

# Sustainable Ecotourism Development and Community Involvement: A Bibliometric Analysis on Research Trends (2003 – 2024)

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## Abstract

With the growing focus and recognition of ecological preservation all over the world, the concept of ecotourism is becoming popular, but the challenges it brings to the sustainable development in environment cannot be neglected. Therefore, to resolve such challenges, there is a need to conduct a thorough examination of how this field is evolving along with the review of the extant literature in the field of ecotourism. Besides, there is also a need to discuss the key issues to determine future research directions. To achieve this, a bibliometric review is performed to assimilate knowledge from a total of 149 journal articles listed in the Scopus database and published between 2003 and 2024 to analyse. Moreover, this study uses scientometrics tool to conduct a systematic review of research and development on ecotourism. The analysis involves network visualization and scientific mapping analysis which was created using open-source data visualization tool called VOSviewer. The study attempts to bring light on three research streams in the field: sustainable tourism, ecotourism development, community-based tourism. Furthermore, this study provides theoretical recommendations for future researchers on study related to sustainable ecotourism development.

## Keywords:

Bibliometric analysis, ecotourism, sustainable development, community involvement, challenges, publications, national parks.

## **1 Introduction**

The recent upsurge in tourism industry has caught the global attention (Geng et al., 2020b). In words of Nematpour and Khodadadi (2021), tourism can be viewed as an activity that contributes towards community empowerment and economic growth. Nevertheless, conventional tourism is largely based on exploiting tourism resources, thus causing a myriad of societal and environment challenges. Consequently, it has led to paradigm shift towards focusing on tourism industry's role and obligation towards fostering the idea of sustainability (Geng et al., 2020a; Khan et al., 2021; Zhao, 2021). Oh et al., (2019) stated that the undesirable outcome arising from the conventional mass tourism has given rise to alternative forms of tourism that necessitates all stakeholders to share responsibility both socially and environmentally.

Today, sustainability has emerged as one of the influential topics in every discipline (Pahrudin et al., 2022). The 5P theory proposed by Mordeson and Mathew (2020) provides a conceptual framework for sustainability and focus on prosperity, people, planet, peace, and partnership. Additionally, sustainable tourism, as an application of the idea of sustainability in tourism, refers to a specialized form of tourism that encompasses the present and future economic, social, and environmental impacts, thus promoting positive interactions among them and is targeted to meet the ecological needs, protect the environment, and foster economic and social progress (El Archi et al., 2023, Tang et al., 2023).

## **2 Literature Review**

Although, the concept of ecotourism as the subset of alternate form of tourism has started to gain attention in academic literature since late 1980s, it is an evolving concept and a recent form of nature-based tourism that promotes the well-being of the local community, focuses on protecting the environment as well as provides satisfying experience to the tourists (Ceballos-Lascuráin, 1996; Higgins, 1996; Orams, 1995). Due to this, ecotourism practices can lower the adverse effects of mass tourism (Dimitriou, 2017; Fang, 2020). Moreover, since all the alternative forms of tourism follow the core notion of preservation of natural resources as well as local culture, the idea of ecotourism is to ground an equilibrium between economic gains and socio-environmental effects in a nature-based destination. (Kalpita, 2018). Furthermore, ecotourism as a topic of inquiry in the tourism domain has begun to gain traction as well as attracted the attention of academicians and practitioners (Weaver & Lawton, 2007).

As the concept of ecotourism evolved and matured in the field of research, numerous scholars have put forward different criteria and conceptualizations for standardizing this emerging phenomenon (Sirakaya et al., 1999; Wight, 1993). Lee and Jan (2019) assert that ecotourism involves traveling to natural destinations ensuring minimal human impact while gaining insights on wildlife, local cultures, and appreciation of nature for safeguarding the environment. While the primary goal of ecotourism emphasizes the long-term sustainable development of a destination (Whitelaw et al., 2014), it encompasses the conservation of natural resources, income generation,

promoting educational initiatives, improving local participation, and paving ways for social benefits such as infrastructure development and boosting local economies (Ross & Wall, 1999; Krüger, 2005; Coria & Calfucura, 2012; Ardoin et al., 2015; Valdivieso et al., 2015; Oladeji et al., 2021). Apart from this, ecotourism has the ability to uplift rural wealth and eradicate poverty in developing countries (Snyman, 2017; Zhong & Liu, 2017), and can considerably boost the local economy of a destination, if planned properly (Deery, Jago, & Fredline, 2012).

Focusing on protected areas, studies have shown that in countries where the tourism planners work for sustainable tourism growth are actually ensuring a long-term sustainable ecotourism model (Buckley et al., 2008). Moreover, local communities' active participation is also very much essential for sustainability in ecotourism (Nunkoo & Gursoy, 2012). In light of this, it has become necessary to re-examine the future development prospects in the field of ecotourism and to explore different ways in which stakeholders and especially government agencies can devise suitable and fitting policy frameworks for ecotourism growth without comprising on environment and local residents' livelihood outcomes. Besides, it is also important to draw pertinent information on ecotourism from the extant literature in order to comprehend the research progress and ground issues, identify challenges to bring out suitable methods and direction for future researchers of ecotourism.

The past studies on ecotourism have attempted to shed light on research patterns in this fast-evolving area (Weaver & Lawton, 2007). Weaver and Lawton (2007) further provided a holistic appraisal of the present status and prospects of present-day ecotourism research, beginning with the bonds between supply and demand in ecotourism, as well as the crucial areas such as quality assurance, industry dynamics, external environment, and institutional frameworks. While conducting a literature review on nature-based tourism, Ardoin et al. (2015) examine the impact of nature-based tourism on people's ecological understanding, attitudes, behaviour, and meaningful research in the future. Niñerola et al. (2019) have used the bibliometric method through VOSviewer to study the existing papers on sustainable development of tourism from Scopus between 1987 and 2018, including literature environment and development trends. Shasha et al. (2020) have also used bibliometrics and social network analysis to assess the progress of research on ecotourism from 2001 to 2018 using Web of Science database through tools like BibExcel and Gephi and explored the current popular studies and methods of research on ecotourism. Although, the review provided substantial information on ecotourism, it could not reflect the recent research trends and development of ecotourism due to limitations in data timeliness, research themes or methods used.

In light of the above, the current study aimed to identify and analyse the scientific literature with a bibliometric review on key publications, themes and draw an insight on new directions in the field of ecotourism. To fulfil the objective, articles published in Scopus database from 2003 to 2024 (till March) were selected, analysed, and included in the results to provide further insights into the emerging trends. In particular, it is deemed to be imperative to keep abreast with the fast-expanding body of knowledge

since new findings from diverse fields can acutely influence our past acquired knowledge and understanding regarding the phenomenon (Chen et al., 2012, 2014a). Further, the current paper employs scientometric method to conduct a bibliometric analysis of different perspectives on sustainable ecotourism and community involvement. The suitability of this method in the current context is justified by Chen et al. (2012), who assert that scientometrics is a branch of informatics that focuses on identifying new patterns and knowledge frameworks in a selected field of study through quantitative analysis of scientific literature. Science mapping tools use scientometrics and visual analysis tools to provide a set of scientific literature for network of visual representations of complex structures. This highlights potentially important patterns and trends in the study area for statistical analysis and visualization exploration (Chen, 2017). Scientometrics is currently being employed extensively in various research domains, and scientists and analysts use a wide range of scientific mapping software such as: VosViewer, SCI2, HistCite, Sci MAT, Gephi, Pajek, and CiteSpace (Chen, 2011, 2017; Chen et al., 2012).

To sum up, the researchers analysed: (1) the collaborative networks of authors in the study area focusing on their collaborations and delineating their general characteristics globally; (2) the leading and influential authors, journals, and countries within the field, through which the research directions and categories are forecasted to help future researchers in having valuable knowledge; (3) the current hotspots in the selected field and determine the future trends based on the co-occurred keywords ; (4) based on the above analysis, a theoretical knowledge framework is established to provide a comprehensive and multi-dimensional overview of sustainable ecotourism research, and discuss the current challenges and future research directions.

The current study reviews pertinent data from past literature to address the following research questions (RQ) (Table 1):

Table 1: Research questions derived from literature analysis on Sustainable ecotourism, Community involvement, and National Parks

	<b>Research Question</b>	<b>Objective</b>	<b>Motivation</b>
RQ1	Which authors are the key contributors in influencing the research on sustainable ecotourism development and community involvement around national parks globally?	To identify the leading factors contributing research on sustainable ecotourism development and community involvement at global level	To enable better understanding of the scientific leadership in sustainable ecotourism development, community involvement, and national parks
RQ2	What are the main topics that are researched on sustainable ecotourism development and community involvement in the context of national parks?	To exhibit what kinds of topic draw maximum attention of the researchers	To identify what topics are the cornerstones of the scientific research

RQ3	What is the potential scope for future researchers related to sustainable ecotourism development and community involvement with a focus on national parks?	To know the possible scope for the researchers in future	To help the scientific community with future research directions
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### 3 Methodology

#### 3.1 Database, Sources, and Search Criteria

In any bibliometric research, the first step is often to determine on the suitable database to be utilized to retrieve the admissible documents (Sweileh, 2020). In the current study, Scopus was used to fulfill the objective of the study. The reasons for selecting Scopus as database are: (1) Scopus offers extensive academic literature from various fields; (2) Scopus has been widely relied upon in academia for providing access to quality and credible sources; and (3) Scopus allows researchers to filter and efficiently find desired results. It is an online search engine which includes abstracts and citations from approximately 14,000 scientific journals, offering comprehensive coverage like the ISI Citation Indexes for primary, serial, and peer-reviewed literature (Moed, 2005). Simultaneously, Jacso (2005) argues that Web of Science (WoS) and Scopus offer powerful functionalities for browsing, searching, sorting, and saving data. Thus, in order to ensure the accuracy of search and precise analysis of results, the researcher followed strict guidelines during the search process; the keywords entered to retrieve formation on the search page on Scopus database were: "ecotourism" OR "eco-tourism" OR "green tourism" OR "nature" OR "reserve" OR "sustain\*" AND "local" OR "rural" AND "livelihood" AND "national park" OR "protected area". The search strategy employed "OR" to identify either the major term or other relevant terms associated with the keyword. This is used to encompass all items which are linked to the searched topics, as explained by Borgohain et al. (2021) and Basumatary et al. (2023a).

The measurement of scientific connection progress can be made with the help of scientometric methods (Nalimov & Mulchenko, 1971). Using this method, growth and trends in research productivity can be measured along with the evaluation of several other characteristics of scientific research. It uses two primary methods to assess research publications: scientific mapping and performance measurement (Borgohain et al., 2021; Donthu et al., 2021; Basumatary et al., 2022). Moreover, VOSviewer is considered to be a reliable software that analyses bibliometric data and visualize the results using advanced preferences (Van Eck & Waltman, 2014).

The selection criteria strictly follow the latest PRISMA statement flow diagram which gives a clear view of documents under identification, screening, eligibility, and inclusion. Exclusions were made under each stage according to the limitation criteria (Figure 1).

### 3.2 Data collection

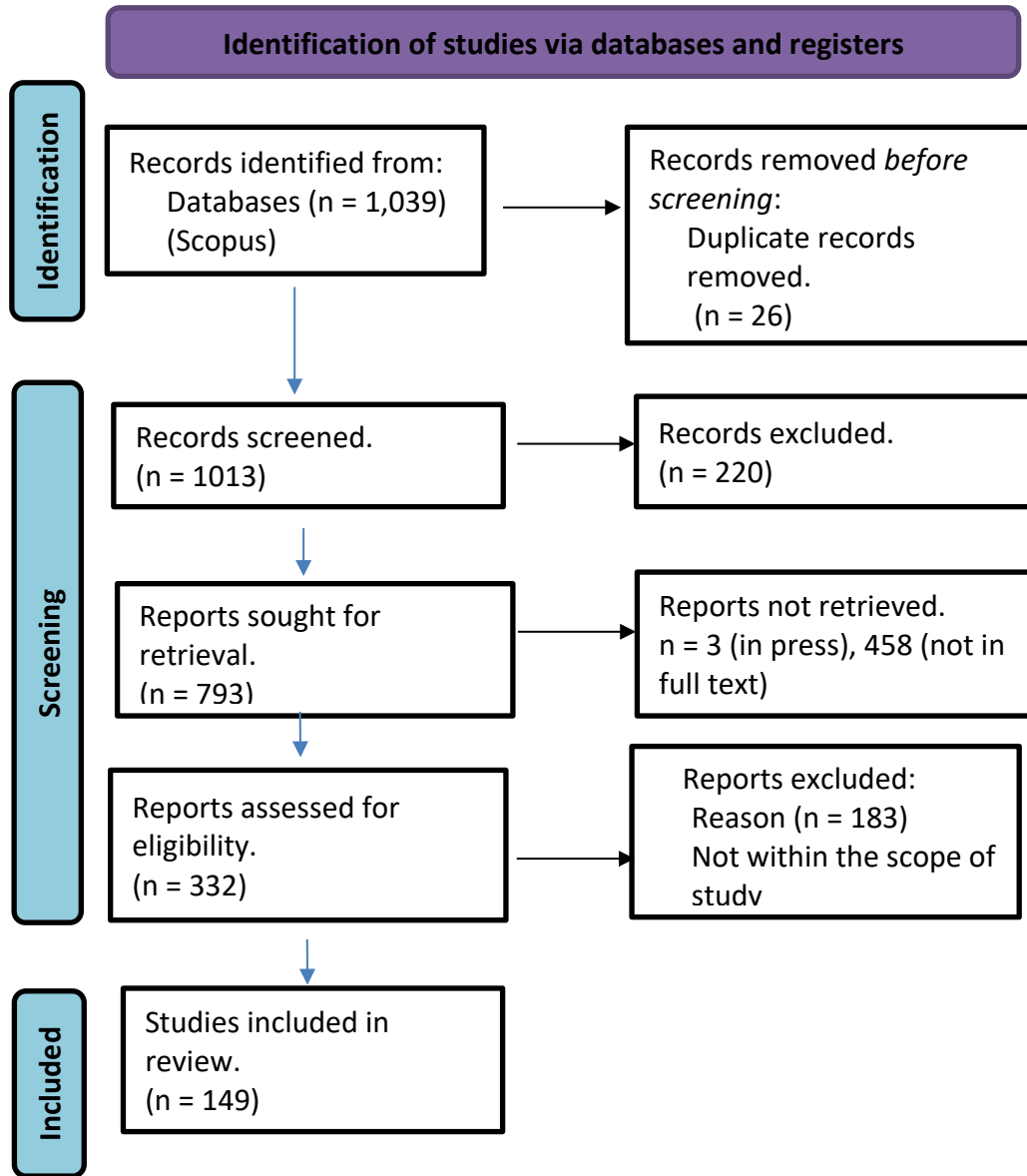


Figure 1: Prisma 2020 flow diagram (Source: Authors' work)

The year limitation, database, search string, language and document type were first established. There were total of 11 search strings ("ecotourism" OR "eco-tourism" OR "green tourism" OR "nature" OR "reserve" OR "sustain\*" AND "local" OR "rural" AND "livelihood" AND "national park" OR "protected area") searched in the Scopus database from year 2003 to 2024. The document types for the study are articles, review articles and book chapters only. The documents available other than in English language were not included for the study. Keeping in mind about all the data retrieval limitations (1039)

documents were recorded in the identification process. A total of (26) records were found to be duplicate, hence removed from the study.

Therefore, a total of (1013) documents were recorded for screening. In the next step, subject areas were filtered based on the relevance of study area which were confined to: Environmental Science (671) Social Sciences (378) Business, Management and Accounting (75), Economics, Econometrics and Finance (81) Arts and Humanities (0) Multidisciplinary (0) and a total of (220) records were either not available in English language or categorised in subject areas beyond the essential field. During the next screening process, a total of 793 documents were first screened based on availability as full text wherein, it was found that 458 documents were not available as full text, and (3) documents were still in press. In the final stage, 332 documents were recorded to check eligibility. After manually scanning the abstract and full papers, it was found that a total of 183 records were beyond the scope of this study and unsuitable as it did not capture primary areas such as National Park or Community involvement. Therefore, such articles were excluded from the study and eventually 149 documents were finalised for analysis. So, a total of 149 documents were included for further study. The documents are accessible as full text to download and to read online.

## **4 Findings**

### **4.1 Collaboration between Authors Mapping**

The presentation and analysis of the study results offered understanding on the most influential author in the field of Sustainable ecotourism development and community involvement around National Parks. He, Siyuan is found to be the most influential author in this field who has published the most research articles (6), whereas Milner-Gulland, E.J have received the highest number of citation impacts (139) and is the most active collaborator (Figure.2).

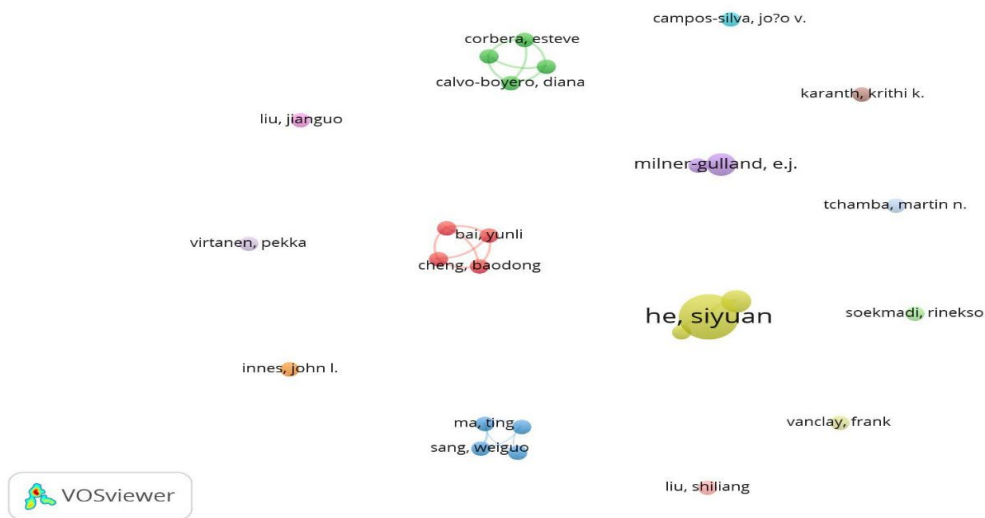


Figure 2: Collaboration network between authors (Source: Authors' work)

#### 4.2 Collaboration between Countries Mapping

Figure 3 displays presentation and analysis of the study results of highest cited countries in the field of sustainable ecotourism development and community involvement around National Parks.

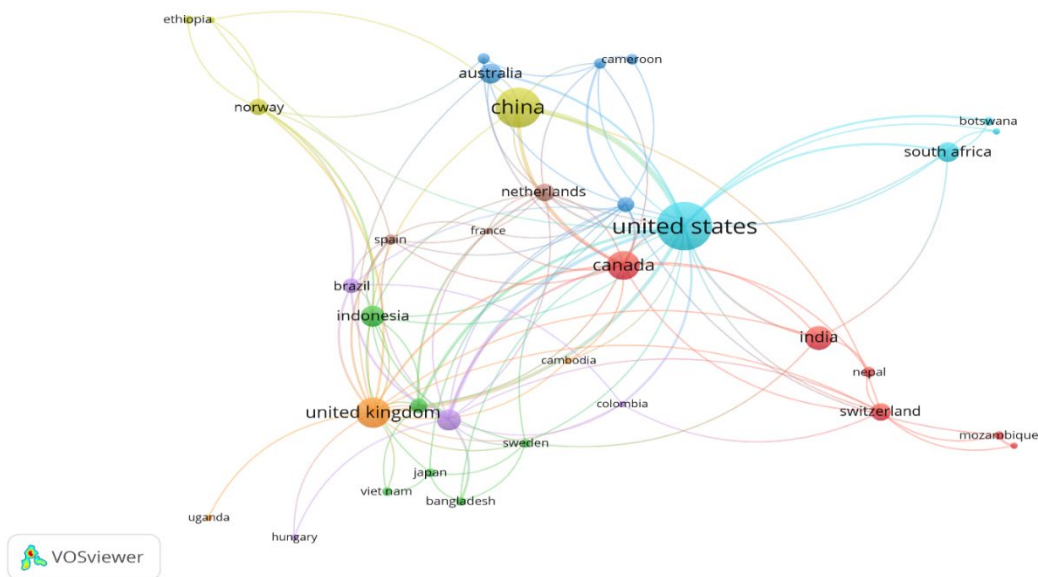


Figure 3: Collaboration network among Countries.

Altogether, 37 countries were vigorously engaged in research publications. Countries with minimum 2 publications collaboration were chosen for analysis and



visualization. A total of 28 countries with broad collaboration records were found in the network of VOSviewer (Figure 3).

### 4.3 Co-occurrence Network Mapping

Bibliometric mapping of the keywords used by the author was performed to acquire an in-depth knowledge of the conceptual structure (Rojas-Sánchez et al., 2023). The co-occurrence analysis is shown in Figure 4. Altogether, 119 unique keywords were found in the dataset. To visualize the occurrences of the most prominent keywords, a minimum number of occurrences of keywords were set as 2, and 10 keywords were found in the network (Figure 4).

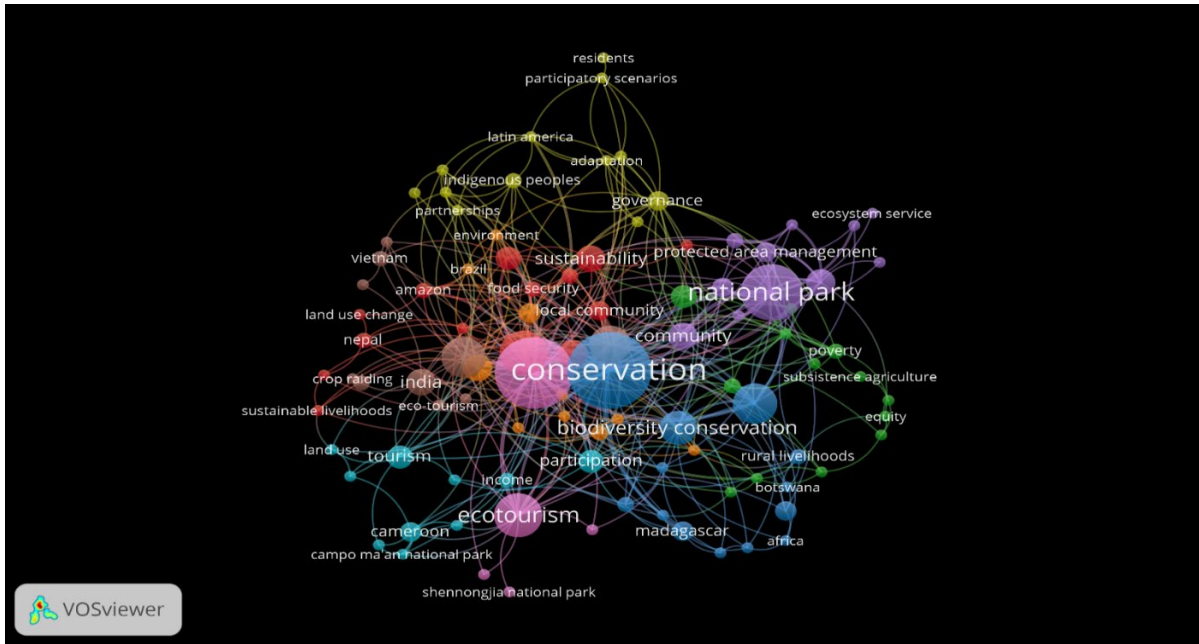


Figure 4: Co-occurrence of author keywords.

Based on the parameters of Scientometrics, the study explored current research trends on Sustainable ecotourism development and Community involvement with emphasis on National parks. For analysing the network of collaboration, authors with at least 2 collaborative publications have been selected. Among 617 authors, 26 have connections with other authors from different clusters (Figure 2). Although, there is no strong collaboration among authors, only 26 authors have 2 collaborative publications each. However, they are not in a single group or team, distributed in 14 research groups. This indicates a lack of collaboration among authors in this field and reflects the importance of having big collaborations and working in larger groups which can lead to more comprehensive contribution from authors representing diverse backgrounds, skills etc., as many fields of research currently are multifaceted and requires multidisciplinary approach. Greater collaboration among authors may enhance the quality and credibility of the work and can have higher impact than those with weaker collaborations, thus bring out more creativity and innovation. The size of the circles

represents the number of publications in the country, and the thickness of the lines depicts the size of the collaboration. For example, Australia has contributed 9 documents related to Sustainable ecotourism development and Community involvement around National Parks. Canada has contributed 16 documents on the same field. The total link strength (TLS) between Australia and Canada is 22. This TLS value of 22 indicates a relatively strong collaboration between Australia and Canada. It denotes that these two countries have actively collaborated on multiple research papers, co-authoring papers, or sharing ideas in this field. The higher TLS value reflects the level of their collaboration and their partnership strength.

Within the research area of sustainable ecotourism development and community involvement around National Parks, certain countries stand out for their significant contributions and extensive collaboration networks, while others fall behind. Leading countries like the United States, with 33 documents and 1,996 citations, and the United Kingdom, with 17 documents and 543 citations represent their prominence in this field. Their high total link strength (TLS) values of 41 and 25, respectively, represent their active engagement in collaborative efforts with other nations. Canada also emerges as a notable contributor, with 16 documents and 276 citations, reflecting its significant impact and strong collaboration with TLS value of 22. Conversely, countries like Ghana and Mozambique show limited research output and collaboration, as evidenced by their low TLS values of 0 despite publishing a few documents. These disparities highlight the importance of enhancing research capacity and promoting collaboration to address research disparities effectively.

The current study analysed the authors' keywords reflected in their respective literature on sustainable ecotourism development and community involvement around National Parks. By analysing the authors' keywords, insights into the current and emerging trends in the study area were gained. This information can then be utilized to provide direction to future research and identify areas that call for further investigation. Also, the analysis of keywords can help discovering novel research opportunities and identifying potential collaborators.

The keyword co-occurrence analysis reveals valuable insights into the thematic focus and interconnections within the research corpus. Notably, certain keywords emerge as main themes for research such as: "ecosystem services," "ecotourism," "livelihoods," and "protected areas" demonstrate significant co-occurrences, suggesting these topics are prominent areas of study and are often discussed together. This indicates a strong interdisciplinary network, where discussions around conservation, sustainable development, and community well-being overlap. Furthermore, the occurrence of keywords like "community," "local communities," and "tourism" highlights the importance of community involvement and tourism development in conservation efforts. The keyword co-occurrence analysis provides a comprehensive overview of the research environment, highlighting key themes, connections, and potential areas for further research.

To sum up, the bibliometric analysis conducted on sustainable ecotourism development and community involvement with an emphasis on National Parks presented several key findings such as the collaboration pattern of authors in the field which indicated lack of strong collaboration till date with evidence of low number of authors engaged in collaborative work. The increase in larger collaborative work with enhance the outcome and generate high quality research in the domain. The analysis also identified He, Siyuan as the most influential author. Additionally, Milner-Gulland, E.J emerged as the most active collaborator with highest citation impacts. Furthermore, analysis of collaboration among countries represented notable disparities as leading countries United States and United Kingdom have high total link strength value (TLS). Whereas countries like Ghana and Mozambique represents limited research output and collaboration indicating the need of capacity building initiative to bridge the gap of disparity and encourage collaboration. Finally, the analysis on author's keyword gives an insight into the current trends and emerging themes in the field which gives a deeper understanding of the research environment for future researchers to bring out and share their ideas for more collaborative research.

## **5 Conclusion**

The field of scientific publications is experiencing remarkable growth, necessitating more periodic assessments of research advancements, collaborative efforts, and intellectual framework around this area. Despite this expanding area, the evaluation of research is still relatively less. The current study aims to understand the amount of research progress, dynamics of author collaboration, and popular hotspot or emerging trends. It is through bibliometric analysis from 2003 to 2024 that this study has attempted to map out the structure and main themes embedded within research related to sustainable ecotourism development and community involvement around national parks. The bibliometric analysis discusses collaboration between authors mapping, collaboration between countries mapping, and co-occurrence network mapping. The results of the bibliometric analysis show that the most influential author in the field is He, Siyuan, and Milner-Gulland, E.J emerged as the most active collaborator with highest citation impacts. Furthermore, North America and Europe are leading in contributing significant number of documents, this implies potential for future researchers in these regions.

However, this paper like other research papers is not free from limitations. The use of solely one database (Scopus) may have resulted in exclusion of valuable insights, assuming that other academic databases (like Web of Science) may have contributed in equal terms to the range of results. The current study's temporal scope, involving the period from 2003 to 2024, is a limitation which suggests that future researchers may explore broader timeframes and deeper scrutiny.

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