Three Decades of Climate Change Research in Sri Lanka: A Scientometric Analysis (1996–2026)

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Abstract

This study employs a scientometric approach to analyze climate change research in Sri Lanka, covering the period from 1996 to August 2026 with 812 records examined. It highlights significant growth in publications, peaking at 109 in 2024, and notes a transition from rapid growth to a more mature field as indicated by declining relative growth rates. Key metrics such as author productivity and institutional contributions were assessed, with findings indicating that Rathnayake U was the most prolific author and that institutions such as CGIAR and the University of Peradeniya led. The study also identifies 387 publication sources, with a notable core group of 34. A skewed author productivity pattern was identified through Lotka's Law, indicating that approximately 82.02% of authors published only once. Leading institutions included CGIAR, the University of Peradeniya, and the International Water Management Institute. This research establishes a baseline to address gaps and guide future climate research policies in Sri Lanka.

Keywords
Climate research, Climate Science, Climate Policy, Climate impacts

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1. INTRODUCTION

Climate change has emerged as a major global concern for the rulers of the world due to its impact on environmental, socioeconomic and developmental challenges of the twenty-first century. It affects both natural and human systems. (IPCC, 2014; IPCC, 2021; IPCC, 2022). Climate change impacts of socioeconomic conditions, institutional capacity, geographical characteristics, communities and institutions to adapt (Adger et al., 2003; Füssel, 2007; IPCC, 2022) could be observed. The urgency of climate change has increased substantially in recent years. The World Meteorological Organization reported that 2015–2025 shows eleven warmest years in the instrumental record (World Meteorological Organization, 2026). climate change research is no longer confined to climatology or environmental science. It encompasses a broad interdisciplinary knowledge system involving environmental sciences, agriculture, geography, engineering, economics, health sciences, social sciences, marine sciences, technology, and policy studies. Research in this discipline require effective implementation of mitigation and adaptation strategies (UNEP, 2024, UNFCCC, 1998, 2015; United Nations, 2015). Relationship between climate change and sustainable development has further expanded the research agenda (United Nations, 2015; IPCC, 2023). In depth understanding of climate change requires research across multiple disciplines and geographical contexts. The development of climate change research can be traced through several major phases. Initial scientific research emphasized the physical mechanisms of climate variability. Marx et al. (2017) investigated historically influential works in climate change research. Santos (2021) found that climate emergency became more prominent and exceeded general climate research in publication activity around 2010. The consequences of climate change are particularly important for developing countries that have relatively high exposure and vulnerability to climate-related hazards. Later developments concerning anthropogenic climate change was carried out by (Hansen et al., 1981; Mann et al., 1998). Climate change research expanded from the identification of climatic changes toward the investigation of their consequences and possible responses (Parmesan & Yohe, 2003; Rosenzweig et al., 2008; Field et al., 2014) in late twentieth and early twenty-first centuries.

The increasing interdisciplinary character of climate change research reflects the recognition that climate

systems are closely interconnected with ecological, economic, technological and social (Steffen et al., 2015; Rockström et al., 2009). These developments demonstrate that climate change is not merely a future environmental concern but an ongoing global phenomenon affecting ecosystems, economies, infrastructure, human health, food security, and livelihoods. The Intergovernmental Panel on Climate Change (IPCC, 2021, 2022, 2023) has pointed out human activities that contribute to global warming and associated changes in the climate system. Climate risks are expected to increase with every increment of global warming, growing challenges for adaptation and struggle for sustainable development (IPCC, 2022, 2023). Greenhouse gas emissions increase climatic risks across ecosystems, economies and human societies, as evidenced by scientific evidence (IPCC, 2021; IPCC, 2023). The broader international literature demonstrates that climate change can affect species distributions, seasonal events, ecological interactions and ecosystem functioning (Parmesan & Yohe, 2003).

Sri Lanka as a tropical island located in the Indian Ocean is exposed to a range of climate related risks. The Asian Development Bank (ADB, 2020) identified significant climate-related risks to Sri Lanka's communities. The World Bank's Climate Change Knowledge Portal reports that Sri Lanka's temperature has increased since 1970 at approximately 0.13°C per decade (World Bank, 2026). IPCC (2022) emphasized that climate change has already caused widespread adverse impacts and losses and damages to nature and people. Climate change research has similarly developed across multiple disciplines and institutions in Sri Lanka. Country's climate research agenda is closely connected with national environmental and development policies. Sri Lanka has established its National Climate Change Policy in 2012 and national climate response in 2016 (Ministry of Environment, Sri Lanka, 2012, 2016). The National Adaptation Plan for Climate Change Impacts in Sri Lanka from 2016–2025 emphasize the integration of climate adaptation plan at national and sectoral level (Ministry of Mahaweli Development and Environment, 2016).

2 Rational or Significance of Study

The rationale for undertaking a scientometric study of climate change research is based on five major considerations. Climate change has become a complex global challenge requiring continuous scientific investigation and interdisciplinary collaboration. The volume of scholarly literature has increased substantially and demand systematic quantitative analysis. The research field has diversified from physical climate science toward adaptation, mitigation, resilience, health, agriculture, technology, policy, economics, and sustainable development. International and institutional collaboration has become increasingly important in generating and disseminating climate knowledge. Emerging research areas and technological approaches require continuous monitoring to understand the future direction of the field.

3 Objectives of the Study

The study aims to comprehensively examine the growth, structure, productivity, and scholarly impact of climate change research related to Sri Lanka.

1. Analyse the temporal growth and development trends of climate change research related to Sri Lanka and examine changes in research productivity over the study period.
2. Assess the scholarly impact and citation patterns of the research output by identifying highly cited publications, influential authors, and leading publication sources.
3. Identify the most productive and influential authors and evaluate their research performance using publication productivity, fractionalized authorship, citation impact, and h-index.
4. Examine patterns of author productivity and scholarly contribution and assess the distribution of authorship using Lotka's Law**.**
5. Identify the core and significant publication sources and determine the concentration and scattering of research output using Bradford's Law**.**
6. Identify the leading institutions, countries, and major research contributors involved in climate change research related to Sri Lanka and assess their relative contributions to the field.

4 Limitation of the Study

A temporal limitation of the study is that the dataset was collected up to 22 August of 2026. The four publications identified for 2026 represent only the records available within the specified data-collection period.

5 Research Gap

A conventional literature review can identify individual studies. The existing literature of climate change is sectoral and focused on limited area. The increasing volume and multidisciplinary nature of climate change research in Sri Lanka creates a need to systematically examine the development of the country's scientific knowledge base. It is necessary to examine the structure and characteristics of this literature systematically. Nationwide holistic view was lacking. Few Bibliometric research indicate that climate-change research in Sri Lanka has developed into a broad interdisciplinary field, with agriculture, drought, water resources, coastal systems, urban climate, livelihoods and adaptation forming prominent research directions. The increasing availability of climate-related research provides an important foundation for scientometric analysis. The present study will contribute to environmental sustainability, economic development, livelihoods, and national policy of climate change to Sri Lanka. Scientometric approach integrating comprehensive analysis could contribute by examining the entire research landscape as a connected knowledge system.

6 Literature Review

The expansion of climate change research in Sri Lanka has been supported by universities, government research institutions, international organizations, development agencies, non-governmental organizations and interdisciplinary research networks. The existence of a large and diverse body of literature does not automatically provide a clear understanding of how the research field has developed. A scientometric study of climate change research in Sri Lanka can provide an evidence-based overview of national research system. Climate change has emerged as an important area of research in Sri Lanka because of the country's exposure to multiple climatic hazards and its dependence on climate-sensitive sectors.

Agriculture

Agriculture has consequently remained one of the most extensively investigated areas of Sri Lankan climate change research. Ranasinghe (2024) in a review of Sri Lankan climate-change research identified agriculture, water resources, and coastal ecosystems are interconnected. Climate Change impact on Agriculture was analysed by NSTC in 2024 (National Science and Technology Commission, 2024). Gunathilaka et al. (2024) demonstrated about agricultural vulnerability in Anuradhapura district. Ginigaddara and Kodithuwakku (2024) reviewed climate resilient food systems in Sri Lanka. Eriyagama and Smakhtin (2010) identified water resources as a major area of climate change concern in Sri Lanka.

Climate Adaptation

In the Sri Lankan context Hemakumara et al. (2020) identified multiple mitigation and adaptation sectors within Sri Lanka's climate-change response. Research in Galle has examined the relationship between climate-threat, perceptions, vulnerability, adaptive capacity and actual adaptation behavior (van den Berg & Mallick, 2024). Esham and Garforth (2013) noted that climate adaptation initiatives in agriculture were often fragmented and insufficiently integrated with national development planning. Gunathilaka and Samarakoon (2021) demonstrated that vegetable farmers in up-country region are experiencing climate-related challenges and are adopting different strategies to respond to changing climatic conditions. Ranasinghe et al. (2023) examined climate-change adaptation among dairy farmers associated with village tank cascade systems and demonstrating the importance of adaptive capacity at the household and community levels.

Water Management

Williams and Carrico (2017) examined farming households in Sri Lanka's Dry Zone and highlighted the relationship between changing water availability, agricultural livelihoods and adaptation. Jacobs et al. (2021) examined the significance of small irrigation tank cascade systems for climate adaptation. Droogers et. al. (2004) examined adaptation to climate change in the Walawe Basin and considered implications for food security, water management, and environmental sustainability. Perera et al. (2024) examined the combined effects of climate and land-use changes on flooding in the Gin River. Perera et al. (2016) demonstrated changes in rainfall patterns within the Hakwatuna Oya watershed, highlighting the implications of rainfall. Abeysingha (2022) reviewed rainfall trends in Sri Lanka. Abeysingha et al. (2026) further identified contrasting rainfall trends across seasons and locations. Further reinforce the need for geographically differentiated climate adaptation strategies. The literature considers climate policy and governance. Recent study in Sri Lanka's climate-policy architecture indicates that increasing multi-hazard risks require stronger institutional coordination, financing, monitoring and

implementation mechanisms. Nightingale et al. (2021) demonstrated the importance of examining adaptation through the social and structural dimensions of vulnerability.

Scientometric

The rapid growth of climate-change literature has stimulated increasing use of bibliometric and scientometric approaches to map the development of the field. Bibliometrix provides an established computational framework for science mapping and thematic analysis (Aria & Cuccurullo, 2017). Scientometrics provides a quantitative and analytical approach to study development and structure of scientific knowledge (Price, 1963; Garfield, 1972). The study by Haunschild et al. (2016) demonstrates how bibliometric analysis can move beyond publication counting to examine the evolution and structure of climate-change knowledge. Modern science-mapping approaches provide additional opportunities to examine the conceptual and intellectual structure of research. It can reveal relationships among contemporary research publications (van Eck & Waltman, 2010; Aria & Cuccurullo, 2017). Scientometric techniques can therefore provide a multidimensional understanding of climate change research.

7. Methodology

The bibliographic data for this study were retrieved from the Web of Science (WOS) Core Collection, a multidisciplinary citation database widely used for bibliometric and scientometric research on 22.08.2026. All document types were used to disseminate the research topic in this study area. Language was restricted to English but no restriction for document type. Routine data cleaning procedures were adopted. Biblioshiny R package version 3.0.0 only was utilized for analysis due to limited number of records (812). Data was downloaded in plain text format. The search string was designed to identify scholarly publications addressing climate change in relation to Sri Lanka. The following search strategy was applied. TS = (("climate change" OR "climate variability" OR "global warming" OR "climate risk") AND ("Sri Lanka"). The search covered the period from 1996 to 22 August 2026. A total of 812 bibliographic records were retrieved and exported for subsequent scientometric analysis. The dataset was subsequently analyzed to examine publication growth, citation impact, author productivity, source concentration, institutional contributions, and other characteristics of the research landscape.

8. DATA ANALYSIS AND INTERPRETATION

Table 1 - Publication Growth – RGR and Doubling Time

S. No	Year	No. of Records	Cumulative	W1	W2	RGR	Doubling Time
1	1996	2	2	0.00	0.69	0.69	1.00
2	1997	1	3	0.69	1.10	0.41	1.71
3	1998	2	5	1.10	1.61	0.51	1.36
4	1999	3	8	1.61	2.08	0.47	1.47
5	2000	0	8	1.61	2.08	0.47	1.47
6	2001	3	11	2.08	2.40	0.32	2.18
7	2002	1	12	2.40	2.48	0.09	7.96
8	2003	5	17	2.48	2.83	0.35	1.99
9	2004	3	20	2.83	3.00	0.16	4.26
10	2005	6	26	3.00	3.26	0.26	2.64
11	2006	5	31	3.26	3.43	0.18	3.94
12	2007	2	33	3.43	3.50	0.06	11.08
13	2008	8	41	3.50	3.71	0.22	3.19
14	2009	14	55	3.71	4.01	0.29	2.36
15	2010	15	70	4.01	4.25	0.24	2.87
16	2011	13	83	4.25	4.42	0.17	4.07
17	2012	14	97	4.42	4.57	0.16	4.45
18	2013	16	113	4.57	4.73	0.15	4.54
19	2014	14	127	4.73	4.84	0.12	5.93
20	2015	17	144	4.84	4.97	0.13	5.52
21	2016	23	167	4.97	5.12	0.15	4.68

22	2017	37	204	5.12	5.32	0.20	3.46
23	2018	33	237	5.32	5.47	0.15	4.62
24	2019	53	290	5.47	5.67	0.20	3.43
25	2020	73	363	5.67	5.89	0.22	3.09
26	2021	71	434	5.89	6.07	0.18	3.88
27	2022	86	520	6.07	6.25	0.18	3.83
28	2023	89	609	6.25	6.41	0.16	4.39
29	2024	109	718	6.41	6.58	0.16	4.21
30	2025	90	808	6.58	6.69	0.12	5.87
31	2026	4	812	6.69	6.70	0.00	140.33

The dataset comprises 812 publications recorded between 1996 and 22.08.2026. Initial phase (1996–2008) Annual output remained relatively low. 1-8 publications indicate an early stage of research development. Development phase (2009–2016): Publication output increased from 13 to 23 papers annually. It suggests a gradual increase in climate change research. Expansion phase (2017–2020) output increased markedly from 37 publications in 2017 to 73 in 2020. This shows accelerated research productivity. During the high-productivity phase (2021–2025), annual output remained comparatively high. Reaching a maximum of 109 publications in 2024 before declining to 90 in 2025. The relative growth rate generally decreased from higher values in the early years to approximately 0.12–0.18 during several recent years. This pattern suggests that the cumulative publication base has expanded considerably while proportional growth has become less pronounced. The doubling-time indicator also fluctuates and reflecting changes in the pace of cumulative research expansion. The publication output for 2026 was recorded as only four publications. However, this figure should not be interpreted as an actual decline in climate change research productivity. The dataset covers publications only up to 22 August 2026 and therefore represents a partial year rather than the complete annual output.

Table 2 - Average Citations Per Year

S. No	Year	Mean TC per Article	N	Mean TC per Year	Citable Years
1	1996	39	2	1.26	31
2	1997	9	1	0.6	30
3	1998	23	2	0.79	29
4	1999	106	3	3.79	28
5	2001	21.33	3	0.82	26
6	2002	53	1	2.12	25
7	2003	95.4	5	3.98	24
8	2004	95.67	3	4.16	23
9	2005	114.67	6	5.21	22
10	2006	119.2	5	5.68	21
11	2007	135	2	6.75	20
12	2008	189.5	8	9.97	19
13	2009	47.5	14	2.64	18
14	2010	255.73	15	15.04	17
15	2011	65.08	13	4.07	16
16	2012	68.29	14	4.55	15
17	2013	75.62	16	5.4	14
18	2014	263.5	14	20.27	13
19	2015	97.82	17	8.15	12
20	2016	214.13	23	19.47	11
21	2017	97.22	37	9.72	10
22	2018	50.7	33	5.63	9
23	2019	51.74	53	6.47	8
24	2020	50.42	73	7.2	7
25	2021	34.73	71	5.79	6
26	2022	37.88	86	7.58	5
27	2023	31.04	89	7.76	4
28	2024	27.68	109	9.23	3
29	2025	4.74	90	2.37	2
30	2026	1.25	4	1.25	1

The citation analysis reveals substantial variation in the scholarly visibility of publications across the study period. Publications from earlier years generally received higher citation counts up to 2024. This difference should be interpreted in relation to citation accumulation time after 2017 and visibility of article in earlier years from 1996 to 2016. The mean total citations per article show remarkable records in several years, as can be observed from the table. Mean citation per year in 2010,2014 and 2016 had recorded high values compared to other study period. The research topic in Sri Lanka still need more improvements interms of impact tool. Citation comparisons of 2026 is not practical and ethical to compare with earlier years since the year is yet to be completed for analysis.

Table 3 – Bradford distribution model

Zone	N. Sources	% Sources	N. Articles	% Articles
Zone1	34	8.8%	273	33.6%
Zone2	100	25.8%	269	33.1%
Zone	253	65.4%	270	33.3%
Total	387	100%	812	100%

The Bradford distribution model classifies the 387 publication sources into three zones containing approximately equal proportions of the 812 articles. The results demonstrate a clear concentration of publications within a relatively small core of sources. Core sources 8.8% (34) of the sources account for 33.6% of the articles. 65.4% of the sources are in zone 2 and 3. Empirical data also justify the Bradford theory. Source analysis indicates that researchers should prioritise core journals when conducting literature reviews, monitoring research developments and identifying influential publication outlets.

Table 4 – Source Impact of Climate Change (Top 25)

S. No	Source	h_index	g_index	m_index	TC	NP	PY_start
1	SUSTAINABILITY	13	28	1.18	812	29	2016
2	SCIENCE OF THE TOTAL ENVIRONMENT	12	16	1.20	1075	16	2017
3	WATER	12	19	1.00	436	19	2015
4	PLOS ONE	9	13	0.64	469	13	2013
5	ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH	8	8	1.14	144	8	2020
6	JOURNAL OF THE NATIONAL SCIENCE FOUNDATION OF SRI LANKA	8	12	0.44	157	17	2009
7	AGRICULTURAL WATER MANAGEMENT	7	7	0.27	547	7	2001
8	AGRONOMY-BASEL	7	9	1.00	296	9	2020
9	CLIMATIC CHANGE	7	7	0.30	492	7	2004
10	JOURNAL OF CLEANER PRODUCTION	7	7	0.78	210	7	2018
11	ADVANCES IN METEOROLOGY	6	9	0.67	193	9	2018
12	FRONTIERS IN SUSTAINABLE FOOD SYSTEMS	6	8	0.86	148	8	2020
13	GLOBAL CHANGE BIOLOGY	6	7	0.50	1151	7	2015
14	GLOBAL HEALTH ACTION	6	6	0.40	143	6	2012
15	REMOTE SENSING	6	6	0.86	852	6	2020
16	WATER INTERNATIONAL	6	7	0.21	159	7	1999
17	AGRICULTURE ECOSYSTEMS & ENVIRONMENT	5	5	0.26	1183	5	2008
18	ENERGIES	5	5	0.71	85	5	2020
19	ENVIRONMENTAL SCIENCE & POLICY	5	5	0.23	822	5	2005
20	GLOBAL ENVIRONMENTAL CHANGE-HUMAN AND POLICY DIMENSIONS	5	5	0.22	330	5	2004
21	INTERNATIONAL JOURNAL OF CLIMATOLOGY	5	5	0.31	497	5	2011
22	INTERNATIONAL JOURNAL OF DISASTER RISK REDUCTION	5	6	0.63	158	6	2019
23	IRRIGATION AND DRAINAGE	5	7	0.19	91	7	2001
24	LAND USE POLICY	5	5	0.45	153	5	2016
25	AGRICULTURAL AND FOREST METEOROLOGY	4	5	0.24	164	5	2010

The source-impact indicators demonstrate variation in journal productivity and scholarly influence. Journal productivity is measured by the number of publications. Journal impact is measured by citation

received, h-index, g-index and m-index.The table reports the h-index, g-index, m-index, total citations and number of publications for the leading sources. Sustainability records the highest reported h-index of 13 indicating a substantial body of cited publications within the dataset. Science of the Total Environment records an h-index of 12 and a g-index of 16 with 1,075 total citations. Water also records an h-index of 12 supported by 436 citations across 19 publications. Global Change Biology has 1151 citations across seven publications suggesting substantial citation influence despite a comparatively small number of papers. Agriculture Ecosystems and Environment records 1183 citations across five publications, indicating high citation accumulation within this dataset. Journal of the National Science Foundation of Sri Lanka contributes 17 publications with an h-index of 8 reflects a notable role among the listed sources. These results illustrate the distinction between source productivity and source impact. A journal publishing more papers does not necessarily accumulate the highest citation. A source with fewer papers may demonstrate substantial citation influence. The m-index additionally provides a time sensitive perspective on h-index development by relating it to the number of years since the source's first publication in the dataset.

Table 5 – Most Relevant Authors (Top 25)

S. No	Author	Articles	Articles Fractionalized
1	RATHNAYAKE U	26	7.14
2	KUMAR L	16	5.29
3	AMARNATH G	13	3.03
4	LOKUPITIYA E	13	3.80
5	VITHANAGE M	13	2.36
6	RATNAYAKE AS	11	2.42
7	GHOSH S	10	2.14
8	LANGAN S	10	0.93
9	RANAGALAGE M	10	1.85
10	RATNAYAKE SS	10	2.19
11	ALAHACOON N	9	3.00
12	CHANDRAJITH R	9	2.16
13	HERATH S	9	2.52
14	JAYASINGHE SL	9	3.45
15	KARIYAWASAM CS	9	2.11
16	SURIYAGODA LDB	9	1.73
17	ABEYSINGHA NS	8	1.95
18	ATKIN OK	8	0.67
19	KARUNARATNE AS	8	1.82
20	MCCARTNEY M	8	0.98
21	NISSANKA SP	8	1.57
22	PERERA A	8	2.30
23	PREMATHILAKE R	8	4.18
24	SMAKHTIN V	8	2.42
25	TJOELKER MG	8	0.65

Above table shows the most relevant authors and fractionalized productivity. The author-productivity table identifies Rathnayake U as the most prolific author with 26 publications and a fractionalized contribution of 7.14. Kumar L follows with 16 publications and a fractionalized contribution of 5.29. Amarnath G, Lokupitiya E and Vithanage M each contribute 13 publications. The difference between full publication counts and fractionalized publication counts is important. Full counts assign each co-authored publication to every contributing author. Fractional counting allocates credit according to the author's share of the publication. Fractionalized productivity provides a more differentiated measure of individual contribution in collaborative research environments. The findings identify a group of highly productive contributors and suggest that climate change research involves collaborative authorship. Comparing full and fractionalized counts helps distinguish publication participation from the estimated share of scholarly output attributable to individual researchers.

Table 6 – Author Productivity through Lotka's Law

S. No	Documents written	N. of Authors	Proportion of Authors
1	1	6075	0.82
2	2	934	0.12
3	3	245	0.03
4	4	82	0.01
5	5	24	0.003
6	6	15	0.002
7	7	6	0.0008
8	8	10	0.001
9	9	6	0.0008
10	10	4	0.0005
11	11	1	0.0001
12	13	3	0.0004
13	16	1	0.0001
14	26	1	0.0001

The Lotka distribution indicates that 7407 authors representing approximately 82.02% of the reported author population contributed one document each. A further 934 authors (12.61%) contributed two documents and 245 authors (3.31%) contributed three

documents. The proportion of authors generally decreases as the number of publications increases. Only a small number of researchers have produced substantially larger publication portfolios, including authors associated with 13, 16 and 26 documents. This distribution suggests a strongly skewed pattern of author productivity in which a large number of contributors have limited recorded output and a small group accounts for repeated contributions.

Table 7 - Authors' Local Impact

S. No	Author	h_index	g_index	m_index	TC	NP	PY_start
1	RATHNAYAKE U	15	23	1.67	556	26	2018
2	KUMAR L	13	16	1.63	572	16	2019
3	VITHANAGE M	13	13	1.30	857	13	2017
4	AMARNATH G	10	13	0.67	266	13	2012
5	ALAHACOON N	8	9	1.00	374	9	2019
6	ATKIN OK	8	8	0.62	1021	8	2014
7	LANGAN S	8	10	1.00	281	10	2019
8	LOKUPITIYA E	8	13	0.73	404	13	2016
9	NISSANKA SP	8	8	0.57	276	8	2013
10	RANAGALAGE M	8	10	1.00	1087	10	2019
11	SMAKHTIN V	8	8	0.50	622	8	2011
12	TJOELKER MG	8	8	0.62	986	8	2014
13	WEERASINGHE LK	8	8	0.62	1021	8	2014
14	HERATH S	7	9	0.30	244	9	2004
15	JAYASINGHE SL	7	9	0.88	396	9	2019
16	RATNAYAKE SS	7	10	0.88	168	10	2019
17	ABEYSINGHA NS	6	8	0.55	163	8	2016
18	BEKCHANOV M	6	6	0.50	285	6	2015
19	DE COSTA WAJM	6	7	0.25	160	7	2003
20	EDIRIWEERA S	6	7	0.67	345	7	2018
21	GUPTA R	6	6	0.55	13452	6	2016
22	HEWAGE K	6	6	0.86	173	6	2020
23	JAYATISSA LP	6	7	0.27	464	7	2005
24	KARIYAWASAM CS	6	9	0.75	132	9	2019
25	KARUNATHILAKE H	6	6	0.86	173	6	2020

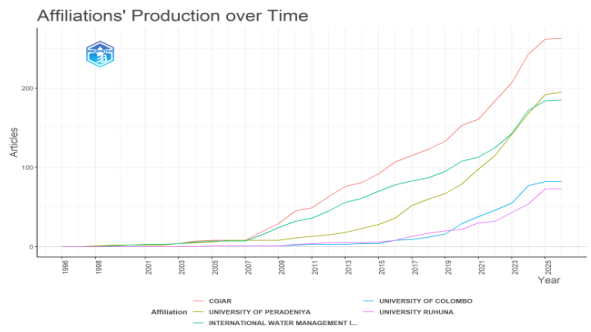
The local-impact indicators reveal differences in citation influence among leading researchers. Rathnayake U records the highest h-index in the table (15) with 556 citations across 26 publications. Kumar L records an h-index of 13 and 572 citations across 16 publications. Vithanage M also achieves an h-index of 13 with 857 citations across 13 publications. Ranagalage M records 1087 citations across ten publications demonstrating substantial citation accumulation. Gupta R has a reported total of 13452 citations across six publications is an unusually high value compared with the other listed authors. The original data was checked from database and downloaded results. The figure 13452 was correct. The findings demonstrate that publication productivity h-index and total citation count capture different dimensions of scholarly performance. An author with fewer papers may accumulate more citations. Highly productive author may have a lower citation total.

Table 8- Most Relevant Affiliation in climate change (Top 25)

S. No	Affiliation	Articles
1	CGIAR	263
2	UNIVERSITY OF PERADENIYA	195
3	INTERNATIONAL WATER MANAGEMENT INSTITUTE (IWMI)	185

4	UNIVERSITY OF COLOMBO	82
5	UNIVERSITY RUHUNA	73
6	UNIVERSITY MORATUWA	70
7	CHINESE ACADEMY OF SCIENCES	65
8	UNIVERSITY OF LONDON	63
9	UNIVERSITY OF CALIFORNIA SYSTEM	57
10	TEHRAN UNIVERSITY OF MEDICAL SCIENCES	56
11	RAJARATA UNIVERSITY OF SRI LANKA	54
12	UNIVERSITY KELANIYA	53
13	UNIVERSITY SRI JAYEWARDENEPURA	47
14	SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY (SLIIT)	46
15	UVA WELLASSA UNIVERSITY	45
16	STATE UNIVERSITY SYSTEM OF FLORIDA	44
17	UNIVERSITY OF OXFORD	44
18	SABARAGAMUWA UNIVERSITY OF SRI LANKA	40
19	EGYPTIAN KNOWLEDGE BANK (EKB)	39
20	HARVARD UNIVERSITY	39
21	SMITHSONIAN INSTITUTION	37
22	NATIONAL UNIVERSITY OF SINGAPORE	32
23	UNIVERSITY OF QUEENSLAND	32
24	AUSTRALIAN NATIONAL UNIVERSITY	31
25	WAGENINGEN UNIVERSITY AND RESEARCH	30

Institutional and organizational productivity and affiliation analysis identifies CGIAR (263 publications). University of Peradeniya (195) and the International Water Management Institute (IWMI 185) as the three leading affiliations in the dataset. Other major contributors include the University of Colombo (82). University of Ruhuna (73) and University of Moratuwa (70). The presence of several Sri Lankan universities alongside international universities and research organizations indicates that the research landscape encompasses both national academic institutions and international research networks. Wide spread of institutional linkages for the topic of climate change is a notable aspect for further expansion. The contributions of CGIAR and IWMI are particularly notable. Institutional counts can overlap when a publication has multiple authors or affiliations.



9. Findings and Conclusion

This scientometric study provides a comprehensive overview of the development and scholarly structure of climate change research related to Sri Lanka from 1996 to 22 August 2026. The analysis of 812 Web of Science-indexed publications demonstrates that the field has progressed from a relatively limited research area into an increasingly active and internationally connected domain. The substantial growth in publication output particularly during the later years of the study period reflects the increasing academic attention given to climate-related issues in the Sri Lankan context. The findings further demonstrate that research influence is unevenly distributed across authors and publication sources. A relatively small group of core journals accounts for approximately one-third of the total research output as demonstrated by Bradford's Law. Lotka's analysis reveals a highly unequal pattern of author productivity with the majority of contributors producing only one publication. Citation analysis similarly indicates that scholarly influence is concentrated among a smaller number of highly cited authors, publications and sources. These patterns suggest that the development of the field is being supported by a core group of established researchers and publication outlets alongside a much larger population of occasional contributors. The institutional findings demonstrate the importance of both Sri Lankan universities and

international research organizations in shaping the research landscape. The prominent contribution of institutions such as CGIAR, the University of Peradeniya, and IWMI indicates that climate change research related to Sri Lanka extends beyond national academic boundaries and benefits from broader institutional and international engagement. Participation provides opportunities for multidisciplinary research and knowledge exchange addressing the complex environmental, agricultural, social, and developmental dimensions of climate change. From a research-policy perspective the findings provide a useful evidence base for identifying established research contributors, influential publication venues, and areas in which research capacity and collaboration may be strengthened. Bibliometric indicators primarily measure scholarly communication and visibility. They do not, by themselves, demonstrate the practical effectiveness of climate change research, its policy uptake, or its impact on environmental and social outcomes. Future assessments should complement scientometric evidence with climate observations, policy and planning documents, field-based studies, stakeholder perspectives and systematic identification of research gaps. The study establishes that climate change research related to Sri Lanka is a growing and increasingly collaborative research domain with identifiable core authors, institutions and publication sources. The findings provide a baseline for monitoring the future development of the field and can support researchers, institutions, policymakers and funding agencies in identifying research priorities, strengthening collaboration, and directing resources towards emerging climate-related challenges in Sri Lanka.

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