Sustainability of Rural Ecotourism

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Abstract. Increasing public awareness of the environment and the development of rural tourism has attracted researchers' interest in conducting studies on ecotourism in rural areas. Many tourist villages use the ecotourism concept in developing their tourism. It is hoped that the development of tourist villages will be able to encourage the realization of sustainable tourism. This research uses a literature study with bibliometric methods from data sourced from Scopus by utilizing Vos Viewer, Excel and Data wrapper to visualize the results. The findings of this research include 7 clusters based on keywords, namely: sustainable tourism, rural tourism, rural development, ecotourism, smart tourism, agritourism, and cultural tourism. The results of this research also identified authors who were cited the most, countries of origin with the largest number of articles, and links between countries that were most influential in writing on the themes of rural tourism, ecotourism, and sustainability. This article is organized into several sections, namely research objectives, methodology and data tracking, discussion analysis, and closing section. The conclusion presents future development trends for the study of rural development, entrepreneurship, and smart tourism which is increasingly of interest to researchers. This reflects a significant contribution to the development of sustainable tourism in subsequent research.

Keywords: rural development, cultural tourism, entrepreneur, smart tourism

1 Introduction

Rural tourism is a sector that can be relied on to increase income and create jobs for local communities [1]. The natural conditions are still beautiful and the various plants and natural habitats that are still free are an attraction for tourists. The potential of the natural environment and traditions that are still maintained encourages rural tourism to implement the concept of environmentally based tourism or ecotourism. This ecotourism development also increases the attraction for the younger generation to participate [2]. This is expected to be an effort to realize sustainable tourism.

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Research on rural ecotourism has attracted the interest of researchers from various countries, but the number of studies discussing progress and research trends that focus on researching rural tourism, ecotourism and its relationship to realizing sustainable tourism is still very limited. This can influence the level of understanding of the development of ecotourism in rural areas, knowledge about deficiencies in research that has been carried out so far, and efforts to ensure that research remains relevant to be carried out.

This research aims to provide a comprehensive picture of the sustainability of rural ecotourism using bibliometric analysis. This research was conducted to answer four research questions, firstly the development of the number of studies in recent years. Second, identify the authors with the highest number of citations, what is the geographical distribution of authors in this field of study, and thirdly, the pattern of relations between countries that are relevant in this field of study. Fourth, find out the most significant research impact in the field of rural ecotourism research based on clusters. The research took a database from Scopus with the keywords ecotourism OR greentourism AND rural. This research not only contributes to current research on rural ecotourism, but the results of this study can be a current and relevant guide for researchers to understand trends and identify key contributors and research impacts that can help researchers in planning future research articles.

Bibliometric research on the topic of sustainability has been carried out by previous researchers including [3] with the title Evidence from Environment, Development and sustainability. Meanwhile, bibliometric research on rural areas has been carried out by [4] with the theme rural social innovation. Research on sustainability in rural territories was discussed by [5]. [6] discussing the tourism environment. Rural tourism information research [7] discuss more about information management. Ecotourism and sustainable development studied [8] discusses understanding ecotourism from macro to micro perspectives, patterns, themes and trends in ecotourism research. From all the research that has been carried out previously, researchers took different studies by focusing on rural ecotourism which is different from previous research.

2 Methodology

This study utilizes bibliometric methods to analyze the literature and identify the main themes and concepts. It also looks into the various research gaps from facts in the field [9] [10], [11] [12]. Apart from that, bibliometrics is very commonly used by researchers to reveal the evolution of research in a particular field [13] while also observing research trends and their contribution to the development of research topics carried out by researchers [14]. The steps in carrying out bibliometric analysis include several things. First, look for the most relevant data sources according to the keywords to be searched to identify and find the most frequently cited articles. Second, search for relevant author analyzes to identify the most influential publications. The study also looks into the affiliations of the authors and the most prominent institutions in the discipline. It determines the most productive nations in the world when it comes to generating scientific output. Fifth, it identifies the emerging trend topics and themes that piqued the interest of researchers. [9].

Data collection was carried out through the stages of searching for articles with the keywords ecotourism OR greentourism AND rural in the Scopus database. Use the Boolean "OR" and "AND" to obtain articles with a wider scope as material for searching articles that will be reviewed thoroughly by the author and ensure that the publications collected are in accordance with the research objectives. The reason for collecting data is sourced from Scopus because the data sources provided are complete , there is a wide range of data [15]. Another reason is that Scopus provides an opportunity for researchers around the world to
access data from study results in all countries, including developing countries, which is very useful for researchers in developing countries to publish on Scopus. [16] [17] and can meet the need to analyze co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation [18]. From this search, 434 documents were found. The data was then sorted only into social sciences. This sorting was carried out for the reason of looking for data that was relevant to the researcher's scientific field, there were 304 documents. Then the manuscript was limited to articles only, 288 documents were found. Furthermore, the documents were limited to only those in English, data was obtained for 265 documents. The next process limited the documents to only journal form, there were 264 documents. Furthermore, document searches were limited to open access articles and found 119 documents. The screening process flow uses a Prisma diagram [19] [20] as can be seen in Figure 1.

Fig. 1. The flow of screening process using PRISMA diagram

Before analysing data on 119 documents, the steps taken were to match keywords that were almost similar, re-matching the author's name with the help of the open refine application. Next, data analysis was carried out using Vos Viewer, Data wrapper and Excel to describe and describe the results of the analysis regarding the frequency and distribution of keywords that frequently appear, the development of the number of studies, the number of citations, authorship, and the country of origin containing the articles with the highest number of citations.

3 Discussion and Result

The development of research discussing ecotourism and rural tourism as shown in Figure 2 shows that research interest began in 1999. Campbell's article, which was cited 159 times, raised the development of ecotourism in Ostional, Costa Rica, and its potential benefits for local communities. The research results show that four percent of Ostional households feel the impact of tourism as a source of income and the added value obtained is greater than other sources of income, however, local community awareness of employment or investment opportunities is still limited so formal planning or intervention is needed to increase their involvement in exploiting the potential and developing tourism in a sustainable manner [21].
These findings inspired subsequent researchers on the topic of ecotourism and rural tourism. Research developments have fluctuated since 1999 and increased again in 2019. Landscape aesthetics research has begun to attract attention and has become increasingly appreciated and popular in the last few decades. There are two main reasons for this. On the one hand, there is recognition of the role of landscape aesthetics in land use and environmental planning, management and conservation [22]. On the other hand, Cultural Ecosystem Services (CES) has changed the view that landscape aesthetics has a significant impact on human well-being and there is a need to study it [23]. Research published in the same year was also carried out by Dax, T. The focus of the study was on learning from successful initiatives in the Alps that encourage and strengthen the development of agrotourism activities in the Alps. Consequently, agrotourism is considered a positive initiative and contributes to mitigating out-migration from mountainous areas in an effort to realize sustainable development for future generations in the Alps and rural China. [24]. Villanueva et.all research focuses more on the influence of rural tourism on the environment [25]. The increase in the number of studies reached its peak in 2020. Several researchers who conducted studies include [26] which discusses entrepreneurship in rural tourism development through a bricolage framework for micro-enterprises in tourist areas. A study of stakeholders in rural tourism [27], [28]. Next, L. Khartishvili, et.all and S. Arintoko, et.all discusses the implementation of the concept of community based tourism in the Borobudur Tourism village area, Indonesia [29], [30]. The interesting thing in 2023 is that research will be carried out S. Hussain, et.all which studies smart rural mobility and tourism. The impact of technological developments and their use has a positive influence on the development of rural tourism [31]. The following figure 2 shows writing trends from year to year from 1999-2023.

![Fig. 2. Documents by year, Source: Scopus Analysis](https://example.com/fig2.png)

Judging from the research topics studied from 2018 - 2023, there are 7 clusters, including cluster 1, namely nature-based tourism, over tourism, resilience, rural tourism, and industrial tourism. Cluster 2 consists of community-based tourism, local communities, rural development, smart tourism, and smart planning. Cluster 3 consists of: landscape, rural areas, tourism, and tourism development. Cluster group 4 consists of: cultural heritage, development, and ecotourism. Meanwhile, cluster 5 consists of cultural tourism, environment, and rural tourism. Meanwhile, community, rural and sustainable tourism are included in cluster 6. Finally, agritourism and entrepreneurship are included in cluster 7. The grouping of cultural heritage, development and ecotourism shows that sustainable tourism contains economic, environmental, and socio-cultural aspects. The concept of sustainable...
tourism is tourism activities that are formulated in a planned manner for the long term, has clear, specific and measurable goals. When tourism activities take place they do not cause environmental damage, waste management and reuse, respect social and cultural values and increase added value for the community [32]. In the rural tourism cluster, the studies discussed are related to the environment. Rural tourism is a form of community-based tourism that has the potential to be developed with support from stakeholders, which can be a solution for creating jobs and contributing to environmental resilience [33]. Sustainable rural tourism development has become the most popular research topic in 2020-2021. Rural tourism as a form of integration of various business sectors and rural revitalization plays an important role in achieving integration between rural and urban development [34] [35] by involving community participation [36], [37]. Case studies conducted X, Liu, et.all depicting Rural revitalization carried out through the transformation of local elements with contemporary language and created in the form of environmental, cultural and historical graphics of rural heritage can become a tourist attraction [38]. Apart from that, Collaboration is needed in rural tourism management to measure and monitor the ongoing rural development process and achieve common targets [39].

Sustainable tourism according to K. Leković, et.all It's not just about having activities, it must be able to maintain the level of tourist satisfaction [40]. Innovation is needed in its development [41], [42], [43]. Influencing factors include identification of tourism destination image components in both destination management and marketing. Apart from that, leadership figures, both formal and informal, also influence the formation of community-based rural tourism development models [44] [45] The study of this field can be seen in Figure 3 below which shows the division of research topic clusters based on author keyword searches. Images can also be accessed via link https://tinyurl.com/2c9t3zjx

**Fig 3. Development of rural ecotourism studies**

Based on the findings of the top 15 most cited authors, it can be seen in Figure 4. Saxena et.all article discusses integrated rural tourism (IRT). The development of this tourist village refers to trends in tourism demand. Villages not only produce agricultural production but can be developed and linked to new socio-economic activities by combining tourism, production, food consumption and e-commerce. The IRT concept connects a network of potential resources, both economic, socio-cultural and environmentally more sustainable [46]. Muresan et.all studied the factors that influence sustainable tourism in rural areas. The results of the study show that the natural, economic and socio-cultural environment as well as infrastructure, age, gender and education are factors that influence sustainable tourism
development [46] Campbell L.M's writings which pioneered the study of rural tourism, followed by Murray A and Kline C's writings which discussed the influence of brand loyalty on community relations, customer satisfaction and the desire for unique rural tourism products. The implications for MSMEs in rural areas, destination management organizations, as well as marketing and development strategies [47] Next, the research results of Jepson D and Sharpley R with a total of 115 citations. This research discusses spiritual and emotional experiences while in rural tourism. It turned out that visitors' involvement in physical activity and being in the village had an effect on emotional responses [48] [49]. Then there is an article that discusses the impact of tourism on women's empowerment. Research findings reveal that cultural factors are still an obstacle to optimizing benefits for women's empowerment [50]. The author with the highest number of citations can be seen in Figure 4 below.

![Cited by author chart]

Fig. 4. Cited by author.

Judging from the country of origin, authors who are productive in writing studies on ecotourism and rural tourism can be seen in Figure 5 below. Almost all continents around the world have writers who discuss this matter. The largest number of authors come from China, followed by the United Kingdom, Italy, Indonesia. The journals that published the most articles were MDPI with 60 articles, Routledge with 10 articles, MDPI AG with 9 articles and Editura Universiteit din Oradea with 7 articles. Based on these findings, the opportunity to write a study on rural tourism in developing countries where most of the population is agrarian is still possible. Meanwhile, journals that can be used to publish articles can refer to the 4 publishers above.
Researchers carry out studies not only on a single basis. There is a connection between countries in writing articles as can be seen in Figure 5 and can be accessed via the link https://tinyurl.com/22vsrmxc. Cluster 1 contains China, Italy, Mexico, Romania, Serbia, and the United Kingdom. Cluster 2 is Poland, Portugal, South Africa, and Spain. Meanwhile, cluster 3 includes Hungary, India, Indonesia. Cluster 4 consists of Canada, Iran, Turkey. Cluster 5 is Austria, Sweden, United States. Based on the bibliography according to country of origin, the first cluster is very influential in writing about rural tourism.
The results of the analysis of co-citation and cited authors with a threshold of 12 found 6 clusters. An image of the co-author's cited can be seen in Fig.6 and can be accessed via the link https://tinyurl.com/23o2qcsr. Authors who are often quoted include Hal C.M. Lane, B., Ciolac R., Belligiano, A. Among these names, names from developing countries have not emerged so that there are still opportunities for writers from developing countries who can collaborate with researchers who have been widely cited. Collaboration can also be carried out to compare ecotourism development in rural areas between countries.

4 Conclusion

The conclusion from the literature study on ecotourism and rural tourism shows that the increase in the number of research on this theme from 2019-2023 discusses more about rural tourism and sustainability. Based on the identification of the authors with the highest number of citations, the names Saxena, G. et.all, Muresan, et.all, Campbell, L.M., Murray, A., and Jepson were the references for the researchers. Research interest in studying ecotourism in rural areas is mostly carried out by researchers from China, Italy, the United Kingdom, the United States, India, Indonesia, Romania, and several other countries in 5 clusters. Based on bibliography author search, is a pattern of relations between countries which consists of 6 clusters and is relevant for developing writing according to this field of study. From the results of the analysis of this research topic, the most significant research developments to be developed in the future include rural development by utilizing information technology, empowering women in managing integrated tourism villages, and sustainable tourism development strategies by fulfilling the prerequisites for respecting cultural values, environment and economic improvement with support from stakeholders. This research also found the importance of research collaboration between countries by inviting developing countries, which are mostly based on agriculture, to obtain best practice models for sustainable tourism village management.
References


