

Academic research in climate finance is on the rise

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Climate finance is an emerging field and its boundaries are still porous. It is a pivotal instrument for addressing the immense challenges posed by climate change to human society and economic development. Over the past decade, climate finance has gained prominence as a crucial research domain, driven by the escalating climate crisis. This review delves into the academic research trends in climate finance over the last decade, using data from credible academic databases. The field of climate finance has witnessed exponential growth in scholarly output over the years. According to data from the Web of Knowledge database, over 9,000 climate finance research are recorded from 2015 to 2024 as the beginning of December 2024. The Web of Science Core Collection hosted the majority (7,500 representing 79.01%), followed by ProQuest Dissertations and Theses Citation Index (1,211 accounting for 12.76%) and other databases (Table 1).

Table 1: Databases hosting research in climate finance (2015-2024)

Database	Record Count	% of 9,492
Web of Science Core Collection	7500	79.014
ProQuest™ Dissertations & Theses Citation Index	1211	12.758
Grants Index	349	3.677
Chinese Science Citation Database SM	195	2.054
KCI-Korean Journal Database	143	1.507
Preprint Citation Index	106	1.117
SciELO Citation Index	89	0.938

A significant portion of research focuses on financing mechanisms for mitigation efforts, including renewable energy projects, carbon capture technologies, and energy efficiency improvements. Adaptation finance—targeting climate-resilient infrastructure and disaster risk reduction—has also emerged as a critical theme. Notably, the interplay between mitigation and adaptation financing strategies is becoming a core area of inquiry, reflecting the interconnected nature of climate challenges. This surge reflects the increasing recognition of climate finance as a pivotal area for achieving global sustainability goals. Figure 1 illustrates the yearly trend of publications and citations, underscoring the growing academic and practical relevance of the field.

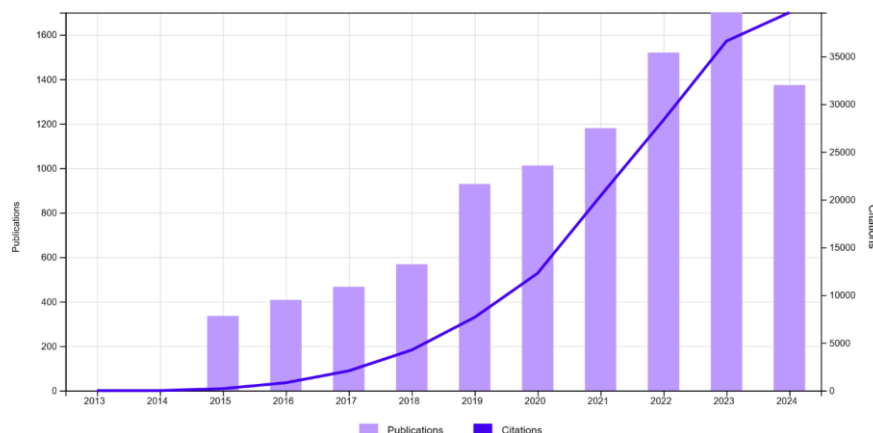


Figure 1: Climate finance publications and times cited (2015-2024)

Empirical research articles accounting for about 76% of the documents gathered (Figure 2), have extensively explored pivotal issues in climate finance including the complementary roles of public and private sectors in resource mobilization, emphasizing the importance of green bonds, blended finance models, and public-private partnerships in bridging funding gaps. The role of multilateral institutions and their effectiveness in channeling resources to developing economies is a recurrent topic. In recent years, carbon pricing instruments, such as taxes and emission trading systems (ETS), have received significant attention. Research on carbon markets increasingly examines their implications for international capital flows and investment decisions. Other emerging issues catching the attention of academic research include exploring mechanisms for financing climate-induced loss and damage and financing mechanisms for reforestation, wetland restoration, biodiversity, and other nature-based interventions as cost-effective solutions. Leading innovations in green finance, including ESG frameworks and sustainable financial instruments are also trending among academia.

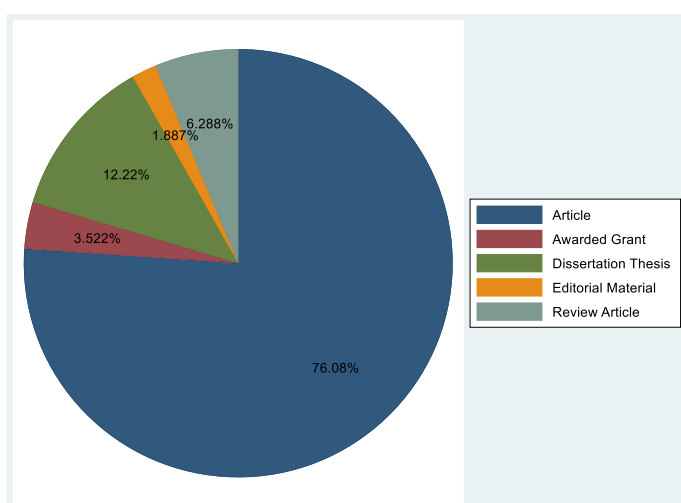


Figure 2: Share of document types of climate finance research (2015-2024)

Figure 3 highlights the leading universities contributing to climate finance research over the past decade. The Chinese Academy of Sciences stands out as the most prolific institution, with nearly 300 academic publications, reflecting China's prioritization of climate finance research as part of its broader sustainability agenda. This dominance aligns with China's active role in renewable energy financing, carbon markets, and green technologies. The University of London and Wageningen University follow closely. The University of London's significant output can be attributed to its multidisciplinary research institutes, while Wageningen University's emphasis on sustainable finance and climate adaptation within agricultural systems has positioned it as a leader in European climate finance scholarship. Institutions like Oxford University, University College London, and University of California System showcase robust contributions, reflecting the strong research infrastructure in the UK and USA. These universities are known for their research on innovative climate financing mechanisms, carbon pricing, and policy frameworks. Notably, universities from Australia and Europe demonstrate regional strengths in addressing climate finance challenges. These institutions focus on climate resilience, sustainable infrastructure, and financing solutions for developing economies.

Figure 4 underscores the global distribution of climate finance research output. China leads with over 2,000 publications, signifying its significant investment in research and policy related to climate finance. This trend reflects China's position as one of the largest green finance issuing jurisdictions in the world. The USA and England occupy the second and third positions, with research output surpassing 1,500 and 1,200 publications, respectively. These countries benefit from strong academic institutions, governmental funding, and a well-developed financial ecosystem conducive to climate finance research. Germany and Australia also feature prominently, with notable research contributions linked to sustainable development goals and regional climate adaptation needs. Other European countries like Netherlands, Portugal, and Italy demonstrate considerable outputs, reflecting their leadership in climate policy, particularly within the EU framework. Interestingly, developing economies like India and South Africa are emerging players, underscoring increasing academic attention to climate finance in the Global South. However, their output remains modest compared to leading countries, highlighting the need for further investments in research infrastructure.

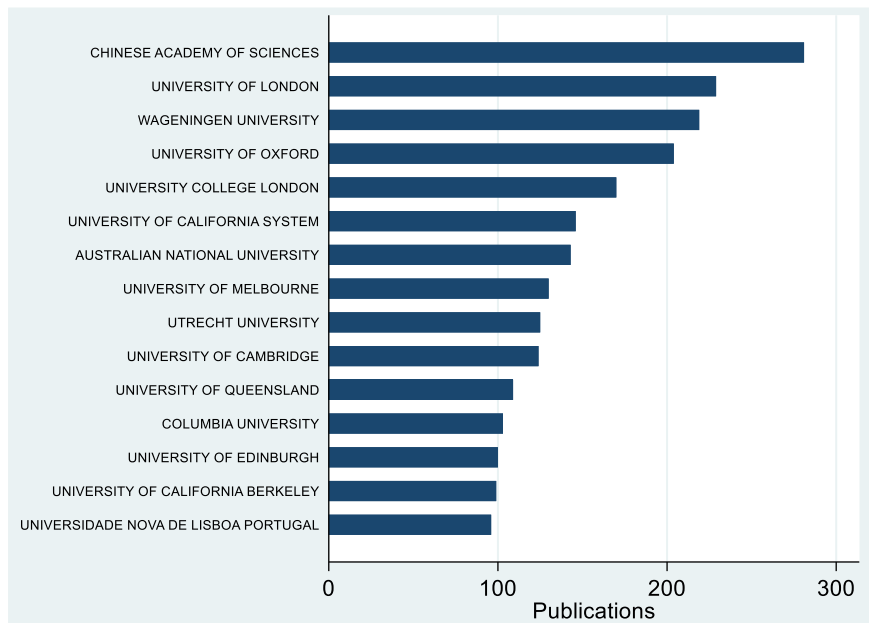


Figure 3: Academic publications in climate finance by top 15 universities (2015-2024)

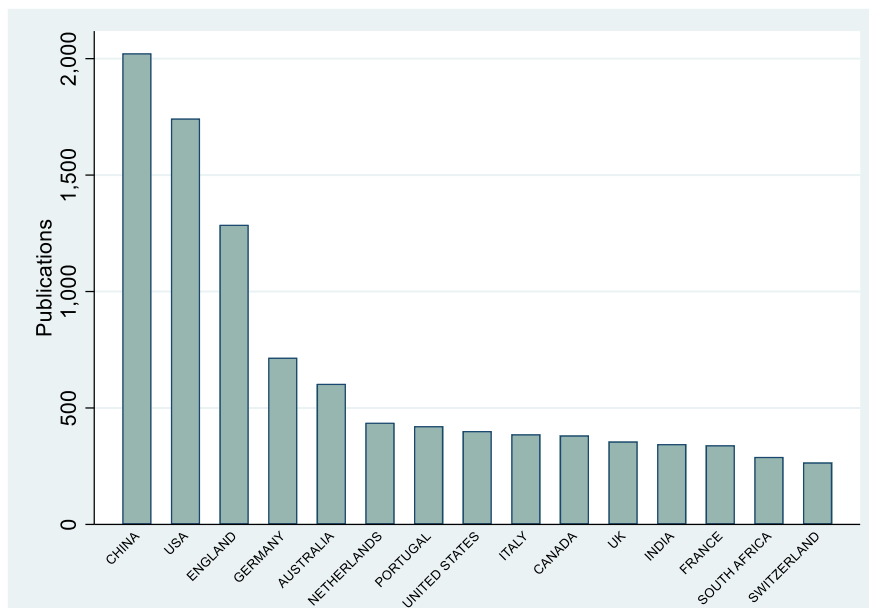


Figure 4: Academic publications in climate finance by top 15 countries (2015-2024)

The analysis reveals that academic research has been instrumental in enhancing understanding of climate finance flows and their impact on mitigation and adaptation efforts. Identifying gaps in financing mechanisms, particularly in developing economies and providing actionable insights for policymakers, investors, and international organizations has received the attention of academia. To achieve the needed impacts of academic research in the climate finance discourse globally, this review recommends scholars in the field to build more robust theoretical mechanisms to help strengthen alignment of climate finance policies with international commitments and provide workable channels to promote innovative instruments like sustainability-linked bonds and digital finance solutions. Also, the academic committee is recommended to bridge the knowledge gap on standardization by developing standardized metrics, universally applicable for tracking and evaluating climate finance flows to improve transparency and accountability.

In conclusion, the past decade has marked a significant evolution in climate finance research, driven by the urgent need to address the climate crisis. While substantial progress has been made, persistent challenges—such as data gaps and equity concerns—necessitate sustained academic and practical efforts.

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