

“Sustainable project management for humanitarian disasters and refugee crisis management: Bibliometric analysis”

AUTHORS	Shahbaz Ahmad Saadi  Uygur Gokce Anna Dunay  
ARTICLE INFO	Shahbaz Ahmad Saadi, Uygur Gokce and Anna Dunay (2023). Sustainable project management for humanitarian disasters and refugee crisis management: Bibliometric analysis. <i>Problems and Perspectives in Management</i> , 21(3), 543-557. doi: 10.21511/ppm.21(3).2023.43
DOI	http://dx.doi.org/10.21511/ppm.21(3).2023.43
RELEASED ON	Monday, 11 September 2023
RECEIVED ON	Tuesday, 06 June 2023
ACCEPTED ON	Friday, 04 August 2023
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

34



NUMBER OF FIGURES

11



NUMBER OF TABLES

0

© The author(s) 2023. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 6th of June, 2023

Accepted on: 4th of August, 2023

Published on: 11th of September, 2023

© Shahbaz Ahmad Saadi, Uygur Gökce, Anna Dunay, 2023

Shahbaz Ahmad Saadi, Ph.D.
Candidate, Faculty of Management
and Business Administration, Doctoral
School of Economic and Regional
Sciences, Hungarian University of
Agriculture and Life Sciences, Hungary.
(Corresponding author)

Uygur Gökce, Ph.D. Candidate,
Faculty of Management and Business
Administration, Doctoral School of
Economic and Regional Sciences,
Hungarian University of Agriculture
and Life Sciences, Hungary.

Anna Dunay, Ph.D., Professor, Doctoral
School of Management and Business
Administration, John von Neumann
University, Hungary.



This is an Open Access article,
distributed under the terms of the
[Creative Commons Attribution 4.0
International license](https://creativecommons.org/licenses/by/4.0/), which permits
unrestricted re-use, distribution, and
reproduction in any medium, provided
the original work is properly cited.

Conflict of interest statement:

Author(s) reported no conflict of interest

Shahbaz Ahmad Saadi (Hungary), Uygur Gökce (Hungary), Anna Dunay (Hungary)

SUSTAINABLE PROJECT MANAGEMENT FOR HUMANITARIAN DISASTERS AND REFUGEE CRISIS MANAGEMENT: BIBLIOMETRIC ANALYSIS

Abstract

This study conducted a bibliometric analysis of the literature on sustainable project management in crisis management, particularly in humanitarian disasters, using the Scopus database. After filtration and abstract screening of 115,737 (1980–2022), only 544 related articles were identified and analyzed graphically using VoSviewer (visualization of similarities) to create maps of co-occurrence, co-authorship, and citations. The analysis provided an understanding of the most frequent keywords, key authors, journals, affiliations, and contributing countries in the literature on project management and crisis management. The trends observed in this study's results highlight the significance of sustainable project management within the realm of disaster management. This study examines the bibliometric parameters and indices as measures of research success and their potential implications for grant funding sources, universities, governments, and organizations. The findings suggest that bibliometric parameters and indices could be increasingly utilized by grant funding sources as metrics to evaluate research success. Universities and research institutions may consider incorporating benchmarking standards based on bibliometric data into promotion and tenure guidelines to determine academic achievement. Furthermore, governments and organizations may also benefit from establishing benchmark standards to enhance sustainability in disaster management projects. Although Scopus has limitations that prefer certain fields, this study provides avenues for future research, including using other databases and conducting a comparative study between Scopus and WoS (Web of Science) to determine their strengths and weaknesses.

Keywords

project management, sustainability, risk management, stakeholder engagement, crisis management, humanitarian crisis, refugee integration

JEL Classification

Q56, O22, H12, Q01

INTRODUCTION

In recent years, the field of sustainable project management in crisis management, specifically in the context of humanitarian disasters, has gained increasing attention from researchers and practitioners. Effective project management plays a crucial role in addressing complex challenges and ensuring the long-term sustainability of projects aimed at mitigating the impact of crises and facilitating the integration of affected populations. The purpose of this research is to contribute to the understanding of this important field by conducting a comprehensive bibliometric analysis of the literature using the Scopus database.

The scientific problem that this study seeks to solve is the need for a comprehensive understanding of the literature on sustainable project management in crisis management, specifically in the context of humanitarian disasters. This study examines the potential implications

of bibliometric parameters and indices as measures of research success for grant funding sources, universities, governments, and organizations. Grant funding sources can use these metrics to evaluate research success and make informed decisions about funding allocations. Universities can consider incorporating benchmarking standards based on bibliometric data into promotion and tenure guidelines, providing a more objective assessment of academic achievement. Moreover, governments and organizations can benefit from establishing benchmark standards informed by bibliometric data to enhance sustainability in disaster management projects.

1. LITERATURE REVIEW

Humanitarian crises, such as natural disasters, war, and displacement, can result in significant human suffering and social disruption. Effective project management can help organizations respond to these crises quickly and efficiently, providing aid to affected communities. Sustainable project management can also be relevant in the context of humanitarian crises, as it can help ensure that aid projects are implemented in a way that maximizes their long-term impact and minimizes any negative environmental or social consequences. This literature review examines the research work in the scope of the role of project management in humanitarian crises, highlighting key themes, different trends, and the identification of research gaps for further research. This can inform the development of more effective project management strategies and policies for responding to humanitarian crises and improving outcomes for affected populations.

One of the key themes in literature is the importance of effective project planning and coordination. Liedtke Müller et al. (2019) note that project planning can help humanitarian organizations to set clear goals, establish timelines and budgets, and identify potential risks and challenges. Coordination between different organizations and stakeholders is also critical for effective humanitarian crises management (Müller et al., 2019). Balcik et al. (2010) emphasize the need for collaboration and coordination among different actors, including governments, NGOs, and community groups, to ensure that aid efforts are well-coordinated and avoid duplication. Another key theme in literature is the importance of incorporating local perspectives and community involvement into project management efforts. Many authors have emphasized the importance of community engagement and

participation in humanitarian response efforts (Koch & Schermuly, 2021). This can help ensure that aid efforts are culturally appropriate, relevant to local needs, and sustainable in the long term (Apanovich, 2019).

The literature highlights the need for effective project monitoring and evaluation. Evaluation can help humanitarian organizations to assess the impact of their aid efforts, identify areas for improvement, and ensure accountability to donors and other stakeholders. Monitoring and evaluation efforts should be ongoing throughout the project lifecycle (Gupta et al., 2019; Strang & Vajjhala, 2022). Effective project management is critical for responding to humanitarian crises, providing aid to affected communities, and promoting recovery and resilience (Le et al., 2019). By incorporating best practices such as effective planning and coordination, community involvement, and ongoing monitoring and evaluation, organizations can maximize the impact of their aid efforts and ensure that resources are used effectively (Emerton et al., 2020).

Sustainable project management is crucial in humanitarian crisis management as it ensures long-term impact, maximizes efficient use of resources, promotes collaboration and stakeholder engagement, manages risks, and fosters transparency and accountability (Besiou et al., 2021; Pomponi et al., 2019). The approach helps to create lasting solutions to underlying problems and promotes resilience in affected populations (Armenia et al., 2019; Samara et al., 2022). Effective resource management, collaboration with stakeholders, and risk management are especially critical in humanitarian crises where resources are limited, and immediate response is required (Patil et al., 2021).

Human beings, including refugees and the communities hosting them, are important stakehold-

ers in rehabilitation projects for refugees. The success of such projects largely depends on the effective engagement and management of these stakeholders (Magassouba et al., 2019). Refugees are often the primary beneficiaries of rehabilitation projects aimed at improving their living conditions, health, and education (Pererva et al., 2021). Therefore, it is essential to involve them in the planning and implementation of these projects, ensuring that their needs and preferences are considered. Engaging refugees also helps to build trust, establish rapport, and promote ownership, which can lead to more sustainable project outcomes (Unger et al., 2020). The Syrian refugee crisis has affected millions of people since the onset of the Syrian conflict in 2011. Numerous Syrian migrants have left their homes and sought asylum in neighboring countries, such as Turkey. As a result, Turkey has become home to over 3.5 million Syrian refugees. Providing rehabilitation projects for these refugees is a significant challenge, and project management plays a crucial role in ensuring the success of such projects (Şahin-Mencütek et al., 2023).

The host communities are also key stakeholders in rehabilitation projects for refugees. These communities are often affected by the arrival of refugees, which can strain local resources, infrastructure, and services (Kiani et al., 2021). Therefore, it is essential to engage and collaborate with the host communities to ensure that the rehabilitation projects are implemented in a way that benefits both refugees and the host communities (Nóblega Carriquiry et al., 2020). This can help to reduce tensions, foster social cohesion, and promote integration (O'Brien et al., 2021). Other stakeholders in rehabilitation projects for refugees may include government agencies, NGOs, aid organizations, local businesses, and other members of the community (Al Tal et al., 2022). Effective stakeholder engagement and management are critical to ensuring that the needs and expectations of these stakeholders are addressed and that the project goals are achieved (O'Brien et al., 2021).

Transparency and accountability are also essential to build trust with affected populations and ensure the ethical implementation of projects (Pherali & Abu Moghli, 2021). By adopting a sustainable approach, organizations can ensure their humani-

tarian projects are effective, efficient, and have a positive impact on affected populations, even after the immediate crisis has passed (Vrchota et al., 2020).

This review begins by emphasizing the importance of effective project management in responding to humanitarian crises and highlights how sustainable project management can help maximize the long-term impact of aid projects while minimizing negative environmental or social consequences. The review also covers the importance of sustainable project management in humanitarian crisis management, which helps maximize the efficient use of resources, promote collaboration and stakeholder engagement, manage risks, and foster transparency and accountability. The literature further highlighted the significant contributions of authors like Al-Ghassani and Othman and journals such as the *Journal of Cleaner Production* and the *Journal of Refugee Studies* in this area.

Nevertheless, this study provides a comprehensive overview of the existing literature on project management in rehabilitation projects for Syrian refugees in Turkey and can serve as a valuable resource for researchers and practitioners in the field. The section also acknowledges the growing focus on project management for rehabilitation initiatives targeted toward Syrian refugees in Turkey, highlighting the significant contributions of authors and journals in this area.

Furthermore, the key themes in the literature were discussed, including the importance of effective project planning and coordination, incorporating local perspectives and community involvement, and ongoing monitoring and evaluation efforts. This study provides a comprehensive overview of the existing literature and can serve as a valuable resource for future researchers and practitioners.

The purpose of the study is to thoroughly comprehend the literature on sustainable project management in crisis management, particularly in humanitarian disasters, and examine the potential implications of bibliometric parameters and indices as measures of research success for grant funding sources, universities, governments, and organizations to improve decision making and enhance sustainability in disaster management projects.

2. METHODS

The methodology was designed to gather relevant data, analyze it, and derive meaningful results from this study. This study conducted a bibliometric analysis of already published literature on project management and sustainability in rehabilitation projects for people affected by humanitarian disasters and crises (Donthu et al., 2021; Moral-Muñoz et al., 2020). There are also some limitations of bibliometric analysis, such as the potential for bias and the difficulty in interpreting complex networks and indicators.

Figure 1 shows the research methodology used for this study. The three steps subdivided into seven steps are described as follows.

The first step in the research methodology was data extraction. The Scopus database was used to identify relevant articles published between 1980 and 2022. Only one database was used to avoid duplicate search results. Scopus is a comprehensive and widely used bibliographic database that includes scientific, technical, medical, and social sciences literature (AlRyalat et al., 2019).

The search strategy in this study involved the use of relevant keywords such as “project management”, with some alternatives like “management of projects”, “managing project”, “project management techniques”, “project management methods”, “project management tools”, and “sustainable project management” alternatively “sustainability in project management”. A total of 115,737 documents were identified through the Scopus database search ranging from 1980 to 2022 with main keywords in a string. The search language was limited to English for publications in peer-reviewed journals. The results were filtered then with the keywords like “Crisis Management”, “immigrant/migrant/refugee rehabilitation”, “Humanitarian crisis” and “Syrian refugees in Turkey” and the results were reduced to 544 and were downloaded in the csv format to upload into VoSviewer to generate maps for different calculations and combinations.

The use of the VoSviewer software for bibliometric analysis has become increasingly popular in recent years. In the present study, the latest version of VoSviewer (1.6.19) was employed to analyze the articles related to project management competencies (Moral-Muñoz et al., 2020).

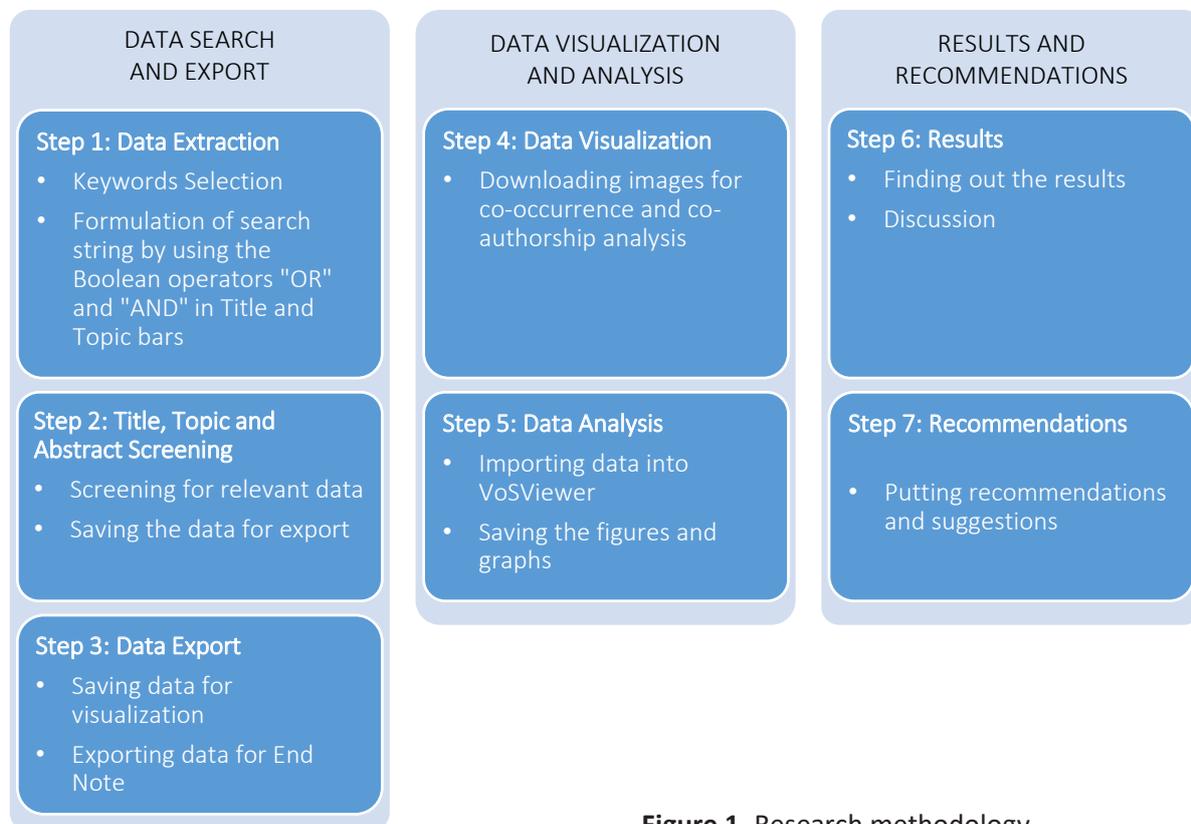


Figure 1. Research methodology

The use of large sample sizes in such studies can lead to the inclusion of irrelevant articles, resulting in a dilution of the findings and potential bias in the analysis (Khalife et al., 2021). One solution to this problem is to use an abstract screening technique, which involves a rigorous screening process to select only those articles that are relevant to the research question (Polanin et al., 2019).

The second step in the research methodology was data visualization and analysis. Scopus was used as the primary data source for this bibliometric study. The database was queried using a combination of keywords and Boolean operators such as “AND” and “OR” to identify relevant articles related to the research topic. The data extraction process involved three steps: Data Extraction, Title/Topic/Abstract Screening, and Data Export.

The research team downloaded images for co-occurrence and co-authorship analysis. The data was analyzed using VoSviewer, and the figures and graphs were saved for future use. The co-occurrence map, the VoSviewer software was also used to generate network analyses. Citation counts were used to identify the most influential articles, while co-authorship networks were used to identify key authors in the field. Journal co-citation networks were also analyzed to identify the most influential journals in the field.

The third step in the research methodology was the results and recommendations. The most influential institutions were those that had invested heavily in research, while the most influential journals were those that had published the most papers in the research field.

The research methodology adopted for the bibliometric study was successful in gathering relevant data and analyzing it to derive meaningful information. This study was concluded in a separate chapter. The methodology can be applied in other research studies to gather and analyze data in various research fields.

3. RESULTS AND DISCUSSION

The results of the bibliometric study conducted using Scopus and VoSviewer provide valuable insights into the landscape of research on the topic

of interest. The Scopus database allowed for the extraction of various data sample characteristics, including the total number of documents, the trend of the documents by year, and the pattern by the type of documents. Additionally, the analysis of documents by country/territory, authors, affiliation, and subject area provides a comprehensive understanding of the research landscape in this field.

The results from VoSviewer, on the other hand, offer a visual representation of the co-occurrence of authors' keywords, co-authorship patterns, co-authorship by country, and links with other authors and affiliations. Together, these results provide a clear picture of the existing research on the topic and the key players in the field.

3.1. Data sample characteristics

There are some important metrics in the characteristics of the data sample obtained from the Scopus search results, which are described in Table 1. For instance, the search may have yielded 378 sources, which could be journals, books, or other types of publications. The author's keywords, of which there were 1,448, can provide useful knowledge about the specific research topics that have been studied. The publication period, spanning from 1980 to 2022, indicates the trends in research over time. 502 authors contributed to the retrieved documents, with an average of 1.08 documents per author and an average of 0.92 authors per document.

Table 1. Characteristics of the output data

Description	Data
Sources (Journals, Books, etc.)	378
Author's Keywords	1448
Period	1980-2022
Authors	502
Documents per Author	1.08
Authors per Document	0.92

The analysis revealed that 89.8% of the total contribution consisted of journal articles and conference papers, with an equal ratio between them. The third most prevalent type of publication was reviewing papers, which accounted for 30 of the records. These metrics facilitate researchers in comprehending the additional findings of this study and enable benchmarking within the field.

3.2. The trend of the documents by year

Scopus search results also provide a graphical representation of the trend in the number of documents published per year. Figure 2, which displays this trend from 1980 to 2022, was prepared and downloaded from Scopus. The graphical representation reveals that the highest number of documents published was 43 in 2007, followed by 38 in 2004 and 35 in 2005. In contrast, the total number of documents published in 2022 was near the average of 22.

This information discovers the overall publication trends in the field over the years, indicating years of higher and lower publication activity. The trend depicted in Figure 2 provides valuable information about the historical progression of research in the field and highlights the periods of heightened research activity, enabling researchers to identify key milestones and potential areas of focus for future studies. In the subject field, having more than 40 publications in 2006 is considered the benchmark for a significant number of publications. This indicates a strong presence of research and scholarly work in the field during that year. However, there is still room for further research and efforts to meet the challenge of increasing the number of publications.

The reason behind the increased average number of documents per year might be projects initiated within the scope of the United Nations and other rehabilitation projects of international corporations and NGOs across the world.

Domestic researchers are the focus due to the wide variation in the average citation impact of nations, which could be attributed to differing national research infrastructure quality. Although researchers could be field-normalized against their country's publications, it is impractical for internationally mobile researchers (Maflahi & Thelwall, 2021).

While surpassing the benchmark demonstrates a notable level of scholarly activity, it also suggests that more work can be done to address the ongoing demand for research output. This suggests that researchers and practitioners in the field have the opportunity to contribute further publications and expand the knowledge base by using the peak graph values as a reference point.

3.3. Pattern by the type of documents

Scopus search results can also provide information on the types of documents published in the field. Figure 3 displays the pattern by the type of documents published that discuss project management within the scope of project-related crisis management and humanitarian relocation integration. Interestingly, the number of research articles and conference papers was equal, with a total of 224 publications. Journal articles and conference papers accounted for 89.8% of the total contribution, with an equal ratio of 112 each.

The third type of documents, review papers, appeared with a total number of 30. There are several possible reasons why the publication types included in this study were research articles, con-

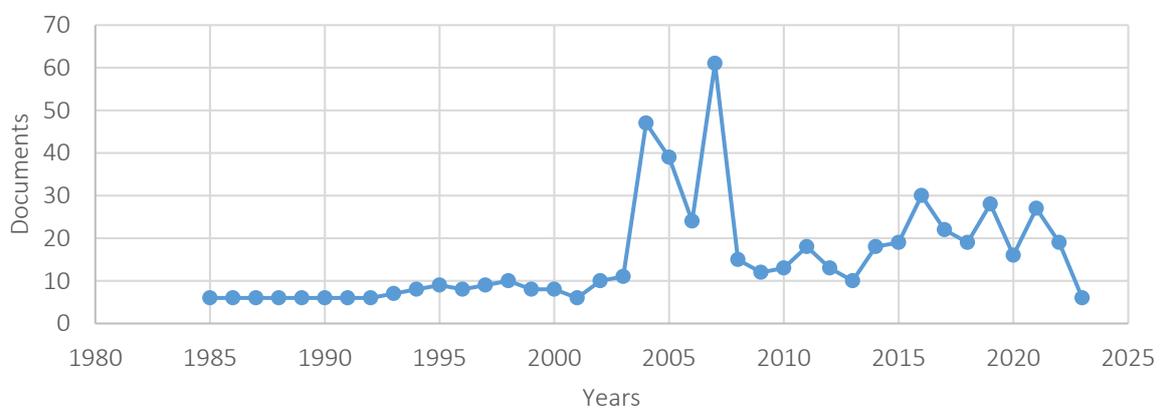


Figure 2. Documents by year

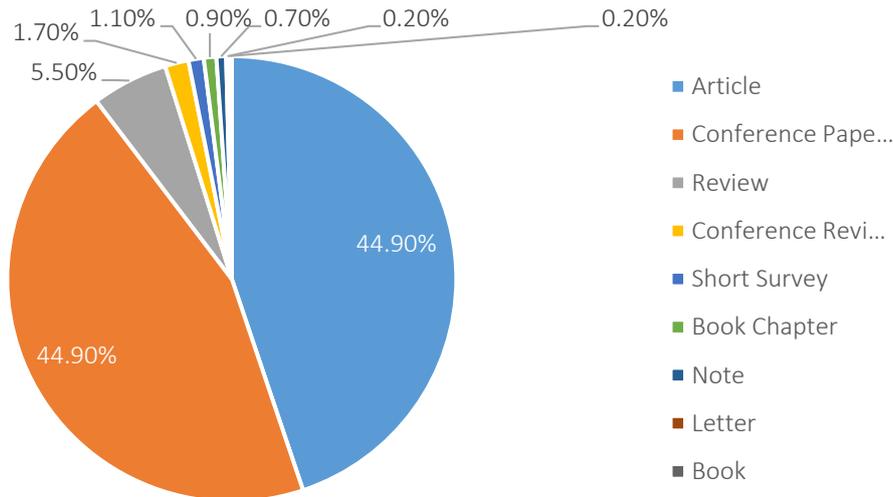


Figure 3. Documents by type

ference papers, and review papers with equal representation. Firstly, it may be because these publication types are the most common and widely accepted forms of scholarly communication in the field under study, and researchers tend to publish their work in these formats. Secondly, the selection criteria used by the researchers may have intentionally included these specific publication types because they were deemed most relevant to the research question or provided the most comprehensive coverage of the topic (Li et al., 2020). Research institutions can establish a benchmark by carefully assessing the extensive discussion of a research topic at conferences. By monitoring their performance against this benchmark, institutions can evaluate their level of involvement and contribution to the research topic in conferences and publications.

3.4. Documents by country/territory

Another research output data characteristic provided by Scopus search results is the geographic distribution of the publications. Figure 4 displays the documents by country/territory, revealing the most productive countries in the subject. The United States was the most productive country, producing 156 documents. Other prominent countries in the field include China, the United Kingdom, and Australia, with 50, 50, and 48 documents, respectively.

Additional countries with significant contributions to the field were also identified in Figure 4. Canada had 22 publications, while Germany and India both had 18 publications. The Netherlands, Italy, and Japan also had a notable number of pub-

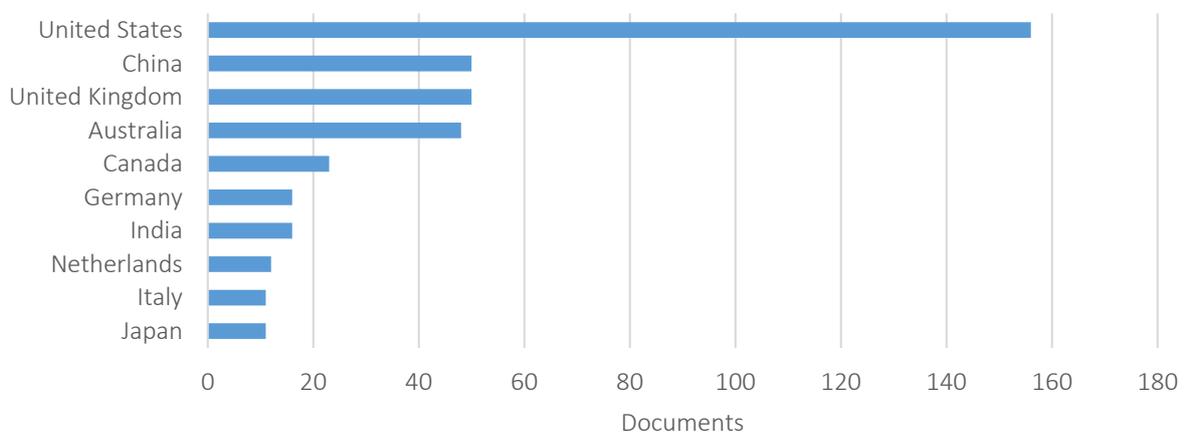


Figure 4. Documents by country/ territory

lications, each with 10 publications. This information provides details about the global distribution of research on the topic, highlighting the countries where research is most active. This information serves as a yardstick for researchers, indicating the countries where research activity is most prominent in the subject area. A notable number of conferences were held in the USA to present the research work on the topic, for example, the research paper with the title “Towards an Integrated Approach to Public Project Management for natural disasters” was published at the IISE Annual Conference and Expo 2018 (pp. 372-377). Omitting the country name and the Chinese language is crucial as it is frequently used in bibliometric analyses by VoSviewer (Pranckutė, 2021). In publications co-authored with researchers from China, the absence of the country name was noticed. The results served as a reference point to assess publication output concerning these prominent countries and identify potential collaborators or institutions with expertise in the field to foster research collaboration.

3.5. Number of documents by authors

Scopus search results provide information on the productivity of individual authors. Figure 5 displays the number of documents by authors in the field, revealing that one author, Loosemore, M., has worked on 12 related documents. Most of the authors have worked on more than two articles or

review papers within the scope of project management in refugee integration projects, indicating a trend of equal interest among the authors.

Most of the authors have three authorships in publications, for example Chou, J. S., Churray, B., Hidayat, B., Lee, E. B., and Lee, H. Bias may still occur in cases where multiple authors share the same name or when authors use different names in their publications (e.g., due to a name change after marriage). This indicates a consistent level of interest and commitment among the authors, suggesting a shared focus and dedication to advancing research in this domain. This information helped the researchers for this study in identifying authors who are experts in the field, potential collaborators, or researchers who have made significant contributions to the literature on the topic.

3.6. Number of documents by affiliation

The data on the number of documents by affiliation from Scopus search results helped the researchers for this study in identifying the most productive organizations involved in research work in the subject field of project management in refugee integration projects. Figure 6 shows that the UNSW Sydney, Kensington Campus in Australia contributed the most to the publications, one of the examples was the highly cited article with the title “Prioritizing Post-Disaster Reconstruction Projects Using an Integrated Multi-Criteria Decision-

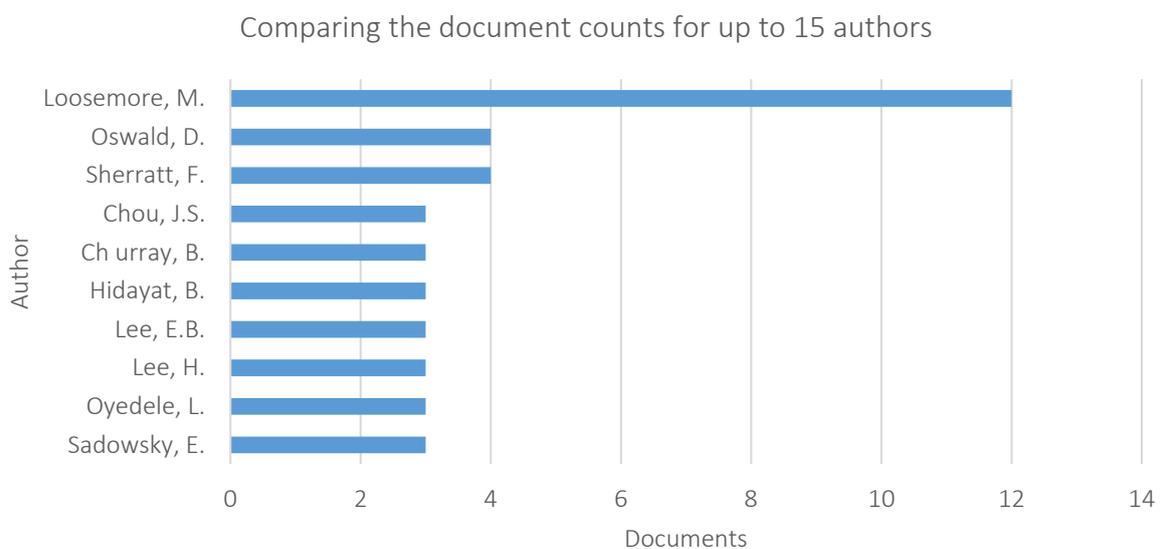


Figure 5. Number of documents by authors

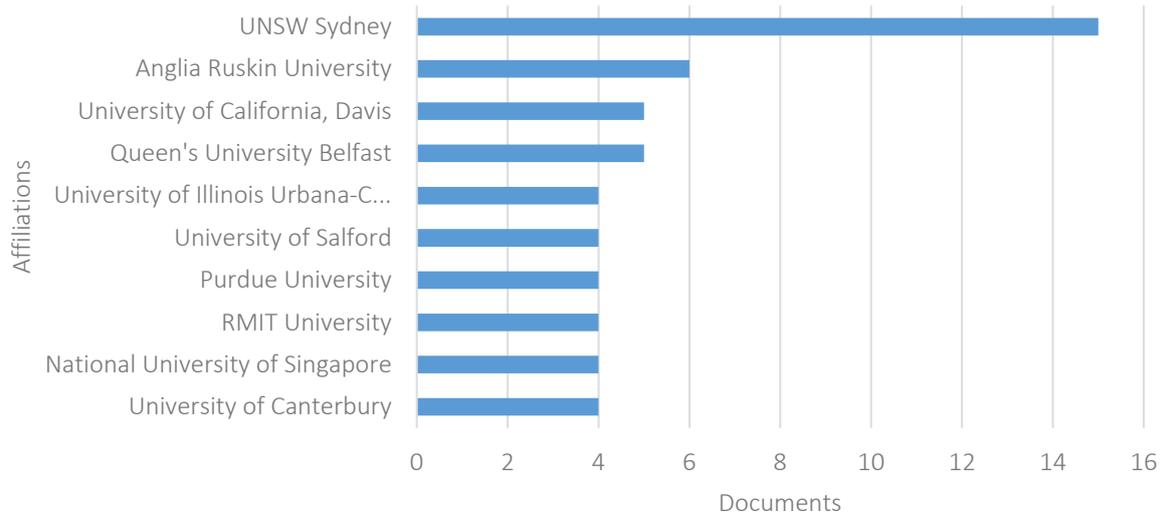


Figure 6. Number of documents by affiliation

Making Approach: A Case Study” published in the journal Buildings, 12(2), 136 in 2022. While other prominent affiliations had an average of four publications. Most of the organizations identified were universities or educational institutes, indicating that academic institutions are playing a significant role in the research on this topic.

These findings can serve as a pathway for funding organizations and universities, allowing them to gauge their research productivity and identify potential areas for collaboration and resource allocation. Results underline the importance of fostering partnerships between academia and funding organizations to support and promote further research advancements in project management and refugee integration.

3.7. Documents by subject area

The Scopus search results also provided information on the documents by subject area, which helped the researchers in understanding the distribution of research publications related to project management in refugee integration projects. Figure 7 shows that the largest percentage of publications, 35.6%, contributed to the Engineering field.

The other three subject areas with the highest number of publications are business management (11.1%), social sciences (10.1%), and environmental sciences (9.3%). This information identifies the most active areas of research related to the topic and gains insights into the interdisciplinary nature of the subject and endorses the literature that

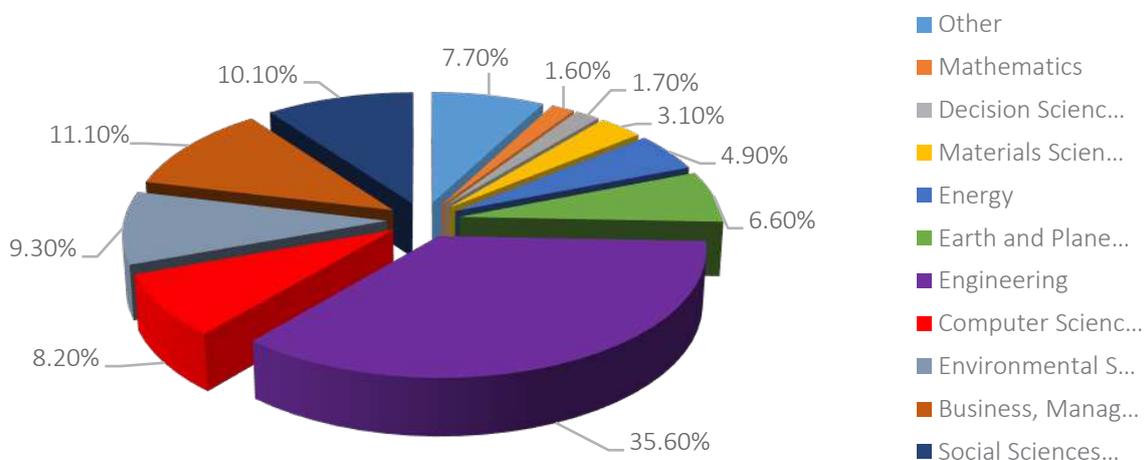


Figure 7. Percentage of documents by subject area

the engineering field is most discussed and studied in regards to project management in disaster management.

3.8. Co-occurrence of authors' keywords

The analysis of keyword co-occurrence and link strength offers a preliminary understanding of the relationships between different keywords. This type of analysis is increasingly important in the age of big data, as it allows researchers to identify patterns and trends that might otherwise go unnoticed (Cao et al., 2023; Chen et al., 2021).

However, it is important to note that this analysis is limited to the co-occurrence and relationships between keywords. It does not delve into the depth of each keyword's meaning or its specific contribution to the research field. Further analysis and interpretation are necessary to understand the contextual relevance and implications of these keywords within the broader scope of sustainable project management in humanitarian crises.

Co-occurrence analysis is a common technique used to identify the relationships and patterns between keywords in a given field. In this study, co-occurrence analysis was used to examine the author's keywords in the documents related to project management within the scope of crisis management and humanitarian relocation integration. By identifying the most frequent and

strongly related keywords, researchers can get a significant understanding of key topics and areas of focus within the field. Furthermore, the use of visualization techniques, such as the network in Figure 8, can help to convey complex information clearly and concisely.

The co-occurrence of authors' keywords is represented in Figure 8, generated from VOSviewer. The figure shows the total number of authors' keywords, which is 1,448, and their frequency is represented by the size of the nodes in the visualization. The thickness of the lines between nodes indicates the strength of the relationship between the associated keywords. The minimum number of co-occurrence of keywords was set to 5 as a threshold, and 26 records met the threshold.

The keyword "project management" occurred 48 times with a total link strength of 31, while "crisis management" and "disaster management" occurred 23 and 24 times, respectively, with a total link strength of 18. Other keywords with occurrences of 7, 6, and 5 were "rehabilitation", "sustainability", "migration", "post-disaster reconstruction", "risk management", "migrant workers", and "education". By appearing frequently in the analyzed dataset, these keywords suggest that researchers and practitioners in the field acknowledge the importance of implementing effective project management strategies to address the complex challenges posed by disasters and refugee crises. This recognition indicates a growing understanding

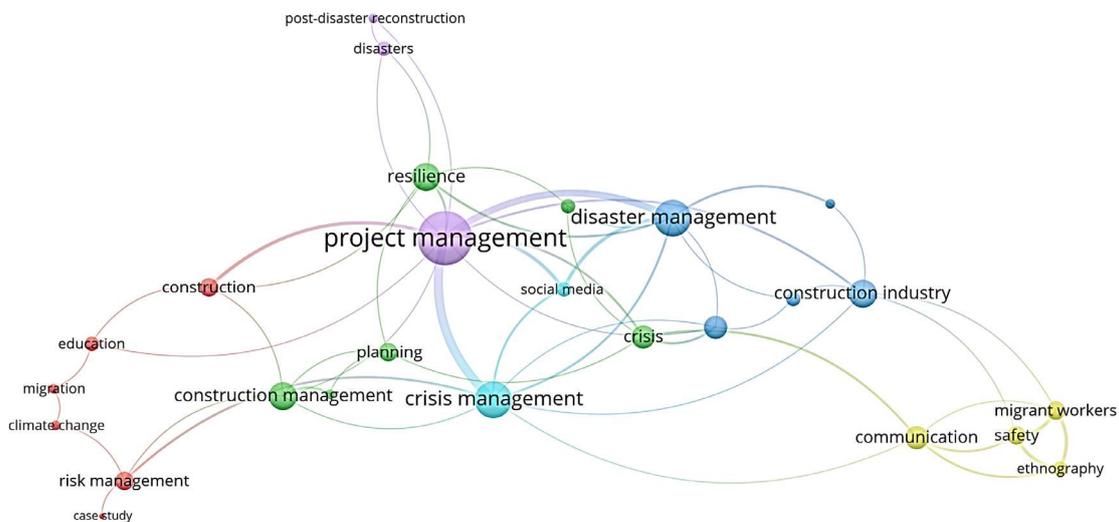


Figure 8. Map of co-occurrence of author's keywords

that traditional project management approaches may not be sufficient in these unique contexts.

The keyword “education” featured prominently in articles on sustainable project management and crisis management, highlighting the focus on integrating displaced individuals for rehabilitation and education. Unlike previous research, this study produced distinct outcomes, deviating from earlier findings. To optimize document discoverability during searches, employing diverse keywords and synonyms is crucial. Additionally, no total link strength was observed among co-authors and other authors in the dataset.

3.9. Co-authorship

The analysis of co-authorship networks can reveal the collaborative relationships between researchers from different countries. In this case, the minimum threshold of 5 documents per country was used to identify the 26 countries with significant contributions to the research field. The size of the nodes represents the number of authors from each country, with larger nodes indicating a higher number of contributors.

Co-authorship is a common practice in scientific research as it allows for collaboration and exchange of knowledge between researchers from different countries. The co-authorship network in Figure 9 indicates the collaborative efforts of researchers from various countries in the field of project management in crisis and refugee integration. The most prominent country in terms of collaboration is the United States with 33 authors, followed by the United Kingdom with 17 authors, and Australia with 15 authors. It is worth noting that many countries with fewer authors also showed a strong collaboration network, such as Canada,

Germany, and Italy. It was notable that authors from the United States were prominent in project management in crisis-related published literature. 17 authors had a minimum of two documents.

The value added by this research result lies in the recognition of the collaborative nature of scientific research, the global participation of researchers, and the prominence of certain countries in the field of project management in crisis and refugee integration. The findings highlight the collective effort and knowledge exchange that drives advancements in this field, fostering a comprehensive understanding of best practices, innovative approaches, and effective strategies for managing projects in crises.

Co-authorship analysis is a widely used method to examine collaboration patterns among researchers. Figure 10 displays a network map of the co-authorship links among the authors who have published documents related to the article title. No cluster was created nor were the links. The node thickness shows the contribution strength of the authors.

Overall, this research result suggests that the co-authorship analysis did not reveal prominent collaboration patterns or identifiable clusters among the researchers on this topic. This finding may indicate a relatively decentralized or fragmented research landscape, where individual researchers make contributions without strong collaborative ties. However, further analysis and interpretation would be necessary to fully understand the implications and significance of this result in the context of the research topic.

On the other hand, Figure 11 shows the co-authorship links among the affiliations involved in publishing documents related to the article title. The

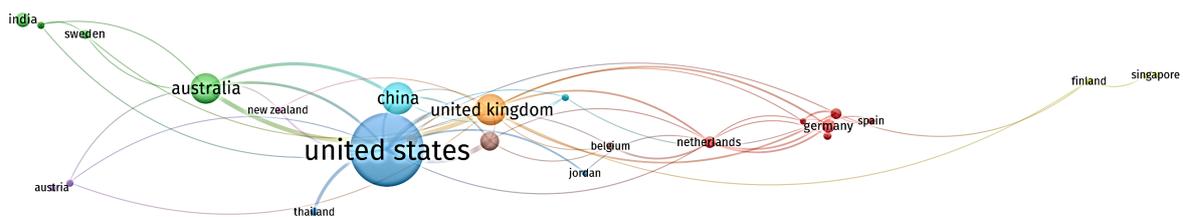


Figure 9. Co-authorship by country

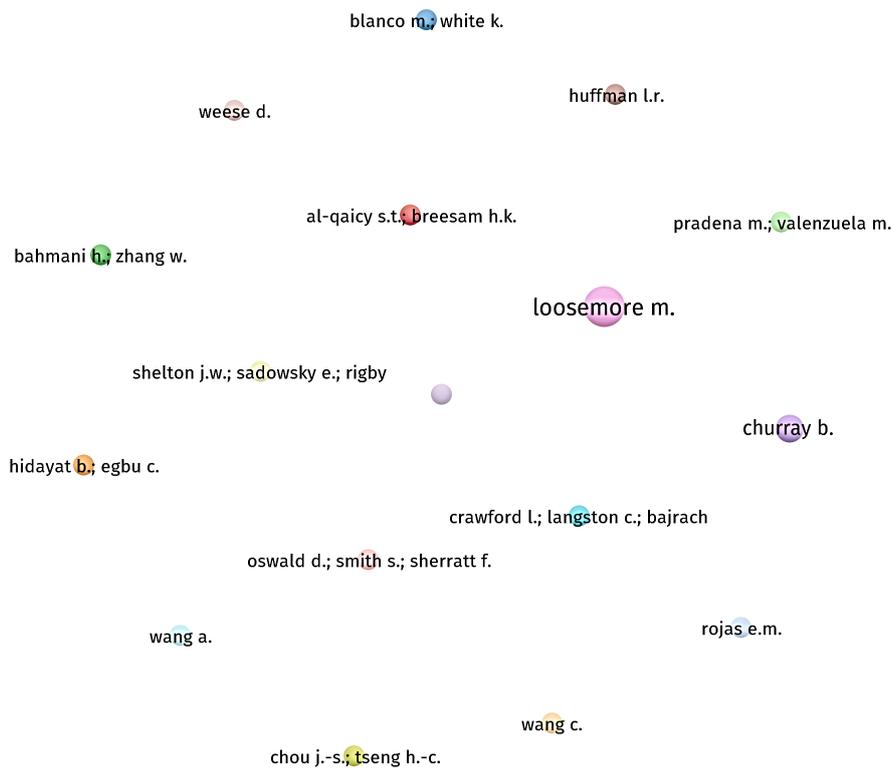


Figure 10. Co-authorship links with other authors

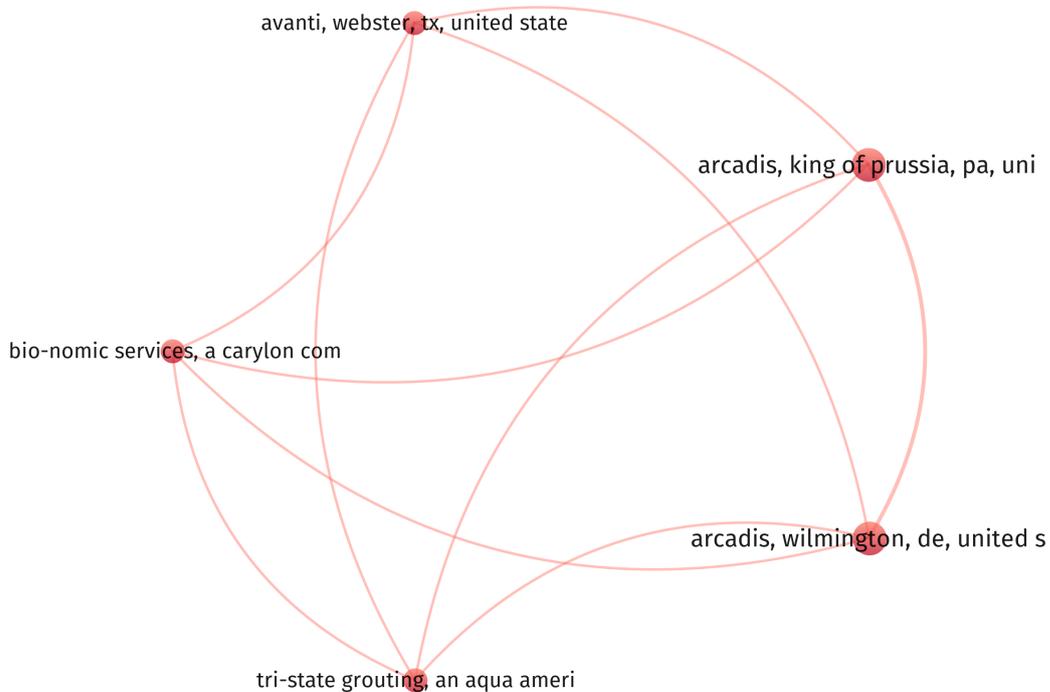


Figure 11. Co-authorship links with affiliations

visualization highlights the collaboration patterns between organizations, with the size of the nodes representing the number of documents published by each organization. Similarly, the thickness of the lines between the nodes indicates the strength of the co-authorship relationships between the organizations.

The main co-author with the number of documents and citation score was Loosemore, M. with 142 citations and 5 documents in the field of project management and disaster management. Oswald, D., Sherratt, F., Chou, J. S., Churray, B., Hidayat, B., and Lee, E. B. were also notable authors with citations and many documents. This research result highlights the collaborative dynamics between organizations within the research network and offers information about the collective

efforts and partnerships in producing scholarly documents related to the article's subject. Further analysis and exploration of these co-authorship relationships can shed light on the collaborative networks and potential research trends within the field. The map for co-authorship with affiliated organizations showed only one cluster was produced with 5 items when the minimum criterion was set to 5 documents for an organization. This suggests that the organizations involved in this research work are well-connected, and they have collaborated extensively to produce research outputs related to project management in crisis-related fields. The authors suggest that the limitations of the current study can be overcome by utilizing alternative databases such as WoS and Google Scholar, along with Harzing's Publish or Perish tool to validate and revise the current findings.

CONCLUSION

This bibliometric analysis aimed to investigate the literature on sustainable project management and crisis management, exploring the potential use of bibliometric parameters and indices in various sectors. The study highlights the value of these metrics in evaluating research success, determining academic achievement, and enhancing sustainability in disaster management projects. By considering these benchmarks, funding organizations and universities can strategically align their investments and research initiatives with areas demonstrating high research activity and impact in project management and refugee integration.

The data analysis results provide valuable insights into focus areas, emerging trends, and the interdisciplinary nature of project management in disaster and refugee scenarios. The findings offer valuable insights into focus areas, emerging trends, and interdisciplinary aspects of project management in disaster and refugee scenarios, guiding decision-making, resource allocation, and collaborative efforts. These findings can also benefit funding organizations and universities by assessing research productivity, identifying areas for collaboration, and promoting partnerships to advance research in project management and refugee integration.

Future research should focus on utilizing alternative databases, and exploring how project management can improve sustainable development in integration, aid, and rehabilitation projects for refugees and migrants, ensuring long-term impact on affected communities. Moreover, a comparative study between Scopus and WoS can be conducted to determine the strengths and weaknesses of these databases.

AUTHOR CONTRIBUTIONS

Conceptualization: Shahbaz Ahmad Saadi, Anna Dunay.

Data curation: Shahbaz Ahmad Saadi.

Formal analysis: Shahbaz Ahmad Saadi.

Investigation: Shahbaz Ahmad Saadi, Uygur Gökce.

Methodology: Shahbaz Ahmad Saadi.

Project administration: Shahbaz Ahmad Saadi, Anna Dunay.

Software: Shahbaz Ahmad Saadi.

Supervision: Anna Dunay.

Validation: Shahbaz Ahmad Saadi, Uygur Gökce.

Visualization: Anna Dunay.

Writing – original draft: Shahbaz Ahmad Saadi.

Writing – review & editing: Uygur Gökce, Anna Dunay.

REFERENCES

- Al Tal, R., Sallam, S., & Ali, H. (2022). Syrian Crisis Impacts on the International Refugee Education Fund in Jordan. *International Journal of Educational Reform*. <https://doi.org/10.1177/10567879221124882>
- AlRyalat, S. A. S., Malkawi, L. W., & Momani, S. M. (2019). Comparing bibliometric analysis using PubMed, Scopus, and Web of Science databases. *JoVE (Journal of Visualized Experiments)*, 152. <https://doi.org/10.3791/58494>
- Apanovich, Z. (2019). Matching of Authors and Publications in Multilingual Bibliographic Knowledge Bases. In *SSI* (pp. 26-37). <http://dx.doi.org/10.20948/abrau-2019-42>
- Armenia, S., Dangelico, R. M., Nonino, F., & Pompei, A. (2019). Sustainable project management: A conceptualization-oriented review and a framework proposal for future studies. *Sustainability*, 11(9), 2664. <https://doi.org/10.3390/su11092664>
- Balcik, B., Beamon, B. M., Krejci, C. C., Muramatsu, K. M., & Ramirez, M. (2010). Coordination in humanitarian relief chains: Practices, challenges and opportunities. *International Journal of Production Economics*, 126(1), 22-34. <https://doi.org/10.1016/j.ijpe.2009.09.008>
- Besiou, M., Pedraza-Martinez, A. J., & Van Wassenhove, L. N. (2021). Humanitarian operations and the UN sustainable development goals. *Production and Operations Management*, 30(12), 4343-4355. <https://doi.org/10.1111/poms.13579>
- Cao, H., Ou, H., Ju, W., Pan, M., Xue, H., & Zhu, F. (2023). Visual Analysis of International Environmental Security Management Research (1997–2021) Based on VOSviewer and CiteSpace. *International Journal of Environmental Research and Public Health*, 20(3), 2601. <https://doi.org/10.3390/ijerph20032601>
- Chen, Y., Cheng, L., Lian, R., Song, Z., & Tian, J. (2021). COVID-19 vaccine research focusses on safety, efficacy, immunoinformatics, and vaccine production and delivery: a bibliometric analysis based on VOSviewer. *Bioscience Trends*, 15(2), 64-73. <https://doi.org/10.5582/bst.2021.01061>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Emerton, R., Cloke, H., Ficchi, A., Hawker, L., de Wit, S., Speight, L., Prudhomme, C., Rundell, P., West, R., Neal, J., Cuna, J., Harrigan, S., Titley, H., Magnusson, L., Pappenberger, F., Klingaman, N., & Stephens, E. (2020). Emergency flood bulletins for Cyclones Idai and Kenneth: a critical evaluation of the use of global flood forecasts for international humanitarian preparedness and response. *International Journal of Disaster Risk Reduction*, 50, 101811. <https://doi.org/10.1016/j.ijdrr.2020.101811>
- Gupta, S. K., Gunasekaran, A., Antony, J., Gupta, S., Bag, S., & Roubaud, D. (2019). Systematic literature review of project failures: Current trends and scope for future research. *Computers & Industrial Engineering*, 127, 274-285. <https://doi.org/10.1016/j.cie.2018.12.002>
- Khalife, M. A., Dunay, A., & Illés, C. B. (2021). Bibliometric analysis of articles on project management research. *Periodica Polytechnica Social and Management Sciences*, 29(1), 70-83. <https://doi.org/10.3311/PPso.15717>
- Kiani, M. M., Khanjankhani, K., Takbiri, A., & Takian, A. (2021). Refugees and sustainable health development in Iran. *Archives of Iranian Medicine*, 24(1), 27-34. <https://doi.org/10.34172/aim.2021.05>
- Koch, J., & Schermuly, C. C. (2021). Managing the crisis: how COVID-19 demands interact with agile project management in predicting employee exhaustion. *British Journal of Management*, 32(4), 1265-1283. <https://doi.org/10.1111/1467-8551.12536>
- Le, H. T. T., Dao, Q. T. M., Pham, V.-C., & Tran, D. T. (2019). Global trend of open innovation research: A bibliometric analysis. *Cogent Business & Management*, 6(1), 1633808. <https://doi.org/10.1080/23311975.2019.1633808>
- Li, Y., Wang, K., Xiao, Y., & Froyd, J. E. (2020). Research and trends in STEM education: A systematic review of journal publications. *International Journal of STEM Education*, 7(1), 1-16. <http://dx.doi.org/10.1186/s40594-020-00207-6>
- Maflahi, N., & Thelwall, M. (2021). Domestic researchers with longer careers generate higher average citation impact but it does not increase over time. *Quantitative Science Studies*, 2(2),

- 560-587. https://doi.org/10.1162/qss_a_00132
18. Magassouba, S. M., Tambi, A. M. B. A., Alkhlaifat, B., & Abdullah, A. A. (2019). Influence of stakeholders involvement on development project performance in Guinea. *International Journal of Academic Research in Business and Social Sciences*, 9(1), 1111-1120. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3514461
 19. Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *Profesional de la Información*, 29(1). <https://doi.org/10.3145/epi.2020.ene.03>
 20. Müller, R., Drouin, N., & Sankaran, S. (2019). Modeling organizational project management. *Project Management Journal*, 50(4), 499-513. <https://doi.org/10.1177/8756972819847876>
 21. Nóbrega Carriquiry, A., Sauri, D., & March, H. (2020). Community involvement in the implementation of sustainable urban drainage systems (SUDS): The case of Bon Pastor, Barcelona. *Sustainability*, 12(2), 510. <https://doi.org/10.3390/su12020510>
 22. O'Brien, R. M., Phelan, T. J., Smith, N. M., & Smits, K. M. (2021). Remediation in developing countries: A review of previously implemented projects and analysis of stakeholder participation efforts. *Critical Reviews in Environmental Science and Technology*, 51(12), 1259-1280. <https://doi.org/10.1080/10643389.2020.1755203>
 23. Patil, A., Shardeo, V., Dwivedi, A., Madaan, J., & Varma, N. (2021). Barriers to sustainability in humanitarian medical supply chains. *Sustainable Production and Consumption*, 27, 1794-1807. <https://doi.org/10.1016/j.spc.2021.04.022>
 24. Pererva, P., Kobieliava, T., Tkachov, M., & Diachenko, T. (2021). *Management of relations with enterprise stakeholders based on value approach*. *Problems and Perspectives in Management*, 19(1), 24-38. [http://dx.doi.org/10.21511/ppm.19\(1\).2021.03](http://dx.doi.org/10.21511/ppm.19(1).2021.03)
 25. Pherali, T., & Abu Moghli, M. (2021). Higher education in the context of mass displacement: Towards sustainable solutions for refugees. *Journal of Refugee Studies*, 34(2), 2159-2179. <https://doi.org/10.1093/jrs/fez093>
 26. Polanin, J. R., Pigott, T. D., Espelage, D. L., & Grotzinger, J. K. (2019). Best practice guidelines for abstract screening large-evidence systematic reviews and meta-analyses. *Research Synthesis Methods*, 10(3), 330-342. <https://doi.org/10.1002%2Fjrsm.1354>
 27. Pomponi, F., Moghayedi, A., Alshawreh, L., D'Amico, B., & Windapo, A. (2019). Sustainability of post-disaster and post-conflict sheltering in Africa: What matters? *Sustainable Production and Consumption*, 20, 140-150. <https://doi.org/10.1016/j.spc.2019.06.007>
 28. Prancutė, R. (2021). Web of Science (WoS) and Scopus: The titans of bibliographic information in today's academic world. *Publications*, 9(1), 12. <https://doi.org/10.3390/publications9010012>
 29. Şahin-Mencütek, Z., Gökalp-Aras, N. E., Kaya, A., & Rottmann, S. B. (2023). *Syrian Refugees in Turkey: Between Reception and Integration*. Springer Nature.
 30. Samara, A., Sweis, R. J., Tarawneh, B., Albalkhy, W., Sweis, G., & Alhomsy, S. (2022). Sustainability management of international development projects by International Non-Governmental Organizations: The case of INGOs working with refugees in Jordan. *International Journal of Construction Management*, 22(9), 1657-1666. <https://doi.org/10.1080/15623599.2020.1741490>
 31. Schöpfel, J., & Prost, H. (2021). How scientific papers mention grey literature: a scientometric study based on Scopus data. *Collection and Curation*, 40(3), 77-82. <https://doi.org/10.1108/CC-12-2019-0044>
 32. Strang, K. D., & Vajjhala, N. R. (2022). Testing risk management decision making competency of project managers in a crisis. *The Journal of Modern Project Management*, 10(1), 52-71. <https://doi.org/10.19255/JMPM02904>
 33. Unger, C. J., Everingham, J.-A., & Bond, C. J. (2020). Transition or transformation: shifting priorities and stakeholders in Australian mined land rehabilitation and closure. *Australasian Journal of Environmental Management*, 27(1), 84-113. <https://doi.org/10.1080/14486563.2020.1719440>
 34. Vrchota, J., Řehoř, P., Maříková, M., & Pech, M. (2020). Critical success factors of the project management in relation to industry 4.0 for sustainability of projects. *Sustainability*, 13(1), 281. <https://doi.org/10.3390/su13010281>