



Research Trends in Sustainable Tourism Development: A Bibliometric Analysis Using PoP and VOSviewer

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ABSTRACT

In recent years, sustainable tourism development has become a global concern, particularly among researchers. This article presents a bibliometric analysis of research trends in sustainable tourism development, utilizing Publish or Perish (PoP) and VOSviewer software. By collecting data from publications between 2014 and 2024, this study aims to identify publication patterns, citation trends, and collaboration among researchers. The results indicate that 920 publications were analyzed, with the most productive publishers being Taylor & Francis (30.62%) and Elsevier (25.77%). Through data visualization, the article identifies five main clusters of keywords that represent different research areas. There was a notable shift in keyword trends between two time periods: from "industry and sustainable tourism development" (2019-2021) to "community and sustainable tourism development" (2019-2021). The findings reveal a concentration on specific themes, namely sustainable tourism development, community, and destinations, while some critical concepts, such as innovation and environmental sustainability, are less connected to the primary themes. In conclusion, this analysis provides valuable insights for researchers seeking to understand the dynamics of sustainable tourism research and highlights areas that require further exploration.

Keywords: *sustainable development, tourism, bibliometric, trend research*

INTRODUCTION

In recent decades, the development of sustainable tourism has become a major focus in academic research (Khan et al., 2021), in line with the increasing awareness of the importance of environmental and social sustainability. This scientific article aims to provide a comprehensive overview of the evolution of research in the field of sustainable tourism. By utilizing two powerful bibliometric analysis tools, namely Publish or Perish (PoP) and VOSviewer, this study will identify publication trends, citation patterns, and researcher collaborations over a specific period.

Bibliometric analysis is an essential tool in scientific research used to measure and evaluate publications across various fields (Aria & Cuccurullo, 2017), such as economics and marketing (Tanwar et al., 2022), business (Lamolinara et al., 2023), health and pharmacy (Wan et al., 2022), and technology (Ikudayisi et al., 2023). This report utilizes two software tools, Publish or Perish (PoP) and VOSviewer, to analyze publications related to a specific topic. PoP is used to collect bibliographic data, while VOSviewer is employed to visualize the data.

Through bibliometric analysis, this article will not only map the existing research landscape but also uncover key themes emerging in the literature on sustainable tourism. Previous studies indicate that this topic has experienced significant growth (Roblek et al., 2021), with many researchers contributing to the development of concepts (Torres-Delgado & López Palomeque, 2012) and environmentally friendly

tourism practices (Santos-Roldán et al., 2020). Using data from the Google Scholar database, this analysis aims to identify leading authors, the most influential publication sources, research themes over a specific period, and their interconnected networks.

In this context, the article will also discuss the challenges and opportunities in sustainable tourism research. By highlighting underexplored areas and providing recommendations for future studies, the findings of this analysis are expected to make a meaningful contribution to the advancement of knowledge and the promotion of more sustainable tourism practices. Through this bibliometric approach, the study aims to offer new insights for academics and practitioners in understanding the dynamics and future direction of sustainable tourism research.

METHODS

This study was conducted in two stages: data collection using Publish or Perish (PoP) and data analysis and visualization using VOSviewer. The research stages are explained as follows:

1. Data Collection with Publish or Perish (PoP)

In this stage, the following steps were taken:

- a. Data was collected through a search in the Google Scholar database using the keyword “sustainable tourism development.” The publication period of the journals analyzed was from the last 10 years, specifically from 2014 to 2024.
- b. The search results were filtered based on publication year and publication type.
- c. The search results were then exported in RIS and XLSX (Excel) format for further analysis using VOSviewer.

2. Analysis and Visualization with VOSviewer

In this stage, the following steps were taken:

- a. The RIS file from PoP was then analyzed using VOSviewer.
- b. A bibliometric map was created to illustrate the relationship between keywords in the titles and abstracts of all the publications that were successfully collected.
- c. An analysis was conducted to identify research trends based on keywords.

RESULTS AND DISCUSSION

Publications related to sustainable tourism development between 2014 and 2024 amounted to 920 articles (Table 1), with an average of 84 articles published per year. Based on the annual publication trend, the number of publications steadily increased from 2014 to 2020. However, since the onset of the Covid-19 pandemic (2019), the number of publications related to tourism development has continued to decline (2020-2023), with a resurgence in 2024 (Figure 1). The Covid-19 pandemic has brought significant changes to the tourism sector (Vărzaru et al., 2021), as restrictions on human mobility drastically reduced tourism travel and flights (Deb & Nafi, 2021). This situation also impacted tourism research. While publications related to tourism were still conducted by researchers in Indonesia (Kristiana et al., 2021), Uzbekistan (Allaberganov et al., 2021), Taiwan (Wu et al., 2021), and China (Lu et al., 2022) during the pandemic, their numbers were very limited. The tourism sector was one of the hardest-hit industries during the Covid-19 pandemic (Gössling et al., 2020).

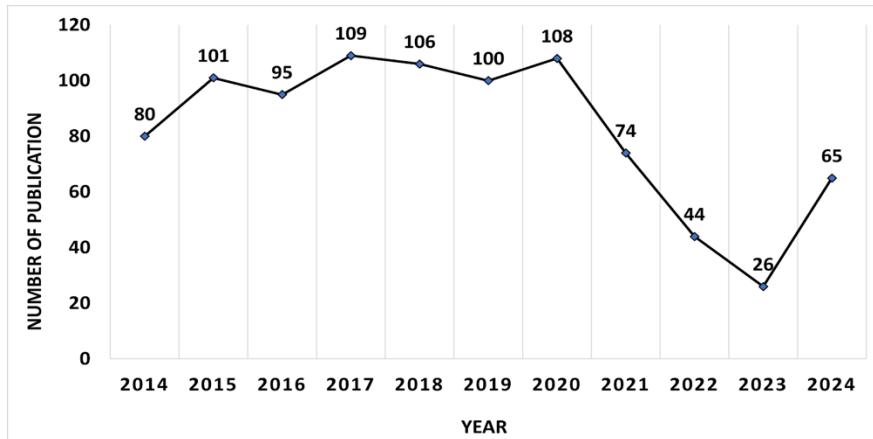


Figure 1. Number of Publication/year
Source : Data Processing Results using Publish and Perish by the Author

Publication Statistics

The most productive publishers of research related to sustainable tourism development are Taylor & Francis (30.62%) and Elsevier (25.77%). Of the 920 articles analyzed, a total of 196,848 citations were recorded, with an average of 17,895.27 citations per year. The publication statistics based on data obtained from the Publish or Perish software are as follows:

- Total publications analyzed: 920 articles.
- Publication range: 2014-2024.
- The most productive publishers are Taylor & Francis and Elsevier, with contributions of 30.62% and 25.77%, respectively, of the total publications.
- The top five articles according to GSRank are, in order: the article by Bramwell (Bramwell et al., 2017), MacKenzie and Gannon (MacKenzie & Gannon, 2019), Rasoolimanesh and Ramakrishna (Rasoolimanesh et al., 2023), Brokaj (Brokaj, 2014), and Carter (Carter et al., 2015)

Table 1. Publisher Ranking Based on 920 Analyzed Articles

| No. | Penerbit | Jumlah Artikel | Prosentase |
|-----|--------------------------|----------------|----------------|
| 1 | Taylor & Francis | 278 | 30.57% |
| 2 | elsvier | 234 | 25.72% |
| 3 | journals.sagepub.com | 87 | 9.51% |
| 4 | emerald.com | 81 | 8.81% |
| 5 | Wiley Online Library | 24 | 2.60% |
| 6 | academia.edu | 20 | 2.16% |
| 7 | Springer | 13 | 1.41% |
| 8 | pdfs.semanticscholar.org | 12 | 1.21% |
| 9 | researchgate.net | 11 | 1.20% |
| 10 | jots.cz | 7 | 0.70% |
| 11 | econstor.eu | 4 | 0.40% |
| 12 | econstor.eu | 4 | 0.40% |
| 13 | goodwoodpub.com | 4 | 0.40% |
| 14 | gtg.webhost.uoradea.ro | 4 | 0.40% |
| 15 | inderscienceonline.com | 4 | 0.40% |
| 16 | Other (90 Publisher) | 121 | 12.90% |
| 17 | Unrecorded | 12 | 1.21% |
| | | 920 | 100.00% |

Based on GSRank, the top five articles on sustainable tourism are: Sustainable Tourism: Past and Future (Bramwell et al., 2017) and (MacKenzie & Gannon, 2019), Sustainable Tourism and the SDGs (Rasoolimanesh et al., 2023), The Role of Local Government in Sustainable Tourism Development (Brokaj, 2014), and Tourism and Development Strategies (Carter et al., 2015).

Table 2. Top Five Articles According to GSRank (n=920)

| GSRank | Author | Title | Year | Source | Publisher |
|--------|--------------------------------------|------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------|------------------|
| 1 | B Bramwell, J Higham, B Lane, ... | Twenty-five years of sustainable tourism and the Journal of Sustainable Tourism: looking back and moving forward | 2017 | Journal of Sustainable Tourism | Taylor & Francis |
| 2 | N MacKenzie, MJ Gannon | Exploring the antecedents of sustainable tourism development | 2019 | International Journal of Contemporary Hospitality ... | emerald.com |
| 3 | SM Rasoolimanesh, S Ramakrishna, ... | A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals | 2023 | Journal of Sustainable Tourism | Taylor & Francis |
| 4 | R Brokaj | Local Governments role in the sustainable tourism development of a destination | 2014 | European scientific journal | academia.edu |
| 5 | RW Carter, S Thok, V O'Rourke, ... | Sustainable tourism and its use as a development strategy in Cambodia: a systematic literature review | 2015 | Journal of Sustainable Tourism | Taylor & Francis |

Data Visualization

The citation map shows 36 keywords or term labels, with the ones having the highest occurrence and network strength (weight occurrence) being the keywords sustainable tourism development, tourist, community, and destination.

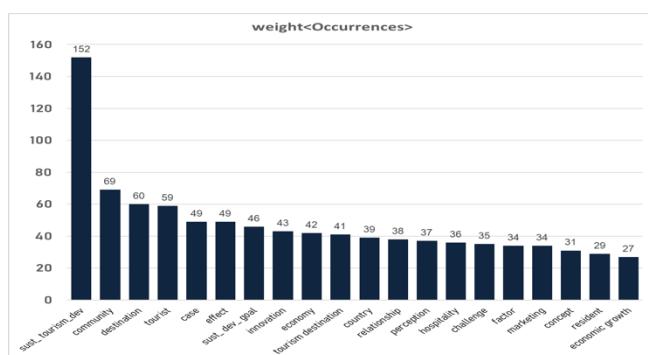


Figure 2. Occurrence Level of the Top 20 Keywords
Source : Data Processing Results using VOSviewer by the Author

The citation map shows 36 keywords or term labels, which are distributed into five main clusters, as shown in Table 3.

Table 3. Citation Map and Main Clusters

| No | Kluster | Keyword | Amount |
|----|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1 | Kluster-1 | <i>application, case, community, destination, factor, importance, influence, perception, resident, sustainable tourism development, tourism destination</i> | 11 |
| 2 | Kluster-2 | <i>concept, future, hospitality, innovation, place, relation, tourist, tourist destination, type</i> | 9 |
| 3 | Kluster-3 | <i>challenge, economy, implementation, need, opportunity, rural tourism, sdgs, sustainable development goal</i> | 8 |
| 4 | Kluster-4 | <i>country, economic growth, effect, environmental sustainability, evidence, relationship</i> | 6 |
| 5 | Kluster-5 | <i>marketing, research interest</i> | 5 |

Source : Data Processing Results using VOSviewer by the Author

Each cluster represents a different area of research, with keywords that frequently appear in each cluster. Cluster-1 is related to sustainable tourism research in connection with local communities (Magni, 2017), destinations (Carneiro et al., 2015), perceptions (Garau-Vadell et al., 2018), and community-based tourism (Stone, 2015). Cluster-2 focuses on conceptual research on sustainable tourism development, development direction, hospitality (Baum & Hai, 2020), culture (Richards, 2018), technology (Xiang et al., 2015), and innovation (Wang et al., 2016). Cluster-3 is related to sustainable tourism research in the context of economic development (Cárdenas-García et al., 2015), rural development (Lane & Kastenholz, 2015), infrastructure development (Jovanovic & Ilic, 2016), poverty alleviation (Truong et al., 2014), and achieving the SDGs. Cluster-4 focuses on the effects of sustainable tourism on regional growth (Manzoor et al., 2019), financial dimensions (Ohlan, 2017), and environmental dimensions (Paramati et al., 2017). Cluster-5 is related to sustainable tourism research in the context of consumers (So et al., 2016) and marketing (Kim, 2018).

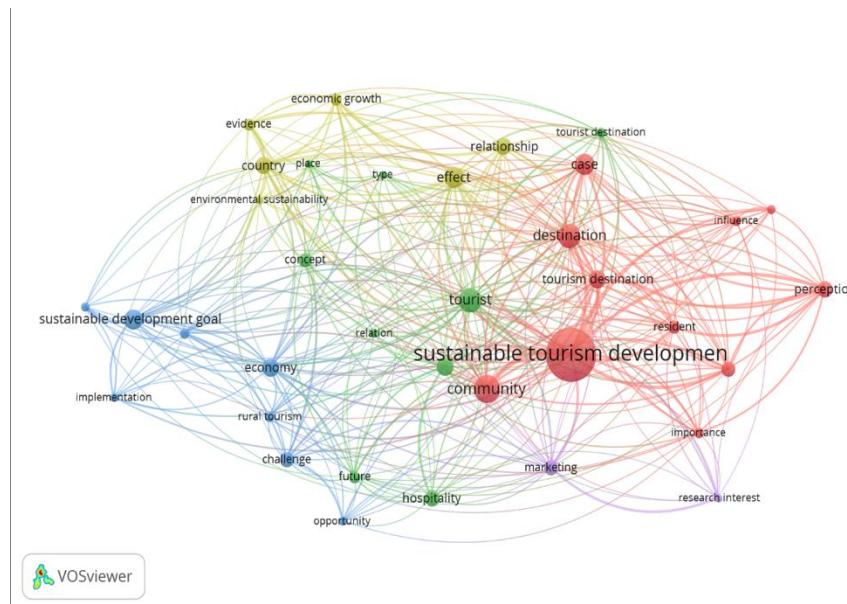


Figure 3. Visualization of the Keyword Network Map
Source : Data Processing Results using VOSviewer by the Author

The keyword “sustainable tourism development” is connected to several other keywords, primarily those within the same cluster. However, it is also linked to keywords outside the cluster, such as sustainable development goals, hospitality, economy, marketing, and several other keywords. However, its connection to keywords like innovation and environmental sustainability appears to be weaker (Figure 4).

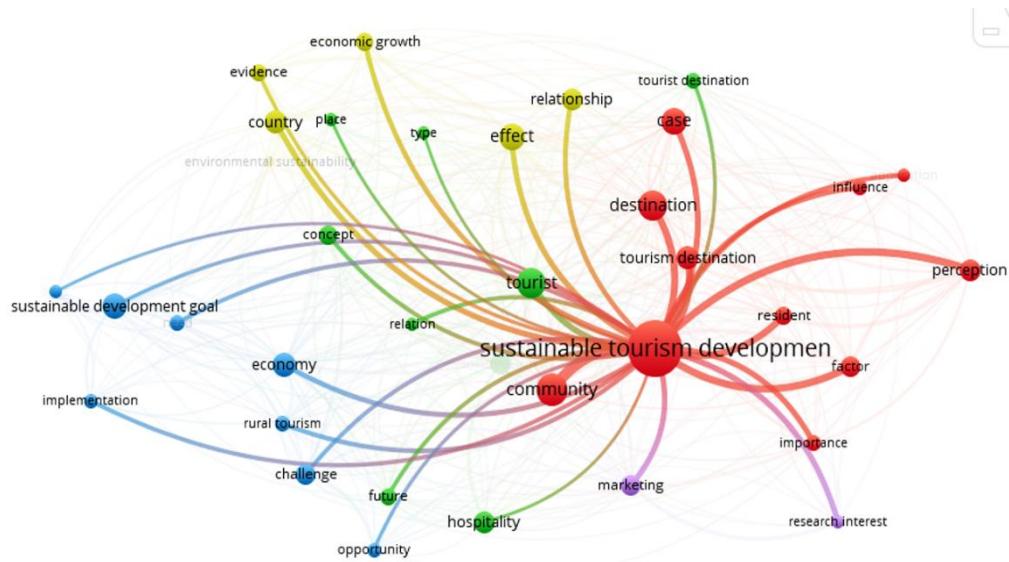


Figure 4. Visualization of the Keyword Network Map for “Sustainable Tourism Development”

Source : Data Processing Results using VOSviewer by the Autho

In the next phase, the analysis was conducted by separating articles from 2019-2021 and 2022-2024 to observe differences in research trends between these two periods. Based on the ranking of the top 20 keywords by occurrence level, the results show several changes in trends between the two periods:

- The keyword resident appears more frequently than before, moving from 17th place to 3rd. This keyword is closely related (within the same cluster) to community, perception, and support.
- The keywords innovation, perception, and relationship were not detected in the earlier period but emerged in 2022-2024. Conversely, some keywords, such as rural tourism practice, effect, area, framework, economic development, and tourism destination, no longer appear.

Table 4. Changes in the Ranking of Keywords in Two Different Time

| Kata Kunci | 2019-2021 | 2022-2024 |
|------------------------------|-----------|-----------|
| community | 2 | 1 |
| industry | 1 | 2 |
| resident | 17 | 3 |
| covid | 9 | 4 |
| perception | | 5 |
| support | 12 | 6 |
| sustainable development goal | 14 | 7 |
| innovation | | 8 |
| country | | 9 |
| economy | | 10 |
| ecotourism | | 11 |
| process | | 13 |
| relationship | | 14 |
| change | 6 | 15 |

| | | |
|----------------------|----|------|
| concept | 8 | 16 |
| contribution | | 17 |
| stakeholder | | 18 |
| way | | 19 |
| hospitality | | 20 |
| area | 5 | none |
| attitude | 20 | none |
| case study | 10 | none |
| challenge | 18 | none |
| economic development | 19 | none |
| effect | 4 | none |
| framework | 7 | none |
| implication | 15 | none |
| practice | 3 | none |
| rural tourism | 16 | none |
| tourism destination | 13 | none |

Discussion

The analysis results show that the use of PoP and VOSviewer provides deep insights into research productivity and its impact. The formed clusters indicate that there is a concentration of research on specific topics, which can guide other researchers to explore under-researched areas or areas that are less connected to the main theme (sustainable tourism development).

Several keywords highlight research areas where, with the help of the VOSviewer software, the strength of the relationship between keywords can be mapped. The keyword sustainable development goals does not show a strong connection with innovation and environmental sustainability. Additionally, there are several important concepts related to sustainable tourism that are no longer prominently emerging, such as rural tourism practice, effect, area, framework, economic development, and tourism destination. There are also important concepts that were not detected using VOSviewer but were identified manually with the “find” function in Excel. These concepts include climate change, carrying capacity, community participation, local community, and sustainable tourism practices.

CONCLUSION

This paper illustrates how bibliometric analysis using Publish or Perish (PoP) and VOSviewer can provide a comprehensive overview of research trends in a particular field. This method is highly useful for researchers to plan their future studies and understand the scientific context of their work. The research area of sustainable tourism development is still rarely associated with innovation, environmental sustainability, climate change, carrying capacity, community participation, local community, and sustainable tourism practices. Therefore, future research that links these concepts is needed.

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