

Public-Private Partnership for Eco-Tourism Development: A Bibliometric Review of Collaborative Frameworks

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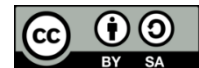
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ABSTRACT

This study presents a comprehensive bibliometric review of scholarly research on Public-Private Partnerships (PPPs) for eco-tourism development, with the aim of mapping the collaborative frameworks, research themes, and global trends that have shaped the field over the past two decades. Using data extracted from the Scopus database and analyzed through VOSviewer software, the study identifies key concepts, author and institutional networks, and geographic contributions that have influenced discourse on sustainable tourism partnerships. The co-occurrence analysis reveals dominant themes such as sustainable development, governance, tourism management, risk assessment, and environmental protection, while temporal overlay mapping highlights a shift from foundational governance-oriented studies to more recent emphases on innovation, investment, and climate resilience. Country collaboration networks underscore the central role of nations like the United States, United Kingdom, China, and Australia, while also pointing to underrepresentation in certain regions. The findings offer both practical insights for policymakers and private stakeholders in designing inclusive, efficient PPP frameworks, and theoretical contributions by highlighting evolving research clusters and interdisciplinary gaps. This study serves as a foundation for future inquiry and global collaboration in sustainable eco-tourism governance.

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1. INTRODUCTION

Eco-tourism has emerged as a transformative paradigm in sustainable tourism, prioritizing the conservation of natural environments, promotion of biodiversity, and socio-economic benefits for local communities [1]. Unlike traditional mass tourism, eco-tourism emphasizes minimal impact, environmental education, and cultural sensitivity, aligning well with global

sustainable development goals [2], [3]. As global awareness of environmental degradation and climate change intensifies, eco-tourism is increasingly seen as a viable strategy that integrates ecological preservation with community development, offering compelling value to stakeholders across sectors [4].

Public-Private Partnerships (PPPs) have gained traction as a mechanism to bridge

the gap between public sector mandates and private sector resources. In the context of eco-tourism, PPPs can align public stewardship of natural assets with private efficiency, investment capital, and marketing acumen [5], [6]. Governments can provide conservation mandates, regulatory frameworks, and access to protected areas, while private partners can bring in visitor infrastructure, service quality, and innovative financing. Thus, PPPs offer a multifaceted approach to sustainable tourism development, potentially delivering resilient, equitable, and scalable eco-tourism models [7].

Bibliometric approaches have become instrumental in synthesizing vast and growing literatures on PPPs and eco-tourism. By utilizing citation analysis, co-authorship networks, and keyword mapping, bibliometric reviews can offer an objective, data-driven perspective on research trends, influential authors, institutional collaborations, and thematic clusters [8]. Such quantitative mappings enable identification of emerging hotspots, intellectual structures, and geographic patterns in research—information vital for setting future agendas in eco-tourism PPP frameworks.

Despite the promise of both eco-tourism and PPP mechanisms, the convergence of these two domains in research remains under-charted. Eco-tourism studies often focus on ecological outcomes or community impacts, while PPP research tends to skew towards infrastructure or governance in sectors like transportation or energy [9]. Systemic reviews addressing both eco-tourism and PPP governance are sparse, leading to fragmented knowledge about how collaborative frameworks function in this niche. A bibliometric review focused on eco-tourism PPPs would thus fill a notable gap, guiding academics and policymakers toward integrated, evidence-based practices.

Moreover, the current global context, characterized by post-pandemic recovery, heightened attention to climate resilience, and evolving tourism consumer behaviors—adds urgency to rethinking eco-tourism through PPP lenses. Governments, tourism boards,

conservation NGOs, and private enterprises are exploring synergistic partnerships to rebuild tourism in more sustainable and resilient ways [10]. By mapping the knowledge landscape of eco-tourism PPPs via bibliometrics, this study seeks to inform effective design, governance, and practice of collaborative eco-tourism initiatives globally.

Nevertheless, a critical problem persists: there is currently no comprehensive bibliometric review explicitly analyzing the intersection of Public-Private Partnerships and eco-tourism development. As a result, there is limited clarity on the predominant collaboration models, thematic emphases, geographic concentrations, and influential actors in this domain. This lack of synthesized knowledge hinders the formation of coherent PPP frameworks tailored to eco-tourism development, ultimately weakening policy formulation, investment, and sustainable outcomes [11]. This study aims to conduct a rigorous bibliometric review of collaborative frameworks underpinning Public-Private Partnerships in eco-tourism development.

2. METHODS

This study adopts a bibliometric review approach to analyze the existing body of literature on Public-Private Partnerships (PPPs) in the context of eco-tourism development. Bibliometric analysis is an established method for quantitatively assessing the structure and dynamics of academic research by examining patterns in publication metadata such as citations, keywords, and authorship [12]. This approach is particularly suitable for mapping the intellectual landscape and identifying research gaps within interdisciplinary domains. By focusing on PPPs in eco-tourism, this study seeks to visualize and interpret the evolution of collaborative frameworks through co-authorship, co-occurrence, and citation networks.

Data for the analysis were retrieved from the Scopus database, which is widely recognized for its comprehensive coverage of peer-reviewed literature across the social sciences, environmental studies, and tourism

research. The search query used a combination of terms including "public-private partnership", "PPP", "eco-tourism", and "sustainable tourism", limited to article titles, abstracts, and keywords. The inclusion criteria were English-language journal articles published between 2000 and 2025. Conference proceedings, book chapters, and grey literature were excluded to ensure scholarly quality and consistency. After applying filters and removing duplicates, the final dataset was exported in .CSV and .RIS formats compatible with VOSviewer software.

All analyses were conducted using VOSviewer version [insert version here], a

specialized tool for constructing and visualizing bibliometric networks. The software was used to generate co-authorship networks (to identify collaborative patterns among researchers), keyword co-occurrence maps (to reveal dominant research themes and emerging topics), and citation networks (to identify influential studies and intellectual foundations in the field). The co-occurrence analysis utilized full counting with a minimum threshold of keyword frequency set at five. The resulting visualizations were interpreted to identify clusters, thematic trends, and potential research gaps.

3. RESULTS AND DISCUSSION

3.1 Keyword Co-Occurrence Network

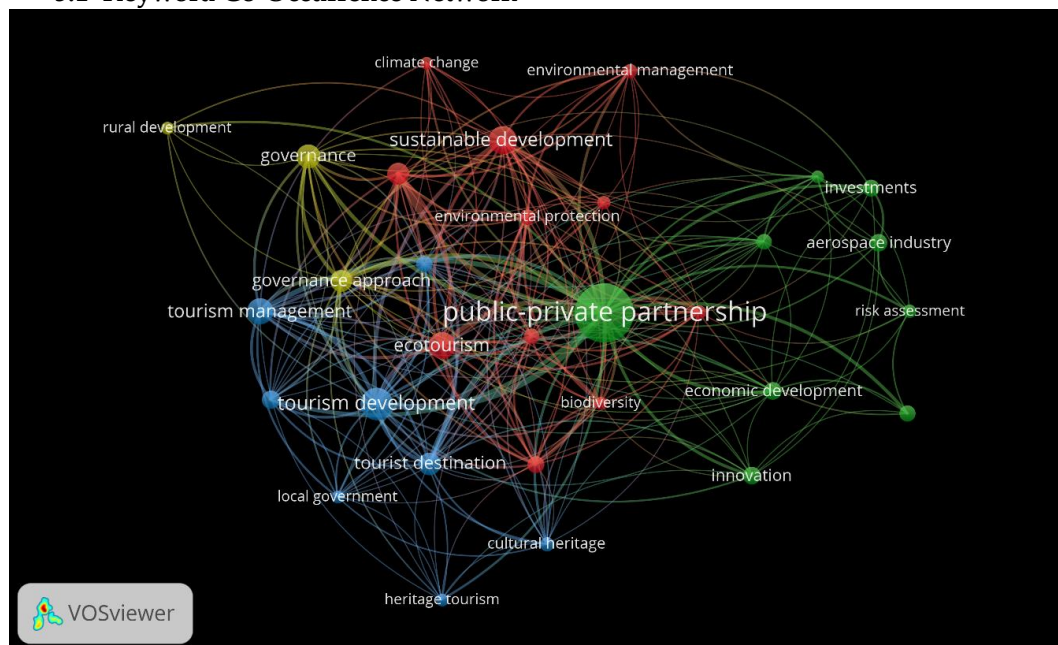


Figure 1. Network Visualization

Source: Data Analysis Result, 2025

The keyword "public-private partnership" dominates the bibliometric map, serving as the central hub that connects various thematic clusters. Its large node size and multiple linkages indicate its strong co-occurrence across diverse topics such as governance, tourism development, sustainable development, and economic development. This central position confirms that PPP is a pivotal research theme, functioning as a foundational concept in

literature spanning public policy, eco-tourism infrastructure, and sustainability implementation.

A prominent cluster, shown in blue, revolves around terms like "tourism development," "tourist destination," "heritage tourism," "local government," "tourism management," and "cultural heritage." These terms indicate a strong research focus on the implementation of PPP frameworks in tourism-centric areas. The co-

occurrence of "local government" and "tourist destination" suggests discussions about how decentralized governance collaborates with the private sector to develop infrastructure, preserve cultural assets, and promote sustainable tourism in specific local contexts.

Another dense cluster, in red, focuses on "sustainable development," "biodiversity," "climate change," "environmental protection," and "ecotourism." This cluster indicates the integration of environmental objectives within PPP-based eco-tourism projects. The close relationship between "public-private partnership" and "ecotourism" suggests a growing body of research on how collaborative governance models address both tourism and ecological preservation simultaneously. The presence of "climate change" also reflects a broader systemic lens on how eco-tourism is used to mitigate environmental degradation.

The green cluster, which includes terms such as "economic development," "investments," "risk assessment," and "innovation," reflects the financial and

strategic aspects of PPPs. This area of literature often examines cost-benefit trade-offs, private sector incentives, and financial models within eco-tourism partnerships. The connection between "innovation" and "economic development" underscores research that explores how PPPs are fostering new eco-tourism business models, including digital tourism platforms and impact investing.

A smaller but significant yellow cluster includes terms like "governance," "governance approach," and "rural development." This reflects a thematic strand exploring the regulatory and policy-making dimensions of eco-tourism PPPs, especially in rural or underdeveloped areas. Here, scholars are concerned with institutional alignment, stakeholder coordination, and regulatory frameworks that enable or hinder sustainable eco-tourism in remote or indigenous regions. The node "rural development" shows high connectivity with both environmental and tourism-focused terms, reinforcing the idea of eco-tourism as a tool for inclusive regional growth.

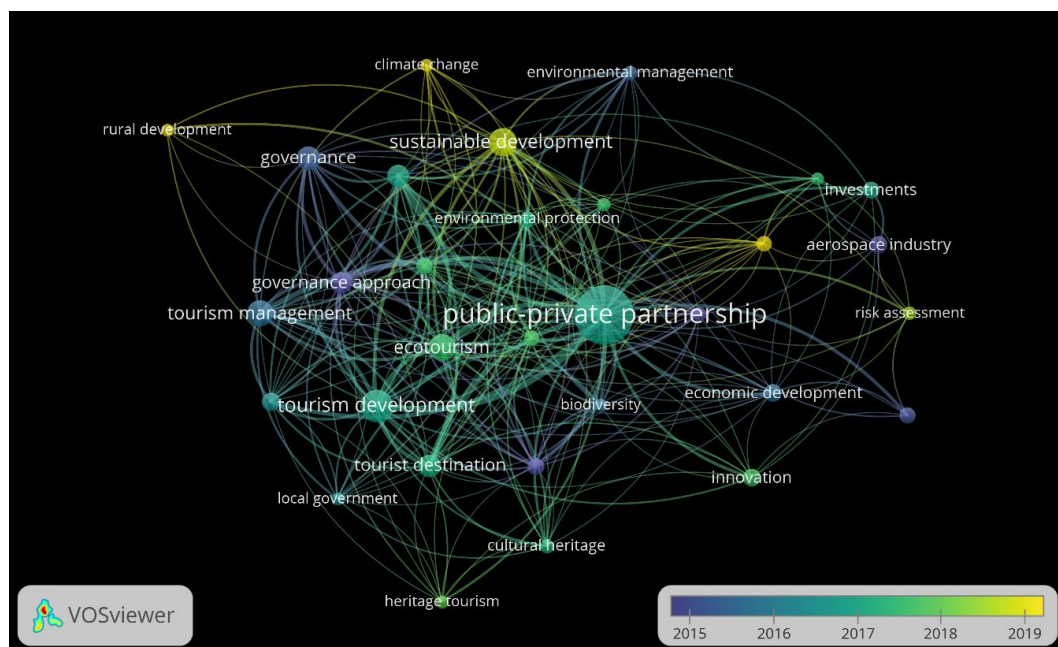


Figure 2. Overlay Visualization

Source: Data Analysis Result, 2025

The central keyword "public-private partnership" remains the dominant node, maintaining strong linkages across all clusters

and time periods, indicated by its balanced turquoise-to-green hue. This shows that the concept has consistently been a focal point of

research from 2015 to 2018. Closely associated terms such as “tourism development,” “ecotourism,” and “sustainable development” also display similar color gradients, reflecting their sustained presence in the scholarly discourse. Their moderate green coloration suggests that these topics matured in the middle phase of the examined timeline (2016–2018), signaling a growing interest in aligning PPP mechanisms with sustainable tourism outcomes.

Keywords shaded in yellow or light green such as “investments,” “risk assessment,” “aerospace industry,” and “innovation” represent relatively newer areas of research. These themes are gaining traction post-2018, possibly reflecting a shift toward financial modeling, risk governance, and cross-sectoral innovation in eco-tourism PPPs. The inclusion of “aerospace industry” may appear tangential but likely represents analytical spillovers or cross-sector

benchmarking in PPP governance models. These emerging terms suggest the literature is evolving beyond traditional destination development into technologically innovative and financially structured approaches to eco-tourism partnerships.

In contrast, keywords like “heritage tourism,” “local government,” “governance approach,” and “tourism management” appear in darker blue shades, indicating their early prominence in publications from 2015 or earlier. These terms reflect the foundational focus on administrative collaboration, cultural preservation, and early tourism planning within PPP frameworks. The earlier concentration on governance and heritage signifies that the initial stages of this field emphasized policy frameworks and local authority roles, laying the groundwork for more advanced financial, environmental, and technological integrations in later years.

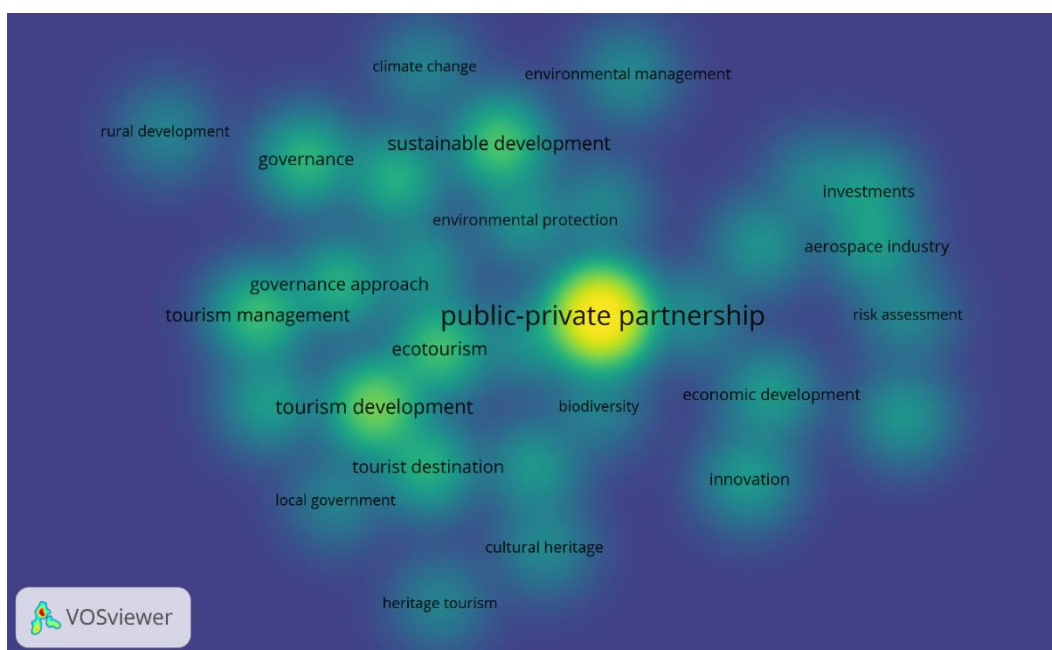


Figure 3. Density Visualization

Source: Data Analysis, 2025

Figure 3 reveals that “public-private partnership” is the most intensively studied keyword in the dataset, as indicated by its bright yellow color at the center of the map. Surrounding this core node are moderately dense (green-colored) terms such as “ecotourism,” “tourism development,”

“sustainable development,” “economic development,” and “tourist destination.” These keywords represent thematic concentrations that are frequently associated with PPPs in eco-tourism contexts, suggesting sustained academic attention to how collaborative governance supports tourism

infrastructure, environmental sustainability, and local economic outcomes. The density around these terms reflects their foundational role in scholarly discussions on sustainable tourism policy and public-private collaborations.

In contrast, peripheral keywords like “heritage tourism,” “aerospace industry,” “risk assessment,” and “rural development” appear in darker blue zones, indicating relatively lower frequency or co-occurrence in the analyzed literature. Although present,

these topics have received less bibliometric attention compared to the central cluster. Their positioning suggests emerging or niche areas within the broader discourse, offering potential avenues for future research. For instance, the lower density around “governance approach” or “local government” implies a gap in exploring institutional mechanisms at the micro-policy level, while terms like “innovation” and “investments” hint at growing, yet still underdeveloped, interest in financial and technological aspects of eco-tourism PPPs.

3.2 Co-Authorship Network

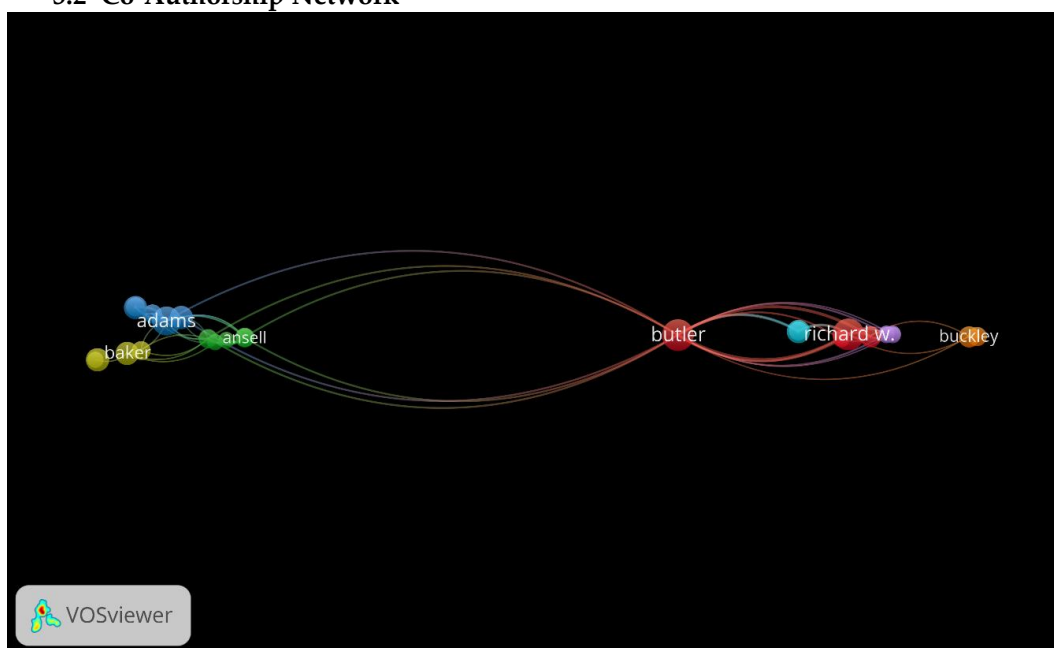


Figure 4. Author Collaboration Visualization

Source: Data Analysis, 2025

Figure 4 highlights a limited yet structured collaboration pattern among a small group of influential authors in the field of public-private partnerships and eco-tourism development. The visualization reveals two main clusters of authors, with Butler serving as a central bridging figure connecting the left cluster (comprising authors like Ansell, Adams, and Baker) to the right cluster (including Richard W. and

Buckley). The color differentiation and node positioning suggest that while these researchers are active in related thematic areas, their direct collaborations are concentrated and segmented. The relatively thin links between groups reflect low co-authorship intensity, possibly indicating parallel but distinct lines of inquiry or disciplinary boundaries within the broader research landscape.

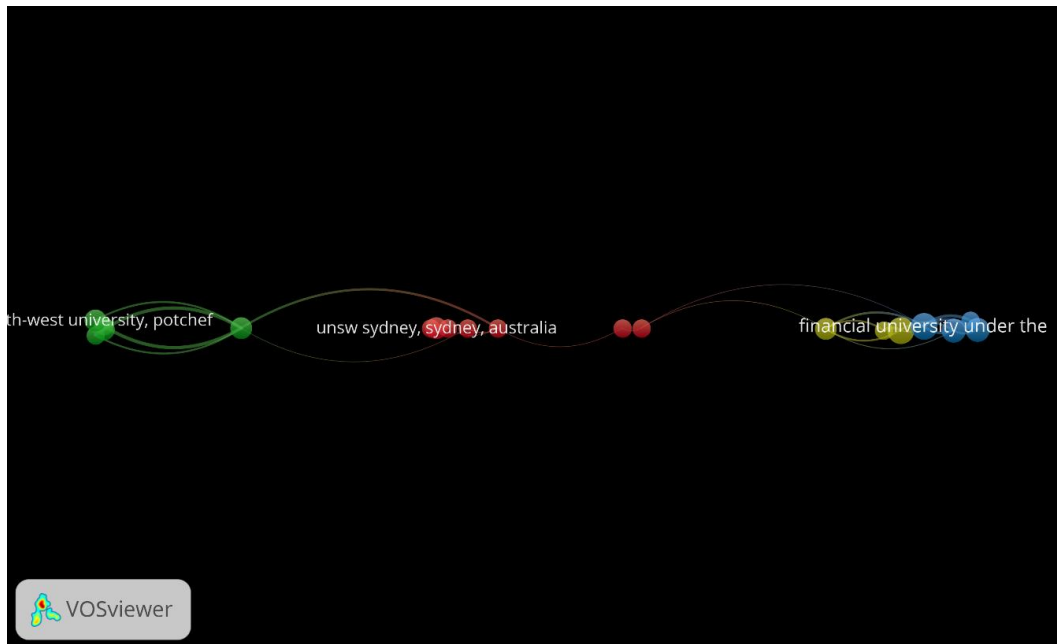


Figure 5. Affiliation Collaboration Visualization

Source: Data Analysis, 2025

Figure 5 illustrates a fragmented but linear collaboration network among a few academic institutions engaged in research on public-private partnerships and eco-tourism. At the left end, North-West University, Potchefstroom (South Africa) emerges as an active contributor, forming strong internal collaborations. It is modestly linked to UNSW Sydney, Australia, which acts as a middle-tier

connector in the network. On the far right, Financial University under the Government of the Russian Federation also forms a tight internal cluster, indicating regional cooperation within Russia. However, the overall structure reveals weak inter-institutional connectivity across countries, with only thin, indirect links between nodes.

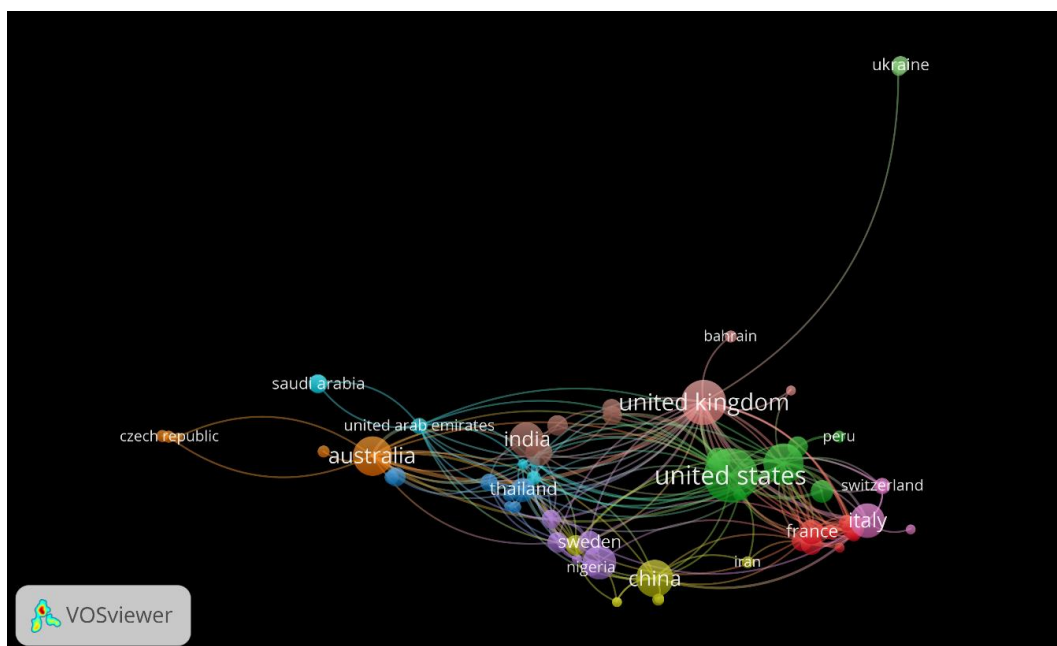


Figure 6. Country Collaboration Visualization

Source: Data Analysis, 2025

Figure 5 illustrates a dense and highly interconnected global network of co-authorship in the field of public-private partnerships and eco-tourism development. The United States, United Kingdom, and China emerge as central nodes, indicating their dominant roles as both prolific contributors and key collaboration hubs. These countries maintain strong bilateral ties

with other major research nations such as India, France, Italy, and Australia, forming a tightly knit core of global research exchange. Meanwhile, countries like Ukraine, Czech Republic, and Saudi Arabia appear on the periphery with limited connections, suggesting emerging or regionally isolated contributions.

3.3 Citation Analysis

Table 1. Top Cited Research

Citations	Authors and year	Title
502	[13]	Conquering the intolerable burden of malaria: What's new, what's needed: A summary
472	[14]	Advances and challenges in sustainable tourism toward a green economy
431	[15]	Policy networks and the local organisation of tourism
242	[16]	An integrated approach to sustainable community-based tourism
232	[17]	Patients without borders: The emergence of medical tourism
144	[18]	Tourism and governance in Turkey
135	[19]	Unintentional co-competition in the service industries: The case of Pyhä-Luosto tourism destination in the Finnish Lapland
131	[20]	A framework for an industry supported destination marketing information system
106	[21]	Event tourism governance and the public sphere
100	[22]	Public-private collaboration in the tourism sector: Balancing legitimacy and effectiveness in local tourism partnerships. The Spanish case

Source: Scopus, 2025

Practical Implication

This study offers several valuable practical insights for policymakers, tourism authorities, investors, and environmental organizations involved in eco-tourism development. By mapping the knowledge structure surrounding public-private partnerships (PPPs) in eco-tourism, the findings highlight the most influential research themes such as sustainable development, tourism governance, and stakeholder collaboration that can inform evidence-based policy formulation. The identification of co-occurring keywords like "risk assessment," "investments," and "local government" provides actionable knowledge for designing financing models, stakeholder roles, and governance structures that are both

inclusive and adaptable. Moreover, the network of country collaborations underscores the importance of cross-border learning and international benchmarking. Stakeholders in emerging tourism economies can emulate best practices from nations with established PPP frameworks, such as the United Kingdom, United States, and Australia. Finally, the study's visualization of author and institutional networks helps practitioners identify potential academic or technical partners for collaborative ventures in eco-tourism projects.

Theoretical Contribution

Theoretically, this study enriches the literature on eco-tourism and public-private collaboration by offering a comprehensive

bibliometric synthesis of research spanning two decades. Unlike traditional literature reviews, this study employs science mapping techniques (using VOSviewer) to uncover intellectual structures, research clusters, and thematic evolutions in the field. By doing so, it reveals how interdisciplinary domains—such as environmental science, public administration, tourism studies, and development economics—intersect within the PPP eco-tourism research space. One of the key contributions is the temporal overlay analysis, which shows a shift from heritage-based and governance-centric discussions (pre-2016) to more recent interests in innovation, financial modeling, and risk assessment. This trajectory signals the evolving nature of theoretical debates, from institutional and normative frameworks to performance- and technology-driven models of collaboration. The study also identifies gaps in author and institutional co-authorship networks, suggesting a lack of global epistemic integration, which is a novel theoretical insight into the fragmentation of academic discourse.

Limitation

Despite its strengths, this study has several limitations. First, the analysis is limited to the Scopus database, which, while comprehensive, may exclude relevant literature indexed in other databases such as Web of Science, Google Scholar, or regional repositories. This may result in partial representation of global research efforts, particularly from non-English-speaking or developing countries. Second, the study relies solely on bibliometric indicators and does not include qualitative content analysis of individual articles. As such, deeper theoretical arguments, context-specific findings, or case study nuances are not captured. Third, the co-authorship and institutional collaboration maps indicate connections based on publication metadata

but do not reflect the depth, quality, or outcomes of those collaborations. Finally, while VOSviewer provides robust visual analytics, the thresholds used for co-occurrence and citation frequency may inadvertently exclude emerging authors or recent contributions with lower citation counts. Future research could address these limitations through mixed-methods approaches combining bibliometrics with systematic literature review or meta-analysis.

4. CONCLUSION

This bibliometric review has mapped the intellectual landscape and collaborative dynamics of research on public-private partnerships (PPPs) for eco-tourism development, revealing a growing interdisciplinary interest that spans tourism management, sustainable development, governance, and environmental protection. By analyzing publication trends, keyword co-occurrences, co-authorship networks, and institutional collaborations, the study identifies core themes such as tourism infrastructure, stakeholder governance, risk assessment, and innovation as central to scholarly discourse. The findings also highlight geographic disparities in research contributions and collaboration, with countries like the United States, United Kingdom, China, and Australia occupying central positions in the global research network. Despite the observed fragmentation in author and institutional collaborations, the field is gradually evolving toward more integrated and financially sophisticated models of eco-tourism development. This study not only offers valuable insights for practitioners and policymakers aiming to implement effective PPP frameworks but also contributes to academic scholarship by outlining future research directions and revealing gaps in interdisciplinary integration and global collaboration.

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