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Review Article

Bibliometric and systematic analysis of disaster risk reduction and climate change adaptation research: Thematic evolution and intellectual structure

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ABSTRACT- The rising rate and severity of climate-related disasters have placed resilience as a key paradigm in the practice of disaster risk reduction (DRR) and climate change adaptation (CCA). This paper is a mixed-method study that incorporates bibliometric analysis and systematic literature review to map the intellectual structure and thematic evolution of disaster and climate change resilience research in 2011-2025. We analyzed 83 Scopus-indexed documents (including 46 peer-reviewed articles) to measure trends in publications, collaboration networks, and thematic progressions, with a qualitative synthesis following PRISMA guidelines. Results indicate that the number of publications experienced geometric growth after 2018, due to international policy frameworks, including the Sendai Framework and the Paris Agreement. The field has a strong collaborative culture with 3.24 co-authors per document and an international co-authorship rate of 31.33%. The United States is also the most prolific contributor, with increasing influence shown by China, Australia, India, and South Africa. Thematic analysis shows that there was a conceptual shift between the early years (2016-2019), when there was a strong emphasis on adaptive management and adaptation, and integrated concepts of vulnerability (2020), resilience (2021), and climate resilience (2022), indicating a shift towards proactive capacity-building rather than reactive risk management. Although this has come to pass, there has continued to be a theory-practice gap, especially in the operationalization of resilience in context-specific settings. The study also shows that indigenous knowledge systems, gendered vulnerabilities, and Global South perspectives are underrepresented in the mainstream literature. The present study is a contribution to a comprehensive intellectual map of the field and the identification of priority areas of focus in translational research, inclusive resilience strategies, and policy interventions that bridge global frameworks with local realities.

INTRODUCTION

Climate, geophysical, and anthropogenic disasters remain sizable threats to human life, vital infrastructure, ecosystems, and even the economic stability of the world (Ramya et al., 2023). The frequency, intensity, and unpredictability of these events have been increasing over the last 20 years, leaving unprecedented pressure on the socio-ecological system, increasing vulnerability, especially in developing and climate-sensitive areas (Turner et al., 2020). Anthropogenic climate change progressively worsens hazards that are caused by climate, including floods, cyclones, droughts, and heatwaves (Amin et al., 2025; Sheikh and Pervez, 2025). At the same time, geophysical disasters, such as earthquakes, tsunamis, and volcanic eruptions, disrupt livelihoods and populations and hinder development (Islam et al., 2021). Moreover, anthropogenic forces, such as haphazard urbanization, industrial disasters, deforestation, and overexploitation of natural resources, exacerbate preexisting vulnerabilities, turning a small-scale hazard into a regional disaster. Together, these obstacles hinder sustainable development and exacerbate disparities within and between countries. Resilience has become the most critical concept in disaster risk reduction (DRR) and climate change adaptation (CCA) due to the interconnected nature of risks (Ni'mah et al., 2021). Resilience is the ability of individuals, communities, institutions, businesses, and systems within a city to endure, adapt, and thrive even when under significant stress or shock. In this context, climate resilience refers to the ability of socio-economic and environmental systems to cope with and recover from the shocks and stresses caused by climate change. Disaster resilience, on the other hand, refers to the policies, mechanisms, and capacities that enable people to be less vulnerable to a wide range of natural and manufactured hazards over the long term. People are starting to perceive these two sectors as connected and working together. Climate change is a risk multiplier that increases the frequency

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and scale of disasters (Britchenko, 2025). The concept of resilience has become a major aspect of the international climate and catastrophe governance policy. The Sendai Framework on Disaster Risk Reduction (2015-2030), the Paris Agreement (2015), and the United Nations Sustainable Development Goals, in particular, SDG 13 (Climate Action), all demonstrate that nations are determined to develop a resilience-based way (Lucatello and Alcanta-Ayala, 2023). Specifically, the Sendai Framework changes the emphasis to a more proactive way of responding to disasters rather than addressing them once they happen (Aitsi-Selmi et al., 2015). The Paris Agreement also underscores the need to have climate-resilient development paths, and the SDGs offer a methodology of combining the concept of disaster and climate resilience with the general development of eliminating poverty, enhancing equity, and long-term goals (Leal-Arcas et al., 2025). These policy drivers have resulted in a lot of study, investment, and collaboration among different sets of people. Consequently, resilience has become a mainstream of urban planning, development of infrastructure, ecological governance, and adaptation activities that are community-based. The concept of resilience is dynamic and multifaceted, and it has a wide variety of definitions in various areas, approaches, and methodologies. It often makes its operationalisation dependent on the recognition of the interaction between social, ecological, economic, and institutional perspectives and the incorporation of the voice of the marginalised, as well as the integration of locally-based epistemic frameworks in knowledge processes (Gosselin and Gauquelin, 2025). Top-down strategies to public health have often been blamed for ignoring community-based capacity and traditional practices, along with gender-specific weaknesses, resulting in interventions that are not only inclusive but also not adequately context-specific (Islam et al., 2025). This realization has seen more interdisciplinary studies in an attempt to come up with more comprehensive, interactive, and adaptive resilience measures. Against the backdrop of the increasing amount of recent literature, both the bibliometric and the systematic review approaches have become more essential in the process of determining gaps in the research literature, changes with time in subjects or methods, and the discovery of new research areas. Bibliometrics gives a numerical value of the knowledge system in a field of research, such as publication habits, influential writers and journals, and primary materials of particular subjects or countries (Gan et al., 2022). It also demonstrates the information on who works with whom on the network, the frequency of citing one another, and emerging research groups.

Coexisting with them are systematic review approaches that enable the synthesis of the analysis of results of prior studies in a qualitative manner, enabling reviewers to evaluate a robust approach to the methodology, a breakthrough in thinking, and to indicate areas of research that should be examined in the future (Zamiri and Esmaeili, 2024). The combination of these approaches allows a deeper and more comprehensive understanding of the evolution of the study and resilience, and where particular interventions are most urgently needed.

It is a twin-mode study that finds the academic literature on resilience to disasters and climate change and synthesizes it through a bibliometric approach on topics in the field, focusing on the period 2011-2025, and can be found in Scopus. Based on 83 peer-reviewed articles, we plotted the intellectual map of this discipline. We extracted major contributors, thematic clusters, community-based resilience, urban risk governance, ecosystem-based adaptation, and resilience assessment indicators. Early bibliometric evidence indicates that bibliometric data have risen considerably in the global community, especially in climate-prone areas like South Asia, Sub-Saharan Africa, and Southeast Asia (Naicker et al., 2025).

Nevertheless, it is also possible to note persistent gaps in the traditional and indigenous knowledge systems, gender responsive planning, and practices adapted locally to the resilience research and policy development (Aziz and Anjum, 2024). These gaps urgently need to be bridged to make a difference towards a more inclusive, place-specific notion of resilience, one that transcends across a range of disciplines and can be able to respond to an ever more complicated risk environment of the 21st century. Through such an extensive point of entry, a bibliometric and systematic review, the current study aims at having not only a quantitative mapping of the scholarly production of the same subject area but also a synthesis of thematic and methodological orientations of disaster and climate change resilience. By this, it gives a good foundation on which more research and development, as well as further salvage, can be done to enhance the resilience, justice, and sustainability of societies in the era of growing climate and disaster risk.

The overall objective of this review is to search through the academic literature corpus on disaster and climate change resilience, where feasible, to elicit patterns/evolution that are intellectually thematic between 2011 and 2025. The targeted objectives of this paper are to examine the trends of publication and research development in the last two decades. Determine the time trends, geographic priorities, and fundamental sources of the field. Identify the key writers, the leading journals, the geographical location where this discourse is concentrated, and the institutions that advance it in the world. Examine such major thematic groups of community-based resilience, urban risk governance, ecosystem-based adaptation, and resilience indicators. Determine research gaps, especially in the incorporation of traditional knowledge, gendered vulnerabilities, and practices of adaptation by the indigenous. Provide knowledge-based insights to facilitate further research and policy implementation by the stakeholders, practitioners, and policymakers involved in the development of the context-specific inclusive resilience strategies.

The increased number, intensity, and unpredictability of disasters, coupled with the global climate crisis, have made resilience prominent in recent DRR and CCA studies (Majlingova and Kádár, 2025). With growing risks to communities throughout the world posed by climate change and more intricate socio-ecological risks, the concept of the resilience has become a multidimensional construct that is no longer confined to

the traditional risk and vulnerability models. The 6 chosen key primary articles fit well in the overall conceptual and methodological platform. They utilized the aspects of resilience research to develop the perception of how it can be constructed at various levels, sectors, and contexts.

One of the key publications in this respect is Kenney et al. (2023), which emphasizes the urgent necessity to combine overlapping but usually separate spaces between climate change adaptation and disaster risk reduction. The two areas of study have the same goal of minimizing vulnerability and increasing adaptive capability; however, both have historically developed along different institutional and disciplinary paths. Leichenko et al. (2011) state that these gaps impede the development of integrated plans and policies to curb the structural risk factors that are pervasive, such as poverty, inequality, and the lack of governance. The promotion of a broad framework has led to an impact on future efforts and policy development that sees resilience both as a short-run process in risk management and as a longer-term and adaptive response. This conceptual overlap first perception formed the basis of the more elaborate plans of coalescence that merge the imperative demands of disaster preparedness with systemic social and economic change.

The most detailed analysis of the bases of assessing resilience in urban planning and policy development is offered by Rana (2020). Their study illuminates a growing scope of approaches and measures to measure resilience in terms of physical, social, institutional, and environmental levels. However, they do so to indicate that in some cases, an excessively concentrated attention on infrastructure and technology resilience overlooks socio-political concerns, such as governance, fairness, and involvement of the population. This study has led to the quest to develop new multidimensional, inclusive, participatory, and multidimensional approaches to explain the complexities of urban systems in the conditions of climate-related stressors. These works have influenced the current discourse on resilience strategies in cities, as well as promoted fair and inclusive resilience strategies. Siriporananon and Visuthismajarn (2018) empirically investigate and critically analyze the conceptual and operational uncertainties and challenges of the idea of urban resilience in the US, thus further doubting the localization of resilience. The authors reveal that the concept of resilience and its objectives are not unanimously agreed upon by interviewing urban planners and decision-makers. This gave rise to either ambiguous or conflicting local policies. Resilience, which is a phrase that has turned into the motto of researchers in the present day. They feel that those metrics and paradigms that suit all must be substituted with interventions that are sensitive to the local setting, are relevant to equity, and are founded on institutional capacities, cultural values, and community priorities. Kim et al. (2024) return to the concept of Social Vulnerability Index (SoVI) to discuss social vulnerability and emphasize the fact that long-standing inequalities define the unequal exposure and the ability to respond in communities. Cutter et al. (2003) split the variables of susceptibility, including wealth, education, race, and housing quality, to give a clear example of the way social and geographical inequalities increase the risks of climate disasters and catastrophes. That outlook has greatly influenced the development of equity-based resilience initiatives on disadvantaged and vulnerable populations so that the strategies do not contribute to the unintentional reinforcement of injustice but rather promote social justice and inclusive adjustments. Imani et al. (2021) create a system resilience model that studies the dynamics between governance, social learning, and adaptive capacity in an action-oriented way. Their study on Asian cities shows that complex and uncertain climate issues can be dealt with using flexible and inclusive governance that enables cities to manage the challenge. The paper emphasizes that resilience is an iterative and ongoing process that needs the active participation of stakeholders, dynamic knowledge creation, and institutional learning. This understanding has shaped modern resilient policies that seek to combine bottom-up engagement with top-down assistance in policy formulation.

MATERIALS AND METHODS

Research design and search strategy

This paper uses a hybrid methodological approach that combines both quantitative bibliometric and qualitative Systematic Literature Review (SLR) to chart the intellectual terrain of disaster and climate change resilience. On December 17, 2024, a literature search was conducted using the Scopus database, chosen due to its broad interdisciplinary scope of the environmental and social science literature. In order to maximize sensitivity and precision, a complex query was used based on Boolean operators and truncation: TITLE-ABS-KEY (“Disaster AND Climate Change Resilience”).

Refinement and deduplication process

The first search used was a broad query, which was to help find the overlap of four major conceptual areas, so that no thematic studies of interest would be missed. Although Scopus was used as the main database, internal deduplication was done with the Bibliometrix R package to find and match records to the same DOI or title/author signature. In order to keep the academic standards high, the dataset was narrowed down to the peer-reviewed journal articles, and document types like conference abstracts, book chapters, editorials, and notes were not included. A thorough process of screening titles and abstracts manually led to the shift to the final corpus of 83 records. This was done in a stepwise refining process in order that resilience was kept as a keyword and not a marginalized keyword, as well as to offer profound thematic understanding in lieu of superficial results.

Bibliometric protocol

Bibliometric indicators were computed using the Bibliometrix R package and VOSviewer to statistically assess trends in publications and research impact (Khatun et al., 2025; Mahedi et al., 2025). Fully counting patterns of scientific production and collaboration at the country level was studied. In this way, one country per author of

institutional affiliation was credited with one publication, which means that a complete picture of international cooperation is formed, and the contribution of multi-institutional research is not underestimated.

SLR and quality assessment

To provide a high level of methodological transparency and reproducibility, the SLR followed the Preferred Reporting Items (PRISMA) framework to the letter. It was carried out in accordance with a strict three-step screening process, starting with the identification of one, during which the preliminary records were searched in the Scopus database and de-duplicated based on the Bibliometrix R package to identify records with the same DOI or metadata signature. At the screening phase, 83 articles were subjected to the predefined inclusion criteria, namely, the peer-reviewed journal articles published in 2011-2024. During the last eligibility and synthesis step, a narrow set of six articles was narrowed down to be examined in greater depth, using qualitative methods. A strict Title-and-Keyword Alignment (TKA) protocol was used to select the final selection of articles, with the wider bibliometric corpus of 83 articles being narrowed down to the most contextually relevant studies and included in the systematic synthesis.

Visualization and research reproducibility

Biblioshiny and VOSviewer were used to produce network maps and co-occurrence clusters to visualize thematic evolution and hotspots in research. Longitudinal analysis was used to complement these visualizations to demonstrate the change in the focus of research throughout the study period. The authors keep all the intermediate result tables and certain R-script parameters used to cluster so that transparency and extension of the results in future scholarly research are possible.

Data availability statement

To comply with the principles of open science and to facilitate the reproducibility of the research, the authors will share the curated data (in RIS and CSV formats), as well as the RIS and code for visualization in Bibliometrix. These are the materials that underlie the reported measures, the annual growth rates, and country-specific outputs, and can be requested by the respective author with reasonable demand. This will make sure that the findings of this study in terms of monolithic production landscape and thematic transitions will be verifiable and extendable by the scientific community independently.

RESULTS AND DISCUSSION

Description of the data

The included bibliometric data are 83 publications between 2011 and 2025, which were found in 71 different journals and books. The discipline has a strong scholarly influence, with documents being on average 14.29 citations referenced, but the average age of documents is 4.27 years old, which reflects active and impactful research. It has a good collaborative culture, shown by the average of 3.24 co-authors per document, a prominent rate of international collaboration of 31.33. The academic basis is high, and the articles are based on 4,859 sources. The limited number of author keywords (313) and Keywords Plus (320) is sufficient coverage of the research scope that reflects a wide range of thematic interests. The output in terms of publications is diverse, including 46 articles, 19 book chapters, 7 books, and 10 publications connected with conferences, which demonstrates a balanced blend of conventional and team-based academic communication.

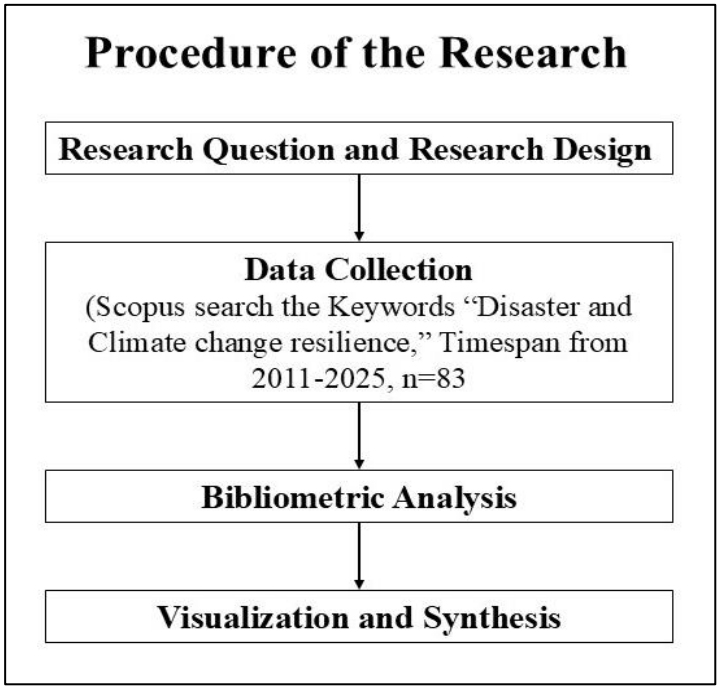

Fig. 1. Research Methodology.

Table 1. Description of the Data

Main information about the data	Result
Timespan	2011:2025
Sources (Journals, Books, etc.)	71
Documents	83
Annual Growth Rate (%)	0
Document Average Age	4.27
Average citations per doc	14.29
References	4859
Keywords Plus (ID)	320
Author's Keywords (DE)	313
Authors	255
Authors of single-authored docs	13
Single-authored docs	13
Co-authors per Doc	3.24
International co-authorships (%)	31.33
Article	46

Annual progression

Fig. 2 shows the annual production of articles 2011-2020, which shows clear and remarkable changes in the output of research in the decade. The statistics provide evidence of a sector whose activity was initially low, and the number of publications was very low and sporadic from 2011 to 2017, with two years (2014 and 2015) not producing any output. This phase of low productivity was preceded by a radical and significant upsurge starting in 2018. The number of publications grew exponentially, reaching a climax of 7 articles in 2018 and 11 in 2019, then slightly correcting to reach 8 in 2020. This inflexion point implies a turning point or a convergence of interests in the field that propelled it and changed it from a niche field to an accelerated field of active research. The trend underscores an old-fashioned emergent trajectory wherein a topic accumulates critical mass, and as a result, a long phase of strong research and more scientific discourse occurs.

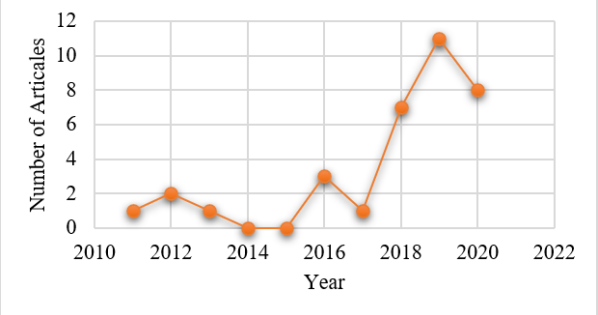

Fig. 2. Annual progression of publication, annual scientific production, and growth trajectory in disaster resilience research (2011–2025).

Citation

The stacked column chart shows the bibliometric indicators from 2011 through to 2022, and it includes: Mean TC per article, N, Mean TC per year, and Citable Years. The data display obvious peaks in 2012 and 2016, with that of 2012 having the highest impact, which was dominated by MeanTCperArt, which indicates a strong citation performance. Other years, including 2017, 2021, and 2022, demonstrate little activity, which implies lesser output or influence on citations. On the whole, the chart indicates wavy tendencies in the efficiency and effectiveness of research, and specific intervals of academic eminence.

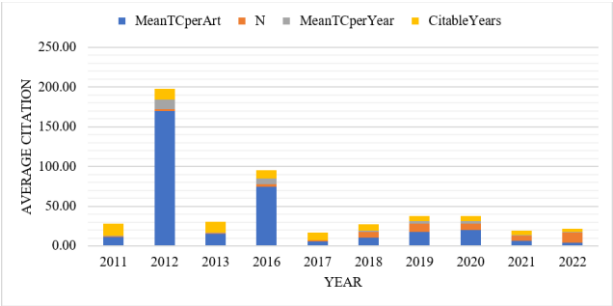

Fig. 3. Average annual citation impact and fluctuations in research performance (2011–2022).

Authors outputs

The horizontal bar chart is an illustration of the comparison of total publications (Articles) and shared authorship contributions (Articles fractionalized) among the top authors. The greatest output and the largest fractionalized share are demonstrated by AL-GHAMDI SG, which has four publications and a large portion of collaboration. SERDAR MZ and LASSA JA have also deeply contributed, and the values of their contribution are also fractionalized, suggesting active co-authorship. Other authors like PHIBBS S, KENNEY C, and ABRAMS A have moderate outputs with fewer publications, and the outputs of MAHMOOD R, LI G, ESLAMIAN S, and CHEN B have fewer publications with smaller proportional shares. The difference between the total and fractionalized counts underscores varying trends of authorship, that is, high productivity of an individual versus cooperative work. In general, the chart shows the changes in academic output and co-authoring relations among contributors.

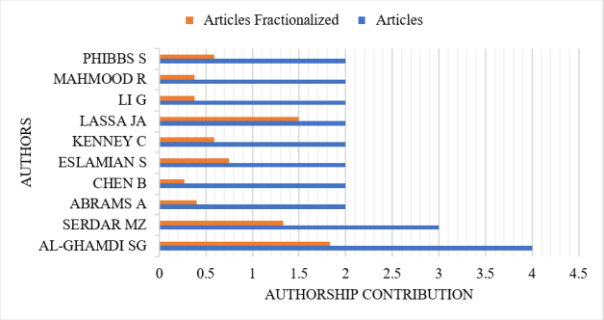

Fig. 4. Productivity analysis of most relevant authors based on total and fractionalized article counts.

Corresponding author's countries

The chart Top Corresponding Author Countries is based on the given data and presents the distribution of the scholarly leadership of a particular research area across the world. The United States (USA) is the biggest contributor, and it has the highest number of publications. This is succeeded by a wide range of countries such as Australia, China, Thailand, India, South Africa, the United Kingdom, Bangladesh, Canada, and South Korea, meaning that there is an extensive global interaction. The following measures in the list include Articles, Articles (%), SCP (Single Country Publications), MCP (Multiple Country Publications), and MCP (%), which are vital in the study of collaboration patterns. Both SCP and MCP figures indicate that a mixture of strong domestic research programs in the individual countries and the high level of international co-authorship defines the sphere. This balance points to a research area that is not only powerful nationally but on a global scale, and the knowledge production is supported by a web of leading countries that cooperate (collaboration) on a substantial level across borders. The fact that many of these countries have a large proportion of MCP would highlight the highly collaborative and globalist nature of the field.

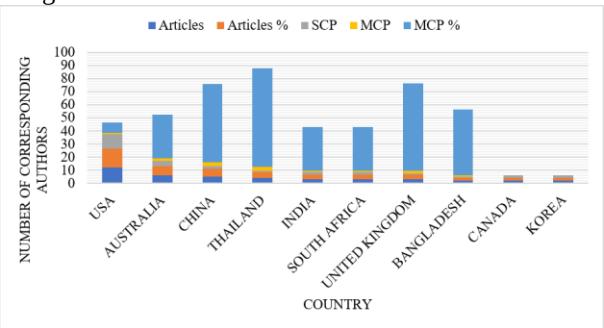

Fig. 5. Top 10 corresponding authors' countries.

Scientific production by countries

This bar graph can be described as Scientific Production by Countries, and it represents the ten best national contributors to a given field of research that the USA dominates in terms of production. The fact that this variety of sources is geographically distributed indicates the increased international applicability of the field and is one of the contributors to the distributed character of contemporary science. The USA occupies the first place in the list of bars and has over 60 publications. Next, there is China, the second biggest provider of scientific papers. This implies that there is an active role of this country on the world scene. South Africa, India, and the United Kingdom (UK) are also significant contributors. This shows that there is a lot of academic work in both well-established and new areas where studies are growing. The list is completed by countries like South Korea, New Zealand, Australia, Bangladesh, and Canada, and this is to show that the people of all nations are taking part, but their productivity is uneven. It is evident in the graphic that the US and China have the highest contribution to intellectual production in the subject. It is also highly sought after by other nations, not only in Asia (with China being one of them), but also in Africa, Europe, and North America.

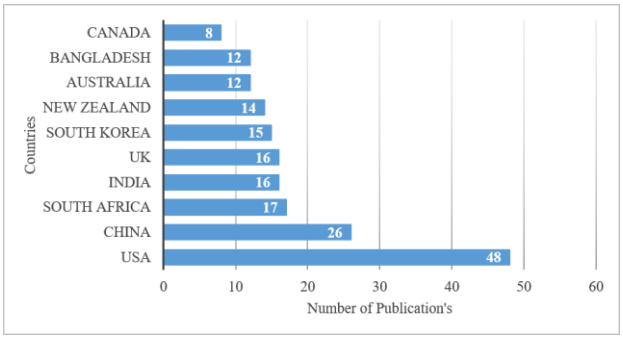

Fig. 6. Comparative analysis of top 10 countries by total scientific output and geographic influence.

Countries' production over time

The data visualization reveals the following trends as presented in the form of a Geographic Production Graph (GPG) called Countries' Productions over Time, the yearly geographic origin of scientific publications between 2011 and 2022. The outcome is a strange and incredible example of one-nation domination. All the active years of publishing during this period are denoted as having the USA as the sole contributing country. This indicates that the USA had a continuous success of academic work in this particular field over a period of eleven years, and this is the period when no other country was reported to have produced an author of similar work. The data indicates intermittent activity during the initial years (2011-2013), a 2014 and 2015 gap, and thereafter another pattern of annual production since 2016. This trend indicates that this was not only the field pioneered by the USA, but also the domain of absolute dominance over its intellectual production in this era, which essentially produced the research landscape as a monolithic producer before other countries probably joined in the more recent years, which cannot be well encapsulated in this perspective.

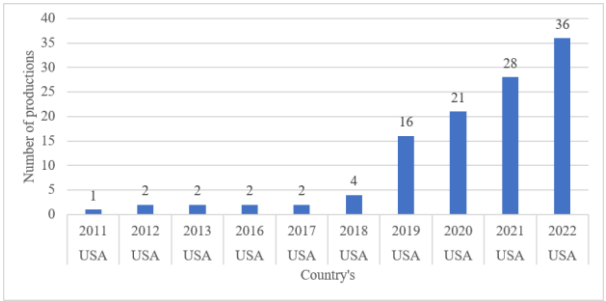

Fig. 7. Countries' production over time.

Trend topics

Fig. 8 is a thematic and temporal breakdown of the main terms in a body of academic literature, which successfully scales the degree of movement through the research focus in the area. The analysis shows that there is a definite conceptual hierarchy, with climate change being the most repeated word (47 occurrences), which defines itself as the general theme. Comparatively, such sub-themes as resilience (21 occurrences) and disasters (14 occurrences) emerge. The columns Year (Q1, Median, Q3) give an important understanding of the maturation of these concepts. Prior expressions, including adaptive management (Median Year: 2016) and adaptation (Median Year: 2019), show an underlying emphasis on strategic reactions. This shifted to more interconnected and modernized terms as later median years of vulnerability (2020), resilience (2021), and significantly climate resilience (2022) point to a recent integration of climate and resilience thought. The latest terms, climate change, disasters, and climate resilience, each have a third quartile (Q3) in 2023, which proves them as up-to-date, innovative discourse. The shift in terms of management and evaluation in terms of resilience and integration portrays an area that has transformed dynamically over time, with reactive strategies and a proactive approach towards capacity and adaptation building of the system.

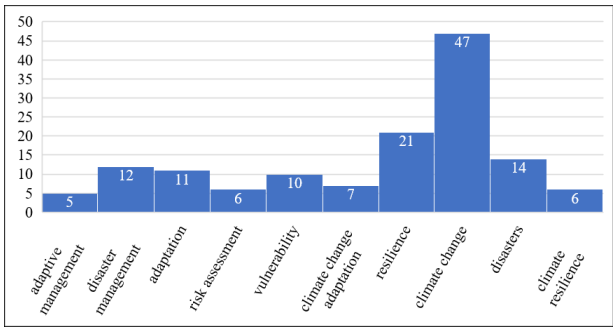

Fig. 8. Thematic evolution and temporal mapping of emerging keyword trends (2011–2024).

This disaster and climate change resilience literature bibliometric and systematic review shed some light on a scholarly area, which has evolved into a full-fledged field out of an early stage, and repurposing. We discover that, despite being a very young and in fact still emerging field, points-net has already rather solid grounds upon which to rely in future academic research, in terms of average citations per document (14.29) and cumulative citations (4,859). The initial literature was slow, but considering the abrupt rise in publications in 2018, it was a significant inflexion point in this direction. This rise in the number of publications during the years culminated in 11 publications in 2019, indicating a critical mass of academic activity, possibly triggered by an increase in the number of climate and weather disasters, and global agreements, including the Sendai Framework on Disaster Risk Reduction and the Paris Agreement. This move to the periphery of academia to remarkably rapid growth is a time-honored academic game where a marginal issue can take off due to the overlap of world policy needs, a backlash of increasing real-world concerns, and an academic realization that the issue is relevant across the disciplines. The discipline is fairly new and has already left its mark, with the average document age of 4.27 years and several documents receiving many citations. Lastly, the two peaks (in 2012 and 2016) can be interpreted as the culmination of these influential papers having offered scientific scaffolding to future research, which could be used to explain how early seminal work has shaped the identity and direction of the field. The very strong spirit of cooperation that we felt was the social structure of the field. Considering that the co-authors per document stand at 3.24 and that the rate of international collaboration is at 31.33, the setup of disaster and climate change resilience appears to be organized as a social, multidisciplinary, and transnational speech act. Within the limits of the authors, the levels analysis reflects in the order of decreasing numbers, displaying the indicators of their productivity and collaboration with others in an equally growing trend of receiving a single-based end approach. This variety is also evident in the authorship, which strengthens the interdisciplinary character of these topics and the acknowledgment of the necessity of environmental science, policy, urban planning, public health, and engineering to collaborate with each other. In management, as well, this cross-border collaboration goes on. As regards the corresponding author's language and scientific productivity in general, the USA is leading with an unchanging trend in 2006-2017 that affects the topics according to their coverage anew. But the ombudsman is not insular by any means, and whatever you want to make of her world. More recently, China, Australia (accompanied by New Zealand), India, and South Africa have also become large contributors, as well, with Bangladesh, Canada, and South Korea growing to a greater and greater role; it is a more globalized research world. The in-country, domestic research contribution and multi-country partnership relative balance indicates strong in-country research ecosystems and an ever more significant international interactions within a global (non-bordered) context, as in climate change and disaster resilience. Nonetheless, US hegemony addresses unequal giving of knowledge and the necessity of additional voices by South American nations such as El Salvador, where climate change and disaster consequences are usually experienced most intensely. The thematic development of the field, in terms of author keywords and trend topics, can perhaps be the most apparent alteration, if nothing else. Past papers were devoted to such notions as adaptive management and adaptation, median years of 2016 to 2019, which indicates a strategic framing of climate risks. Conversely, it has become chiefly concerned with socio-ecological systems, explicitly, with the emergence of such words as vulnerability (median year 2020) and resilience (median year 2021). Integrative ideas like climate change, disaster, or most of all, climate resilience (median year: 2022) have become prevalent in recent years, and the term resilience has become the central concept. The given direction assumes the replacement of mostly reactive interventions to control the known risks in the

current locations with proactive and systemic measures that will increase adaptability in the long-term by decreasing underlying susceptibility. And this thematic maturity in the field is more and more responsive to the forces of development of global trends and contemporary events in policy and discourse on science, such as--but not limited to--resilience as a centralizing frame used to discuss both climate uncertainty and the risk of disaster. Nonetheless, they are based on transformative work, systems approach, and inclusion. Taken altogether, these results, combined, sound like a portrait of hazard and climate change resilience research as a growing pivot, as an active and fruitful field of research, the growth of which in the publication has been nothing short of impressive, which makes it already capable of producing a strong scholarly influence and already enables it to have a substantial degree of internationalization over somewhat more than one decade. There is an air of rival leadership, particularly on the part of the US, of global involvement on a massive scale, an element that demonstrates that the issues it is addressing have become so networked. Theoretically, the shift toward approaches that are more adaptation-oriented toward more comprehensive resilience is not only conceptually mature, but also features an indication of responsiveness to changing world agendas. Meanwhile, the collection of donated literature helps justify the need to promote neglected perspectives, in particular, those of regions where the impact of climate change is most immediate. To continue on this path, the field needs to interlace systems of cooperation and mend the disciplinary divide between the local and the global one, such that scholars may contribute to both the implementation of solutions that are just and the implementation strategies that are transformational. In a nutshell, the research on resilience to disasters and climate change has emerged as an important, urgent, and high-impact discipline of research that nature has not acquired its thematic quality lightly, but rather, the human societies in the 21st century have to be bringing to bear the serious challenges that climate change and disaster have placed upon them, which has been given the impact it has assumed.

CONCLUSION

In this study, a dual-layer bibliometric and systematic review of the resilience research on disaster risk reduction and climate change adaptation was conducted, mapping the intellectual landscape between 83 documents published between 2011 and 2025. The results indicate that the field experienced a transformative pathway, i.e., occasional initial outputs were followed by a rapid increase in the output volume after 2018. The thematic change in the adaptive management concept to integrated resilience concepts represents not just conceptual maturation, but also a paradigmatic shift in the concept of adaptive management to that of integrated resilience concepts. The quantitative analysis demonstrates a well-collaborative, transnational research community, with the USA continuing to lead, but emerging economies (China, India, South Africa, and Bangladesh) are increasing their contributions to the knowledge production. This geographic concentration is, however, problematic in terms of epistemic representativeness, as those regions that are most susceptible to climate change, most notably the Global South, continue to be underrepresented in relevant authorship and agenda-setting positions. These bibliometric patterns are supported by the systematic synthesis and reveal persistent gaps: the disconnect between theoretical resilience frameworks and their practical operationalization, the marginalization of indigenous and local knowledge systems, the inadequate integration of gender-responsive planning, and the paucity of longitudinal, cost-benefit empirical studies on resilience interventions. The main contributions of this study include: (1) a reproducible, mixed-methods protocol that combines bibliometric indicators with PRISMA-guided qualitative synthesis, (2) empirical identification of thematic inflection points and emerging keyword trajectories (e.g., the median year of publication of the articles in the referenced studies is 2022), (3) a critical assessment of geographic and institutional biasness in knowledge production, and (4) a targeted research agenda that prioritizes translational, context-sensitive, and inclusive approaches. Limitations should be realized: the exclusive use of the Scopus database, a relatively small corpus of analysis (46 articles after refinement), and the inherent limitations of the bibliometric techniques in capturing grey literature, non-English articles, and knowledge based on practice. Future studies ought to scale up the coverage of databases (Web of Science, Dimensions, and regional indices), use the co-word evolution and keyword burst detection on cross-sectional time series, and include the qualitative case studies of under-researched regions. Policy and practice implications: The chronic theory-practice gap requires translational research involving co-production of resilience strategies with local populations, integration of local indigenous early warning systems, and intersectional susceptibility (gender, caste, age, and disability). Investment practices must focus on participatory action research in hotspots that are vulnerable to climate change, especially in South Asia, Sub-Saharan Africa, and Small Island Developing States. The immediate need is standardized yet flexible resiliency assessment tools, able to capture both the biophysical and the socio-institutional dimensions. Conclusively, the research on disaster and climate resilience has become a high-impact, urgent scholarly field that has developed conceptually and collaboratively in one decade. However, its future course is subject to intentional action to decolonize knowledge production and bridge disciplinary and geographical divides, as well as translate theoretical consensus into equitable, actionable resilience on the ground. This work offers a roadmap of where the field has been as well as a compass of where it must go- towards inclusive, transformative, and contextually grounded resilience in an era of increasingly rapid climate risk.

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DECLARATION OF COMPETING INTEREST

The authors declare no conflicts of interest.

ETHICAL STATEMENT

This study was conducted in accordance with the principles of the Declaration of Helsinki. Approval was obtained from the Ethics Committee of the Department of Agronomy and Agricultural Extension at the University of Rajshahi.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author.

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