

Meta-Analysis of Tourism Development Aware Disaster Potential: Bibliographic Analysis of Disaster Management on Tourism Scope

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Abstract: This study presents a bibliometric analysis of disaster management in the tourism sector over the past five years, based on data retrieved from the Scopus database. While previous research has emphasized the vulnerability of the tourism industry to disasters and the need for preparedness, there remains a limited exploration of theoretical frameworks and localized perspectives in this field. This study addresses this gap by examining global and local trends in disaster awareness within tourism destinations. Employing a qualitative approach through a systematic literature review, the research utilizes VOSviewer and Scopus analytical tools to map developments in the field. The findings reveal a growing scholarly interest in emerging topics such as post-COVID-19 recovery strategies and sustainable tourism development. The dominance of social science disciplines in the literature underscores their crucial role in informing policy and practice. Notably, 2023 marked the peak in publication output, with Indonesia emerging as a leading contributor reflecting its dual context of rich tourism potential and high disaster vulnerability. Despite this, previous studies have often neglected the integration of local wisdom and cultural values, which are essential for effective community-based disaster management. The novelty of this study lies in its focus on disaster management through a community-based tourism lens, particularly within the context of Yogyakarta. It recommends the development of localized disaster management models that actively involve community participation and draw upon indigenous knowledge and practices to enhance tourism resilience.

Keywords: *Tourism development; Disaster management; Bibliographic analysis*

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INTRODUCTION

This research examines the bibliographic analysis of Disaster Management on Tourism Scope in the last five years on the Scopus database. In this case, there is potential for tourism in disaster-prone areas, as happened in Indonesia (Cheer, 2020; Lee et al., 2021; Polukhina et al., 2021). Tourism is a crucial economic sector for many countries, significantly contributing to GDP, employment, and cultural exchange. However, the industry is highly susceptible to natural and man-made disasters, disrupting travel, damaging infrastructure, and deterring tourists. Effective disaster management is essential to mitigate these impacts and ensure the resilience and sustainability of tourism destinations (Kusumasari et al., 2023; Susanto et al., 2023). Disasters,

whether sudden like earthquakes and tsunamis or gradual like climate change, present substantial challenges to the tourism sector. The unpredictability and severity of these events demand comprehensive strategies that include preparedness, response, recovery, and mitigation. This paper examines the intersection of disaster management and tourism, emphasizing the importance of proactive planning, stakeholder collaboration, and adaptive measures to protect the industry (Adri et al., 2020; Harijoko et al., 2021; Yulianto et al., 2021). The disaster management, tourism sector, and industry are related and cannot be separated (Fatima & Sudibyo, 2023; Maulana, 2023; Nurhidayati et al., n.d.).

The relationship between tourism and disasters is intricate and multifaceted. On one hand, tourism can heighten the vulnerability of destinations by increasing the concentration of people and infrastructure in areas prone to hazards (Balsalobre-Lorente et al., 2023; Ibnou-Laaroussi et al., 2020; Koens et al., 2021; Musavengane et al., 2020; Priatmoko et al., 2021; Traskevich & Fontanari, 2023). On the other hand, the economic benefits of tourism can supply the resources necessary for effective disaster management. This dual nature highlights the necessity for integrated approaches that balance tourism development with risk reduction.

Indonesia's unique geographical position on the Pacific Ring of Fire makes it highly susceptible to natural disasters, such as earthquakes and volcanic eruptions, significantly impacting tourism development. The interplay between disaster potential and tourism is complex. In contrast, disasters can deter visitors, disrupt local economies, prompt resilience-building efforts, and lead to increased investment in disaster preparedness, ultimately shaping the tourism landscape. Social factors, including community resilience and cultural adaptability, further influence the correlation between disaster potential and tourism development in Indonesia. Local populations often exhibit a strong sense of solidarity and resourcefulness in the face of disasters, which can enhance the attractiveness of destinations as they recover and rebuild. Additionally, the government's role in promoting sustainable tourism practices and disaster risk management is crucial, as it mitigates the adverse effects of disasters and fosters a more robust tourism sector. This dynamic relationship highlights the importance of integrating disaster preparedness into tourism planning, ensuring that both the local communities and the tourism industry can thrive despite the challenges posed by natural hazards.

This research tries to analyze the bibliography of disaster management in the tourism sector using the data from the Scopus database. The economic aspect has been related to tourism, but in this case, the disaster also became the "nightmare" of the tourism aspect (Junaid & Salim, 2019; Purbadi & Lake, 2019). The connection between tourism and disasters is complex and multifaceted. Tourism can worsen the vulnerability of destinations by increasing the population density and infrastructure in areas prone to hazards (Sumarto & Dwiantara, 2020). On the other hand, the economic advantages of tourism can offer the resources required for effective disaster management. This dual aspect emphasizes the need for integrated strategies that harmonize tourism development with risk reduction (Ikhsan et al., 2023). All previous research shows the potential disaster and massive impact on the tourism sector and needs preparedness. This research aims to analyze the bibliographic analysis of disaster management on tourism scope in the last five years in the Scopus database.

The research gap lies in the lack of a comprehensive bibliographic analysis of disaster management within the tourism sector, especially using recent data from the Scopus database. Although previous studies have examined the economic impacts of disasters on tourism and the dual role of tourism in increasing vulnerabilities while providing resources for disaster management, these findings have not been thoroughly synthesized. Furthermore, the intricate relationship between tourism development and disaster risk reduction has yet to be fully explored from an integrated perspective. It underscores the need for a systematic bibliographic study to uncover trends, patterns, and gaps in the literature from the past five years, serving as a basis for developing more cohesive and effective strategies for disaster management in tourism.

The Sustainable Livelihood Tourism Framework is an approach that integrates tourism development with sustainable livelihood principles to enhance community well-being while preserving natural and cultural resources (DAO & Navy, 2021; Kumar et al., 2021; Ma et al., 2021). It empowers local communities by providing diversified income opportunities, strengthening social and environmental resilience, and promoting responsible tourism practices. This framework emphasizes participatory decision-making, capacity-building, and equitable benefit

distribution to ensure that tourism development contributes to long-term economic stability without degrading local ecosystems or social structures. Aligning tourism initiatives with sustainable livelihood strategies fosters resilience, reduces poverty, and enhances host communities' overall quality of life (Mohiuddin & Nowreen, 2023).

A Sustainable Livelihood Tourism Framework ensures that tourism development benefits local communities while preserving natural and cultural resources for future generations. If not managed properly, tourism can lead to environmental degradation, cultural erosion, and economic inequalities. By adopting a sustainable livelihood approach, tourism can create long-term economic opportunities, promote social inclusion, and enhance environmental conservation (Mock, 2022; To, n.d.). This framework integrates community participation, responsible business practices, and policies that balance economic growth with ecological and social well-being. Ultimately, it helps build resilience in tourism-dependent communities, ensuring they thrive without compromising their resources and heritage. This article will identify and explain previous research's tension, aims, and values and describe the relationship between tourism and disaster in the tourism industry (Jambeck et al., 2024).

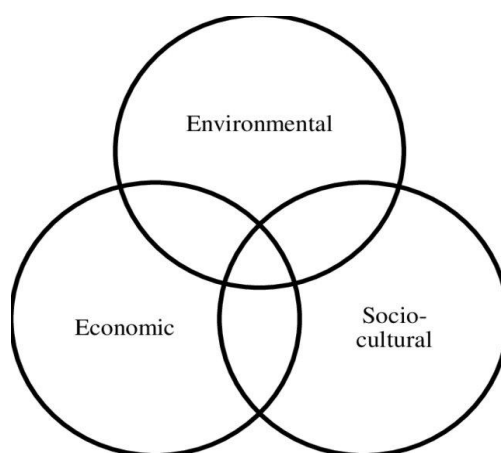


Figure 1. Sustainable Livelihood Aspect in the Tourism Sector

Source: Processed by Authors, 2024

Based on Figure 1, the Venn diagram illustrates the three fundamental pillars of sustainable development: environmental, economic, and socio-cultural. Each circle represents a crucial aspect that must be considered in achieving sustainability, and their intersections emphasize the interconnectedness of these domains. True sustainability is achieved at the center where all three dimensions overlap, signifying a balance where economic growth does not compromise environmental health or socio-cultural integrity. This model highlights that sustainable development requires an integrated approach that protects the environment, fosters inclusive economic opportunities, and preserves cultural and social values.

THEORETICAL FRAMEWORK

Tourism and Disaster

With the large potential of the disaster and tourism sector, there is a need to pay attention to disaster management in tourism areas. As the previous study told, significant risks are associated with natural disasters such as earthquakes and floods in the northern region of Kulon Progo, besides that needs highlighting areas that require immediate attention and intervention (Ikhsan et al., 2023). In this case, monitoring disaster potential in tourism sectors is essential, as is the case with Ladakh, Himalaya. Despite losses from disasters, the Ladakh region has benefited from increased attention from policymakers, leading to infrastructural upgrades, improved transportation, and enhanced socio-economic conditions. In this case, the region has lots of disaster potential but has a huge impact on tourism sectors that need upgrading on the disaster management side (Bhat et al., 2023). One of the solutions to upgrade disaster awareness in the tourism sector is to use technology like chatbots. Chatbot appliances have many benefits for

disaster management in the tourism sector. *First*, chatbots can significantly improve communication during and after disasters by providing real-time information and updates to tourists and local communities. *Second*, they can assist in crisis response by offering guidance on evacuation routes, safety measures, and emergency services. *Third*, Chatbots can also help in the recovery phase by disseminating information about the affected areas, providing updates on infrastructure repairs, and offering psychological support to affected individuals (Abraham & Thazhathethil, 2023).

Besides chatbots, spatial information can also be added to disaster management information related to tourism. A spatially explicit gridded dataset can enhance the overall resilience of tourism destinations by improving communication and coordination during crises. It can help maintain the reputation of tourism destinations by providing accurate and timely information to tourists, thereby reducing the impact of negative publicity (Camatti et al., 2024). The COVID-19 pandemic is also a disaster impacting the tourism sector. Globally, the UNWTO study showed the importance of restoring travelers' confidence through safety and security protocols designed to reduce risks at each step of the tourism value chain. There are needs protocols, including the implementation of check procedures such as temperature scans, testing, physical distancing, enhanced frequency of cleaning, and the provision of hygiene kits for safe air travel, hospitality services, or safe events (UNWTO, 2020). It is important to integrate various stakeholders, including public and private sectors, in crisis management strategies to create a good environment for disaster management (Singh & Nazki, 2023).

In Manabi, Ecuador, there is a need for sustainable and adaptive management strategies to mitigate the risks associated with seismic activity and coastal erosion, as well as management that adapts to potential disasters (Morante-Carballo et al., 2023). The previous research also highlights the importance of communication, especially during the COVID-19 Pandemic. Employees who received clear, consistent, and transparent communication regarding changes felt more prepared to adapt to new work environments and processes (Divya, 2024). Community resilience also plays a significant role. The previous study on Puerto Vallarta, Mexico, told that community resilience is influenced by various factors, including the ability to anticipate and minimize destructive forces, the capacity to adapt to changing conditions, and the presence of supportive structures and networks (Cornejo Ortega & Chávez Dagostino, 2023).

The disaster can directly affect the tourism and economic sector, as happened in La Palma, Spain. The tourism sector in La Palma was highly vulnerable to the eruption, with significant economic losses and disruptions to the tourism industry (Leoni & Boto-García, 2023). Community playing a significant role in disaster risk reduction delivers the importance of community engagement and stakeholder participation in developing and implementing effective tsunami risk reduction strategies (Fathianpour et al., 2023). Effective disaster management can help ensure the safety and security of tourists, while cultural heritage preservation can enhance the tourist experience and promote cultural understanding (Auttarat & Poonsukcharoen, 2023). The previous research highlights the importance of community engagement and stakeholder participation in developing and implementing effective risk management strategies (Glowka et al., 2024). Effective disaster management can help ensure tourists' safety and security, thereby maintaining tourism destinations' competitiveness and sustainability (Biardeau & Sahli, 2024). Community engagement and stakeholder participation in developing and disseminating effective information during disasters (Pahrudin et al., 2023). Based on the previous study shows that there are a lot of regions that have potential tourism but, in the same case, facing natural disaster potential in several areas. This case shows an urgent need for disaster management research relevant to the tourism sector.

Post Disaster Tourism

Post-disaster tourism refers to tourist or tourism activities visits to areas that have recently experienced natural or man-made disasters, such as earthquakes, storms, floods, wildfires, industrial disasters, and similar events (Adams et al., 2021; Bangwayo-Skeete & Skeete, 2021; Reddy et al., 2020; Uddin et al., 2021). Post-disaster tourism focuses on giving to several crucial aspects, such as environmental, social, and economic impacts, as well as tourist motivations (Forero et al., 2022; Jumail et al., 2021; Wut et al., 2021; Xu et al., 2023). Therefore, in the development of post-disaster tourism, it is necessary to pay attention to tourism management as

well as overall disaster management (Aliyah et al., 2023; Bayrak, 2022; Forero et al., 2022; Hayashi et al., 2022; Jumail et al., 2021; Sabato, 2023; Wut et al., 2021; Xu et al., 2023).

Post-disaster tourism has a positive impact, as explained in several points (Jordan & Prayag, 2022). *First*, economic recovery, in this case, post-disaster tourism, can stimulate the local economy through the potential of local tourism. *Second*, raising awareness and community engagement, in this case, with post-disaster tourism, can accelerate the rising awareness about the potential disaster in the tourism sector and address local community engagement. Third, resilience and reconstruction, in this case of a post-tourism disaster, can make the community more resilient to the disaster in the tourism area. This case proves that post-disaster tourism can positively impact the community and tourism sector (Luo et al., 2023; Rao et al., 2022).

Community-Based Tourism, Local Wisdom, and Tourism Management

Community-based tourism can be linked to local wisdom (local knowledge) to accelerate the development of tourist destinations (Agustang et al., 2021; Hutagalung et al., 2022; Sonjai et al., 2021). In tourism management, community participation is an essential central pillar. Although their involvement is increasing, the application of local wisdom in tourism development in disaster-prone areas is still not visible (Purwani & Arvianti, 2020; Romadi & Pramita, 2021; Tanjung et al., 2021).

With governance issues in the tourism sector in disaster-prone areas and the suboptimal role of the community in managing tourism with local wisdom integration (Sakir, Sakir; Mutiarin et al., 2024), these problems have led to inefficient tourism management in disaster-prone areas in the Special Region of Yogyakarta. The urgency of this research is the sustainable development of tourism in disaster-prone areas, ensuring local community involvement and integrating local wisdom values. The problem that stands out is the still weak tourism governance in disaster-prone areas in the Special Region of Yogyakarta. From previous research, there appears to be a literature gap that focuses on practical aspects of the tourism aspect and forgets the community-based Tourism in disaster management. The novelty of this research is that it tries to explain disaster management in the tourism sector using a community-based tourism perspective in the Yogyakarta Region. With the previous study focused on the practical side, it is necessary to know trends in the disaster and tourism themes.

RESEARCH METHOD

This research used qualitative methods through a literature review. Literature Review was used to determine the perspective of previous research on social media and social movements. This research was conducted in two focuses. The first is to know the dynamic information of previous research about the tourism sector and disaster management over five years. The second one is to know the dominant theme when discussing the tourism sector, which is correlated with disaster management—besides, the analysis VOSViewer was used to learn the topic of the previous study. The source was obtained through journals indexed in Scopus. Toll analyzed this research using VOSViewer and Scopus Database Analysis, with the analysis of the documents are 210 documents on Scopus database, with specific using certain criteria keywords as simulating “Tourism and Disaster” AND (LIMIT-TO {2020} OR LIMIT-TO {2021} OR LIMIT-TO {2022} OR LIMIT-TO {2023} OR LIMIT-TO {2024} OR LIMIT TO {SOCIAL SCIENCES} OR LIMIT TO {ARTICLE} OR LIMIT TO {ENGLISH}). VOSViewers can explore the relevant theme with the research (Guleria & Kaur, 2021; D. F. Al Husaeni et al., 2023). This research used the descriptive approach to deliver the mapping. The description makes it easier for the reader to understand the topic. Besides using VOS Viewer, this research uses the analytical bar by Scopus and VosViewers. The analytical bar to know the statistics of previous research (D. N. Al Husaeni et al., 2023; Nurdin et al., 2021). The analysis step using VosViewer and Scopus database analysis is explained as follows:

1. Collecting and Filtering data in this phase, the data using Scopus data in Scopus database using keywords to download are Disaster Management and Tourism. Also, it limits several categories, such as the data used in articles, book chapters, and review language using English, and the scope limit on social science.
2. To reduce the data that have been collected using PRISMA Method by using initial keywords and criteria as explained “Tourism and Disaster” AND (LIMIT-TO {2020} OR LIMIT-TO {2021} OR LIMIT-TO {2022} OR LIMIT-TO {2023} OR LIMIT-TO {2024} OR

LIMIT TO {SOCIAL SCIENCES} OR LIMIT TO {ARTICLE} OR LIMIT TO {ENGLISH}" and appear 210 Documents.

3. Analysis data: In this phase, two kinds of analysis were used: Vos Viewer and Scopus database. For VosViewer, the criteria used were data qualifying using binary counting, with the analysis of two kinds: density to map the hotspot of previous research and network visualization to map the correlation of one theme with another and classify them into clusters. Scopus database analysis, in this case, uses Scopus features analysis, such as documents by type, documents by years, documents by territory, documents by affiliation, and documents by subject area.
4. Presenting data: in this phase, the data analyzed were presented using figures, tables and narration.



Figure 2. Research Steps

Source: Processed by Authors, 2024

RESULTS AND DISCUSSION

This research analyzes the bibliography of previous research on tourism development and tourism and disaster management in the Scopus database. The Scopus database used some criteria, such as the time series of literature from 2020 until 2024, the languages limited to English, the subject area limited to social sciences, and the type of documents referred to in articles, reviews, and book chapters. With document analysis, there are 210 documents on the Scopus database. The analysis is defined in different parts. The analysis is explained in figures and narration.

Analysis of Document Type

This analysis tried to analyze the document type on the Scopus database with the Tourism and Disaster management scope. The analysis of document types defines the article according to three major criteria: Article, Review, and Book Chapters. The analysis can be seen in Figure 3 and Table 1.

Documents by type

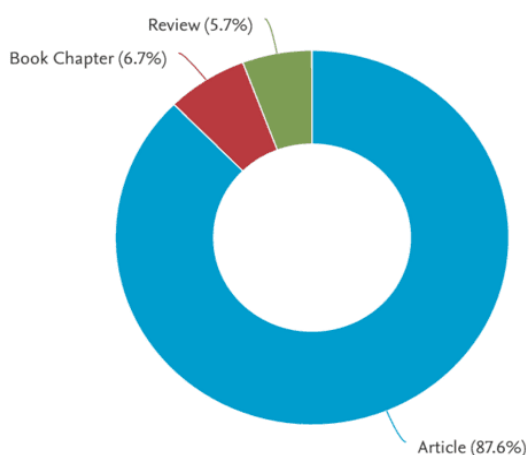


Figure 3. Document by Type (Scopus Database)

Source: Scopus Database

Table 1. Document by Type (Scopus Database)

Document Type	Documents	percentage
Articles	184	87,6%
Book Chapter	14	6,7%
Review	12	5,7%

Source: Scopus Database

Based on the data from Figure 1 and Table 1 extracted from the Scopus database, it is evident that research related to the theme of Tourism and Disaster Management is predominantly published in the form of journal articles, accounting for 184 documents or 87.6% of the total. Additionally, book chapters represent 14 documents (6.7%), while review articles make up 12 documents (5.7%). This distribution indicates that scholarly contributions primarily focus on original research outputs. The dominance of journal articles suggests a strong emphasis on investigating current and evolving issues and the development of practical frameworks and new methodologies relevant to tourism and disaster management.

This trend signifies that researchers actively seek to explore and contribute new knowledge to the discipline, moving beyond theoretical discussions to more empirical and applied studies. Key topics often include strategies for tourism sector recovery in the aftermath of the COVID-19 pandemic, disaster preparedness and risk mitigation in tourism destinations, community-based tourism resilience, and sustainable tourism planning in disaster-prone areas (Rajić et al., 2023; Zenker & Kock, 2020; Zhang, 2022). The diversity and depth of these themes reflect an increasing awareness of the importance of integrating disaster management into tourism planning and policy. Moreover, it demonstrates the academic community's commitment to addressing contemporary global challenges by producing research that is not only scientifically robust but also applicable for decision-makers, practitioners, and communities involved in tourism development and disaster risk reduction.

Based on the data from Figure 1 and Table 1 extracted from the Scopus database, it is evident that research related to the theme of Tourism and Disaster Management is predominantly published in the form of journal articles, accounting for 184 documents or 87.6% of the total. Additionally, book chapters represent 14 documents (6.7%), while review articles make up 12 documents (5.7%).

This distribution indicates that scholarly contributions in this field primarily focus on original research, emphasizing the exploration of new phenomena and methodologies rather than solely relying on reviews or book chapters. The prevalence of journal articles suggests a strong research interest in areas such as post-COVID-19 tourism recovery strategies, sustainable tourism development, risk management in tourism, and innovative approaches to enhancing resilience in the sector. The data highlights the ongoing expansion of research within this domain, reflecting a commitment to broadening the scope of inquiry and addressing emerging challenges in tourism and disaster management.

Analysis of Document by Subject Area

The subject areas of research on the Scopus database were analyzed regarding the tourism and disaster management scope. The analysis of document type defines the article on multiple subject areas. The analysis can be seen in Figure 4.

Documents by subject area

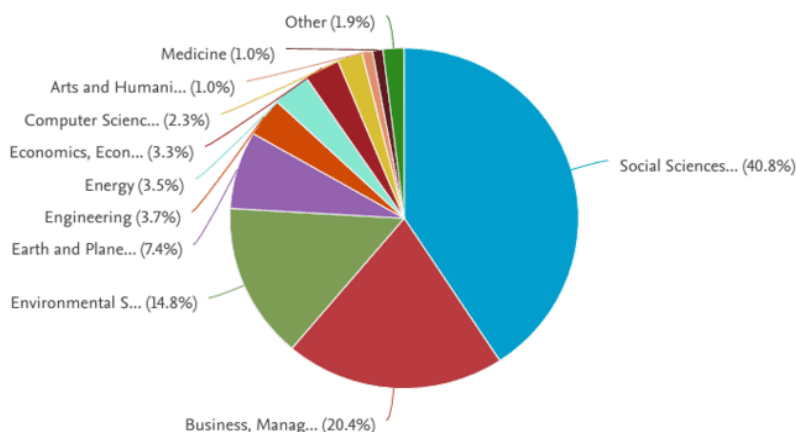


Figure 4. Documents by Subject areas (Scopus Database)

Source: Scopus Database

Figure 4 shows that the document based on the subject areas tends to dominate social science subjects by 40,8%. This case shows that social science dominated rather than the other subjects like Business, management and accounting with 20,4% and environmental science with 14,8%. There are a few reasons why social science is becoming dominant in tourism and disaster management case research. There are some reasons why the social science subject areas are dominated by Disaster management and tourism scope on the Scopus database (Harris et al., 2023; Reddy et al., 2020; Yon Secaida et al., 2023):

First, the interdisciplinary nature of tourism and disasters encompasses diverse fields such as sociology, economics, environmental science, and public policy, thereby creating a rich area for social science research. *Second*, the fact that disasters can occur anywhere and that tourism is a global industry contributes to its universal relevance, making it a highly sought-after research topic. *Third*, research in this field provides policymakers and planners with insights on better preparing for and responding to disasters, thereby ensuring the safety and sustainability of tourist destinations.

While social sciences dominate disaster management research in tourism, there is a significant lack of understanding regarding the specific contributions of disciplines such as sociology, economics, and political science. Sociology can shed light on social dynamics and community resilience in disaster-prone tourism areas. In contrast, economics can examine the financial consequences of disasters on tourism economies and assess the cost-effectiveness of mitigation strategies. Political science, on the other hand, can focus on governance structures, policy responses, and international cooperation in disaster preparedness and recovery efforts. Delving deeper into these sub-disciplines would offer a more detailed and nuanced perspective on the research landscape, highlighting each field's distinct contributions and interconnections in tackling disaster management issues within the tourism sector.

Analysis of Document by Years

In this analysis, the researchers tried to analyze the documents produced for years on the Scopus database with the scope of Tourism and Disaster management. The analysis of documents by years defines the article on publication time series. The document analysis criteria by years are used in the publication series from 2020 until 2024. The analysis can be seen in Figure 5.

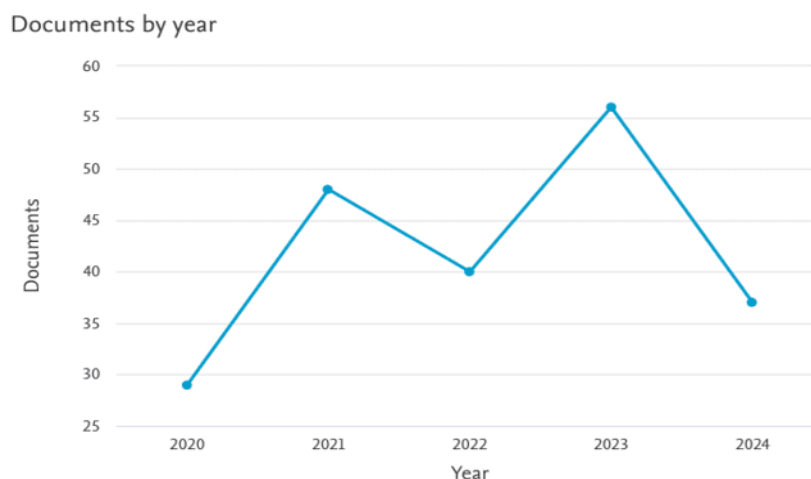


Figure 5. Document by Years (2020-2024 via Scopus Data Base)

Source: Scopus Database

Figure 5 shows the documents' publication by years using sources from 2020 until 2024. There are 210 documents from the last five years. There is the highest number of publications about disaster management and tourism in 2023, with 56 documents during that year. Besides, disaster management and tourism scope research themes have increased drastically from around 40 documents in 2022 to 56 documents in 2023. On the other side, there are some reasons the document by years analysis is important can be explained in these points (Martini & Vainio, 2022; Salgado et al., 2022; Soleimani & Poorzahedy, 2021):

First, Timeliness of Research: Research fields are always changing. Keeping up with the latest documents guarantees that you are current with the newest discoveries and methods, essential for remaining competitive and relevant. *Second*, Collaboration Opportunities: Discovering and accessing recent documents can help you identify potential collaborators working on similar topics, leading to productive partnerships and joint research initiatives. *Third*, as part of trend analysis, it enables researchers to track and observe changes in interest over time, including increases or decreases in specific research topics.

Analysis of Document by Country or Territory

This analysis tried to analyze most countries that published the Scope of Tourism and Disaster Management article in the Scopus database. The analysis of documents by territories defines the article based on the country. The criteria for analysis is the highest document produced by the institution in one country. The analysis can be seen in Figure 6.

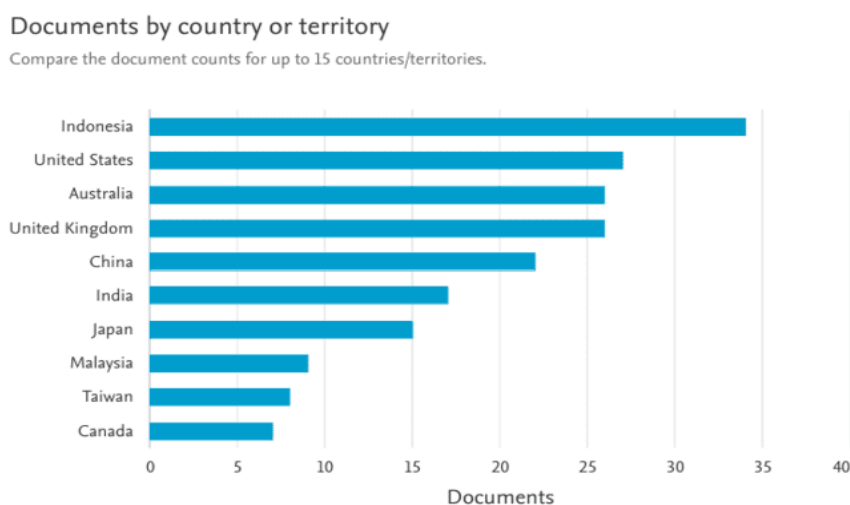


Figure 6. Documents by Country of Territory (Scopus Database)

Source: Scopus Database

Figure 6 shows that Indonesia is becoming the largest country producing the article with the research theme correlated with Tourism and Disaster Management. Indonesia's 34 articles on the Scopus database correlated with Tourism and Disaster Development themes. After Indonesia, there is the United States of America with 26 Documents. Indonesia has the largest publication about Tourism and Disaster Management (Cahyanto et al., 2021; Deliarnoor et al., 2024; Mihardja et al., 2023).

The VOSViewer analysis on 63 themes from Scopus-indexed research related to tourism and disaster management reveals a co-occurrence network divided into three main clusters, with Clusters 1 and 2 being the most relevant. Cluster 1 connects themes such as "earthquake" and "environment" (representing disaster management) with "tourism development" and "tourist" (representing the tourism sector). In contrast, Cluster 2 includes terms like "Covid," "tourism destination," and "tourism industry," reflecting the pandemic's impact on the tourism landscape. The clustering approach utilizes binary counting, which analyzes whether terms appear without considering frequency. This method shows the interconnectedness of tourism and disaster management but also exposes a notable gap. Current research has a limited focus on cultural elements, local knowledge, or indigenous wisdom, which could be crucial for creating more adaptable and resilient tourism systems in disaster-prone areas.

This finding is especially significant in Indonesia, a country frequently affected by natural disasters such as earthquakes, tsunamis, and volcanic eruptions. With tourism being a key economic sector and many destinations in high-risk areas, disaster-aware tourism planning is critical. Indonesian academic institutions have increasingly focused on this intersection, producing a growing body of research supported by collaborative efforts and academic events like the International Conference on Disaster Mitigation and Management. Additionally, the Indonesian government actively promotes research in this domain through financial support and policy initiatives encouraging disaster resilience in tourism planning. However, despite these advances, integrating local wisdom and cultural approaches into disaster management remains underexplored. Incorporating these elements could significantly strengthen the adaptive capacity of tourism development and enhance community resilience in disaster-prone regions.

This analysis tried to analyze affiliations with the highest publication on the Scopus database. The analysis of documents by affiliations defines the article based on the institutions. The criteria for analysis is the highest document produced by the Institutions. The analysis can be seen in Figure 7.

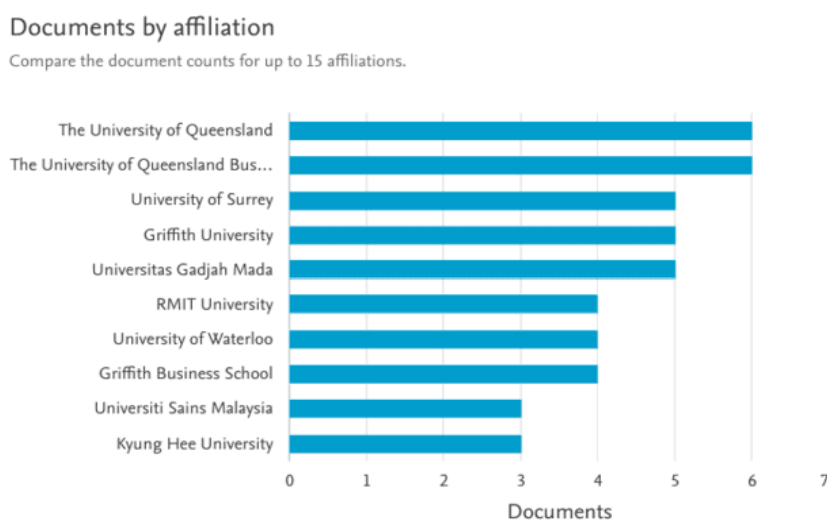


Figure 7. Documents by Affiliation (Scopus Database)

Source: Scopus Database

Based on Figure 7, the highest institution has 6 articles on the Scopus database with Tourism and Disaster Management themes. The University of Queensland and Queensland Business School indicate that those two universities provide research on tourism and disaster management. On the

Density Analysis of Research on Tourism-Aware Disaster

The function of density analysis can be defined in a few points: **Item Density Visualization:** This visualization displays the density of items, such as publications, authors, and keywords, on a map. Each point on the map is colored according to the number of items in its vicinity and their weights, with a color gradient typically ranging from blue (low density) to red (high density). Figure 6 shows that heat spots appear on bright areas specific to several research themes, such as the tourism industry, COVID, and crisis. The previous research theme of COVID is related to the effects of the crisis on the tourism industry. Another hot spot on Tourist and Number that shows from previous research focused on the scope of tourism on the economic side. This analysis shows that each point on the map is colored based on the number of items in its vicinity and their weights.

Network Visualisation Analysis of Research on Tourism-Aware Disaster

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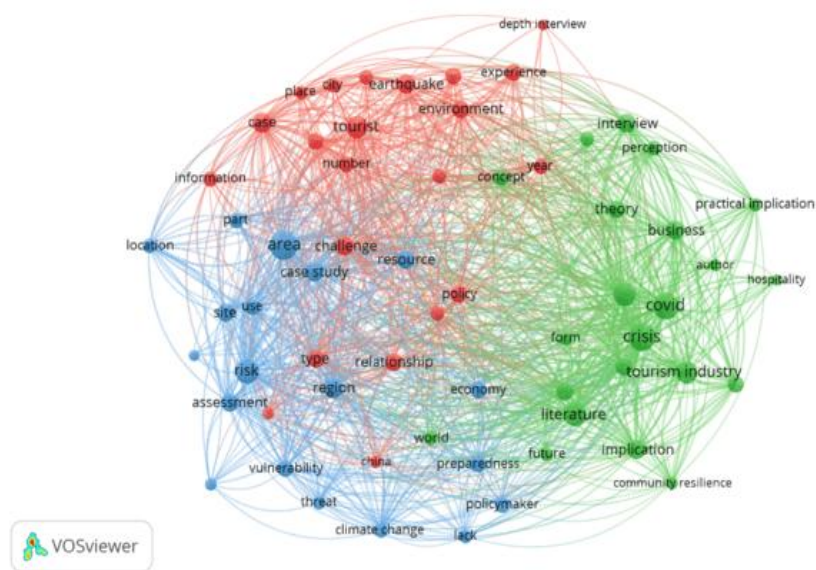


Figure 9. Network Visualisations Vos Viewers Analysis
Source: Vos Viewer Network Analysis

Table 2. Network Visualisations Vos Viewers Analysis

Themes	Cluster
Attention, Case, Challenge, China, City, Depth Interview, Earthquake , Environment , Experience, Indonesia, Information, Number, Order, Person, Place, Policy, Relationship, Tourism Development , Tourist , Type, Way, Year.	1
Author, Business, Community Resilience, Concept, Covid , Crisis, crisis management, Form, Future, Government, Hospitality, Implication, Interview, Literature, Originality Value, Pandemic, Practical Implication, Theory, Tourism Destination , Tourism Industry , world.	2
Area, Assessment, Case Study, Climate Change, Disaster Risk Reduction, Economy, Lack, Location, Natural Hazard, part, Policymaker, Preparedness, Region, Resource, Risk, Site, Threat, Use, Vulnerability	3

Source: Vos Viewer Network Analysis

Analysis Network Visualization using VosViewer: Automatic analysis of VosViewer with certain criteria. In this analysis, a limit of 63 themes and words represented the Scopus database research on Tourism and disaster management documents. In clustering using binary counting, binary counting Refers to the method used for analyzing co-occurrence networks, where items (e.g., keywords, authors, or terms) are considered in a binary manner, either present or absent in a particular document, without considering their frequency of occurrence. After the data were selected in Vos Viewers, terms, themes, and keywords were matched with tourism and disaster management research and categorized into clusters. Figure 7 and Table 2 show that 2 Clusters have related tourism themes with Disaster Management. As in Cluster 1, Earthquake and Environment represented Disaster Management with Tourism Development and Tourist, which represented Tourism scope. In Cluster 2, the Covid Tourism Destination and Tourism Industry appear, showing the relationship between disaster management and tourism (Lingganingrum & Sakir, 2023). This network shows that the relationship between theme tourism and disaster management appears, but in other cases, the technique, approach and cultural side didn't appear in the analysis.

The analysis using VOSviewer on 63 themes from Scopus-indexed research related to tourism and disaster management reveals a co-occurrence network divided into three main clusters, with Clusters 1 and 2 most relevant to the intersection of these two domains. Cluster 1 combines themes like "earthquake" and "environment" (disaster-related) with "tourism

development" and "tourist" (tourism-related). In contrast, Cluster 2 connects "Covid," "tourism destination," and "tourism industry," reflecting the pandemic's impact on tourism. The clustering method uses binary counting, emphasizing the presence or absence of terms rather than their frequency. However, the analysis shows a gap: cultural elements and local wisdom approaches are absent, even though they are crucial for developing adaptive and resilient tourism strategies. This insight highlights the need for further research integrating local cultural practices into disaster-aware tourism development models, aiming to enhance community resilience and preparedness.

Previous research focused only on the relationship of disaster management but forgot the approach and appliance of local wisdom or culture as part of the disaster management model. It is important to conduct research that uses cultural or local wisdom as part of tourism development and be aware of the potential disasters in every region. The model that uses local wisdom or culture can make tourism development more adaptive to disaster potential. Based on the analysis, this research focuses on Clusters 1 and 2, which are relevant to the previous tourism and disaster management topics.

In general, from the perspective of the bibliographic analysis, disaster management is becoming a theme that must be explored, and it is creating a relation with other themes like the economic side, tourism, and others. On the other side, disaster management is a complex field focused on reducing the effects of disasters through organized planning, responsive actions, and recovery strategies (Bhuiyan et al., 2021; Nair & Pratt, 2024; Yeh, 2021). It adopts a holistic approach that covers the entire disaster cycle, including the pre-disaster phase (risk evaluation, prevention, and preparation), the disaster phase (immediate intervention and resource mobilization), and the post-disaster phase (recovery, rebuilding, and strengthening resilience) (Berebekova et al., 2021; Bhuiyan et al., 2021; Cahigas et al., 2023; Louw & Esterhuyzen, 2022; Nair & Pratt, 2024; Yeh, 2021). Effective disaster management necessitates cooperation among governments, institutions, and local communities, combining scientific expertise, technological innovations, and community-based knowledge. It also addresses natural and human-made disasters, acknowledging the intricate relationships between environmental, social, and economic elements. A successful disaster management system emphasizes proactive steps to reduce risks and improve capacities, ensuring sustainable and fair recovery for affected populations (Khalid et al., 2023; Sarvesh, 2021; Velasco, 2023).

Disaster management and the Sustainable Livelihood Tourism Framework (SLTF) are deeply interconnected, emphasizing resilience, risk reduction, and sustainable development. The bibliographic analysis highlights the need to explore disaster management concerning economic sectors like tourism, given that natural and human-made disasters can significantly disrupt tourism-dependent communities. The SLTF ensures that tourism development provides economic opportunities and enhances local communities' capacity to withstand and recover from disasters (Gračan & Agbaba, 2021; Joao, 2021). By integrating disaster risk reduction into tourism planning, the SLTF aligns with the holistic disaster management approach, covering pre-disaster risk evaluation, emergency response, and post-disaster recovery. A sustainable tourism framework must prioritize preparedness strategies, infrastructure resilience, and community engagement to mitigate risks while ensuring fair and sustainable recovery. Moreover, cooperation among governments, institutions, and local stakeholders—essential in disaster management—also plays a crucial role in sustainable tourism development. Thus, the SLTF complements disaster management by fostering adaptive strategies that protect livelihoods, preserve natural and cultural assets, and ensure long-term economic stability for tourism-dependent regions (Miller, 2021; Wahyuningtyas et al., 2021).

CONCLUSION

The bibliometric analysis reveals several key insights into the evolving discourse on disaster management within the tourism sector. First, the majority of publications indexed in Scopus are research articles, reflecting a growing academic interest in exploring new phenomena such as post-COVID-19 tourism recovery and strategic tourism development, beyond traditional reviews and book chapters. Second, the dominance of social science disciplines underscores the sector's relevance for policy development, particularly in improving disaster preparedness and ensuring sustainable tourism practices. Third, 2023 marked the peak in publication output, indicating

heightened scholarly attention to the intersection of disaster risk and tourism. Fourth, Indonesia emerged as the most represented country in this research area, reflecting both its significant tourism potential and high disaster vulnerability—highlighting the urgent need for context-specific disaster management strategies. Finally, a notable gap in the existing literature is the limited integration of local wisdom and cultural values in disaster management models. Future research should address this by developing community-based frameworks that incorporate indigenous knowledge and actively involve local communities in disaster risk reduction and tourism development efforts.

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