



A Bibliometric Analysis on Climate Change and Environmental Justice

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Abstract: Climate change and environmental justice have attracted growing interest among researchers and academics over the past decades. This study employed a bibliometric analysis of 994 articles, authored by 3,307 individuals, on climate change and environmental justice published between 2001 and 2026. Data from the Scopus database were analysed using VOSviewer and the Biblioshiny package in RStudio. The study examined the most cited countries, the most relevant sources, and the co-occurrence network. The findings revealed that research in this field has grown steadily over the years. A multidisciplinary approach is essential for developing a more comprehensive understanding of this field.

Keywords: Climate Change, Environmental Justice, Co-occurrence network

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Introduction

Climate issues have been among the most crucial environmental challenges of recent decades, affecting present and future generations. Climate change impacts different communities across different regions unevenly. Vulnerable and marginalised sections are the most affected by climate change. Therefore, environmental justice is highly relevant in this context. Ensuring environmental justice is important regardless of a person's colour, ethnicity, socioeconomic status, or ability to access a safe and healthy environment. Climate change disproportionately affects low-income populations and both low- and high-income countries, making it an environmental justice issue. Without proper justice and fairness, policies aimed at mitigating these effects are less effective (Resnik, 2022). Environmental justice originated in the United States in the 1980s and later expanded to the United Kingdom and Europe. Environmental justice ensures the equitable distribution of environmental quality among social groups.

Environmental justice has three components: environmental justice, quality, and racism. There are many global environmental justice issues, such as food security, climate change disasters, e-waste, agriculture, pesticides, and CO₂ emissions. In the global context, marginalised and vulnerable groups are protected within a broader framework (Lekha, 2023). Climate change effects, such as heat waves, high temperatures, inadequate water, sanitation and hygiene, and undernutrition, have undesirable health outcomes (Chaudhury, 2024). Global climate change is a challenge for managing natural resources. Sustainable development practices can enhance adaptive capacity, which signifies environmental justice (Adger, 2001). Climate change influences the lives of vulnerable populations, including disadvantaged populations. They suffer from different health disparities (Wilson et al., 2010). Many countries across the globe lack the technology, wealth, and government institutions to deal with climate change, and developing and developed countries are exposed to climate change to varying degrees (Miranda et al., 2011).

A vast amount of literature on climate change and environmental justice is dedicated to in-depth analysis. Several studies have focused on the current research discourse. This study employs a bibliometric analysis of global trends in this field to identify pivotal research trends. This paper covers many aspects, such as: (i) the most relevant authors, articles, journals, countries, and institutions; and (ii) the most prominent research areas in the field of climate change and environmental justice.

Methods

The paper employs a comprehensive bibliometric analysis to explore research progress in the field of climate change and environmental justice between 2001 and 2026. A total of 994 documents authored by 3,307 individuals were extracted from the Scopus database. The search was conducted using the specific search term “An analysis of climate change impact and environmental justice” in the “Full Record” field. This approach ensured that the analysis was based on a diverse body of literature in the field. Bibliometric analysis tools, including VOSviewer and the Biblioshiny package in RStudio, were used to obtain a comprehensive overview of this research domain.

Results

Annual Scientific Production

The annual scholarly articles published from 2001 to 2026 were extracted from the Scopus database. The annual publication has been increasing over the years. From 2011 to 2020, a total of 196 articles were published across the globe.

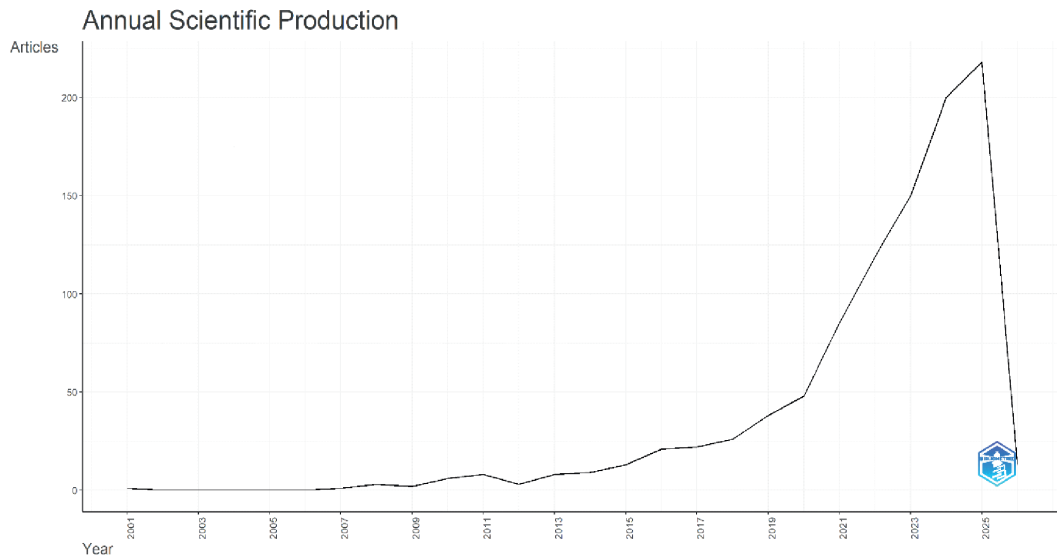


Figure 1: Total articles published

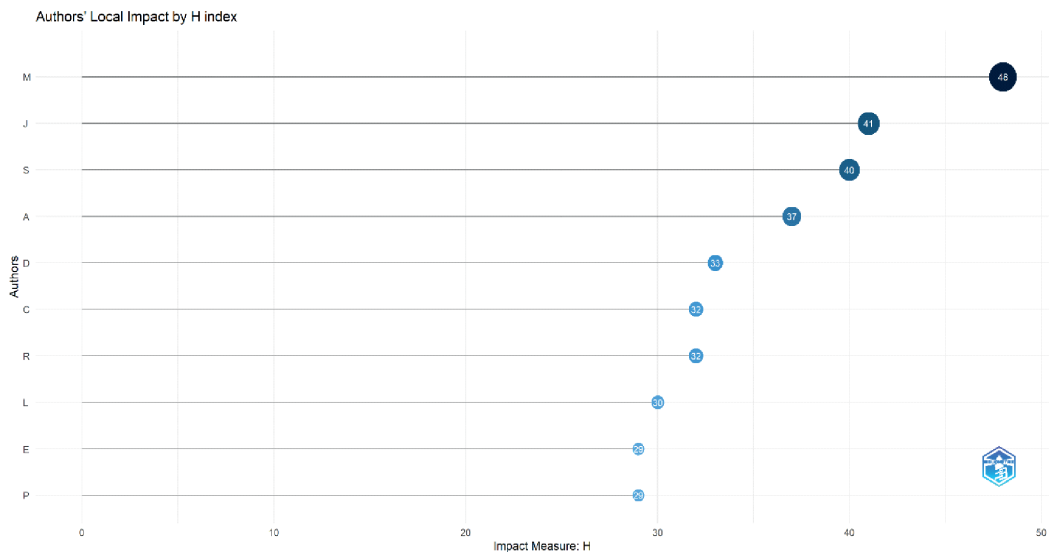


Figure 2: Authors' Local Impact

An exhaustive search of the Scopus database covering the period from 2001 to 2026 identified 994 papers relevant to the topics of “climate change” and “environmental justice.” The authors’ local impact, measured using the h-index, was highest for M (48), followed by J (41), S (40), A (37), and O (33).

Country Scientific Production

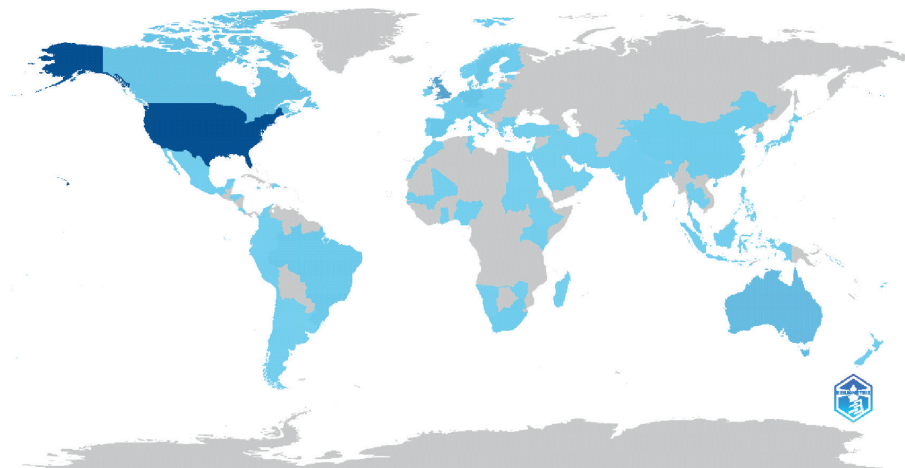


Figure 3: Scientific Production by Countries

Figure 3 examines the top countries' scientific production on climate change and environmental justice, with the deepest blue tones corresponding to the highest publication counts. The topic is widespread worldwide and is highly relevant in the USA, the UK, and Germany.

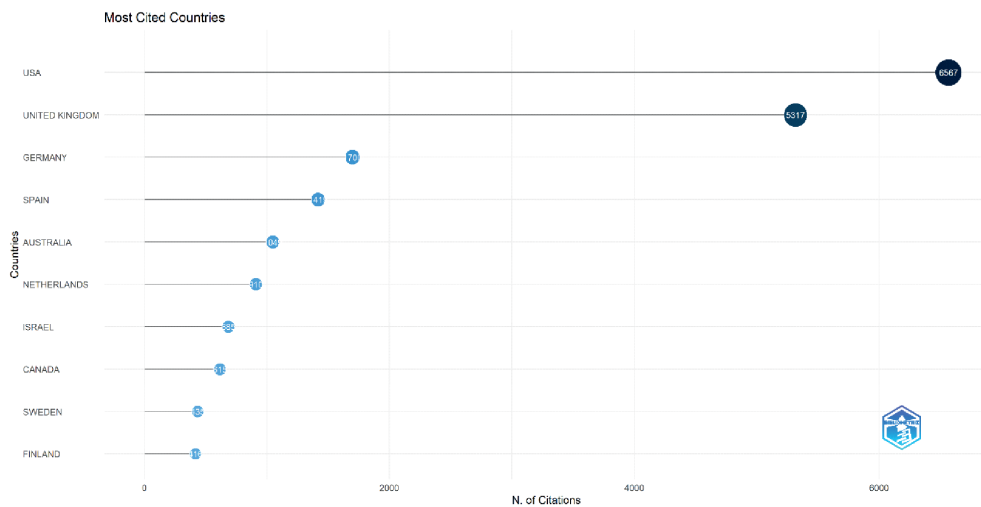


Figure 4: Most Cited Countries

The top ten cited countries were the USA (6567), the UK (5317), Germany, Spain, Australia, the Netherlands, Israel, Canada, Sweden and Finland (Figure 4).

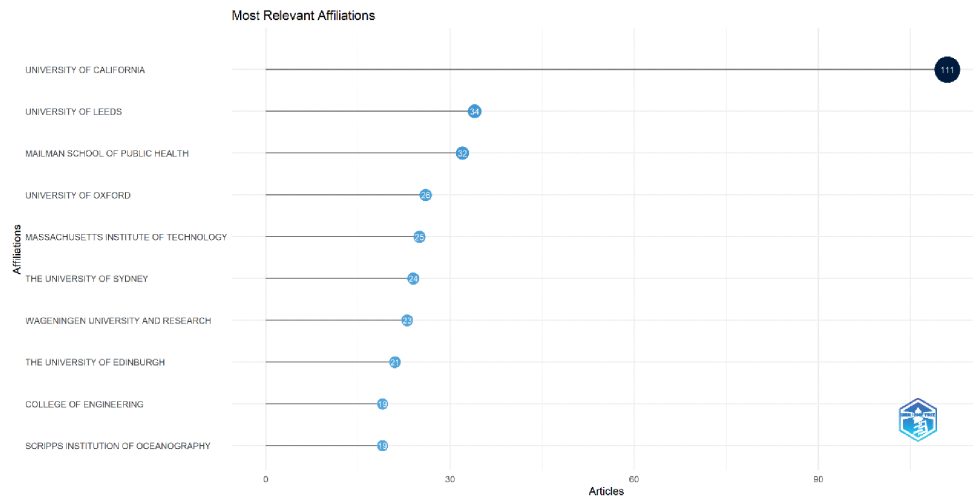


Figure 5: Most Relevant Affiliations

University of California, University of Leeds, Mailman School of Public Health, University of Oxford and Massachusetts Institute of Technology are the top-most relevant affiliations (Figure 5).

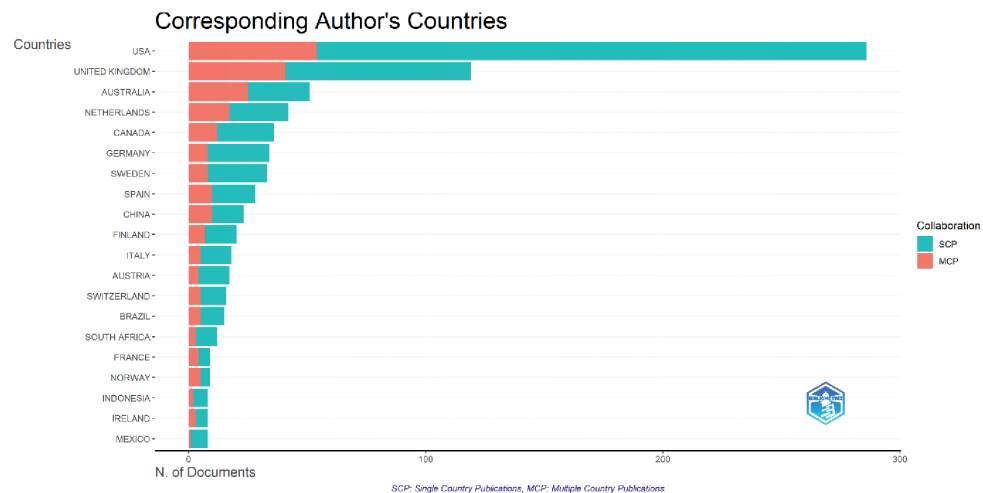


Figure 6: Corresponding Authors by Country

Figure 6 presents the distribution of corresponding authors by country. The **salmon-coloured** bars represent multiple-country publications, whereas the **teal-coloured** bars represent single-country publications. The USA has the highest number of publications, followed by the UK and Australia, in both categories (Figure 6).

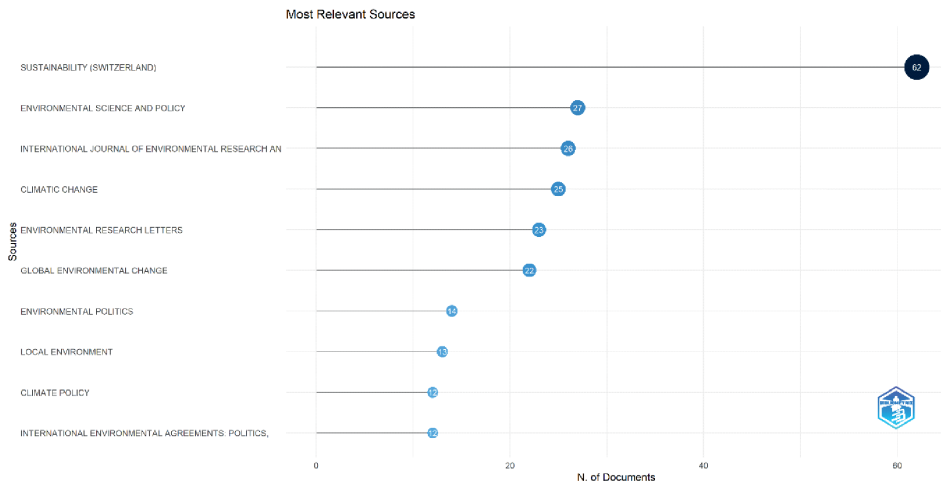


Figure 7: Most Relevant Journals

Figure 7 shows the most relevant sources. The top ten relevant journals are Sustainability, ESP, IJER, Climate Change and Environmental Research Letters.

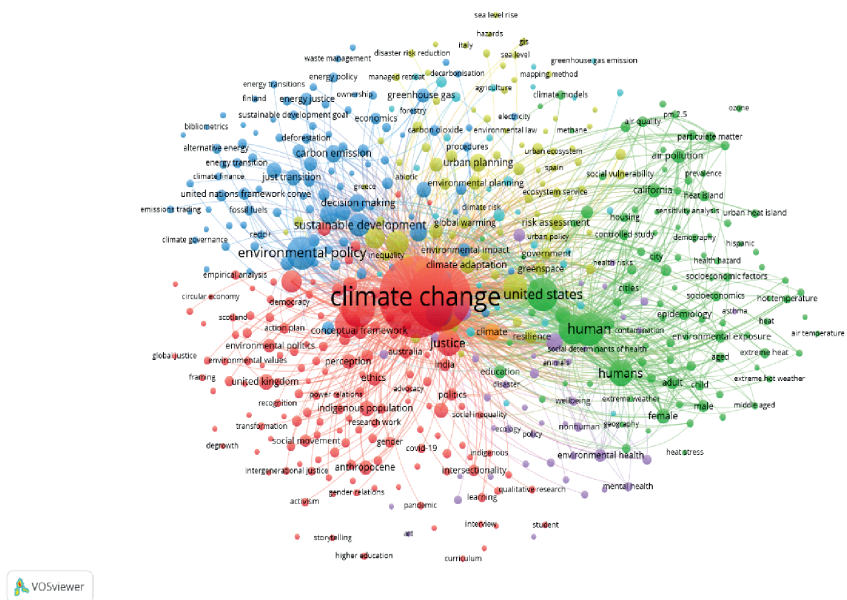


Figure 8: Co-occurrence Network

The co-occurrence network analysis covered 3,307 authors from 2001 to 2026. Figure 8 contains 77 connected items in the largest set. In the analysis of climate change

and environmental justice, the most frequently co-occurring keywords included climate change, environmental justice, human, article, United States, humans, climate justice, environmental policy, social justice, and justice.

Conclusion

The study employed a bibliometric analysis of 994 articles, authored by 3,307 individuals, on climate change and environmental justice published between 2001 and 2026. The study analysed the annual scientific production, authors' local impact by h-index, scientific production by country, the most cited countries, the most relevant affiliations, the most relevant sources, and the co-occurrence network. The topic has attracted worldwide attention and is particularly relevant in the USA, the UK, and Germany. Publications in this research field have increased over the decades. The study emphasised the need for multidisciplinary research to assess climate change and environmental justice.

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