energy, method, and performance were identified and classified, the authors found that the National University of Singapore was the most active institution in terms of the number of publications and that India was the country that contributed the most to the literature in this field.

In their study, Elie et al. (2021) bibliometrically examined the studies that deal with the financing of renewable energies in the period 1992-2018. As a result of the study, they found that studies in this area have increased over the years, but without considering the financing types.

In their study, Jabeen et al. (2021) examined 52 studies on renewable energy sources in the Web of Science and Scopus databases. They also classified the studies in the literature on renewable energy sources. In line with the findings from the literature, the authors found that the efficiency of renewable energy sources is the highest. However, they found that the literature on renewable energy sources focuses on biofuels, wind, and solar energy.

Rosokhata et al. (2021) used bibliometric analysis to examine 17805 studies on renewable energy sources in the Web of Science database up to 2020. They found that a significant proportion of the studies were conducted between 2016 and 2020. The study used the VOSviewer program to examine the field's active publications, authors, and organizations. They found that most studies were conducted by authors from the USA, China, and India.

Zhang et al. (2022) examined the studies investigating the relationship between renewable energy and artificial intelligence with a bibliometric analysis. The study examined 469 articles from the Web of Science database published between 2006 and 2022. As a result, they found that the number of publications and citations on this topic has generally increased. The analysis showed that the most productive and influential region was China and that the studies were mostly multidisciplinary.

Chou et al. (2023) examined the studies on renewable energy and economic growth. In the study, which examined 6794 studies published in the Web of Science database from 1990-2023 with a bibliometric analysis, the authors emphasized the importance of economic growth in renewable energy sources. They noted that the authors of the most cited study on this topic in 2006 were Lewis, NS, and Nocera, DG. They found that China stood out regarding the number of studies and citations. The authors also found a positive relationship between renewable energy sources and gross domestic product, industrial efficiency, and technological innovation.

Ciu et al. (2023) examined studies on the interaction between renewable energies and blockchain using a bibliometric analysis. The study examined 920 articles from the Web of Science Core database between 2016 and 2023; the authors found that studies in this area increased over the years. They also concluded in the study that the most important researchers in the field, China, the US, India, and the UK, are active countries and are working together. As a result of the study, the authors concluded that the highest frequency of co-citation was associated with the concept of "energy trading" and terms such as "smart contract," "management," "internet," "system" and "smart grid" were the most frequently used keywords.

In their study, García-Lillo et al. (2023) examined studies on renewable energies and sustainable development using a bibliometric analysis. The study used the Web of Science database and examined 8349 studies in the Science Citation Index Expanded (SCI-E), Social Sciences Citation Index, Emerging Sources Citation Index, and Conference Proceedings Citation Index-Science. The authors found that researchers' interest in this topic has increased. They found that the most frequently used keywords were economic growth, energy efficiency, optimization, or climate change. The authors found that the countries with the most publications in this field were China, the US, and the UK.

In their study, Marco-Lajara et al. (2023) bibliometrically analyzed 3132 studies between 1992-2022 concerning renewable energies and sustainable development goals. As a result of the study, the authors emphasized that studies on this topic have increased since 2015 and that interest in this topic has increased in developing countries. They found that Elsevier, MDPI, Springer, Taylor & Francis, and Wiley are top publishing organizations.

In their study, Mentel (2023) bibliometrically examined 1144 studies in the Web of Science database that dealt with green and renewable energy innovations. They found that

researchers in China, the USA, and the UK are conducting intensive studies on this topic. In addition, the authors pointed out the lack of regional studies in the literature on this topic.

Seminario-Córdova and Rojas-Ortega (2023) conducted a bibliometric analysis of 2340 studies in the Scopus database on renewable energy and energy production from 2019-2023. As a result of the analysis, they concluded that the Energies, Applied Energy, and Energy journals are among the most active journals and that the country with the most publications is China. They also found that the number of studies per capita was highest in Cyprus, Denmark, Qatar, and Norway. They found that the keywords renewable energy, renewable energy sources, and renewable energy were frequently used.

Gavriș et al. (2024), who examined 2062 studies in the Web of Science database on the interaction of smartness and sustainability in cities and renewable energies between 1992 and 2022, determined the existence of a multi-faceted relationship between the concepts they discussed in their bibliometric study.

He et al. (2024) conducted a bibliometric study of the literature on renewable energies in Germany between 2008 and 2023. They examined the studies of German academic groups on renewable energy and identified effective keyword clusters such as CO2 reduction, energy efficiency, and energy transition. They also found that the USA, England, and China are at the forefront of the international cooperation network.

Rejeb et al. (2024), who investigated renewable energies through blockchain applications, examined 390 articles in the Web of Science database between 2017 and 2024 using bibliometric analysis. In the study, they found that topics related to the role of blockchain in integration with smart grids, sustainable urban energy systems, and electric vehicle integration are important.

Wang et al. (2024) conducted a bibliometric study of 1804 studies on renewable energy and machine learning between 2012 and 2023. In the study, the authors found that the relevant topics were addressed in the form of studies in various disciplines and that these studies increased over the years. However, they emphasized the lack of comprehensive studies in this area. They identified a broad network of partnerships in studies on renewable energy and machine learning. They concluded that this network of studies is located in China, the United States, India, Saudi Arabia, and universities.

2.2. Bibliometric Literature on Climate Finance

The emergence of the concept of climate finance has attracted researchers' attention. In this context, some studies that examine climate finance studies through a bibliometric analysis are presented below.

Dolge and Blumberga (2022), who bibliometrically analyzed climate economics and energy balance studies between 2000 and 2022 in the Scopus database, found that interest in this topic has increased in the last decade. It was found that most studies on this topic were conducted in China, followed by the US and the UK.

In their study, Nobanee et al. (2022) examined 97 studies in the Scopus database that dealt with climate change, environmental risks, and insurance between 1986 and 2020 using a bibliometric analysis. The study emphasizes that insurance can be used to reduce risks associated with environmental change.

Carè and Weber (2023) conducted a bibliometric study of 315 studies on climate finance in the literature. Examining the studies in the Scopus database between 2004 and 2021, the authors concluded that climate finance is generally located outside the finance literature and is more likely to be researched in other related fields. In addition, it was found that the number of studies on this topic has increased, primarily since 2016, and a significant proportion of studies have been published in journals other than the finance literature. However, the authors also pointed out the lack of studies on climate finance.

Rusydiana (2023) examined studies on climate finance and bibliometrically analyzed 1051 studies in the Scopus database. The aim of the study, which identified the most cited authors, was to determine the scope of the topic of climate finance. The most frequently used keywords in the studies were "climate change," "investment," "land," "emission," and "mechanism," and the most frequently used words were grouped into five different categories.

Shang and Jin (2023) bibliometrically analyzed 2311 articles published in the Web of Science database in 2001–2022 to investigate the development of climate finance in the literature. They found that studies were generally regional and focused on developed countries, while there were limited studies on developing countries. They also found that theoretical studies were primarily published in environmental and energy journals rather than finance and economics journals.

Another study on the bibliometric analysis of climate finance was conducted by Kouwenberg and Zheng (2023). In the study, which examined 1347 articles from the Scopus

database, the authors found that publications on the topic have increased since 2015, the number of topics in finance and economics journals is relatively low, and the topic is treated at an interdisciplinary level. They found that the studies were mainly published in EU countries, China, the United States, and the United Kingdom.

To comprehensively discuss and evaluate issues related to climate finance in Africa, Tamasiga et al. (2023) bibliometrically examined the climate finance literature from 2007-2023. The Web Of Science and Scopus database included one hundred thirty-nine studies. As a result of the study, it was determined that there was an increase in the number of publications in 2019-2023. However, it was concluded that climate change and renewable energy policies increased significantly after 2012. It was found that the countries at the forefront of the issue are the UK, the United States, and Germany.

Another study to determine the current state of climate finance was conducted by Deb and Chen (2024). The authors, who examined 642 studies between 2001 and 2022, used the bibliometric analysis method and found that most studies focused on China, the United States, and the UK. They also concluded that the studies have increased since 2010 and that the studies generally focus on the challenges of climate finance, the carbon decline transition and renewable energy sources. They emphasized that the studies are interdisciplinary and that the number of studies in developing countries is low.

Alonso-Robisco et al. (2024) used machine learning to examine studies in the climate finance literature. They found that machine learning has been used in climate finance issues, but only to a limited extent.

2.3. General Evaluation of Literature

The bibliometric literature on renewable energy and climate finance was examined separately, and it was found that researchers' interest in this topic has increased in recent years. It can, therefore, be concluded that the number of publications in this area has increased in recent years. In addition, it can be noted that studies on this topic are mainly carried out by researchers in developed countries and at a multidisciplinary level. It can be stated that climate finance is a newer concept compared to renewable energy and that studies on it are rather limited. In this context, the topic of renewable energy and climate finance was examined in the study with a bibliometric analysis.

3. Method

Bibliometric analysis uses quantitative analysis methods and creates a collection of publications. In addition, it is a research field that analyzes bibliographic data (scientific publications, data, citations, authors, scientific journals, etc.) with statistical methods. The "R Analyze" program is one of the programs that perform bibliometric analysis with the "Bibliometrix" suffix. This program has a powerful interface and map visualization features. The analysis is completed in three main steps: searching the keywords, the program performing the analysis, and visualizing the analysis of the program. The information obtained reveals the interactions, distribution areas, accumulation, and deficiencies of the information in the literature (Aria & Cuccurullo, 2017).

The Web of Science, owned by the Canada-based Thomson Reuters company, allows users to search social sciences, natural sciences, arts, and humanities articles. This platform uses the previous year's statistics to determine journals' impact factors and presents the results as a report. Thus, it allows researchers to conduct comprehensive subject searching, field searching, and citation research (https://www.webofscience.com).

This study, which was conducted to carry out the bibliometric analysis of studies on renewable energy and climate economy, was conducted on 16.05.2024 by searching the keywords "renewable energy" and "climate finance" in the "Web of Science" database by placing "and" between the words. Searching was performed with "all fields" selected. The study is limited to "Article" and "Article Proceedings Paper" studies published in English between 2010 and 2024. As a result of applying the specified filters, 100 studies were identified. The operations to obtain and visualize the results with the created "raw" file were carried out in the "R bibliometrics" program prepared for bibliometric analysis. The research presents bibliometric indicators on many subjects, such as publications on the study, which countries are more interested in the subject, the most published journals, and the most cited authors. The results are discussed through tables and figures.

3.1. Significance and Purpose of the Research

A literature review is one of the crucial stages that direct the fate of research. Bibliometrics, on the agenda with its innovation, is used in systematic literature review. The analysis serves to evaluate the work and make relational references. Publications on the subject, publication data, performance, methods, etc., allow access too much information. In

this way, one can be informed about the currentness of a subject. As a result, researchers can gain intellectual knowledge with statistical data on the subject.

In studies related to research, renewable energy, and climate finance, it is vital to identify the most productive countries, the most productive authors, the most published journals, and the most cited articles, recognize the subject's current state in scientific production, and identify deficiencies.

4. Findings

Bibliometric analysis examines the author distribution, country distribution, study types, etc., of studies conducted on a scientific subject. It is a statistical program used to show that it is possible to evaluate the subject's past, present, and future with the analyses. It provides scientific guidance and suggestions (Topçuoğlu et al., 2023, p. 1282).

Bibliometric analysis is crucial as it allows us to examine the studies from a distance, analyze them, and examine their direction. It allows us to reconsider information, fill gaps, and direct academic research (Aria & Cuccurullo, 2017, p. 959). Findings were obtained by bibliometric analysis. These findings are discussed and explained through tables and figures.

In the study, the keywords "renewable energy" and "climate finance" were searched on 16.05.2024 using the "Web of Science" database. The review was limited to "Article" and "Article Proceedings Paper" studies published in English between 2010 and 2024, and 100 studies were accessed. Details about the study's data set are presented in Table 1.

Table 1

Details of the Data Set

Variables	**Results**
Time Range	2010-2024
Resources	63
Number of Articles	100
Average Number of Articles Published Annually (%)	13.65
Average Number of Articles Per Year	3.28
Number of Citations per Article	15.4
Number of Citations	5243
Document Content	
Keywords	267
Author's Keywords	329
Authors	
Authors	285
Authors of Single-Author Documents	20
Author Collaboration	
Single Author Documents	32
Co-Authors Per Document	3.15
International Co-Authorship (%)	40.35

Table 1 contains general information about the articles analyzed. Accordingly, as a result of the research, the average number of articles per year is 13.65. The number of articles with a single author is 20. The number of citations per article is 15.4.

The annual scientific production curve for studies on renewable energy and climate finance between 2010 and 2014 is presented in Figure 1.

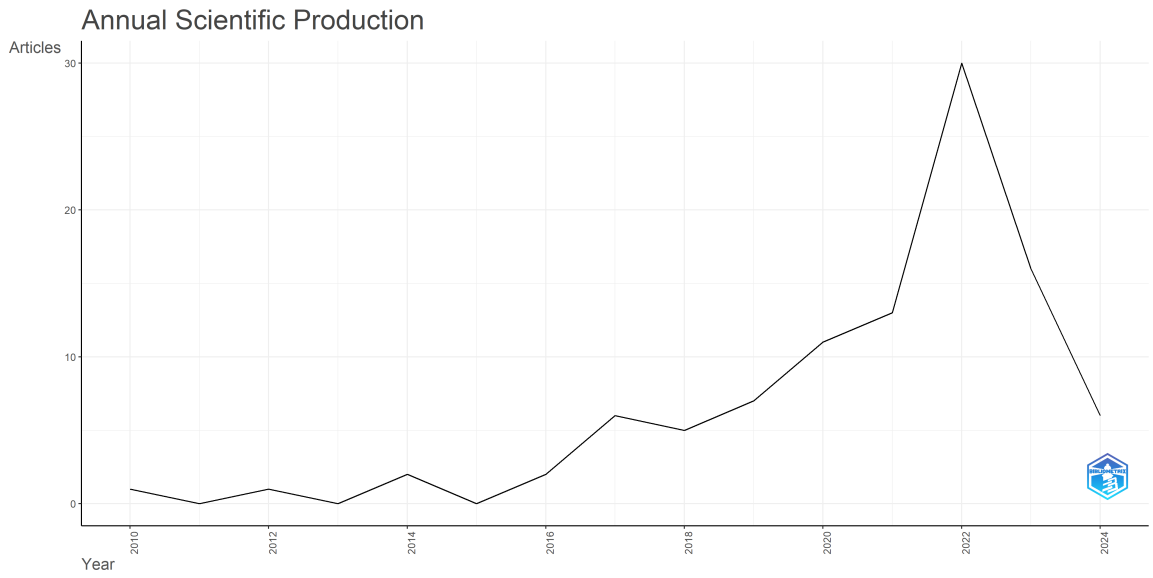

Figure 1.

Annual Scientific Production

According to Figure 1, studies on renewable energy and climate finance between 2010 and 2024 progressed steadily between 2010 and 2016 and reached the highest level in 2022 with a rising curve. This indicates that the subject's importance has increased in recent years, and research on it has also increased. The countries that publish the most on the subject are presented in Figure 2.

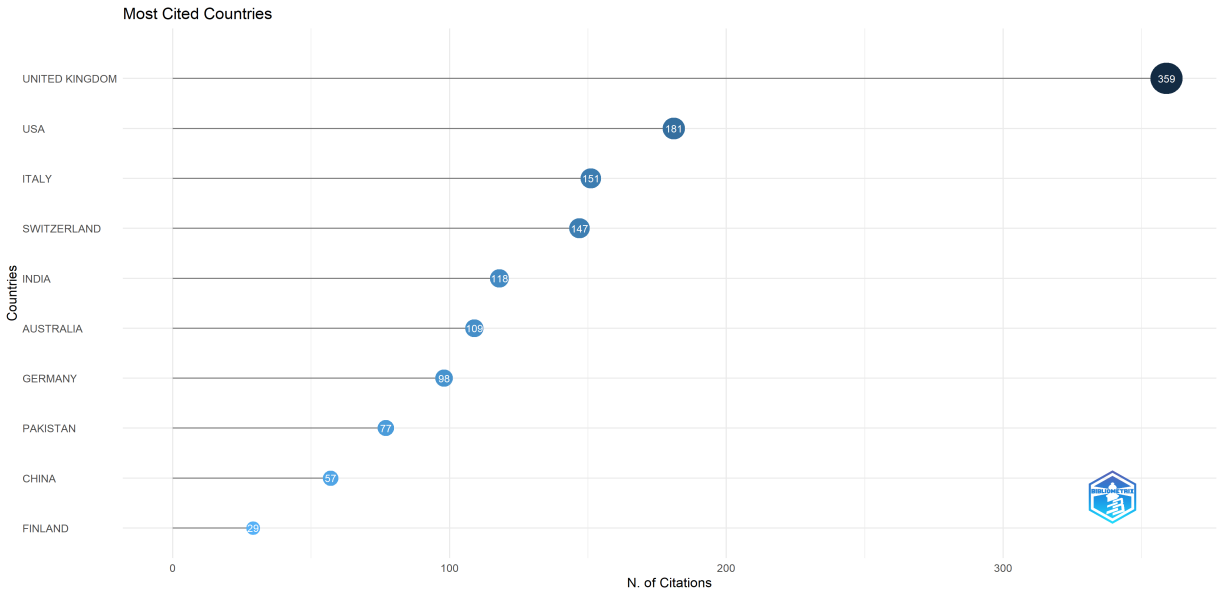

Figure 2.

Most Cited Countries

When Figure 2 is examined, it is seen that the UK publishes the most articles, with 359. The USA is the second country with 181 articles, and Italy is the third country with 151 articles. Then, Switzerland, India, Australia, Germany, Pakistan, China, and Finland countries are included in the ranking. In this context, the subject is concentrated mainly by researchers in the UK and the United States.

Figure 3 shows the journals that publish the most on the subject.

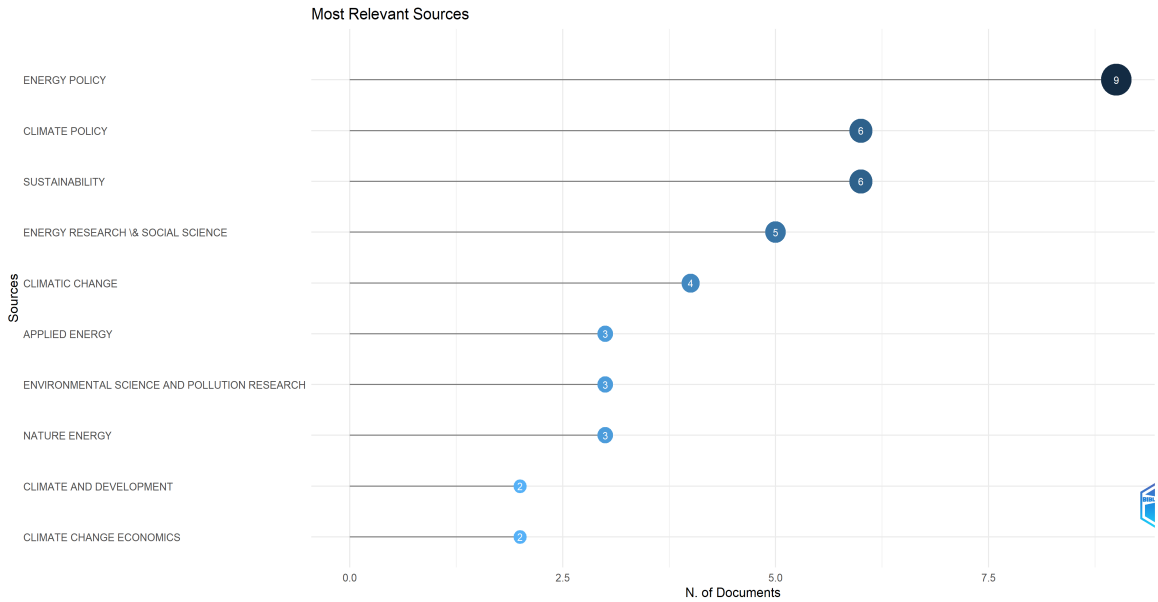

Figure 3.

Most Relevant Sources

As seen in Figure 3, the "Energy Policy" journal publishes the most articles in this field, with 9. Then come the journals "Climate Policy" and "Sustainability," with six publications.

Figure 4 shows the journals that publish the most according to Bradford's Selection Law. The Bradford Selection Law shows which journals publish topics and how they are distributed based on keywords. It is also used in literature review and organization.

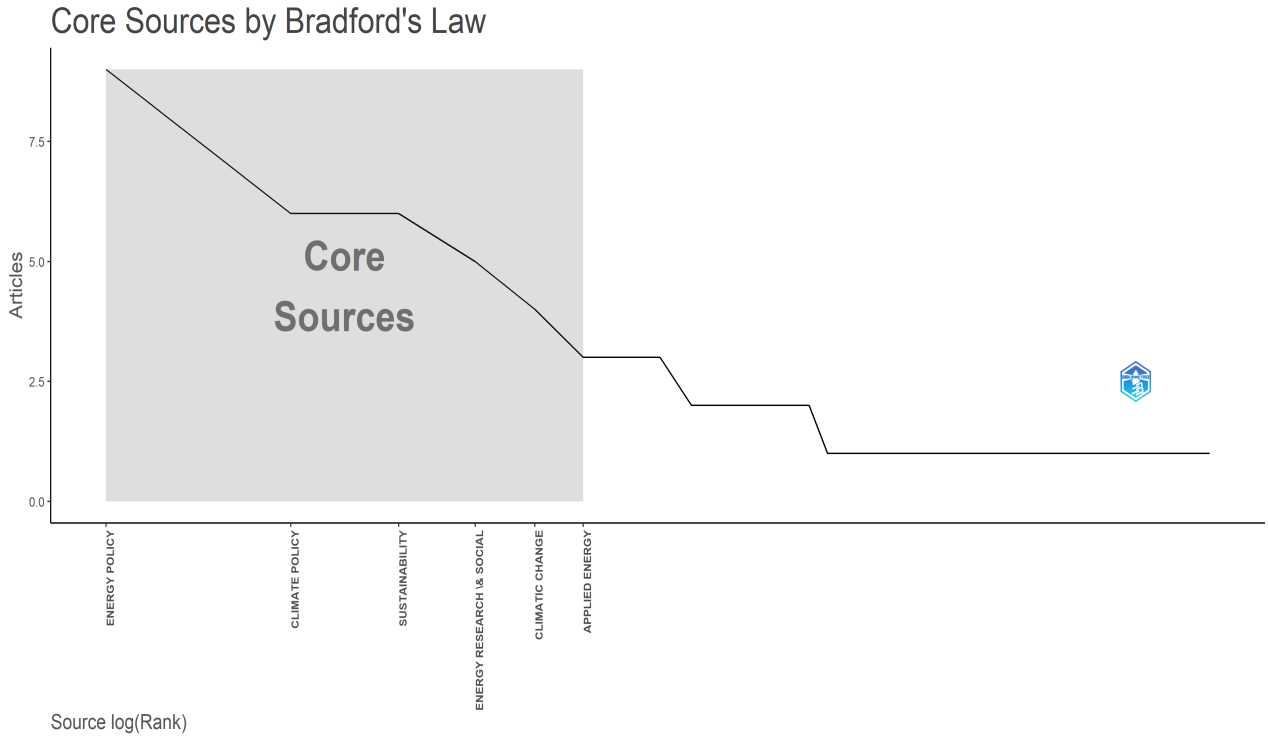

Figure 4.

Most Published Journals According to Bradford's Selection Law

When Figure 4 is examined, according to this law, most articles related to the subject were published in the "Energy Policy" journal. Then, there are six publications, including "Climate Policy" and "Sustainability" journals.

Table 2 presents the article distribution according to the countries where the corresponding authors are located—including the top 10 countries.

Table 2.

Corresponding Author's Countries

Country	**Articles**
Switzerland	13
Germany	11
UK	11
India	8
USA	8

Australia	7
Italy	5
China	4
Pakistan	3
Spain	3

Table 2 shows the article distribution according to the countries where the corresponding authors are located. Switzerland has the highest number of articles in this field, with 13. Germany is the second country with 11, and the UK is the third country with 11

Table 3 presents the number of citations according to the countries where the corresponding authors are located—including the top 10 countries.

Table 3

Number of Citations by Countries of Corresponding Authors

Country	**Total Citations**	**Average Article Citations**
UK	359	32.60
USA	181	22.60
Italy	151	30.20
Switzerland	147	11.30
India	118	14.80
Australia	109	15.60
Germany	98	8.90
Pakistan	77	25.70
China	57	14.20
Finland	29	29.00

When Table 3 is examined, the UK ranks first in countries where the authors are located, with a total of 359 citations and an average of 32.60 citations per article. The USA ranks second with 181 citations and an average number of citations per article of 22.60. Italy is the third country, with 151 total citations and an average number of citations per article of 30.20.

Table 4 presents the distribution of authors' productivity according to the h index, including the top 10 countries.

Table 4.

Distribution of Authors' Productivity According to h Indexes (Authors' Local Impact)

Author	**First publication date**	**h index**	**Total Number of Citations**
Steffen B	2020	10	175
Schmidt Ts	2017	7	132
Anantharajah K	2019	3	22
Arto I	2018	3	9
Egli F	2021	3	52
Setyowati Ab	2020	3	101
Victoria Roman M.	2018	3	9
Warren P	2019	3	73
Agutu C	2022	2	40
Ameli N	2020	2	71

Table 4 gives the h indexes, total citations, total citation numbers, and first publication dates of the studies carried out by the researchers. "h index" is an essential criterion for researchers. It is a ranking criterion that measures the productivity and effectiveness of researchers in order to show the effectiveness of researchers publishing in the same field of study in situations such as appointment, title, and reward. Moreover, it numerically shows the productivity and efficiency levels of countries, institutions, and individuals (Hirsch, 2005). In Table 4, it is seen that the author named "Steffen B." is the author with the highest "h index" with 75 citations1 and a "h index of 10" in 2020. Secondly, "Schmidt" with 132 citations and "7 h index" in 2017; thirdly, "Anantharajah K." with 22 citations and "3 h index" in 2019. is following.

Figure 5 graphically presents the most relevant keywords in studies on the subject, while Figure 6 presents the key visually.

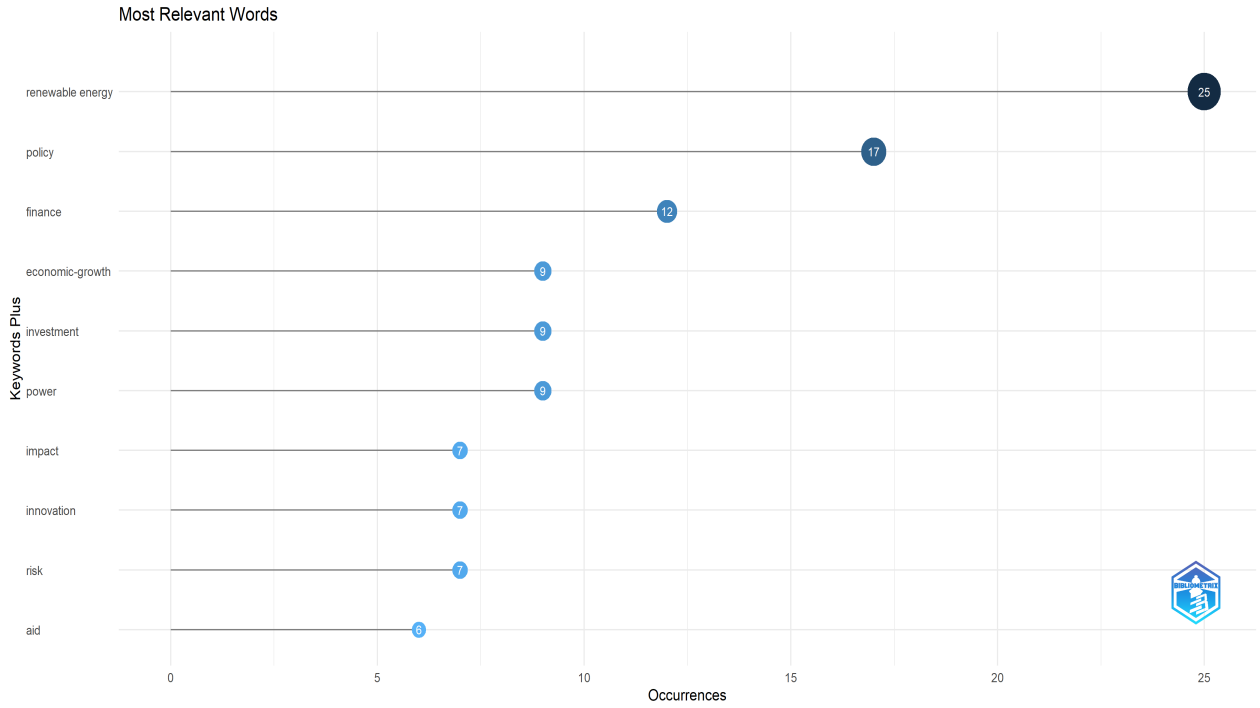

Figure 5.

Most frequent words

Figure 6.

Word Cloud of Keywords

When Figure 5 and Figure 6 are examined, it is seen that the most used word is "renewable energy ." The study shows that "economic growth" and "consumption" are in second and third place, respectively. Identifying the frequently repeated words on a topic is very important to analyze the gaps in the literature and the relationships between the variables. Network maps are another method that shows the relevance of keywords. These maps highlight the hidden connections between keywords and make these connections visually visible. The density in thickness and frequency of the networks on the map shows the frequency of the relationship between the keywords. The network map between the words used in the study is shown in Figure 7.

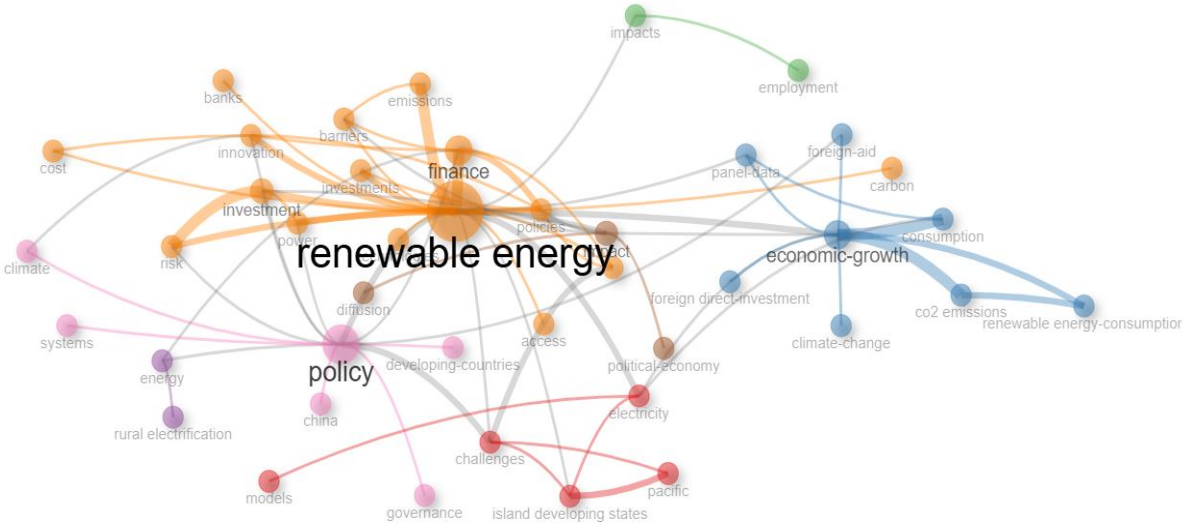

Figure 7.

Conceptual Concept by Keywords

As seen in Figure 7, the most prominent word, "renewable energy," is frequently used with words such as "investment," "risk," "impact," and "finance." Additionally, the keywords "Policy" and "economic growth" come to the fore after the word "Renewable energy."

The thematic concept created according to keywords is presented in Figure 8.

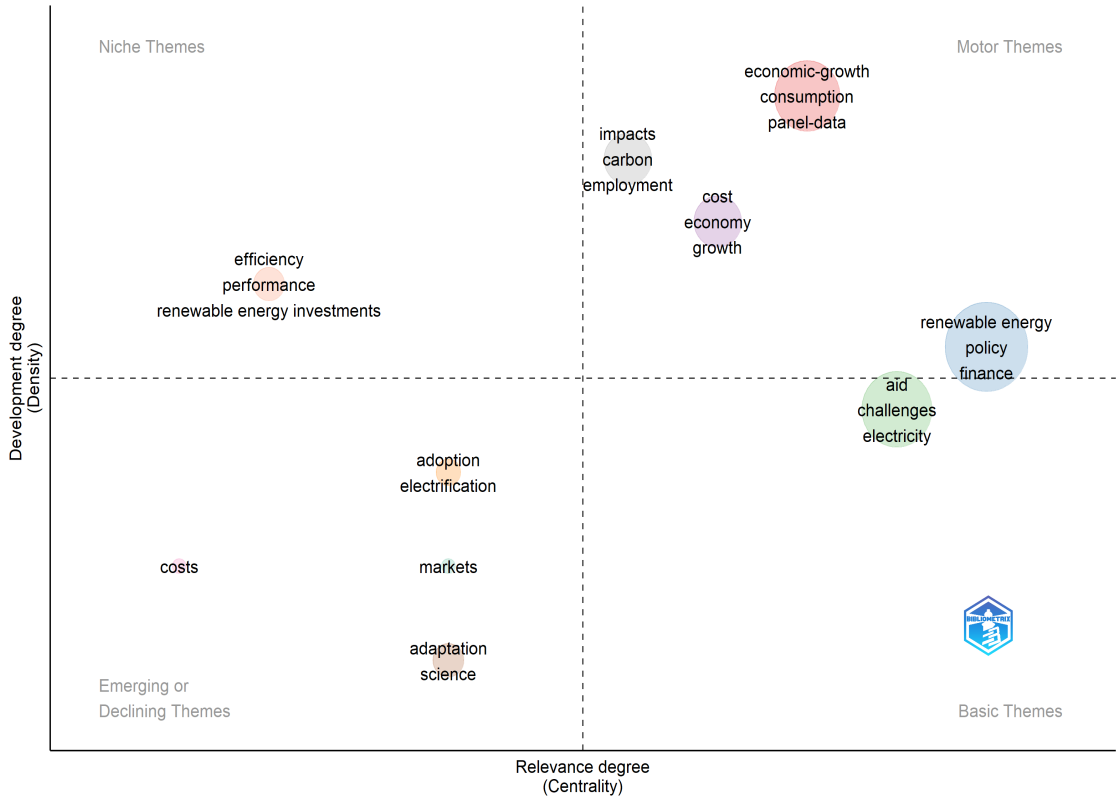

Figure 8.

Thematic Concept by Keywords

As seen in Figure 8, the thematic concept created according to keywords is divided into four by a coordinate plane. Each compartment has a theme. There are engine themes in the upper right corner, basic themes in the lower right corner, lost or newly released themes in the lower left corner, and niche themes in the upper left corner. According to the bibliometric analysis on renewable energy and climate finance, the engine theme in the upper right corner, which is positive in both directions, is the keywords economic growth - consumption - panel data, cost - economy - growth, impacts - carbon - employment, renewable energy - policy finance. There are clusters. The presence of these words in the engine theme shows that many studies contain these keywords and are still popular; in other words, they are frequently used. A cluster of the keywords aid - challenges - electricity can be seen in the simple themes in the lower right corner. The keywords costs, adoption – electrification, markets, adaptation – science in the lower left corner are no longer used or have entered the new literature. In the niche theme in the upper left corner, a cluster of the keywords efficiency - performance - renewable energy investments can be seen. This shows that keywords have high density and low centrality, and studies in this field are niche topics. The thematic concept in Figure 8 provides information about the direction and future of renewable energy and climate finance studies. Bibliometric analysis can provide information about the change in using keywords related to the subject under research over the years.

Figure 9 presents a graph regarding the word change used between 2010 and 2019.

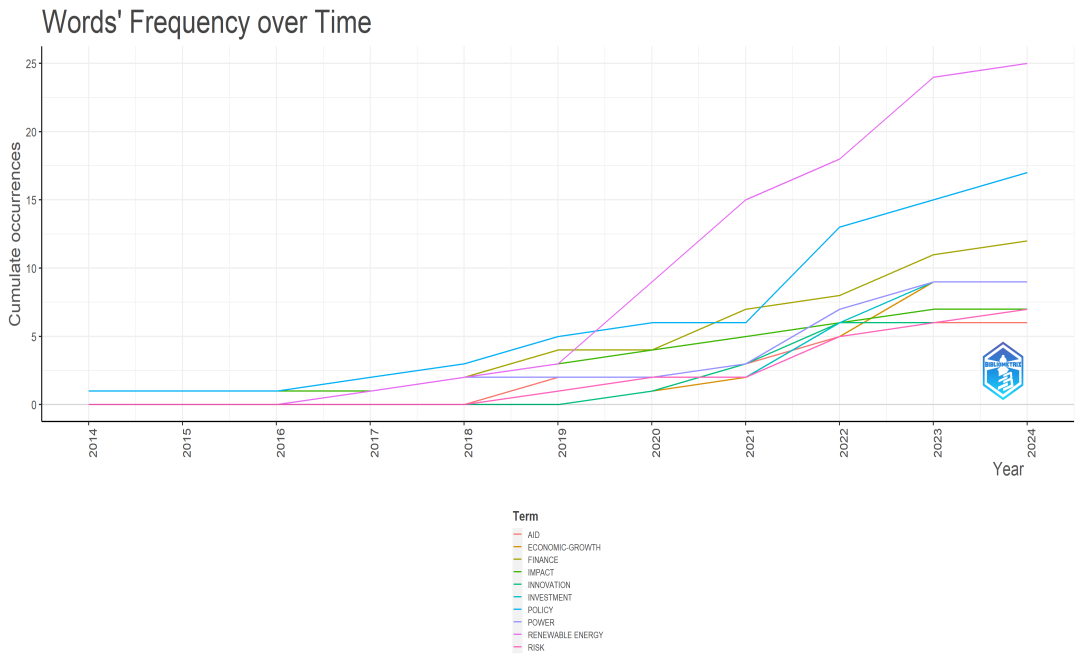

Figure 9.

Words'Frequency over Time

According to Figure 9, the keywords searched for renewable energy and climate finance are "renewable energy," "policy," and "finance," respectively. Accordingly, the frequency of use of these words increases in 2018 and towards 2024.

5. Results and Discussion

The primary reason for accelerating climate change is harmful emissions from fossil fuels. The most significant advantage of renewable energy sources is that they neutralize the carbon cycle and have very low emissions compared to fossil fuels. Therefore, it is thought that the increase in the use of renewable energy sources can slow down climate change. It can be said that climate finance and renewable energy-related studies will increase in the future as climate change accelerates and policymakers and researchers work to slow down this pace. In this context, the study aims to examine studies on renewable energy and climate finance. For this purpose, publications in the Web Of Science database, which researchers use most, were examined using the bibliometric analysis. During the data collection process of the study, the keywords "renewable energy" and "climate finance" were first searched in the "Web of Science" database on 16.05.2024. In the study covering the years 2010-2024, there are articles in the "Article" and "Article Proceedings Paper" types in the "English" language and the Social Sciences Citation Index (SSCI), Science Citation Index Expanded (SCI-EXPANDED) and Emerging Sources Citation Index (ESCI) indexes. The searched publications were examined. As a result of applying the specified filters, it was determined that there were 100 studies. The "R bibliometrics" program was used to obtain and visualize the results in the resulting "raw" file. As a result of the study, visual maps and tables were obtained, and the gaps in the literature on renewable energy and climate finance were discussed.

The bibliometric analysis conducted on publications on renewable energy and climate finance issues allows us to better understand the literature in this field. This analysis determined that the journal "Energy Policy" has nine publications. This shows that the journal is an important platform for scientific publications in this field and, therefore, plays a decisive role in shaping the literature.

When analyzing the keywords, the most frequently occurring keywords in the literature are "renewable energy," "politics," and "finance." This result underlines the close relationship between renewable energy and climate finance. Increasing renewable energy production and the role that finance will play in this process were among the main themes of the research. Furthermore, the thematic concept analysis of these keywords shows that the literature is concentrated in specific clusters. In this context, the most frequently occurring keyword

clusters among the thematic concepts created are the following: “Economic growth – consumption – panel data," "Costs – economy – growth," "Impacts – carbon – employment," and "Renewable energy – policy – finance."

These clusters show that renewable energy and climate finance issues cover technical, economic, environmental, and social dimensions. In particular, terms such as “economic growth, consumption, and panel data” reveal how these issues are addressed through economic analyses and data-based studies. “Cost, economy, and growth” clusters emphasize renewable energy projects' economic sustainability and growth impacts. “Impacts, carbon, and employment” clusters show interest in the employment creation potential of renewable energy projects and environmental and social impacts.

This bibliometric analysis reveals the main developments and research-focused areas in the literature while shedding light on the developments. By drawing increasing attention to the literature, it is also possible that new research will emerge. This study provides a valuable foundation for future studies in the field. This text states that the data obtained in the bibliometric analysis will be evaluated more and that the research topics will be conducted to have more information on important points in the literature.

This study provides a valuable foundation for future research in this field. This extended text has been written to assess the data obtained in the bibliometric analysis in more detail and to provide more information on the important points of the research topics in the literature.

In this context, all the results obtained are expected to provide a potential road map for researchers considering researching this field. It may be recommended to use different keywords and limitations for future studies.

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