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Article

Indigenous Knowledge and Sustainable Resource Management: A Bibliometric Review

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ABSTRACT

The centuries-old methods of Indigenous cultures can help us manage resources sustainably and live in harmony with the environment. This study aims to identify publication trends on Indigenous knowledge and sustainable resource management. The current bibliometric review employed Scopus and Web of Science (WoS) datasets and analysed using ScientoPy and VOSviewer to discover the publications' trends. The results of this review identified that the evolution of publications fluctuated and that the initiative to increase the research on this topic is crucial. Based on keywords analysis, this study found that "Ethnobotany" and "Climate Change" are used differently, highlighting the growing importance of Indigenous viewpoints in tackling modern environmental concerns and reflecting the dynamic nature of research goals. The international network collaboration indicated that a four-country collaboration exist where Indonesia had a strong network with England and Finland. Future Indigenous knowledge and sustainable resource management research should examine contextual factors that affect publication patterns to build on these findings. The causes of the highest publishing years and database discrepancies may be examined. A detailed analysis of research activity changes can help explain this field's research trend.

Keywords: indigenous knowledge, sustainable, ethnobotany, climate change, bibliometric.

RESUMO

Os métodos centenários das culturas indígenas podem nos ajudar a gerir os recursos de forma sustentável e viver em harmonia com o meio ambiente. Este estudo visa identificar as tendências de publicação sobre conhecimento indígena e gestão sustentável de recursos. A revisão bibliométrica atual utilizou conjuntos de dados do Scopus e Web of Science (WoS) e foi analisada usando ScientoPy e VOSviewer para descobrir as tendências das publicações. Os resultados desta revisão identificaram que a evolução das publicações flutuou e que a iniciativa de aumentar a pesquisa sobre esse tópico é crucial. Com base na análise de palavras-chave, este estudo descobriu que "Etnobotânica" e "Mudanças Climáticas" são utilizadas de maneira diferente, destacando a crescente importância das perspectivas indígenas para abordar preocupações ambientais modernas e refletindo a natureza dinâmica dos objetivos de pesquisa. A colaboração internacional indicou a existência de uma colaboração de quatro países, onde a Indonésia possui uma forte rede com Inglaterra e Finlândia. Futuras pesquisas sobre conhecimento indígena e gestão sustentável de recursos devem examinar os fatores contextuais que afetam os padrões de publicação para ampliar essas descobertas. As causas dos anos de maior publicação e discrepâncias nos bancos de dados podem ser examinadas. Uma análise detalhada das mudanças na atividade de pesquisa pode ajudar a explicar a tendência de pesquisa nesse campo.

Palavras-chave: dados conhecimento indígena, sustentável, etnobotânica, mudanças climáticas, bibliometria.

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Introduction

Centuries-old traditions and practices of Indigenous communities offer valuable insights into sustainable resource management, creating a harmonious relationship between humans and the environment (Gratani et al., 2016). Unlike conventional methods, their holistic understanding of ecosystems is developed through intricate observations over generations while intricately connected to the land (Stoeckl et al., 2021). For example, this knowledge is critical in conserving wild fish genetic resources and aquaculture production by improving fish seed development (Obiero et al., 2023). Moreover, it has been instrumental in reducing climate change impacts on vulnerable groups such as Indigenous Peoples and enhancing risk communication among disaster management practitioners and agencies alongside these societies (Khalafzai, 2023). Indigenous knowledge also affects organisational memory retention issues arising from erosion within traditional batik enterprises, which shows its impact on promoting innovation and facilitating sharing amongst social clusters (Kusumastuti et al., 2023).

Throughout history, Indigenous communities have thrived by skillfully balancing resource utilisation with preservation, drawing on their rich cultural heritage (Grey & Kuokkanen, 2020). These communities play a crucial role in safeguarding ecosystems and biodiversity through sustainable management practices incorporating the ecological intricacies of flora and fauna and social, spiritual, and cultural dimensions (Cornwell, 2020). Their traditional knowledge recognises the intricate interplay between humans and nature to maintain equilibrium for long-term ecosystem health. This invaluable expertise, rooted in various cultures, including Native American and African traditions, has been recognised as an essential field of science education, prompting updated educational curricula accordingly (Lachenicht, 2023).

In order to address current environmental issues such as climate change, loss of biodiversity, and depletion of resources, Indigenous knowledge must be included in the discourse on sustainable resource management. Indigenous perspectives provide different frameworks and adaptive techniques that have historically sustained ecosystems. Integrating Indigenous knowledge can help to develop more resilient and culturally sensitive ways to conserve and use resources (Shepard Jr & Daly, 2023). Indigenous knowledge can aid in the development of sustainable management methods as well as knowledge sharing and collaboration among communities (Shehwar, 2023). There are, however, hurdles and constraints to integrating Indigenous knowledge-based platforms, such as ethical considerations, knowledge ownership, and the requirement for technology infrastructure and skills (Flor, 2013; Shawoo & Thornton, 2019). Recognising common ground between Indigenous and scientific understandings of climate change might help to strengthen risk communication procedures and contribute to the reconciliation of divergent knowledge systems (Ban et al., 2018; Parsons et al., 2016). Incorporating Indigenous knowledge can result in more effective and fair resource management approaches that align with local requirements, cultural values, and ecological knowledge.

Grasping the academic sphere concerning sustainable resource management and Indigenous knowledge has grown significantly considering the ever-changing global challenges. Furthermore, the increasing significance of comprehending the academic environment is linked to the requirement for making decisions grounded in evidence. Rigid research is the foundation upon which policymakers and practitioners build their interventions and policies on sustainable resource management. However, prior research has not comprehensively explored the bibliometric review of Indigenous knowledge and sustainable resource management. Past studies have primarily focused on topics such as Comparative African Perspectives regarding Indigenous Knowledge (Malapane et al., 2022), natural resources and Indigenous communities (Mishra et al., 2021), researching Indigenous knowledge in Kenya (Kwanya & Kiplang'at, 2016) and exploring sustainable livelihoods for the Indigenous community (Syukron, 2021).

A bibliometric study quantifies field research output that can measure scholarly participation by counting publications, citations, and collaborations (Hafiar et al., 2024). This quantitative understanding underpins Indigenous knowledge and sustainable resource management research growth, intending to identify publication trends on Indigenous knowledge and sustainable resource management by investigating this crucial intersection's prevailing currents, configurations, and motifs. It seeks to elucidate universal academic inputs that endeavour towards minimising disparities between Indigenous knowledge and state-of-the-art modern techniques on resource application. The present study aims to address the following research questions (RQs):

1. RQ1: What has been the trend in the number of publications on Indigenous knowledge and sustainable resource management?
2. RQ2: Which keywords are the most used in the literature on Indigenous knowledge and sustainable resource management?
3. RQ3: How has collaboration among countries contributed to developing research on Indigenous knowledge and sustainable resource management?
4. RQ4: What are the top ten source titles actively producing Indigenous knowledge and sustainable resource management papers?

Methodology

Data sources

This study employed two widely known academic databases, Scopus and Web of Science (WoS), to collect pertinent publications on Indigenous knowledge and sustainable resource management. The specific reason for choosing these platforms was their extensive coverage across interdisciplinary journals, scholarly articles, and conference proceedings (Abdullah et al., 2023). In addition, Scopus and WoS are widely regarded as the most reliable and authoritative sources for peer-reviewed academic literature due to their stringent indexing criteria. These databases provide a higher level of quality control, ensuring that only credible and academically rigorous works are included. A precise search methodology using defined keywords was implemented to acquire accurate literature on Indigenous knowledge and sustainable resource management. A Boolean query comprised of terms as follows: ("Indigenous knowledge" OR "traditional knowledge" OR "local knowledge") AND ("sustainable resource management" or "conservation practices") exclusively targeted publications. The search was specifically conducted using both databases' titles, abstracts, and keyword fields to ensure comprehensive coverage. The datasets retrieved via Scopus and WoS were collected around November 2023 without being restricted to any languages.

Data analysis

Two bibliometric analysis programs, ScientoPy and VOSviewer, were used to examine the retrieved data thoroughly. ScientoPy was used to extract bibliometric data such as the number of publications published over time, authorship trends, and keyword co-occurrence. This tool thoroughly examines the bibliographic data obtained from Scopus and WoS (Ruiz-Rosero et al., 2019). The VOSviewer software was used to visualise and map the intellectual structure of the literature. This software makes it easier to identify clusters, trends, and links between keywords, authors, and publications (Orduña-Malea & Costas, 2021).

Data synthesis

By synthesising the bibliometric data acquired from ScientoPy and VOSviewer, an all-encompassing depiction of the academic domain of Indigenous knowledge and sustainable resource management was

produced. The synthesis process begins with examining and eliminating duplicate datasets, as detailed in Table 1.

Table 1. Preliminary data analysis

Information	Number	Percentage
Loaded papers	272	
Omitted papers by document type	23	8.50%
Total papers after omitted papers removed	249	
Loaded papers from WoS	104	41.80%
Loaded papers from Scopus	145	58.20%
Duplicated papers found	73	29.30%
Removed duplicated papers from WoS	1	1.00%
Removed duplicated papers from Scopus	72	49.70%
Total papers after removing duplicates	176	
Papers from WoS	103	58.50%
Papers from Scopus	73	41.50%

Source: ScientoPy

As shown in Table 1, the preliminary outcomes of the collected data comprise 272 unprocessed datasets acquired from publications on Scopus and WoS. As a result of the automated document-type filtration method, 23 publications, or 8.50% of the datasets, were excluded from this study. Initially, a total of 249 publications were identified prior to the implementation of duplicate elimination. A total of 73 duplicate entries (29.30%) were detected in this investigation, which included information from both databases. Eventually, 176 papers were evaluated and determined appropriate for incorporation into the ongoing study. Following the acquisition of pertinent datasets, the next stage is to analyse the results considering the stated research questions.

Results

This section highlighted the results based on the research questions constructed in this study. These questions furnish an organised framework, which directs examination into prevalent trends, patterns and disparities within previously published works interpreting Indigenous knowledge and sustainable resource management.

RQ1: What has been the trend in the number of publications on Indigenous knowledge and sustainable resource management?

The dynamic publication landscape on Indigenous knowledge and sustainable resource management is depicted in Figure 1. This landscape spans two prominent databases: WoS and Scopus. Based on the WoS database, the cumulative count of publications is 86, and observable patterns indicate a fluctuating cycle, with the number of publications counted being less than ten annually. Nevertheless, prominent peaks were observed in 2008, 2010, 2013, 2015, 2018 and 2010, indicating phases characterised by increased research activity.

Scopus exhibits a cumulative count of 62 publications, demonstrating a trend similar to the WoS database. In Scopus, there was a substantial increase in 2005 and a pinnacle in 2021. Both databases present a narrative of increasing interest in the subject, with intermittent discrepancies that could suggest changes in research emphasis or reactions to noteworthy advancements in the discipline. These patterns establish a basis for additional investigation, promoting a more meticulous analysis of years and the contextual elements that shaped them to discern the fundamental forces that shape the course of research in sustainable resource management and indigenous knowledge.

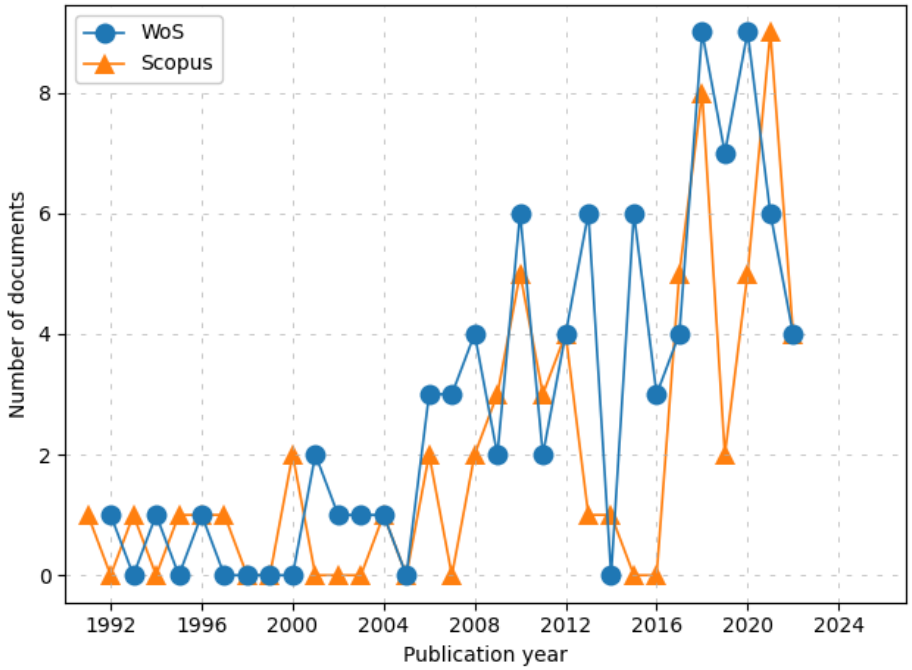

Figure 1. The trend in the number of publications. Source: ScientoPy

RQ2: Which keywords are the most used in the literature on Indigenous knowledge and sustainable resource management?

Analysing the top ten most utilised keywords by previous authors, as indicated in Figure 2, reveals critical thematic areas and their prevalence in the literature on Indigenous knowledge and sustainable resource management.

The most frequently employed keyword is "Indigenous Knowledge", which appears in 26 publications and emphasises the central focus on traditional wisdom. "Conservation" holds the second position with 20 mentions, underscoring the significant role of preserving natural resources. "Local Knowledge" and "Traditional Knowledge" follow closely, each with 15 and 14 occurrences, respectively, emphasising community-specific and longstanding knowledge systems. "Traditional Ecological Knowledge" is notable in its distinct usage in 11 publications.

Unique results emerge with keywords like "Ethnobotany" (9 occurrences), reflecting an intersection of traditional knowledge and plant use. "Climate Change" stands out with 29% of documents published in 2021 and 2022, emphasising the increasing relevance of Indigenous perspectives in addressing contemporary environmental challenges. The top keywords collectively illustrate a multidimensional approach to sustainable resource management, encompassing biodiversity, climate change, and preserving Indigenous wisdom. These

findings provide valuable insights into the thematic richness of the literature and suggest evolving priorities in recent years, particularly in response to pressing global issues.

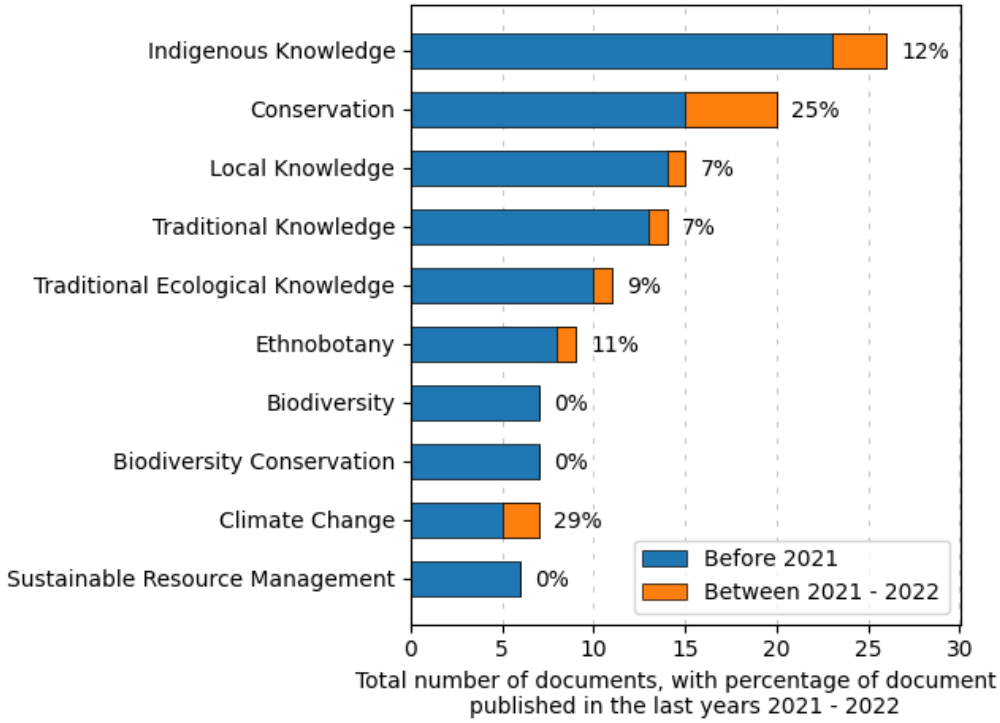

Figure 2. Top ten most used keywords. Source: ScientoPy

Comprehending the growth of keywords using overlay visualisation from VOSviewer is also crucial because it offers a broad perspective that allows us to understand the present state of research and predict future directions. Through this approach, we can identify the literature's dynamic trends and thematic shifts, providing critical new insights into the growth of keywords and topics (Abdullah & Sofyan, 2023). Figure 3 illustrates the overlay visualisation of the co-occurrence of authors' keywords. Information in Figure 3 emphasises that the most protruding keywords after 2016 were denoted in brighter colours, "traditional knowledge", "local knowledge", "biodiversity", "climate change", "conservation practices", "ethnobotany", "medicinal plants", and "ecosystem services". Notably, the keywords "ethnobotany", "medicinal plants", and "ecosystem services" have been trending since 2018. Examining the development of these fundamental ideas gives us a sophisticated picture of the changing environment, which empowers scholars to forecast future lines of inquiry and recognise new and essential fields in Indigenous knowledge and sustainable resource management.

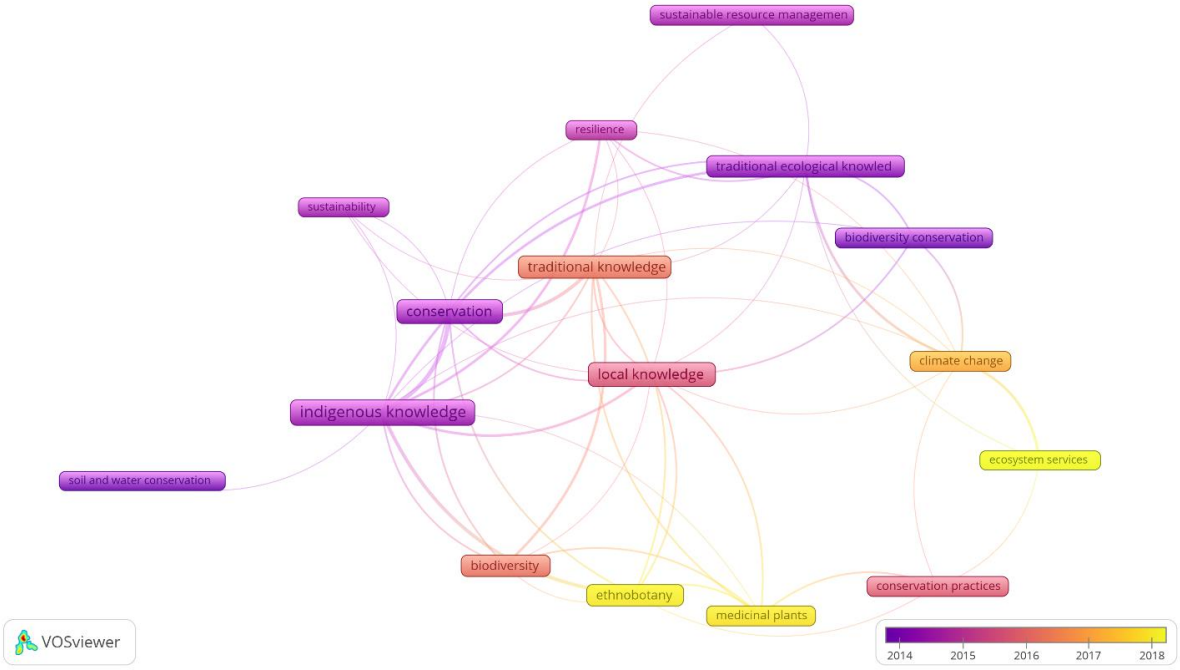

Figure 3. The overlay visualisation of the co-occurrence of authors' keywords. Source: VOSviewer

RQ3: How has collaboration among countries contributed to developing research on Indigenous knowledge and sustainable resource management?

Figure 4 depicts the 20 most active countries that participated in research concerning Indigenous knowledge and sustainable resource management. Examining the development of publications, as shown in Figure 4, which highlights the ten most active nations, provides insights into how Indigenous knowledge and sustainable resource management research is evolving.

With 28 documents, the United States leads the world in publications, demonstrating a steady and significant commitment to the discipline. Remarkably, 18% of these documents were released in 2021 and 2022, demonstrating their continued relevance and engagement. Canada comes in second with 14 publications; 50% were released over the last two years, indicating a considerable rise in activity and a renewed focus in recent years. India contributes steadily and consistently with 14 publications, while South Africa has experienced a significant increase in the percentage of documents released in 2021 and 2022, reaching 27%, with 11 publications. The United Kingdom, Germany, and Indonesia exhibit different degrees of participation, with 10, 9, and 9 publications, respectively, whereas Germany and Indonesia had no publications from the last time. Ethiopia and Switzerland show a significant proportion of documents published in 2021 and 2022, with 8 and 7 publications, respectively, suggesting a recent upsurge in research efforts. With some countries consistently involved and others showing a recent uptick in scholarly output, this nuanced analysis highlights the dynamic nature of research contributions from various countries. It offers a comprehensive understanding of the global evolution of research in this field.

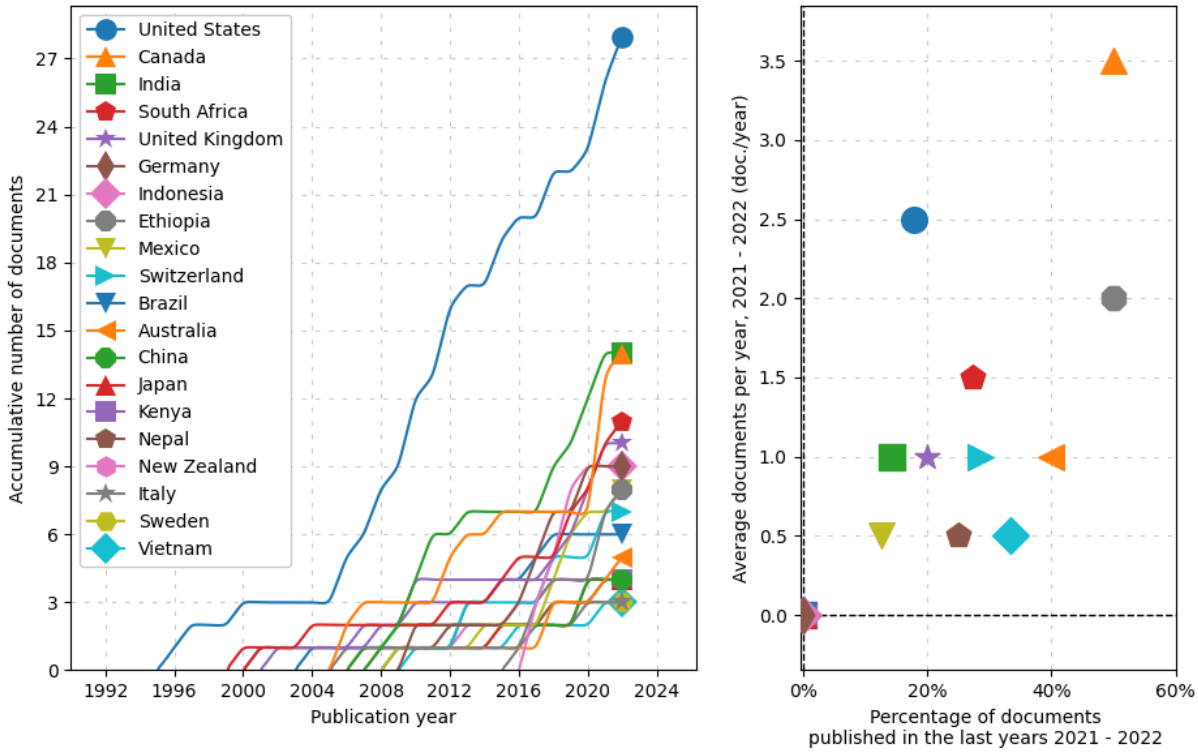

Figure 4. The evolution of publications based on countries. Source: ScientoPy

Apart from tracking the development of publications by particular countries, it is also critical to investigate international collaborations between scholars. A nuanced view of the global dynamics of research in Indigenous knowledge and sustainable resource management can be obtained by analysing cross-country cooperation, as indicated in Figure 5. Knowing the networks and collaborations researchers create makes the academic environment more comprehensive and draws attention to the group's international efforts to address common problems (Abdullah, 2021). Research projects involving collaboration are essential for developing various viewpoints, knowledge sharing, and creative solutions that cut across national borders.

With a minimum criterion of five citations, Figure 5 presents the network visualisation of co-authorship among 15 countries, giving an overview of the cooperative research networks in this academic field. According to Figure 5, the co-authorship network analysis reveals the presence of four distinct cooperation clusters among the 15 countries. The blue cluster is formed by Indonesia, England, and Finland, indicating collaborative research ties within this group. The yellow cluster comprises three countries: Mexico, Canada, and the United States, suggesting a closely-knit collaborative network within this geographical set. The red cluster incorporates Australia, South Africa, Nepal, India, and Switzerland, reflecting a cooperative relationship among these nations in Indigenous knowledge and sustainable resource management research. Lastly, the green cluster comprises Italy, Germany, China, and Ethiopia, indicating collaborative efforts and shared research interests within this specific group of countries. These clusters, identified through co-authorship connections, offer valuable insights into the collaborative dynamics shaping the global research landscape in this critical field.

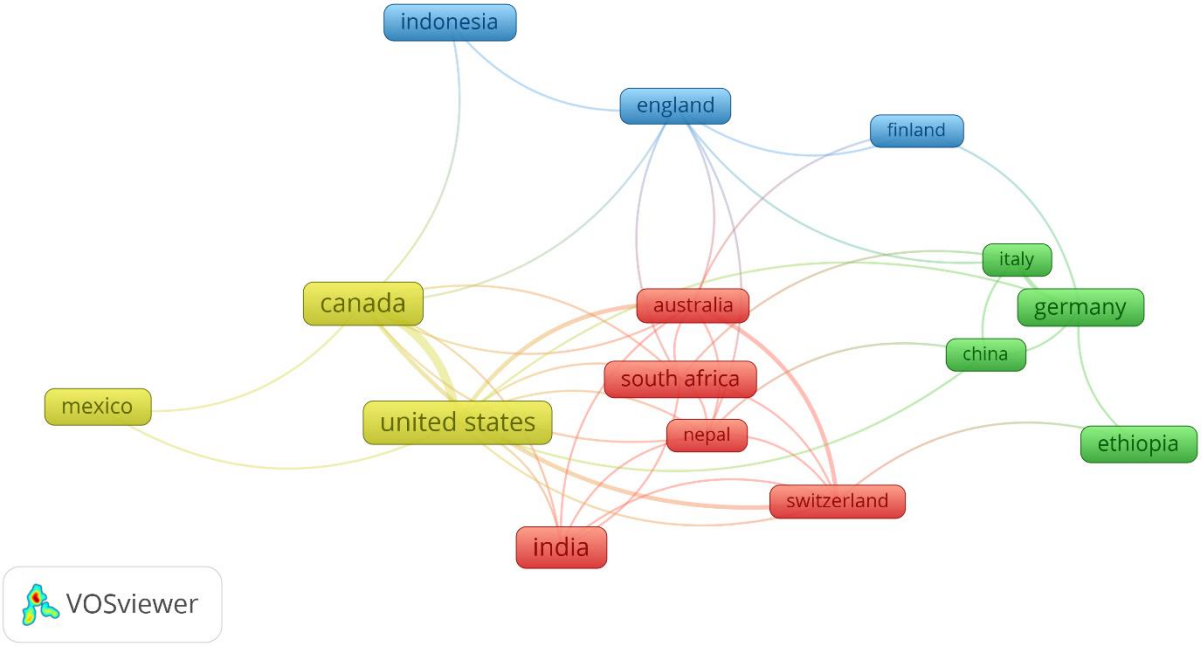

Figure 5. The network visualisation of co-authorship of 15 countries. Source: VOSviewer

RQ4: What are the top ten source titles actively producing Indigenous knowledge and sustainable resource management papers?

Based on the data presented in Figure 6, the top ten source titles contributing to research on Indigenous knowledge and sustainable resource management are identified. Topping the list is "Human Ecology", with nine publications showcasing a significant presence in the scholarly discourse. Following closely are "Ecology and Society," "Indian Journal of Traditional Knowledge," and "Journal of Ethnobiology and Ethnomedicine," each with four publications indicating substantial contributions to the field.

"Ethnobotany Research and Applications" holds the fifth position with three publications, while "International Journal of Conservation Science" and "Agroecology and Sustainable Food Systems" each contribute two publications. Titles like "Conservation & Society," "Journal of Agriculture and Environment for International Development," and "Sustainability" round out the list with two publications each. These source titles represent influential platforms that contribute significantly to the dissemination of knowledge in the realm of Indigenous knowledge and sustainable resource management.

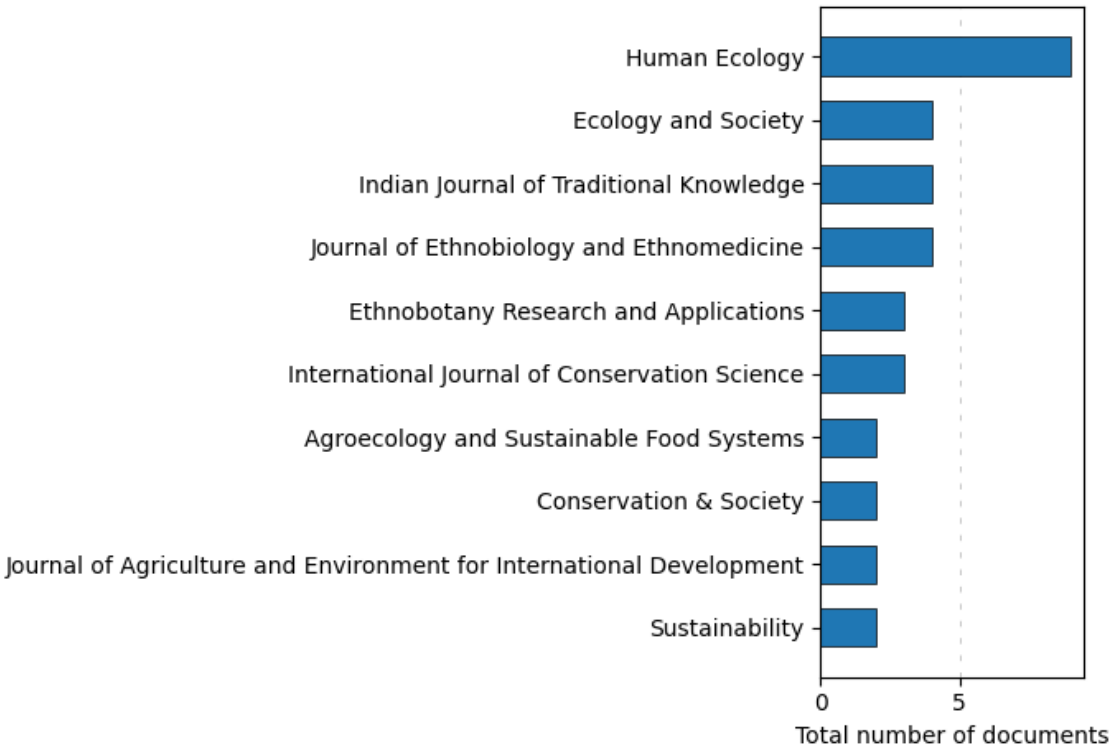

Figure 6. Top ten source titles. Source: ScientoPy

Discussion

The following discourse thoroughly examines four research inquiries (RQs), deciphering the connections between publication trends, keywords, international collaborations, and leading sources in publishing Indigenous knowledge and sustainable resource management. These ideas provide a solid framework for scholars, policymakers, and practitioners conducting research and making decisions in this crucial sector.

The analysis of trends in the number of publications on Indigenous knowledge and sustainable resource management, as shown by data from the WoS and Scopus databases, reveals a dynamic landscape typified by shifting cycles and significant peaks. This data is more than just a numerical representation; it provides essential insight into the evolving trajectory of research activity in this critical sector.

The cumulative counts provide a nuanced narrative, as depicted in Figure 1 from the ScientoPy source. The WoS database contains 86 publications, each exhibiting noticeable annual fluctuations and peak periods in specific years. This pattern is also present in Scopus, which has accumulated 62 publications. Prominent years in both databases, including 2008, 2010, 2013, 2015, 2018, and 2021, correspond to increased scholarly engagement. These peaks assume the role of critical indicators, signifying possible changes in focus or responses to noteworthy advancements in the research on Indigenous knowledge and sustainable resource management. Wheeler and Root-Bernstein (2020) assert that the involvement of indigenous knowledge holders in knowledge acquisition, synthesis, and decision-making is crucial, as it enhances the quality and efficacy of the knowledge foundation for sustainable resource management.

Understanding these developments is critical to expanding our understanding of Indigenous knowledge and sustainable resource management. The patterns indicate an increase in interest in the issue and raise intriguing concerns concerning the causes of these variations. The inconsistencies between the databases highlight the importance of meticulously analysing each year and the contextual factors impacting them. This

level of investigation is required to identify the underlying forces that affect the direction of research in this discipline. Integrating Indigenous knowledge into landscape management and governance can enhance planning, administration, and governance to establish more resilient landscapes (Williams et al., 2020).

RQ1 results, in summary, emphasise the necessity of recognising the changing nature of research activity, urging researchers to look deeper into the contextual intricacies of each era. Such insights are priceless for scholars, policymakers, and practitioners navigating the changing environment of Indigenous knowledge and sustainable resource management.

The study of the most-used keywords in the literature on Indigenous knowledge and sustainable resource management is shown in Figure 2, and the overlay visualisation is shown in Figure 3. Together, these two Figures show a rich tapestry of themes and how they become more critical over time. This in-depth study of how keywords are used is not just a matter of semantics; it is a valuable exploration that holds the key to understanding the current state of research and predicting its future paths.

At the top of this list of keywords is "Indigenous Knowledge," which shows that this knowledge is still being discussed (26 articles). The fact that "Conservation" is mentioned 20 times shows that everyone wants to protect natural resources. "Local Knowledge" and "Traditional Knowledge" are close behind, with 15 and 14 occurrences, respectively. This shows how important it is to have knowledge systems that are special to a community and have been around for a long time (Chaudhary et al., 2022; Shehwar, 2023). The fact that "Traditional Ecological Knowledge" has been used in 11 different publications makes its unique role even more transparent. Studies have shown that "Traditional Ecological Knowledge" is utilised in different forms, such as taboos, rituals, and traditional protected areas, to manage natural resources and maintain ecosystem balance (Sinthumule, 2023).

Nevertheless, the abundance of discoveries surpasses traditional topics. The frequent usage of the term "Ethnobotany" (9 instances) highlights the fascinating overlap between traditional knowledge and the utilisation of plants, contributing an additional level of intricacy to the discussion. Ethnobotanical studies have been conducted in different regions and have documented indigenous communities' diverse uses of medicinal plants, including their use for healthcare, food, construction, crafts, and cultural purposes (Asif et al., 2021). Traditional healers play a significant role in preserving and transmitting this knowledge to new generations (Tito & Carvalho, 2021). "Climate Change," specifically with 29% of documents published in 2021 and 2022, is a prominent keyword, demonstrating the growing importance of Indigenous perspectives in tackling current environmental concerns. Preserving healthy lands and waters by Indigenous peoples can be a pioneering approach to tackling climate change and biodiversity loss. It is imperative to acknowledge and provide support for their leadership in this endeavour (Nitah, 2021).

The overlay visualisation in Figure 3 enhances our comprehension by emphasising the simultaneous presence of keywords throughout time. Brighter colours represent the terms that gained significance after 2016. These keywords include "traditional knowledge", "local knowledge", "biodiversity", "climate change", "conservation practices", "ethnobotany", "medicinal plants", and "ecosystem services". Significantly, the terms "ethnobotany," "medicinal plants," and "ecosystem services" have gained popularity since 2018. This interactive visual display provides valuable insights into the changing landscape of study topics, allowing scholars to predict future areas of investigation and recognise emerging domains in Indigenous knowledge and sustainable resource management.

Essentially, the findings of RQ2 go beyond simply providing a list of keywords. They provide a detailed comprehension of the literature's diverse themes and changing priorities. Acquiring this knowledge is crucial for researchers, policymakers, and practitioners who aim to synchronise their endeavours with the present

patterns and forthcoming developments in the ever-changing Indigenous knowledge and sustainable resource management domain.

A clear picture of the global dynamics and interconnectedness within this academic field is painted by investigating international collaboration in Indigenous knowledge and sustainable resource management, as seen by the evolution of publications and the network visualisation of co-authorship. Although the publications' history sheds light on specific countries' contributions, Figure 5's network visualisation of co-authorship deepens the analysis. It highlights the existence of four unique cooperation clusters among the 15 countries, illuminating cooperative research links within specific geographic ranges. Recognising the worldwide effort to address shared concerns and the comprehensive character of research in Indigenous knowledge and sustainable resource management depend on understanding these collaborative networks. International collaborations promote innovative ideas that go across national boundaries, exchange knowledge, and bring different points of view (Kafouros et al., 2020).

The results of RQ3 emphasise the complex network of international collaboration in this crucial area, showcasing the contributions of particular nations and the interconnected relationships that unite scholars from various parts of the globe. Acquiring this knowledge is of utmost importance in shaping future research priorities and promoting a comprehensive strategy for tackling the difficulties in Indigenous knowledge and sustainable resource management.

Examining the top ten source titles actively generating research on Indigenous knowledge and sustainable resource management, as illustrated in Figure 6, offers valuable insights into the primary venues fueling academic discussions on this topic. The source titles serve as crucial venues that actively contribute to spreading information, enabling researchers and scholars to exchange ideas and conclusions. Identifying these significant sources is essential for researchers aiming to remain up-to-date with the most recent advancements in the field and for policymakers and practitioners wishing to interact with evidence-based knowledge.

The RQ4 results showcase the crucial titles of primary sources pillars in Indigenous knowledge and sustainable resource management academia. Further investigation and interaction with these sources are imperative to expand knowledge and encourage significant contributions to the current conversation on this critical topic.

Limitation

The study is based on two prominent scholarly databases, namely, Scopus and Web of Science. Although these databases are widely acknowledged, they may not encompass all pertinent publications, as specific literature might be found in alternative databases or non-indexed sources. Excluding those databases may lead to an incomplete depiction of the entire research ecosystem. Also, it is crucial to acknowledge that the current bibliometric review only includes datasets that were accessible until 31 December 2022, and any advancements or publications after this date are not taken into account in the analysis.

Conclusion

Based on four research questions (RQs), this review has shed light on the complex dynamics of Indigenous knowledge and sustainable resource management studies. The results provide a solid basis for academics, decision-makers, and practitioners working in this critical field of study and practice. Examining publication patterns, keywords, global partnerships, and authoritative sources has shown a constantly changing terrain with notable peaks and oscillating cycles. These trends go beyond simple numerical depictions and offer crucial information about how research in this critical area has changed.

The analysis of publishing trends reveals peaks in particular years, suggesting more significant scholarly activity and maybe reflecting changes in emphasis or reactions to significant breakthroughs. The report highlights how important it is to acknowledge how research is evolving and calls on interested parties to learn more about the nuances of the setting in order to gain a more thorough understanding.

Examining keywords reveals diverse topics, including the continued value of Indigenous knowledge, conservation, and the significance of long-standing, community-specific knowledge systems. Terms like "Ethnobotany" and "Climate Change" are used differently, highlighting the growing importance of Indigenous viewpoints in tackling modern environmental concerns and reflecting the dynamic nature of research goals. International collaboration reveals a complex web of relationships among nations, as evidenced by the growth of publications and the network visualisation of co-authorship. The existence of discrete cooperation clusters highlights the necessity for an all-encompassing approach to Indigenous knowledge, sustainable resource management, and the global effort to address common challenges.

The source titles supporting this field's research highlight the crucial forums that feed scholarly debates. These resources are essential for spreading knowledge and facilitating the sharing of ideas between academics and industry professionals. Maintaining current knowledge of the most recent advancements and contributing intelligently to the current conversation will need continued interaction with these sources.

To expand on these discoveries, the subsequent studies on Indigenous knowledge and sustainable resource management should further investigate the contextual elements that impact publication patterns. This could involve scrutinising the reasons contributing to the highest years of publication and the discrepancies observed across different databases. An intricate examination of the factors contributing to fluctuations in research activity can yield a more holistic comprehension of the influences in this field's research trajectory.

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