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Knowledge Production and Global Integration of Uganda's Climate Change Research: A Scientometric Perspective

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Abstract

This study provides a comprehensive scientometric analysis of climate change research originating from Uganda and indexed in the Web of Science Core Collection between 1974 and 2025. A total of 1,097 publications were identified, which collectively received 785 Total Local Citation Scores (TLCS) and 40,275 Total Global Citation Scores (TGCS).The temporal analysis reveals exponential growth in research productivity, with over 67% of total publications produced during 2020–2025, indicating accelerated scholarly engagement in recent years. Citation impact peaked during 2015–2019, suggesting consolidation of research visibility and influence. Authorship patterns show concentration among a small group of leading scholars, with the most productive author contributing 49 publications, while citation efficiency varied across contributors. Journal distribution indicates preference for multidisciplinary open-access platforms such as PLOS One and Scientific Reports, alongside specialized outlets in climate adaptation and agricultural systems. Document-type analysis confirms dominance of original research articles (74.75%), reflecting strong empirical orientation, while review papers demonstrate comparatively high citation impact. Institutional analysis highlights Makerere University, contributing 45.9% of total output, as the central research hub. International collaboration is extensive, particularly with the United States, United Kingdom, and regional African partners, significantly enhancing citation performance. Overall, Uganda's climate change research landscape demonstrates rapid expansion, increasing global integration, and strengthening institutional capacity, positioning the country as an emerging contributor to climate scholarship in Sub-Saharan Africa.

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INTRODUCTION

Climate change represents one of the most pressing global challenges of the 21st century, with far-reaching implications for ecosystems, economies, and societies. Uganda, like many other developing nations, is disproportionately affected due to its heavy reliance on climate-sensitive sectors such as agriculture, which employs over 70% of the population and contributes significantly to the national GDP [1]. The country's geographical location in the tropics, coupled with its diverse agro-ecological zones, makes it particularly susceptible to climatic variability, including erratic rainfall patterns, prolonged droughts, and increased frequency of extreme

weather events [2]. These changes threaten not only food security but also water availability, energy production, and public health, thereby exacerbating existing socio-economic vulnerabilities [1].

The scientific consensus on anthropogenic climate change underscores the urgency of addressing its impacts, particularly in regions with limited adaptive capacity [3]. In Uganda, the interplay between climate change and development challenges is complex, as the country grapples with rapid population growth, urbanization, and environmental degradation [2]. Historical climate data indicates a steady rise in temperatures and shifting precipitation patterns, with projections suggesting further intensification of these trends in the coming decades [2]. Such changes have already manifested in reduced crop yields, increased pest and disease outbreaks, and heightened competition for scarce water resources, particularly in the semi-arid regions of the country [4].

Despite growing recognition of these challenges, significant gaps remain in the literature on climate change from a Ugandan perspective. First, while numerous studies have documented the biophysical impacts of climate change, fewer have explored the socio-political dimensions, such as governance structures and policy implementation [5]. Second, there is limited synthesis of local adaptation strategies, particularly those rooted in indigenous knowledge systems, which could offer valuable insights for resilience-building [6]. Third, the intersectionality of climate change with other stressors, such as poverty and gender inequality, remains underexplored, despite evidence that marginalized groups often bear the brunt of climate impacts [7]. These gaps hinder the development of holistic and context-specific solutions to climate-related challenges in Uganda.

The motivation for this scientometric literature review stems from the need to consolidate existing knowledge and identify actionable pathways for climate resilience in Uganda. By synthesizing research across multiple dimensions, agriculture, water resources, adaptation strategies, policy, and socio-economic impacts, this quantitative analysis aims to provide a comprehensive understanding of the current state of knowledge. Such an endeavor is critical for informing evidence-based policymaking, guiding future research, and fostering interdisciplinary collaboration to address climate change in Uganda.

REVIEW OF LITERATURE

Ahmad and Batcha [8] conducted a scientometric analysis to measure the research productivity and performance of medical scientists focusing on Coronary Artery Disease (CAD) in Brazil from 1990 to 2019. Utilizing data extracted from the Web of Science database, the study analyzed 6,211 research publications. The findings revealed that the highest growth rate of publications occurred during the 1995–1999 period, with a significant surge in research output in the most recent decade, accounting for about 68% of the total. The University of Sao Paulo emerged as the leading institution, contributing the highest number of publications (2,211) and receiving the most citations. In terms of authorship, the research was highly collaborative, with 97.97% of the papers having two or more authors. Ramires J.A.F. was identified as the most prolific contributor, while Lotufo P.A. and Serruys P.W. remained at the top for citations. The journal *Circulation* was the most preferred and impactful medium for communicating CAD research. The authors concluded that while early CAD research in Brazil was limited, it has grown substantially in the 21st century.

In a parallel scientometric assessment, Ahmad and Batcha [9] evaluated the publication trends of Coronary Artery Disease research in India between 1990 and 2019. Based on 4,698 publications indexed in the Web of Science database, the study demonstrated an annual average growth rate of 11.47%. The research highlighted that India holds a 1.14% share of the global CAD research output, with international collaborations accounting for 38.88% of these publications, predominantly with the United States. The All India Institute of Medical Sciences (AIIMS), New Delhi, stood out as the most productive organization in the country. The literature was primarily concentrated in the fields of Cardiovascular System and Cardiology, and *Neurology India* was identified as the top publishing journal. Leading authors in publication productivity included Singh S., Sharma A., and Kaul S. The

authors emphasized the critical need for India to boost its publication output, enhance research quality, and foster greater international collaboration to address the growing public health challenge posed by CAD.

Exploring authorship distribution, Ahmad and Batcha [10] investigated the applicability of Lotka's Law to Coronary Artery Disease research originating from South Africa spanning the years 1990 to 2019. The study analyzed 1,284 research papers published across 468 scientific periodicals retrieved from the Web of Science. Authorship pattern analysis revealed a strong inclination toward collaborative research, with 92.66% of the publications being multi-authored, and the largest proportion of papers featuring more than ten authors. The primary objective of the study was to test the validity of Lotka's inverse square law of scientific productivity using the Kolmogorov-Smirnov (K-S) goodness-of-fit test. The results indicated that the maximum deviation value (D-Max = 0.1050) determined with Lotka's exponent did not closely match the critical value at the 0.01 level of significance. Consequently, the researchers concluded that the generalized form of Lotka's Law does not fit the author productivity distribution pattern for CAD research in South Africa, meaning scientific productivity in this context diverges from classic bibliometric predictions.

Ahmad and Batcha [11] mapped the scientometric landscape of Russian contributions to Coronary Artery Disease research over a 30-year period from 1990 to 2019. Extracting 5,058 records from the Web of Science Core Collection, the study identified a continuous increase in publications, with over 54.2% of the total research output generated in the most recent decade (2010–2019). The Russian Academy of Medical Science was the leading institution, producing the highest volume of research, while the Russian Academy of Science accumulated the highest citation count. Barbarash O.L. emerged as the most prolific author by publication volume, whereas Orekhov A.N. led in both citations and h-index metrics. A vast majority (93.30%) of the research involved collaborative, multi-authored efforts. Furthermore, local dissemination was highly preferred, with *Kardiologiya* and *Terapevticheskii Arkhiv* being the primary journals for publication. The study concluded that Russian CAD research has significantly accelerated in the 21st century, with major research output produced during the last decade.

Khalid, Amanullah, and Thelwall [12] conducted a comparative bibliometric analysis profiling Malaysian and global scientific research on COVID-19 from January 2020 to November 2021. Utilizing the Web of Science Core Collection, the study contrasted 1,979 Malaysian publications against 210,294 global records to understand differences in literature growth, research topics, and collaboration networks. The findings highlighted that while global research heavily prioritized General Internal Medicine and Infectious Diseases, Malaysian scholars focused more on localized issues such as Public Environmental Occupational Health and Environmental Sciences. Despite this local focus, Malaysia's most highly cited COVID-19 article was the result of extensive international collaboration, underscoring the value of cross-border partnerships. The University of Malaya led national contributions, frequently collaborating with researchers from Australia, India, England, and China. The authors concluded that while national responses naturally address local conditions, integrating these context-specific studies into international collaborations significantly enhances their global academic impact and preparedness for future pandemics.

Ahmad and Batcha [13] analyzed the global research output on Coronavirus Disease over a decade (2011–2020) to identify key publication trends and map the scholarly landscape. Based on 6,071 publications retrieved from the Science Citation Index Expanded (SCI-E), the study documented a gradual increase in publication output, with significant peaks recorded in 2016 and 2019. The United States dominated the field as the highest contributing nation, holding a 33.30% share of the global publications, followed by the People's Republic of China. English served as the primary medium of communication, accounting for 98.53% of the literature. The University of Hong Kong was recognized as the most productive institution, while researchers such as Christian Drosten and Ziad A. Memish were identified as the most prolific and highly cited authors. The *Journal of Virology* and *PLOS One* were the leading publication venues. The study provided a comprehensive overview of pre-pandemic

and early-pandemic coronavirus research, emphasizing the global collaborative networks driving the field.

Yan [14] performed a comprehensive scientometric analysis of Feedback Literacy (FL) research from 2012 to 2023 using CiteSpace software to map the field's evolution, hotspots, and intellectual structure. Analyzing 916 records from the Web of Science, the study revealed an exponential growth in FL publications, indicating an unsaturated and rapidly expanding research domain. Higher education institutions in Australia and the USA, alongside the University of Hong Kong, were the primary contributors, frequently publishing in top-tier journals like the *Review of Educational Research*. Keyword co-occurrence analysis identified "students," "higher education," "language," and "formative assessment" as major research hotspots. The intellectual structure of the field was delineated into seven distinct clusters, including assessment for learning, ecological perspectives, work readiness, and intercultural competence. Yan concluded that FL research has evolved from broad exploratory studies to specific interventions and ecological models, suggesting future research should expand beyond higher education into secondary and primary school contexts.

Islam, Islam, and Roy [15] investigated the citation patterns and impact metrics of global public health (PH) literature published between 2000 and 2015. Extracting a massive dataset of 372,260 documents from the Scopus database, the researchers found that 70.66% of the publications were cited at least once, leaving nearly 30% uncited. The study calculated various impact indicators, noting that the average number of citations per cited publication was 22.51. Growth analysis revealed an average Compound Annual Growth Rate (CAGR) of 0.06 for cited publications, indicating a steady rise in the discipline's influence, although the relative growth rate (RGR) displayed a declining trend over the 15-year period. The research identified 589 highly cited "citation classics" (over 500 citations), the majority of which were original research articles and reviews. Martin McKee and Chris Bateman emerged as the most prolific authors, with McKee also demonstrating the highest h-index (75). The study highlights the expanding global impact of PH research while acknowledging the inherent limitations of citation-based evaluations.

OBJECTIVES OF THE STUDY

The present study aims to examine the growth, impact, and structural characteristics of climate change research originating from Uganda through a scientometric perspective. Based on the analytical framework adopted in this study, the specific objectives are:

1. To analyse the temporal growth pattern of climate change publications from Uganda through five-year publication intervals and evaluate their citation impact.
2. To identify the most productive and influential authors contributing to climate change research from Uganda using productivity and citation performance indicators.
3. To examine the leading source journals disseminating climate change research related to Uganda and assess their citation influence.
4. To analyse the distribution of publications by document type in order to understand the nature and maturity of scholarly communication within the field.
5. To identify major institutional contributors within Uganda and evaluate their research productivity and citation performance.
6. To examine international collaboration patterns by identifying the most significant contributing countries and assessing their impact on citation visibility.

METHODOLOGY

This study adopts a scientometric research design to evaluate the development and impact of climate change research associated with Uganda. Bibliographic data were retrieved from the Web of Science Core Collection, which was selected due to its rigorous indexing standards, high-quality citation tracking, and wide acceptance in bibliometric and scientometric research.

An advanced search strategy was employed using the Topic (TS) field with the search term "Climate Change." The search was limited to publications indexed from Uganda between 1974 and 2025,

covering all available document types to ensure comprehensive representation of scholarly output. The search process yielded a total of 1,097 bibliographic records, which formed the dataset for analysis.

The retrieved records were exported in a compatible format and analysed using HistCite, an open-source scientometric software tool used for citation analysis and performance evaluation through indicators such as Total Local Citation Score (TLCS) and Total Global Citation Score (TGCS). In addition, VOSviewer software was employed to generate graphical visualisations and mapping structures related to research collaboration and publication patterns. Microsoft Excel was further used for data cleaning, tabulation, aggregation, and preparation of statistical summaries and graphical representations.

RESULTS AND ANALYSIS

In Table 1, The temporal distribution reveals a pronounced acceleration in Uganda's climate change research output over time. Only 6 publications (0.55%) were produced during 1974–1999, generating 23 TLCS and 680 TGCS, indicating limited early research engagement. Output remained modest during 2000–2004 with 6 publications, although citation accumulation increased marginally (330 TGCS). Research productivity expanded significantly during 2005–2009, reaching 25 publications and 2,100 TGCS, marking the beginning of systematic scholarly attention. A major transition occurred between 2010 and 2014, producing 84 publications (7.6%) and 206 TLCS, reflecting strengthening research capacity. The period 2015–2019 witnessed rapid growth with 238 publications (21.7%) and the highest citation influence (17,998 TGCS). The most substantial expansion occurred during 2020–2025, contributing 738 publications (67.3%), although TLCS declined to 164, suggesting recent publications are still accumulating citations. Overall, the data demonstrate exponential growth driven by increasing climate policy relevance and international collaboration.

In Table 2, Author productivity is highly concentrated among a small group of contributors. Lwasa S leads with 49 publications (4.5%), accumulating 65 TLCS and 2,649 TGCS, demonstrating sustained scholarly influence. Onyutha C, with 30 publications, recorded the highest citation efficiency (TLCS/t = 10.66) and 75 TLCS, indicating strong local impact.

Table 1. Temporal growth of climate change publications from Uganda: five-year scientometric analysis.

S. No.	Publication Period	Publications	TLCS	TGCS
1	1974–1999	6	23	680
2	2000–2004	6	6	330
3	2005–2009	25	66	2100
4	2010–2014	84	206	5710
5	2015–2019	238	320	17998
6	2020–2025	738	164	13457
	Total	1097	785	40275

Table 2. Highly productive authors in Uganda's climate change research landscape.

S. No.	Author	Publications	Percent	TLCS	TLCS/t	TLCSx	TGCS	TGCS/t	TLCR
1	Lwasa S	49	4.5	65	6.58	12	2649	307.87	63
2	Onyutha C	30	2.7	75	10.66	18	1090	190.82	71
3	Berrang-Ford L	25	2.3	38	4.13	0	1165	153.78	45
4	Sheil D	25	2.3	15	1.47	3	2742	333.9	15
5	Atwoli L	19	1.7	0	0	0	15	3.1	0
6	Egeru A	19	1.7	10	1.08	7	218	35.21	14
7	Haileamlak A	19	1.7	0	0	0	15	3.1	0
8	Jassogne L	19	1.7	48	5.34	29	1108	124.25	32
9	Kigera J	19	1.7	0	0	0	15	3.1	0
10	Laybourn-Langton L	19	1.7	0	0	0	15	3.1	0

Authors such as Berrang-Ford L and Sheil D produced 25 publications each, but Sheil D achieved higher global visibility (2,742 TGCS). Several authors recorded minimal TLCS despite comparable output, reflecting variability in research influence. Collaborative scholars such as Jassogne L showed strong citation contribution (48 TLCS) relative to publication share. The disparity between TLCS and TGCS values highlights differences between local citation networks and broader international recognition, emphasizing the importance of collaborative authorship in enhancing research visibility as shown in Figure 1.

In Table 3, Core Journal analysis indicates concentration within multidisciplinary and sustainability-focused outlets. PLOS One published the highest number of papers (19 publications; 1.7%) with 565 TGCS, reflecting strong global dissemination despite zero TLCS. Scientific Reports followed with 17 publications and 280 TGCS, reinforcing the role of open-access mega journals. Specialized outlets such as Climate and Development demonstrated stronger local scholarly influence with 28 TLCS from only 12 publications, indicating thematic alignment with adaptation research. Agricultural Systems generated substantial citation impact (637 TGCS) despite relatively fewer papers (11 publications).

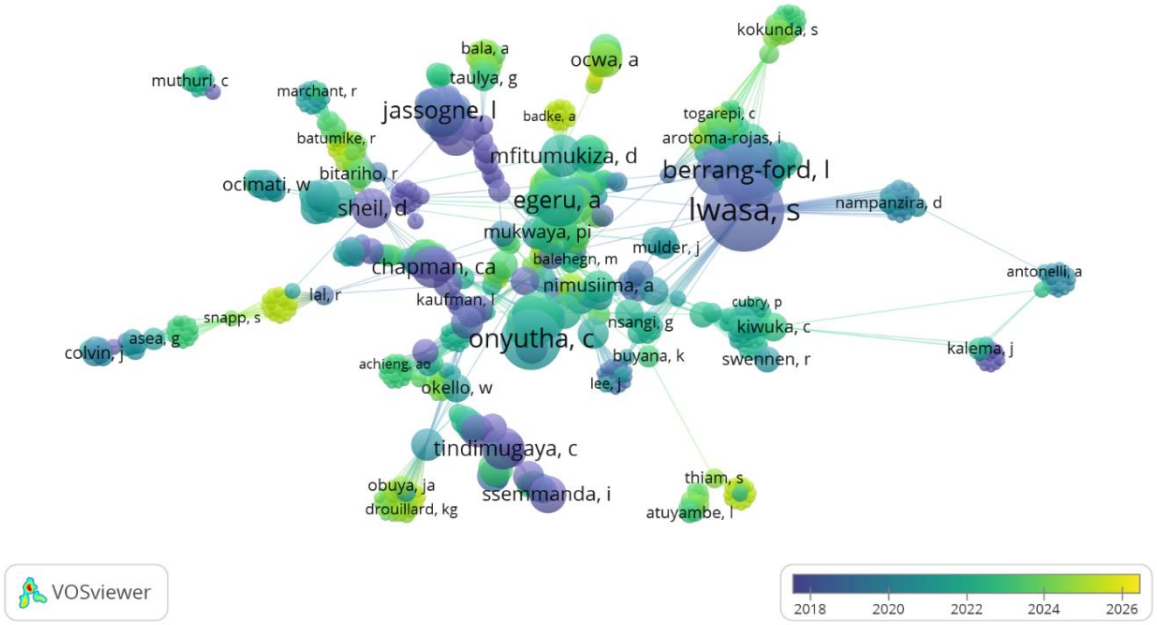

Figure1. Productive authors on climate change from Uganda.

Table 3. Core journals disseminating climate change research from Uganda

S. No.	Journal	Publications	Percent	TLCS	TLCS/t	TGCS	TGCS/t	TLCR
1	PLOS One	19	1.7	0	0	565	70.58	20
2	Scientific Reports	17	1.5	0	0	280	70.72	2
3	Climate and Development	12	1.1	28	2.97	486	49.26	11
4	Frontiers in Sustainable Food Systems	12	1.1	0	0	106	26.46	5
5	Sustainability	12	1.1	0	0	131	20.29	9
6	Water	12	1.1	9	0.69	242	33.62	16
7	Agricultural Systems	11	1	10	0.78	637	62.29	6
8	Agriculture and Ecosystem Resilience in Sub Saharan Africa: Livelihood Pathways Under Changing Climate	11	1	2	0.25	34	4.25	12
9	Heliyon	11	1	0	0	211	37.65	10
10	Environmental Research Letters	10	0.9	0	0	489	56.71	12

Environmental Research Letters also showed strong visibility (489 TGCS). Differences between productivity and citation performance indicate that journal scope and disciplinary specialization significantly influence citation outcomes.

In Table 4, Research articles dominate Uganda's climate change scholarship, accounting for 820 publications (74.75%), contributing 685 TLCS and 33,018 TGCS, confirming the empirical orientation of the field. Review articles represent 124 publications (11.30%), generating 5,318 TGCS, demonstrating strong citation influence relative to output volume. Article–book chapters contributed 41 publications, while editorial materials (37 publications) generated comparatively limited citation impact (200 TGCS). Proceedings papers accounted for 28 publications, indicating moderate conference participation. Minor categories such as letters, meeting abstracts, and corrections collectively contributed less than 1% of output. Overall, the dominance of original articles indicates a mature research domain focused on primary scientific investigation rather than commentary-based dissemination.

In Table 5, Institutional productivity is strongly centralized within Uganda's academic system. Makerere University dominates with 504 publications (45.9%), generating 370 TLCS and 17,930 TGCS, accounting for nearly half of national output. Mbarara University of Science and Technology follows distantly with 59 publications, while Kyambogo University (55) and Gulu University (50) demonstrate growing participation.

Table 4. Document type distribution of climate change research output from Uganda.

	Document Type	Publications	Percent	TLCS	TGCS
1	Article	820	74.75	685	33018
2	Review	124	11.30	55	5318
3	Article; Book Chapter	41	3.74	12	720
4	Editorial Material	37	3.37	7	200
5	Proceedings Paper	28	2.55	2	71
6	Article; Early Access	16	1.46	0	92
7	Article; Proceedings Paper	9	0.82	13	279
8	Article; Data Paper	5	0.46	0	30
9	Review; Early Access	4	0.36	0	0
10	Correction	2	0.18	0	0
11	Editorial Material; Book Chapter	2	0.18	0	0
12	Editorial Material; Early Access	2	0.18	0	1
13	Letter	2	0.18	0	6
14	Meeting Abstract	2	0.18	0	0
15	Review; Book Chapter	2	0.18	1	372
16	Note	1	0.09	10	168
	Total	**1097**	**100**	**785**	**40275**

Table 5. Institutional contributions to climate change research productivity in Uganda.

	Institution	Publications	Percent	TLCS	TGCS
1	Makerere University	504	45.9	370	17930
2	Mbarara University of Science and Technology	59	5.4	30	2080
3	Kyambogo University	55	5	42	1421
4	Gulu University	50	4.6	28	1305
5	Uganda National Meteorological Authority	37	3.4	26	771
6	Ministry of Health (Uganda)	35	3.2	44	9861
7	National Agricultural Research Organisation (Uganda)	32	2.9	24	640
8	Ministry of Water and Environment (Uganda)	28	2.6	41	1127
9	Kabale University	26	2.4	2	126
10	Kampala International University	25	2.3	1	210

Government agencies also contribute significantly, including the Ministry of Health (35 publications; 9,861 TGCS) and Ministry of Water and Environment (28 publications), reflecting policy-driven research engagement. Smaller institutions such as Kabale University and Kampala International University contribute modestly but indicate expanding institutional diversification as shown in Figure 2. Citation disparities suggest that collaboration intensity and international partnerships strongly influence institutional research visibility.

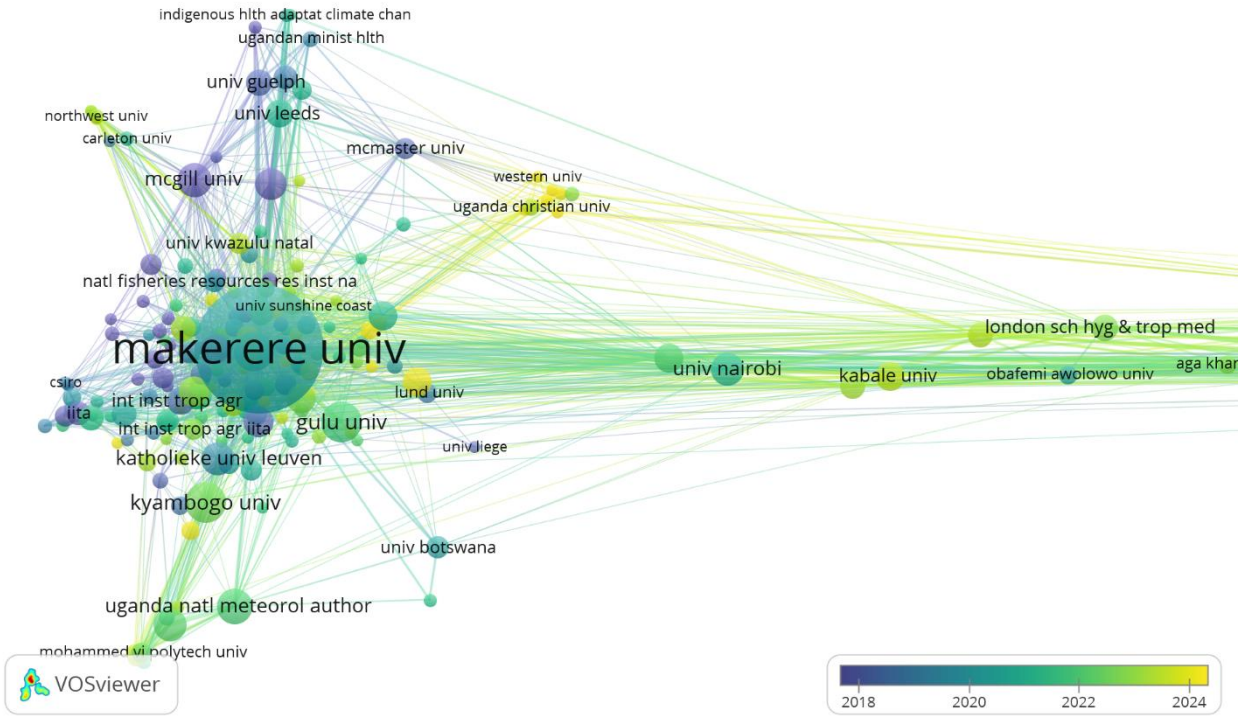

Figure 1. Productive institutions on climate change from Uganda

Table 6. Global research collaboration patterns in climate change publications from Uganda.

	Country	Publications	Percent	TLCS	TGCS
1	USA	288	26.3	203	23050
2	UK	274	25	156	21757
3	Kenya	207	18.9	158	15929
4	Germany	164	14.9	65	17118
5	South Africa	155	14.1	78	14788
6	Canada	133	12.1	127	16588
7	Netherlands	120	10.9	47	16254
8	Peoples R China	114	10.4	66	15559
9	Ethiopia	112	10.2	33	11327
10	Australia	96	8.8	76	17446

International collaboration analysis demonstrates strong dependence on partnerships with developed research economies. In Table 6, The United States leads with 288 publications (26.3%), generating 23,050 TGCS, followed closely by the United Kingdom (274 publications; 21,757 TGCS). Regional collaboration is evident with Kenya contributing 207 publications and substantial citation impact (15,929 TGCS), highlighting shared regional climate priorities.

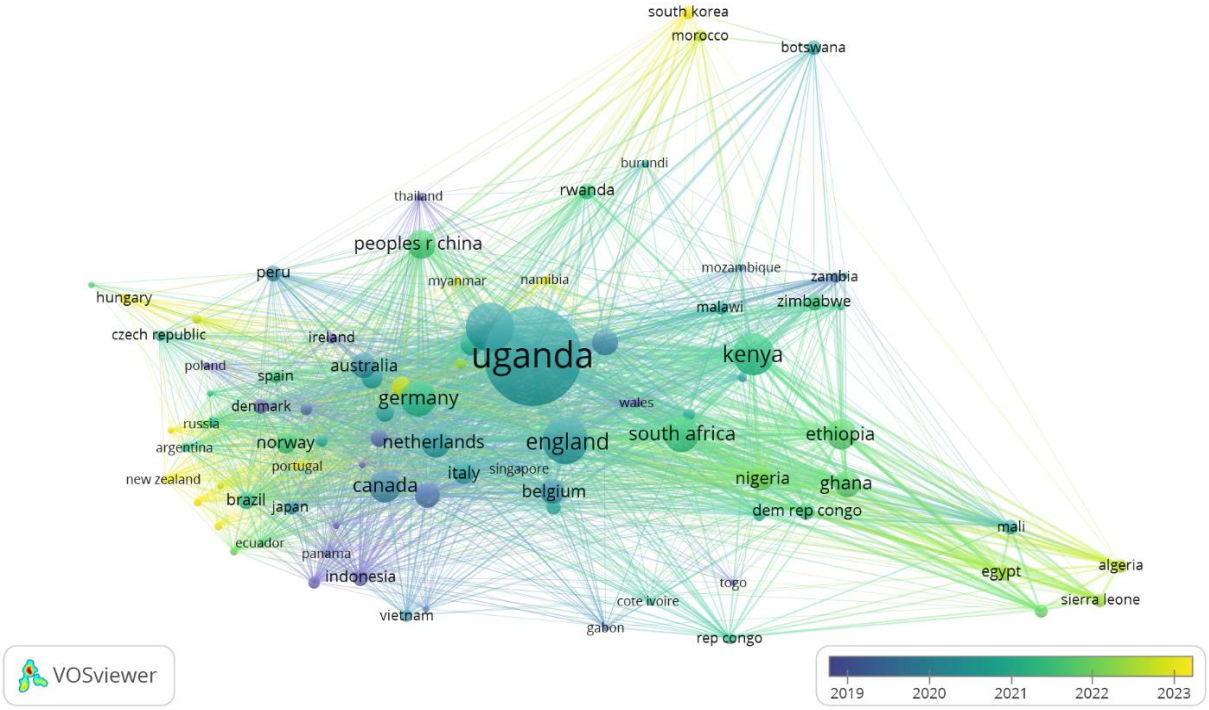

Figure 2. collaborative countries on climate change.

European partners such as Germany (164 publications) and the Netherlands (120 publications) demonstrate strong citation influence relative to output. Canada (133 publications) recorded high TLCS (127), reflecting impactful collaboration networks. China's participation (114 publications) signals expanding global diversification. Overall, internationally co-authored publications significantly enhance citation performance, underscoring the importance of global partnerships in Uganda's climate research ecosystem a shown in Figure 3.

DISCUSSION

The present study reveals a substantial transformation in the landscape of climate change research in Uganda over the past five decades. Although scholarly output remained minimal between 1975 and the early 2000s, a marked acceleration is observed after 2010, culminating in a significant surge between 2020 and 2025, which accounts for more than two-thirds of total publications.

This exponential growth reflects heightened national engagement with climate-related challenges, increased global research funding, and stronger integration into international scientific networks. Interestingly, while recent years dominate in terms of publication volume, the highest citation impact was recorded during 2015–2019, indicating the influence of citation maturity on impact indicators.

Authorship analysis shows that research productivity is concentrated among a limited number of leading scholars, suggesting the presence of established research hubs. Differences between local and global citation scores indicate varying degrees of international visibility and collaborative reach. Journal distribution patterns demonstrate a preference for multidisciplinary and open-access platforms, enhancing accessibility and dissemination, while specialized journals in climate adaptation and agricultural systems tend to yield stronger thematic citation performance.

Institutional findings highlight the dominant role of Makerere University, contributing nearly half of the total output, though other universities and government agencies are increasingly participating. Furthermore, strong collaboration with countries such as the United States, the United Kingdom, and regional African partners significantly enhances citation impact, confirming the positive relationship between international co-authorship and research visibility.

CONCLUSION

This scientometric assessment demonstrates that climate change research in Uganda has evolved from limited early scholarly activity into a rapidly expanding and globally connected research domain. The steady increase in publication output, coupled with substantial global citation accumulation, reflects strengthening research capacity and growing policy relevance. Despite institutional concentration of productivity, diversification is gradually emerging across universities and governmental bodies. International collaboration remains a critical driver of research visibility and citation performance. The predominance of original research articles underscores the empirical maturity of the field, while opportunities remain for expanding synthesis-oriented and interdisciplinary research. Overall, Uganda's climate change research ecosystem exhibits strong growth momentum and increasing integration within the global scientific community.

Recommendations

To further strengthen Uganda's climate change research landscape, strategic efforts should focus on broadening institutional participation to reduce over-reliance on a single dominant university. Enhanced support for interdisciplinary and review-based scholarship could improve citation impact and intellectual consolidation within the field. Continued investment in international collaboration, particularly with high-impact research economies, will be essential for sustaining global visibility and knowledge exchange. Policymakers and funding bodies should prioritize capacity-building initiatives in emerging institutions to foster equitable research development nationwide. Future investigations may incorporate advanced network and thematic mapping approaches to better understand evolving research fronts and emerging knowledge clusters within Uganda's climate change scholarship.

REFERENCES

1. Hisali E, Birungi P, Buyinza F. Adaptation to climate change in Uganda: Evidence from micro level data. Glob Environ Chang [Internet]. 2011;21(4):1245–61. Available from: https://www.sciencedirect.com/science/article/pii/S0959378011001105
2. Nsubuga FW, Rautenbach H. Climate change and variability: a review of what is known and ought to be known for Uganda. Int J Clim Chang Strateg Manag [Internet]. 2018;10(5):752–71. Available from: 10.1108/IJCCSM-04-2017-0090
3. Robinson S ann. Climate change adaptation in SIDS: A systematic review of the literature pre and post the IPCC Fifth Assessment Report. Wiley Interdiscip Rev Clim Chang [Internet]. 2020;11(4):1–21. Available from: 10.1108/IJCCSM-04-2017-0090
4. Epule TE, Ford JD, Lwasa S, Nabaasa B, Buyinza A. The determinants of crop yields in Uganda: What is the role of climatic and non-climatic factors? Agric Food Secur [Internet]. 2018;7(1):1–17. Available from: https://doi.org/10.1186/s40066-018-0159-3
5. Cooper SJ, Wheeler T. Adaptive governance: Livelihood innovation for climate resilience in Uganda. Geoforum [Internet]. 2015;65:96–107. Available from: https://www.sciencedirect.com/science/article/pii/S0016718515001876
6. Egeru A. Role of indigenous knowledge in climate change adaptation: A case study of the Teso sub-region, Eastern Uganda. Indian J Tradit Knowl. 2012;11(2):217–24.
7. Balikoowa K, Nabanoga G, Tumusiime DM. Gender stereotyping: Evidence from gender differentiated household vulnerability to climate change in Eastern Uganda. Cogent Environ Sci [Internet]. 2018;4(1):1–15. Available from: https://doi.org/10.1080/23311843.2018.1512838
8. Ahmad M, Batcha MS. Measuring Research Productivity and Performance of Medical Scientists on Coronary Artery Disease in Brazil: A Metric Study. Libr Philos Pract [Internet]. 2020;4358. Available from: https://digitalcommons.unl.edu/libphilprac/4358
9. Ahmad M, Batcha MS. Coronary Artery Disease Research in India: A Scientometric Assessment of Publication during 1990-2019. Libr Philos Pract [Internet]. 2020;4178:1–23. Available from: https://digitalcommons.unl.edu/libphilprac/4178/
10. Ahmad, M and Batcha MS. Lotka's Law and Authorship Distribution in Coronary Artery Disease Research in South Africa. Libr Philos Pract [Internet]. 2020;4457:1–10. Available from: https://digitalcommons.unl.edu/libphilprac/4457

11. Ahmad M, Batcha DMS. Russian Contribution to Coronary Artery Disease Research: A Scientometric Mapping of Publications. Libr Philos Pract [Internet]. 2021;4683:1–17. Available from: https://digitalcommons.unl.edu/libphilprac/4683
12. Khalid YIAM, Amanullah SW, Thelwall M. Profiling of Malaysian and global scientific research on COVID-19. Data Sci Inf [Internet]. 2025;5(3):172–81. Available from: https://www.sciencedirect.com/science/article/pii/S2694610625000438
13. Ahmad M, Batcha MS. Identifying and mapping the global research output on coronavirus disease: A scientometric study. Libr Philos Pract [Internet]. 2020;4125:1–26. Available from: https://digitalcommons.unl.edu/libphilprac/4125
14. Yan Y. Hotspots, evolution, and intellectual structure in feedback literacy research: A scientometric analysis (2012-2023). Data Sci Inf [Internet]. 2025;5(July):133–44. Available from: 10.1016/j.dsim.2025.07.001
15. Islam MN, Islam MS, Roy PB. Citation analysis of global public health literature. Data Sci Inf [Internet]. 2025;5(2):95–110. Available from: https://doi.org/10.1016/j.dsim.2025.08.004

