

Research Collaboration and Impact of Central Agricultural University and Manipur University, India: A Scopus-Based Study

Rima Hazarika* and K.G. Sudhier

Department of Library & Information Science, Central University of Tamil Nadu, Thiruvavur, Tamil Nadu - 610 005, India

**E-mail: rimahazarika1993@gmail.com*

ABSTRACT

The paper explores the research impact and collaboration of Central Agricultural University (CAU) and Manipur University (MU), India, between 2013 and 2022. A bibliometric analysis of 1,932 publications and 23,519 citations extracted from the Scopus database reveals a significant increase in publications. Notably, 77.64 % of these papers resulted from national collaborations, while 22.41 % had international, particularly with the United States, the United Kingdom, and South Korea. The analysis of co-authorship patterns indicates a decline in single and two-authored papers, while multi-authored papers have increased significantly. The study highlights the rapid growth of collaboration networks, with CAU, Imphal leading in national collaborations across 61 countries. These findings provide that both CAU and MU have significantly expanded their research networks, resulting in improved research output and citation impact.

Keywords: Central agricultural university; Manipur university; Collaboration coefficient; Degree of collaboration; Collaborative index; Research productivity; Scopus; India

1. INTRODUCTION

In the dynamic landscape of higher education, collaborative efforts and networking initiatives are essential drivers of academic growth, innovation, and knowledge dissemination¹. Two prominent institutions in the northeastern region, India-Central Agricultural University (CAU) and Manipur University (MU)-have contributed significantly to research across various fields, particularly agriculture, environmental sciences, and social sciences. These universities play a pivotal role in promoting innovation, research productivity, and academic collaboration, particularly in regions with emerging academic infrastructures².

Despite these universities' growing prominence, there remains a gap in the impact and extent of their collaborative efforts, both nationally and internationally. Research collaboration, defined as the coordinated engagement of multiple researchers or institutions to achieve shared research goals, has been widely acknowledged as a critical driver of innovation, academic influence, and research productivity³.

Collaboration is vital for enhancing the quality and visibility of research and addressing complex societal and global challenges that require interdisciplinary approaches⁴. While previous studies have explored the

role of research collaboration in elevating the status of academic institutions globally, the specific dynamics within developing regions remain underexplored⁵.

This builds on previous research by focusing on how CAU and MU, have leveraged collaboration to enhance research outcomes. By mapping collaborative endeavors and evaluating their outcomes, this study aims to contribute to the existing body of knowledge by shedding light on how these universities navigate the academic landscape to address national and international challenges. The findings from this research will provide valuable insights into the role of collaboration in fostering academic excellence in developing regions, thereby informing policy and strategic decisions to strengthen higher education in such areas.

2. LITERATURE REVIEW

Several studies have explored the research output of universities in NE India, utilising data from the Web of Science and Scopus databases to highlight significant advancements and trends that can inform future strategies. In a comprehensive bibliometric analysis of Tezpur University's research output over 29 years, Daimary⁶ reveals that Science and Engineering are the most prolific disciplines, emphasising the university's impact on both national and global levels. Similarly, Yumnam⁷, *et al.* examine research across ten regional central universities,

noting Tezpur University's leadership in publications and citations while advocating for submissions to higher-impact journals. Basumatary and Verma⁸ focus on communication strategies among top-ranked central universities, with Mizoram University demonstrating notable growth in scientific output and international collaborations. Pal and Bhattacharjee analyse the research landscape, indicating Chemistry as the leading field, while Gaurav⁹, *et al.* emphasise the importance of publication quality and consistent growth across universities. Mahala and Singh highlight the collaborative nature of high-impact research outputs, identifying key international partnerships.

Furthermore, Saikia¹⁰ reinforces the need for ongoing bibliometric assessments to gauge institutional contributions effectively. Collectively, these studies illuminate the dynamic research environment in NE India, identifying key themes, preferred publication venues, and collaborative networks while pointing out gaps in targeted strategies for lesser-performing institutions. These highlight the critical need for tailored approaches to enhance regional research visibility and impact.

3. OBJECTIVES

The objectives of the study are as follows:

- Identify the year-wise growth of publications and collaborative measures.
- Investigate the trend of research publications for each university.
- Determine the year-wise collaboration trends of national and international research.
- Investigate the subject-wise distribution and authorship patterns of publications.
- Visualise the co-authorship networks among countries.
- Identify top collaborative journals and funding agencies.

4. METHODS

The study utilised a bibliometric analysis to examine the research output and collaboration patterns of CAU and MU, India. A systematic search strategy was implemented to extract publication records from Scopus for both universities over ten years, from 2013 to 2022. The search was conducted using the respective university affiliation IDs, ensuring that all relevant publications were accurately captured for analysis.

The Degree of Collaboration (DC) of mathematical formulas was suggested by Subramanyam¹¹

$$(C) = Nm/Nm+Ns$$

Where: C= Degree of Collaboration

Nm= Number of multiple authors, Ns= Number of single authors

The Collaborative Index (CI) has been calculated using the formula suggested by Lawani⁷. This index measures the average number of authors.

$$CI = \text{Total no. of Authors} / \text{Total no. of Joint Papers}$$

The Modified Collaborative Coefficient (MCC) is calculated using the formula Savanur and Srikanth¹³ suggested, as shown below.

$$MCC = \frac{A}{A-1} \left\{ 1 - \frac{\sum_i^A - 1 \left(\frac{1}{f_j} \right) (f_j)}{N} \right\}$$

Where,

f_j = the number of collaborative papers

N = total number of research published; and

K = the most significant number of authors per paper

5. RESULTS

According to the Scopus database, the two universities published 1,932 articles, which garnered 23,519 citations

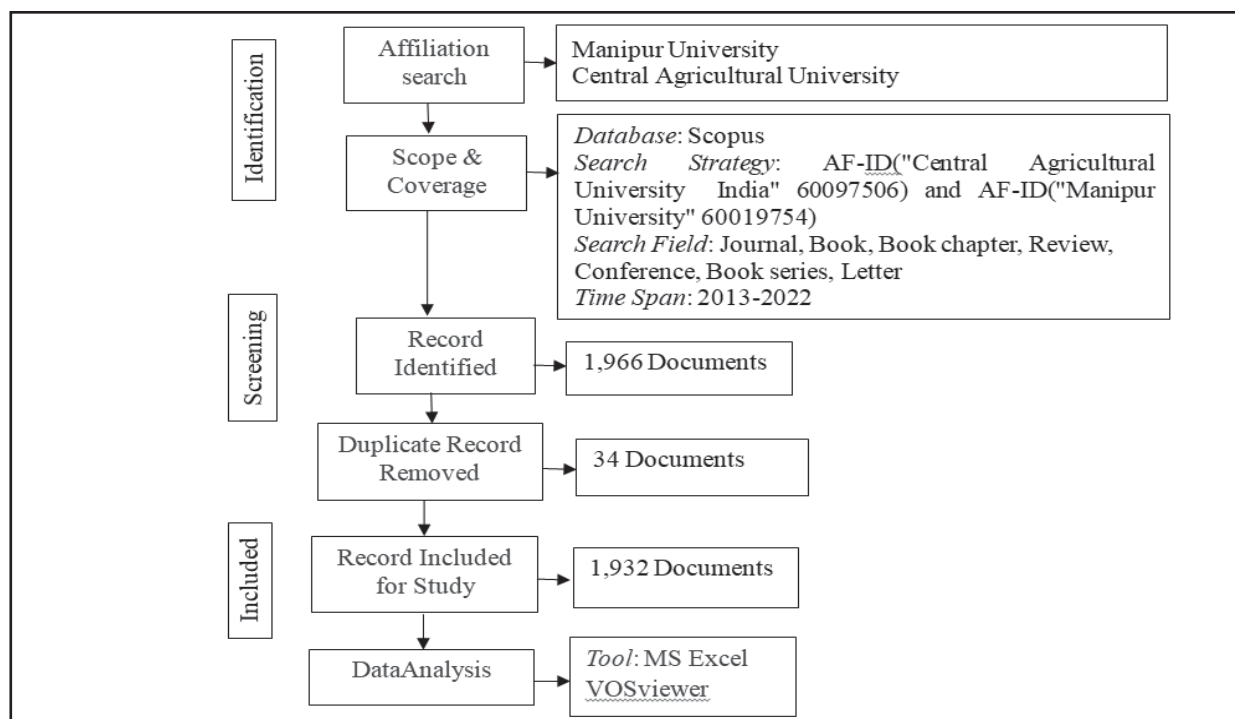


Figure 1. Flowchart of the screening process.

during the study period (2013-2022). There was a notable upward trend in the annual publication records, with the highest number of papers (391) published in 2022, as illustrated in Table 1.

The share of research papers from these central universities, concerning the total publications, increased from 7.77 % to 20.24 % (2013-2022). It utilised the RGR (Relative growth rate) and DT (doubling time) model developed by Mahapatra in 1985 to calculate the growth rate of publications. The year-wise research productivity of papers from the universities, measured in terms of RGR and DT, is presented in Table 1. Specifically, the relative growth rate decreased from 0.74 to 0.23 from 2014 to 2022, while the corresponding doubling time (DT) for different years gradually increased from 0.94 to 3.02 during the same period. The ACPP for university publications was highest at 29.94 for papers, with the maximum number of citations (4,491) recorded in 2013. Furthermore, the highest h-index (18) was achieved for research papers published in 2017. Notably, citations between 2013 and 2017 exceeded those in subsequent periods, as citations tend to increase with time. However, the number of citations decreased from 2017 to 2022, declining from 2,078 to 1,130, which led to a decrease in the h-index from 18 to 5.

Table 2 presents collaboration metrics, highlighting three key indicators: Degree of Collaboration (DC), Collaborative Index (CI), and Modified Collaborative Coefficient (MCC). From 2013 to 2022, the DC slightly declined from 0.95 in 2013 to 0.88 in 2018 before stabilising at 0.96 in 2022, indicating a consistently high level of collaboration. Conversely, the CI steadily increased from 3.66 in 2013 to 5.09 in 2022, reflecting enhanced collaborative efforts. The MCC displayed

fluctuations, peaking at 0.38 in 2018 but dropping to 0.27 by 2022, suggesting a decrease in the average strength of author collaboration despite an overall rise in collaboration intensity. The metrics reveal a sustained commitment to collaboration, with a total DC of 9.34, a CI of 42.49, and an MCC of 3.29.

5.1 Publication Metrics of the Research

Table 3 shows that the CAU published the highest number of papers (976) and received the highest number of citations (71,727). They also achieved the highest ACPP, 73.49, and recorded 4,990 authors. In contrast, these publications have the lowest number of pages (6364) and APPP at 6.52. On the other hand, publications from MU had the highest number of pages, totalling 8,541, and the highest APP at 8.94.

The analysis reveals a positive correlation between the number of citations, the Average number of Pages Per Paper (APPP), and the number of authors in both central universities. Interestingly, CAU's publications, which have a lower APPP, receive more citations.

5.2 Subject Areas of Publication

An analysis of the universities' research areas revealed that publications during the study period covered 27 subject areas. The top 10 subject areas show their respective research focuses in Fig. 2. The subject area-wise publication analysis of these two universities, based on the Scopus journal classification system, lists Agricultural and Biological Sciences (696), Medicine (244), Environmental Science (231), Chemistry (218), and Physics and Astronomy (205) as the top 5 subject areas emphasised by these two universities.

Table 1. Year-wise research productivity

Year	Publication trends				Citation		h-index
	TP	% Share	RGR	DT	TC	ACPP	
2013	150	7.77	0	0	4491	29.94	16
2014	162	8.39	0.74	0.94	3232	19.95	13
2015	138	7.15	0.37	1.88	2847	20.63	14
2016	127	6.58	0.25	2.78	1866	14.69	16
2017	154	7.98	0.24	2.89	2078	13.49	18
2018	135	6.99	0.17	4.08	1913	14.17	12
2019	154	7.98	0.17	4.08	1941	12.6	14
2020	200	10.36	0.18	3.86	2133	10.66	13
2021	321	16.62	0.24	2.89	1888	5.88	09
2022	391	20.24	0.23	3.02	1130	2.89	05
Total	1932	100			23519	12.17	130

TP-Total publication; RGR – Relative growth rate; DT – Doubling time; TC-Total citation; ACPP – Average citations per paper

Table 2. Yearly-wise collaboration metrics

Year	Collaboration		
	DC	CI	MCC
2013	0.95	3.66	0.36
2014	0.93	3.73	0.36
2015	0.91	3.82	0.36
2016	0.93	4.42	0.32
2017	0.94	4.12	0.33
2018	0.88	3.87	0.38
2019	0.95	4.58	0.30
2020	0.95	4.51	0.31
2021	0.94	4.69	0.30
2022	0.96	5.09	0.27
Total	9.34	42.49	3.29

Table 3. Publication metrics of the universities' research

Publication metrics	University	
	CAU, imphal	MU, imphal
Publications	976	956
Total Citations	71,727	68,268
H-Index	33	32
No of Pages	6364	8541
Number of Authors	4990	2419
Average Pages Per Paper (APPP)	6.52	8.94
Average Citations Per Paper (ACPP)	73.49	71.41

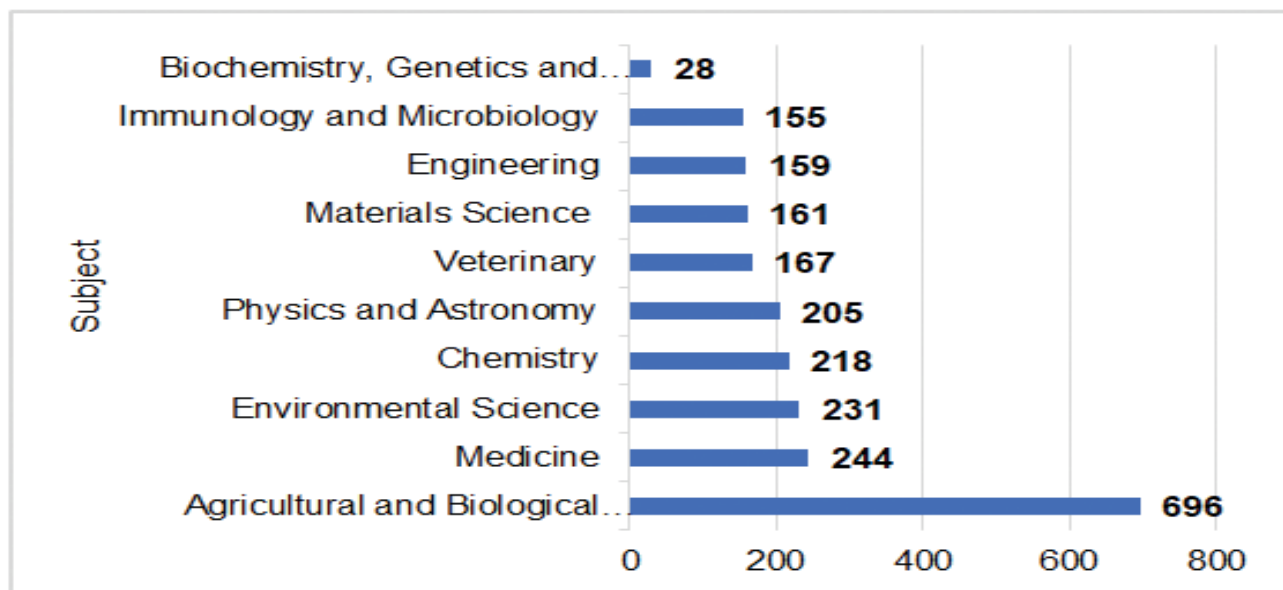
5.3 Research Publications

The trends in bibliometric indicators for research papers of universities are presented in Table 4. During the study period, there has been a steady increase in the number of papers published by Indian authors, with a significant rise from 138 in 2013 to 334 in 2022. However, the total citations for these papers have not shown proportional growth, with the ACPP declining from 28.94 in 2013 to just 2.07 in 2022. This trend suggests a decrease in the impact or influence of these publications over time despite the increase in volume. Conversely, the number of papers with international collaboration has remained relatively low, peaking at 45 in 2022. While these collaborative papers constitute a much smaller share of the total publications, they exhibit a consistently higher ACPP, indicating a greater impact. For example, in 2015, internationally co-authored papers had an ACPP of 43.11 compared to 19.38 for purely Indian papers, and in 2020, they had an ACPP of 22.05 compared to 9.15 for Indian-only papers. The overall h-index also highlights this disparity, with papers involving international collaboration achieving an h-index of 9 in multiple years.

In contrast, Indian-only papers showed a declining h-index trend, particularly after 2013. This suggests that international collaboration contributes significantly to the visibility and citation impact of research publications. Despite the increasing volume of domestic publications, the data indicates a need for greater focus on research quality and collaboration to enhance the academic influence of Indian research outputs.

5.4 Universities-wise Publication Characteristics

Among the universities, CAU recorded the highest number of national collaborative papers (924), followed by MU (887), as shown in Table 5. The citation impact

**Figure 2. Subject areas of publications.**

or research influence, measured based on total citations, ACPP, and h-index, was highest for the research papers published by CAU in the case of national-level collaboration. This university also had the highest number of 80 publications with international collaboration, the lowest

h-index (29), and the highest number of citations. In contrast, MU had the fewest papers with international collaboration but the highest ACPP (12.78), indicating the significant impact of research conducted by its researchers.

Table 4. Research publications

Year	Papers with all authors from India, excluding those with a single author					Papers with at least one author from outside India				
	Papers		Citations		H-index	Papers		Citations		H-index
	No	% share	Total	ACPP		No	% share	Total	ACPP	
2013	138	7.14	3994	28.94	34	6	0.31	234	39	9
2014	143	7.40	2806	19.62	33	11	0.57	219	19.82	4
2015	115	5.95	2229	19.38	26	11	0.57	269	43.11	8
2016	111	5.75	1613	14.53	22	7	0.36	107	29.92	4
2017	135	6.99	1788	13.24	21	9	0.47	119	23.07	5
2018	113	5.85	1737	15.37	20	10	0.52	86	15.19	5
2019	142	7.35	1699	11.96	18	4	0.21	112	28	3
2020	172	8.90	1574	9.15	20	22	1.14	277	22.05	8
2021	279	14.44	1541	5.52	19	24	1.24	165	16.56	9
2022	334	17.29	692	2.07	13	45	2.33	132	4.89	9
Total	1682	87.06	19848	11.8		149	7.71	1720	23.26	

ACPP – Average citations per paper

Table 5. Universities-wise publication characteristics

University	Papers with all authors from India, including those with a single author				Papers with at least one author from outside India			
	TP	h-index	TC	ACPP	TP	h-index	TC	ACPP
Central Agricultural University	924	30	5414	5.86	80	29	838	10.48
Manipur University	887	29	5147	5.80	69	35	882	12.78
Total	1682		9924		149		1720	

ACPP – Average citations per paper

Table 6. Authorship pattern

Year	Single	Two	Three	Four	Five	Six	More than six	TP	TA	APPA
2013	9	37	40	30	12	8	7	143	480	3.36
2014	19	36	40	25	18	8	17	163	568	3.48
2015	16	30	17	46	10	15	13	147	542	3.69
2016	9	24	26	24	14	10	26	133	543	4.08
2017	10	34	27	26	21	22	13	153	591	3.86
2018	16	33	27	16	16	12	8	128	435	3.40
2019	83	32	25	22	20	12	38	232	748	3.22
2020	10	37	50	24	19	15	8	163	571	3.50
2021	24	47	56	50	47	18	37	279	1088	3.90
2022	17	65	47	55	34	46	127	391	1843	4.71
Total	213	375	355	318	211	166	294	1932	7409	3.83
%	11.02	19.41	18.37	16.46	10.92	8.59	15.22	100	100	

TP-Total publications; TA-Total authors; APPA-Average number of pages per article

5.5 Authorship Pattern

From the study, 7409 authors were identified as contributors to collaborative research papers. The year-wise authorship pattern of publications from universities reveals a significant increase in publications with more than six authors over the study period, as shown in Table 6. Approximately half of all publications had 2-6 authors, while 19.41 involved more than two researchers. These highlight the spirit of teamwork among university researchers and suggest a means of promoting improvement in research quality, as collaboration is positively correlated with research quality, although this relationship is not universal.

The APPA ranged from 3.36 in 2013 to 4.71 in 2022. Notably, apart from single-author papers, there was a significant increase in the number of papers with various combinations of multiple authors, from 2 to 6 or more authors. Single-authored papers reflect an individual's expertise and authority within their domain, and the current trend likely reflects the multi-dimensional and transdisciplinary nature of contemporary research. In terms of contributions, single-authored papers contributed 213 publications, while those with multiple authors contributed 7,196 publications.

5.6 International Collaboration Papers

Fig. 3 presents the co-authorship network of international collaboration papers from universities. The figure illustrates that the research network is expanding geographically and becoming more intensive. The highest number of collaborative papers were with the USA (73 documents; 789 citations), followed by the United Kingdom (38 documents; 308 citations) and South Korea (33 documents; 361 citations).

The highest ACPP (Average Citation per Paper) value reported for collaborative research publications is France (90.00), followed by Canada (23.50), Thailand (20.00), and the USA (14.80). The co-authorship-based network visualisation map created using VOS viewer, also reflects these findings. The analysis used a minimum citation threshold of 51 to ensure the visualisation's relevance and accuracy. A total of 10 clusters have formed among the 51 countries, with the top 10 countries including the USA (5), the United Kingdom (8), South Korea (7), China (1), Australia (1), Saudi Arabia (5), Egypt (6), Malaysia (4), and Canada (4).

5.7 Journal Preferences

The researchers published 1,562 national collaborative research papers across 606 journals. Among these, the top 10 journals are listed in Table 7. Notably, the Indian Journal of Animal Sciences has made the most significant contribution with 37 (2.37 %) publications, followed by the Indian Journal of Animal Research with 35 (2.24 %) publications and Zootaxa with 26 (1.66 %) publications. Likewise, the international collaborative research papers (n=63) were distributed across 40 different journals, which included PloS One with 5 (7.94 %), the Saudi Journal of Biological Sciences with 4 (6.35 %), and the International Journal of Systematic and Evolutionary with 3 (4.76 %).

5.8 Funding Agencies

The study revealed that among the top 10 funding agencies, 93 % of national collaborative research papers and 5 % of internationally-authored collaborative research papers included funding details. Table 8 displays the leading national and international collaboration publication

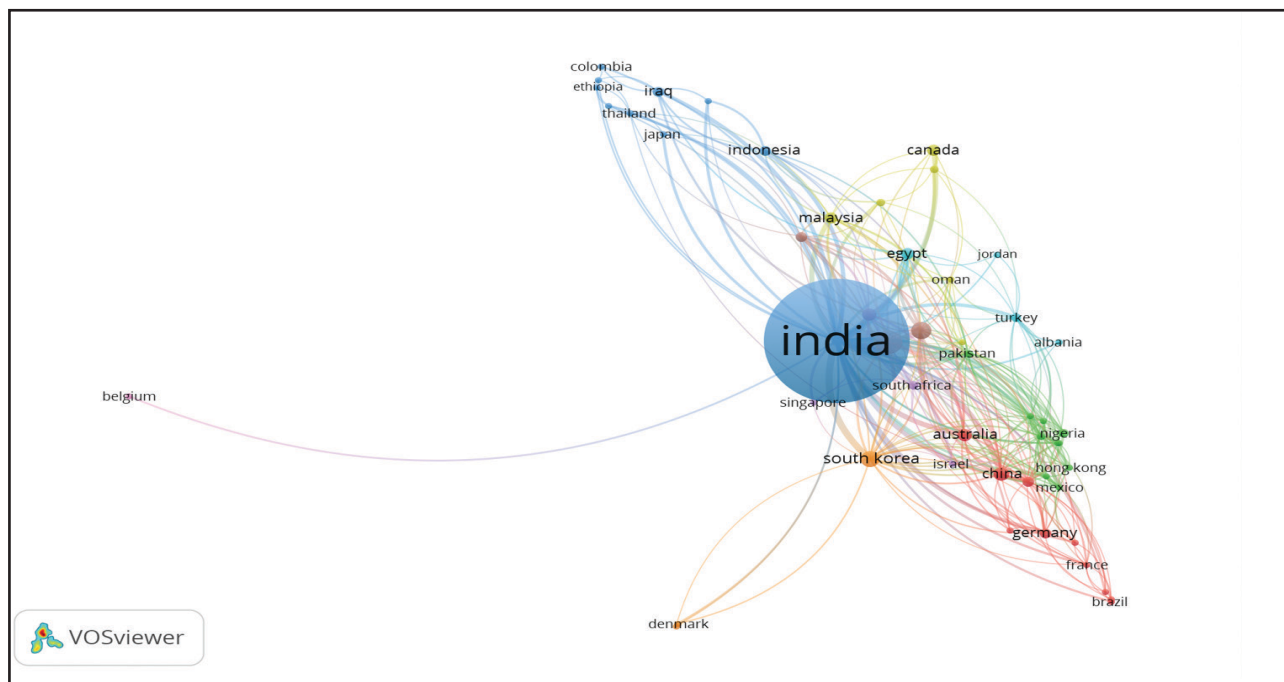


Figure 3. International collaboration papers.

Table 7. Research papers with national and international collaborators

Papers with all authors from India					Papers with at least one author from outside India				
Source titles	Records	%	IF	h-index	Source titles	Records	%	IF	h-index
Indian Journal of Animal Sciences	37	2.37	0.294	4	Plos One	5	7.94	3.7	1
Indian Journal of Animal Research	35	2.24	0.427	2	Saudi Journal of Biological Sciences	4	6.35	4.052	2
Zootaxa	26	1.66	1.028	6	International Journal of Systematic and Evolutionary Microbiology	3	4.76	2.689	3
Veterinary World	22	1.41	0.457	7	Molecules	3	4.76	4.927	3
Journal of Parasitic Diseases	21	1.34	0.364	4	Antonie Van Leeuwenhoek, International Journal of General and Molecular Microbiology	3	4.76	2.158	2
Current Science	20	1.28	1.169	4	Bulletin of the Korean Chemical Society	3	4.76	1.7	1
Indian Journal of Traditional Knowledge	19	1.22	1.091	4	Journal of Earth System Science	3	4.76	1.912	1
Journal of Environmental Biology	18	1.15	0.224	4	Journal of Alloys and Compounds	2	3.17	6.371	2
Legume Research	18	1.55	0.669	4	Frontiers in Microbiology	2	3.17	6.064	1
Indian Veterinary Journal	17	1.09	0.129	1	Frontiers in Pharmacology	2	3.17	5.988	1

Table 8. Top funding agencies

S. No.	Funding agency	Papers with all authors from India	International collaboration papers	Total records
1	University Grants Commission (UGC)	114	9	123
2	Department of Science and Technology (DST), Ministry of Science and Technology	111	5	116
3	Department of Biotechnology (DBT), Ministry of Science and Technology, India	102	2	104
4	Indian Council of Agricultural Research (ICAR)	86	3	89
5	Council of Scientific and Industrial Research (CSIR)	52	12	64
6	Science and Engineering Research Board (SERB)	53	2	55
7	Kerala Agricultural University (KAU)	42	0	42
8	Department of Biotechnology, Government of West Bengal	32	0	32
9	Central Agricultural University (CAU), Imphal	25	1	26
10	China Agricultural University, China	18	0	18

records and their respective funding agencies, including the University Grants Commission with 114 publications, the DST under the Ministry of Science and Technology with 111 publications, and the Department of Biotechnology with 102 publications. The present study additionally documents the different names used by funding agencies and their programs in the collected data.

6. FINDINGS AND CONCLUSION

This study sheds light on the collaborative efforts between CAU and Manipur University MU, providing valuable insights into academic partnerships in developing regions. It aligns with prior research by confirming the positive effects of collaboration on research output and visibility. It also highlights the challenges faced by these institutions, such as limited funding, inadequate infrastructure, and restricted international visibility. Notably, the research indicates a significant increase in national collaborations; however, it also reveals a concerning trend of declining RGR and increasing DT, suggesting a plateau in research productivity. These trends underline the need for targeted interventions to revitalise research output and ensure sustained progress.

While national partnerships have seen improvement, the study highlights the limited scope of international collaborations, emphasising the need for broader global engagement. Cultivating international networks is essential to enhance the reach and impact of research initiatives. Policymakers are called to create more supportive environments by addressing funding gaps, improving infrastructure, and fostering international collaborations. Future research should explore the long-term effects of such collaborations on research quality and develop strategies to strengthen these partnerships, ultimately advancing the research landscape for agricultural and general education institutions in developing regions.

The findings of this study provide crucial insights for researchers, academic institutions, and policymakers on the outcomes of research partnerships. However, a key limitation is the reliance on Scopus data, which may exclude publications from other databases or local sources. While Scopus is chosen for its extensive coverage of high-quality academic journals and global reach, future research could enhance transparency by refining selection criteria-such as time frames, publication types, and subject areas-to provide a more comprehensive and contextualised analysis.

REFERENCES

1. Aithal, P.S. & Maiya, A.K. Innovations in higher education industry-shaping the future, *Int. J. Case Stud. Bus. IT Educ.*, 2023, **7**(4), 294-322. doi: 10.47992/ijcsbe.2581.6942.0321
2. Singh, S.N. & Singh, K.K. Higher education in Manipur: A comprehensive overview, *J. Res. Humanit. Soc. Sci.*, 2023, **11**(12), 9-12.
3. Ngwenya, S. Research production and research collaboration in Zimbabwe: A bibliometric study in context, 2021, 1-472. https://scholar.sun.ac.za/bitstream/handle/10019.1/109981/ngwenya_research_2021.pdf?sequence=1 (accessed on 15 September 2023).
4. Bhoomaiah, D.; Pandian, K.; Kantharajan, G.; Agarwal, S.; Hemalatha, M.; Rajendran K.V. & Rao, C.S. Mapping the research impact of collaboration and networking of ICAR fisheries research institutes in India: A scientometric study, *Indian J. Fish.*, 2022, **69**(1), 1-21. doi: 10.21077/ijf.2022.69.1.113025-01
5. Zhang, D.; Ding, W.; Wang, Y & Liu, S. Exploring the role of international research collaboration in building China's world-class universities, sustainability, 2022, **14**(6), 3487. doi: 10.3390/su14063487
6. Daimary, N. Research output of Tezpur university, during 1995-2023: A bibliometric analysis using web of science, *Annals Libr. Inf. Stud.*, 2024, **71**(2), 172-79. doi: 10.56042/ALIS.V71I2.7104
7. Yumnam, G.; Yumnam, G. & Singh, C.I. The research landscape of central universities in Northeast India : A bibliometric analysis, *Annals Libr. Inf. Stud.*, 2023, **70**(4), 197-207. doi: 10.56042/alis.v70i4.6349
8. Basumatary, B. & Verma, M.K. Unveiling the trends of scientific communication of selected central universities of North-East India: An evaluation. In recent technological trends in academic libraries : systems and services, edited by Kumar, R.; Sinha M.K.; Singh, K.P.; Ganjoo M.; Vashist S. & Choudhary, K. Book age publications, New Delhi, 2023.
9. Gaurav, K.; Negi, D.S. & Lal, D.D. 2. Impact of research output of all central universities in North East, India during 2016-2020: A bibliometrics study, *Int. J. Res. Analy. Sci. Eng.*, 2021, **1**(5), 14-23.
10. Saikia, S. Research productivity of central universities in Northeast India with special reference to web of science, *Libr. Waves*, 2021, **7**(2), 51-58.
11. Subramanyam, K. Bibliometric studies of research collaboration: A review, *J. Inf. Sci.*, 1983, **6**(1), 33-38. doi: 10.1177/016555158300600105
12. Lawani, S.M. Quality, collaboration, and citations in cancer research: A bibliometric study, Florida state university. 1980. ProQuest dissertations & theses. 8100645. <https://www.proquest.com/openview/a65de50ab3eb9087b0224aee618d0121/1?pq-origsite=gscholar&cbl=18750&diss=y> (accessed on 15 September 2023).
13. Savanur, K. & Srikanth, R. Modified collaborative coefficient: A new measure for quantifying the degree of research collaboration, *Scientometrics*, 2010, **84**(2), 365-71. doi: 10.1007/s11192-009-0100-4

CONTRIBUTORS

Ms. Rima Hazarika is a research scholar in the Department of Library and Information Science, Central University of Tamil Nadu, Thiruvavur. She holds an MLIS from Assam University, Silchar. Her research interests include: Bibliometrics, Scientometrics, Scholarly communication, Open access publications, and Digital preservation.

Her contributions in the present study are literature review, data collection, analysis, graphical presentation, and manuscript drafting.

Dr. K. G. Sudhier with more than two decades of expertise in the field of librarianship and academia, presently working as a faculty at the Central University of Tamil Nadu, Thiruvavur. Previously, he served as an academic librarian and faculty member at the University of Kerala, Thiruvananthapuram.

A recipient of research grants, including DST-NSTMIS and ICSSR projects, Dr. Sudhier has contributed extensively to the LIS scholarly domain, authoring over 75 research papers in reputed and indexed journals. Actively engaged in professional associations in the country, he also serves on the editorial and review boards of several national and international journals and conferences.

His contributions in the present study are idea conceptualisation, research design, manuscript review, and overall supervision.