

Sustainability of donor funding for public health interventions in Africa: A bibliometric analysis and future research agenda

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Abstract: The sustainability of donor funding for public health interventions in Africa has become a critical area of scholarly inquiry, given the continent's heavy reliance on external aid to support health systems. This study conducts a bibliometric analysis to trace research trends, intellectual structures, and emerging themes on the subject. Using the Scopus database, 2,057 publications from 2015 to 2024 were retrieved and analyzed with VOSviewer (version 1.6.20) and Biblioshiny to generate visualizations. The search employed keywords including "donor funding," "external funding," "foreign aid," "sustainability," "financial sustainability," "long-term funding," "public health," "health interventions," "health programs," "Africa," "Sub-Saharan Africa," and "developing countries." The analysis revealed a strong annual growth of 92% in publications between 2015 and 2024, with 63 papers already published by March 2024, a number expected to rise by year-end. The average citation rate was 18.84 per document, underscoring the influence of this research domain. Co-occurrence mapping identified key thematic clusters, including foreign aid and health outcomes, sustainable funding and long-term impact, and policy transitions to enhance recipient preparedness for declining donor support. The findings also highlight extensive global collaboration networks, reflecting the interdisciplinary and international nature of the field. Overall, the study contributes to advancing knowledge on the sustainability of donor funding in Africa's public health sector and provides a foundation for shaping future research and policy agendas in an increasingly uncertain funding environment.

Keywords: Donor funding, External funding, Foreign aid, Sustainability, Financial sustainability, Long-term funding, Public health, Health interventions, Health programs, Africa, Sub-Saharan Africa, Developing countries

1. Introduction

Donor and foreign aid-funded public health interventions have played a pivotal role in addressing major health challenges in Africa, particularly in areas such as HIV/AIDS, malaria, tuberculosis, maternal and child health, and vaccine-preventable diseases. Organizations such as the Global Fund, Gavi, USAID, and the World Bank have injected billions of dollars into African health systems. However, the long-term sustainability of these interventions remains a pressing concern as funding cycles end, donor priorities shift, and global economic challenges emerge (Nautwima & Asa, 2021; Ooms et al., 2018; World Health Organization [WHO], 2021). This essay aims to critically assess the sustainability of donor-funded public health interventions in Africa. It explores challenges and opportunities within the current landscape and identifies key factors that can support the transition to locally owned, enduring public health programs.

This paper presents a bibliometric analysis that quantitatively analyses scientific literature to uncover patterns, trends, and structures in scholarly communication. It is widely used in research evaluation, strategic planning, and knowledge mapping across disciplines. This bibliometric technique helps to assess the impact of publications, understand research dynamics, and identify influential works or emerging areas. The study answered the following research questions.

1. What are the publication trends and citation patterns in research on donor funding and the sustainability of public health interventions in Africa between 2015 and 2024?
2. Who are the most influential authors, institutions, journals, and countries contributing to the literature on donor funding, foreign aid, and sustainability of health programs in Africa?
3. What are the most frequently occurring keywords, emerging concepts, and thematic clusters in the literature on donor funding and sustainability of public health interventions?
4. How do co-authorship and global collaboration networks shape the production and dissemination of knowledge in this field?
5. Which articles and authors are the most highly cited, and what does this reveal about the intellectual structure and impact of research on donor funding and sustainability?

2. Theoretical Background

Donor support has led to notable improvements in health outcomes across Africa. For instance, donor-funded antiretroviral therapy (ART) programs contributed to a 60% decline in AIDS-related deaths in sub-Saharan Africa between 2005 and 2020 (UNAIDS, 2020). Similarly, the Global Fund's malaria initiatives have saved over 10 million lives since 2002 (Global Fund, 2022). Gavi, the Vaccine Alliance, supported the immunization of over 900 million children in Africa by 2020, preventing an estimated 15 million deaths (Gavi, 2021). These achievements demonstrate the vital role of external financing in achieving public health gains. Yet, despite these successes, many programs remain heavily dependent on continued donor inputs. The most cited concern is the financial dependency of recipient countries. In some nations, over 50% of health sector funding comes from external sources (Atun, Silva, Knaul, Frenk & Horton, 2016). When donor funds are reduced or withdrawn, health services often collapse or are significantly scaled back. The uncertainty of donor funding cycles undermines long-term planning and resilience. According to Moucheraud, Sparkes, & Kutzin (2015), many African countries face structural weaknesses that limit their ability to absorb and sustain health interventions. These include inadequate human resources, poor infrastructure, limited procurement systems, and weak health information systems. Without addressing these systemic barriers, externally funded programs are unlikely to be sustained post-donor exit (Asa & Nautwima, 2022). Top-down planning often sidelines local communities, reducing their engagement and ownership of public health interventions. When programs are perceived as foreign-led, communities may be less inclined to support or continue them independently. Community involvement is essential for ensuring culturally appropriate, accepted, and sustainable solutions (Negin & Martiniuk, 2016). Foreign aid often prioritizes diseases or interventions aligned with donor agendas, which may not correspond to local needs. This mismatch can lead to imbalanced resource allocation, with non-priority areas suffering neglect. It also inhibits national strategic planning, as resources are channelled toward donor preferred activities (Harman, 2016; Nautwima et al., 2023).

3. Methodology

3.1. Search Criteria

As shown in Table 1, the bibliometric dataset was retrieved from the Scopus database on 26 March 2024, covering the period 2015–2024. The search combined terms related to donor funding, external funding, foreign aid, sustainability, financial sustainability, public health,

health interventions, health programs, Africa, Sub-Saharan Africa, and developing countries, producing 85,424 records. Successive filtering by subject areas (business, economics, finance, and social sciences), document types (articles, conference papers, reviews, and book chapters), English-language publications, time range, and keywords reduced the dataset. After removing duplicates and erroneous records, a final set of 2,057 documents was selected for analysis using VOSviewer, Biblioshiny, and Microsoft Excel.

Table 1: Search criteria

Filtering criteria	Exclude	Include
Search engine: Scopus Search date: 26 – 03 - 2024 Search term: (("donor funding" OR "external funding" OR "foreign aid") OR ("sustainability" OR "financial sustainability" OR "long-term funding") OR ("public health" OR "health interventions" OR "health programs") AND ("Africa" OR "Sub-Saharan Africa" OR "developing countries"))		85,424
Subject area: Business, Management and Accounting; Economics; Econometrics and Finance; Social Sciences	65,271	20,153
Document type: Articles, Conference papers, and Reviews and book chapters	1,031	19,122
Language screening: English only	984	18,138
Range: 2015-2024	5,470	12,668
Key words: Sustainability, Public Health, Public Policy, Africa	10,611	2,230
Erroneous records screening: Include documents with valid author information only, and delete duplicates	0	2,057
Total Selected Documents		2,057

Source: Authors' computation from Scopus extracts (2024)

3.2. Techniques for Analysis

The analysis employed descriptive bibliometric techniques to summarize publication patterns using key quantitative indicators. These included publication count, which measures productivity by tracking the number of documents produced by authors, institutions, or countries; citation count, which assesses the scholarly impact of publications; and the h-index, which combines productivity and citation impact to indicate consistent influence. In addition, average citations per document were used to evaluate the overall impact of publications, while annual growth rate was applied to examine trends in publications and citations over time.

4. Results

4.1. Year-wise Publication Trend

Figure 1 presents the annual distribution of publications between 2015 and 2024. The results show a clear upward trajectory, with fluctuations that reflect shifting levels of scholarly engagement over time. Between 2015 and 2017, research output remained relatively stable at approximately 145 documents per year, indicating a period of limited growth and foundational exploration in the field. From 2018 onwards, a gradual rise is observed, with publications increasing from 155 in 2018 to 170 in 2019. This marks the beginning of an expansion phase likely driven by the broadening relevance of the topic across academic and policy domains. The sharp increase from 210 documents in 2020 to 270 in 2021 suggests a surge of scholarly attention, possibly reflecting new research agendas, global disruptions, or technological advances that intensified academic interest. Although a slight decline followed in 2022 (250

documents) and 2023 (245 documents), the volume of research remained significantly higher than in earlier years, signifying a period of consolidation and sustained interest. In 2024, publications rose again to 280, representing the highest output in the observed period and highlighting the maturity and growing influence of the research field. Overall, the consistent upward trend from 2018 to 2024 demonstrates that the topic has evolved into a vibrant and expanding domain of scholarly inquiry, attracting increasing global attention and interdisciplinary contributions.

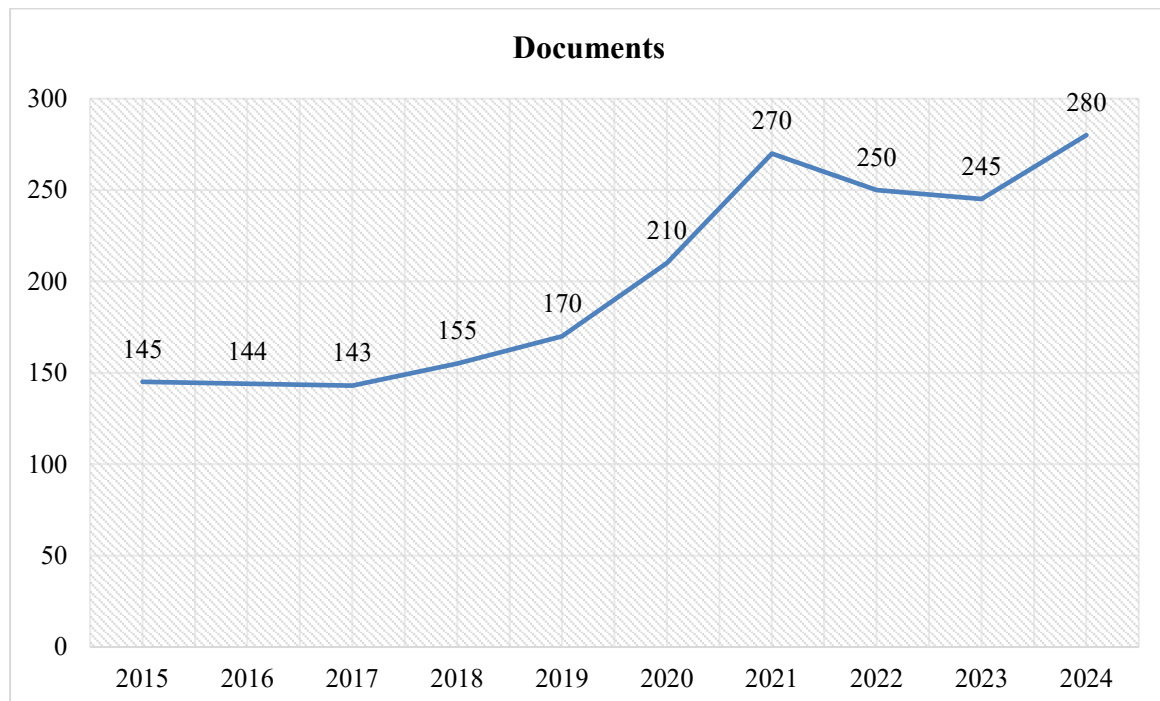


Figure 1: Year-wise Publication Trend

Source: Authors' computation from Scopus extracts (2024)

4.2. Most prolific authors in donor funding and sustainability of public health

Figure 2 shows the most prolific authors in donor funding and sustainability of public health interventions, with Asongu, S.A. standing out as the leading contributor, producing 17 documents, far more than any other scholar. The next tier of authors, including Ajide, F.M., Amankwah-Amoah, J., Odhiambo, N.M., and Seeley, J., each have between six and seven publications, while Ajide, K.B., Bull, S., Ibrahim, R.L., Parker, M., and Bell, M.L. follow closely with five to six documents each. This distribution indicates that the field is strongly shaped by a small group of scholars, with Asongu exerting a particularly strong influence, while most other contributors display relatively similar productivity levels. Although this concentration highlights the presence of leading voices driving the discourse, it also suggests potential risks of limited perspectives and underscores the need for broader participation by researchers from diverse regions and institutions to enrich the field and ensure more balanced contributions.

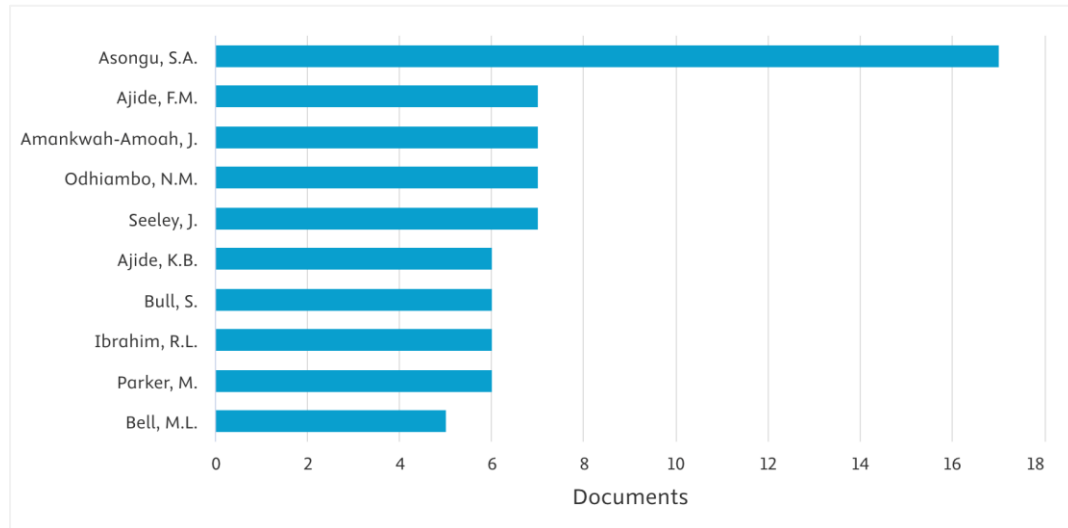


Figure 2: Most prolific authors in the field
Source: Authors' computation from Scopus extracts (2024)

4.3. Author index productivity over time

The h-index results in Table 2 demonstrate that Asongu, S.A. leads in both productivity and impact, with an h-index of 11, meaning 11 of their publications have each received at least 11 citations, and a g-index of 17, indicating that their top 17 publications have collectively accumulated at least 289 citations (since $17^2 = 289$). This reflects both sustained output and consistent scholarly influence since 2015. Other notable contributors include JR, Li S, Liu Y, and Parker M, each with h-indices of 7, showing a balance of productivity and recognition, with Li S achieving the highest citation impact per publication (816 citations across 7 documents). Authors such as Ajide F.M. and Amankwah-Amoah J. follow with h-indices of 6, reflecting emerging influence in the field, especially given Ajide's recent start in 2022 with a high m-index of 1.5, showing rapid impact relative to career length. Several other authors, including Bull S., Ajide K.B., Bell M.L., and Ibrahim R.L., maintain h-indices of 5–6, reflecting steady but moderate contributions. Collectively, these results show that while Asongu is the most influential author in terms of combined productivity and citations, there is a diverse group of scholars contributing meaningfully to the discourse, with some newer entrants showing promising citation trajectories that may shape the field in the coming years.

Table 2: Author index overtime

Rank	Author	hi	gi	mi	TC	NP	PY_start
1	Asongu SS	11	17	1	395	17	2015
2	JR	7	11	0.636	773	11	2015
3	Li S	7	7	1.167	816	7	2020
4	Liu Y	7	8	0.636	599	8	2015
5	Parker M	7	7	0.636	323	7	2015
6	Ajide Fm	6	7	1.5	116	7	2022
7	Amankwah-Amoah J	6	7	0.6	262	7	2016
8	Bull S	6	6	0.545	297	6	2015
9	Ajide Kb	5	6	1	63	6	2021
10	Bell ML	5	5	0.556	629	5	2017
11	Chen Y	5	5	0.455	78	5	2015
12	Guo Y	5	5	0.833	624	5	2020

13	Ibrahim RL	5	6	1.25	66	6	2022
14	Kim H	5	5	0.833	596	5	2020
15	Lavigne E	5	5	0.833	624	5	2020
16	Lee W	5	5	0.556	592	5	2017
17	Li X	5	7	0.455	148	7	2015
18	Abrutzky R	4	4	0.667	585	4	2020
19	Abubakar IR	4	4	0.667	130	4	2020
20	Acquaotta F	4	4	0.667	585	4	2020
21	Armstrong B	4	4	0.667	585	4	2020
22	Gasparrini A	4	4	0.667	585	4	2020
23	Goodman P	4	4	0.667	585	4	2020
24	Hashizume M	4	4	0.667	585	4	2020
25	Honda Y	4	4	0.667	585	4	2020

Source: Authors' computation from Scopus extracts (2024)

4.4. Most relevant institutions

The analysis of affiliations in Table 3 shows that the University of the Witwatersrand (99 articles) leads as the most prolific institution in research on donor funding and sustainability of public health interventions, followed closely by the Center for Global Health (88), the University of Cape Town (83), and the University of KwaZulu-Natal (76). Other prominent contributors include internationally recognized institutions such as the University of Oxford (72) and the London School of Hygiene and Tropical Medicine (51), highlighting strong global engagement in this research domain. Importantly, 18 out of the top 25 affiliations (72%) are African universities and institutions, including Makerere University, the University of Ghana, the University of Nigeria, and Addis Ababa University, demonstrating that this research agenda is increasingly being shaped and driven by scholars within Africa. This dominance of African institutions reflects a growing regional ownership of the discourse on donor funding and public health sustainability, indicating a positive shift towards context-specific knowledge production and strengthening the continent's capacity to inform both local and global policy debates.

Table 3: Most relevant institutions

Rank	Organisation	Articles
1	University of The Witwatersrand	99
2	Center for Global Health	88
3	University of Cape Town	83
4	University of Kwazulu-Natal	76
5	University of Oxford	72
6	Stellenbosch University	57
7	University of Johannesburg	56
8	London School of Hygiene and Tropical Medicine	51
9	University of Nigeria	51
10	University of California	45
11	Makerere University	40
12	University of South Africa	39
13	Ministry of Health	38

14	University of Ghana	37
15	University of Cape Coast	35
16	University College London	34
17	University of Ibadan	34
18	University of The Western Cape	33
19	University of Cambridge	32
20	Kwame Nkrumah University of Science and Technology	31
21	University of Pretoria	30
22	University of Fort Hare	27
23	University of Washington	27
24	Addis Ababa University	26
25	Monash University	25

Source: Authors' computation from Scopus extracts (2024)

4.5. Bibliometric analysis of 3-field plot

Figure 3 presents a Three-Field Plot (Sankey diagram) generated in Biblioshiny, which maps the relationships between author countries (AU_CO), authors (AU), and research keywords (DE). The diagram highlights that countries such as the USA, United Kingdom, Nigeria, and China are the most active and collaborative in this field, while South Africa, India, Uganda, and Kenya are emerging contributors, reflecting growing visibility from the Global South in donor funding and public health research. Prominent authors include Li S, Guo Y, Lavine E, Bell M.L., Seeley J, and Ajide K.B., many of whom are associated with multiple countries, pointing to strong international collaboration networks. The most frequently occurring keywords, such as "Africa," "Public health," "Foreign aid," "Governance," "Sustainable development," "Sub-Saharan Africa," and "Economic growth" illustrate that the research is heavily centered on development and health issues in African contexts. The linkages show, for instance, that Ajide K.B. (Nigeria) is associated with economic growth and governance, Li S. (China) is connected with foreign aid and Africa, while Seeley J. (UK) and Asongu S.A. (Cameroon/UK) are linked to public health and developing countries. Overall, the figure underscores the centrality of Africa as both a thematic and geographic focus of global academic attention, with diverse scholars across continents engaging in debates on foreign aid, sustainability, and health governance.

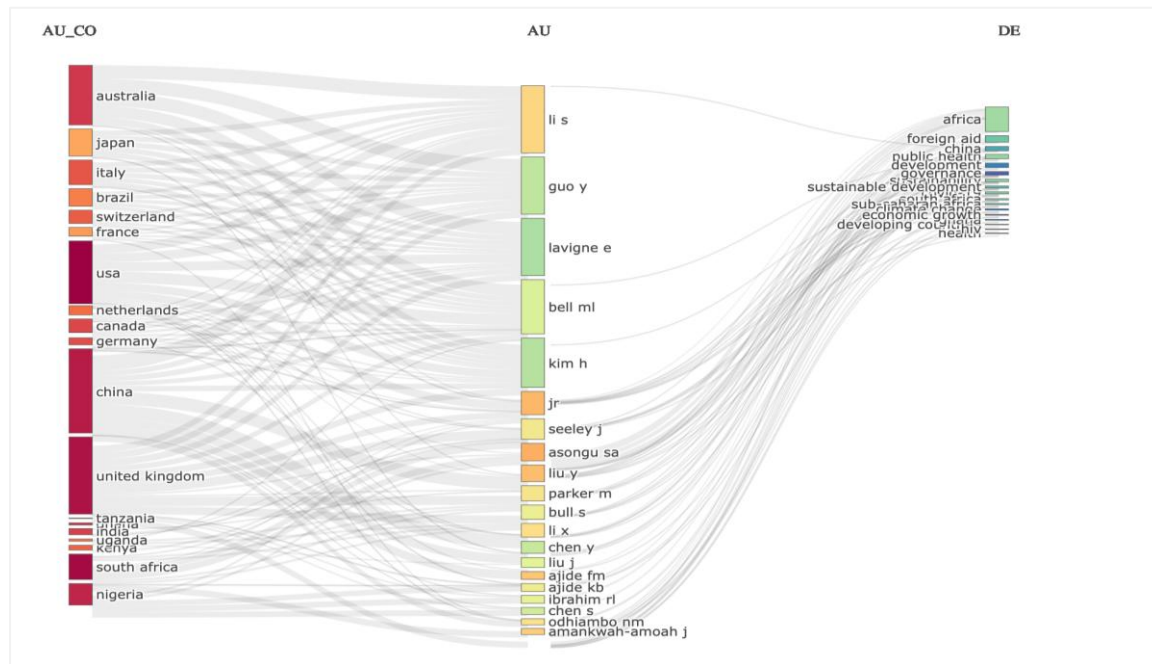


Figure 3: Bibliometric analysis of 3-field plot
Source: Authors' computation from Scopus extracts (2024)

4.6. Contribution of corresponding authors' countries

Figure 4 illustrates the contribution of corresponding authors' countries to research on donor funding and sustainability, distinguishing between Single Country Publications (SCP) and Multiple Country Publications (MCP) as indicators of local versus international collaboration. The United States leads with the highest publication output, showing a strong balance between domestic and international collaborations, underscoring both productivity and global engagement. South Africa emerges as the leading African contributor, with nearly equal proportions of SCP and MCP, highlighting its role as a regional research hub with global academic ties. The United Kingdom and China also feature prominently, though their collaboration patterns differ: the UK shows a higher share of MCPs, while China has more SCPs, suggesting contrasting research cultures and funding dynamics. Other African countries such as Nigeria, Ghana, Kenya, and Cameroon have lower publication volumes but notable proportions of MCPs, reflecting reliance on and openness to international partnerships. Meanwhile, countries such as Germany, the Netherlands, and Italy demonstrate strong research capacity through higher SCP proportions, while Canada, Australia, and India show balanced contributions across SCP and MCP. Overall, the USA, South Africa, and the UK dominate output, but the strong MCP presence across many countries points to a highly globalized research environment. Importantly, while African authors appear central in driving this agenda, many are affiliated with institutions in the USA, South Africa, and the UK, emphasizing the significance of both local capacity and international collaboration in shaping the field.

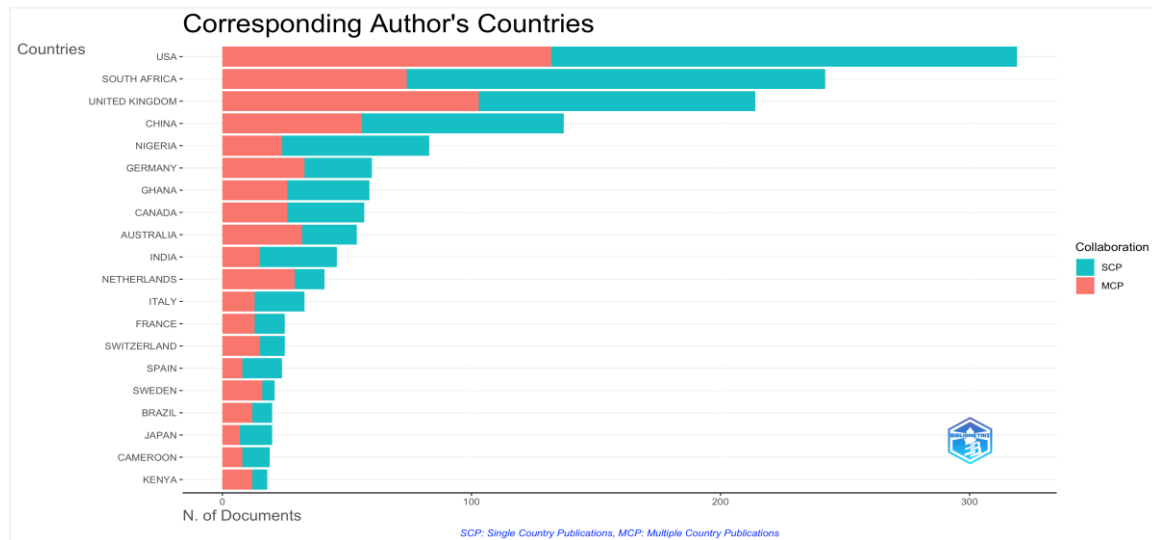


Figure 4: Contribution of corresponding authors' countries
Source: Authors' computation from Scopus extracts (2024)

4.7. Top prolific journals

The bibliometric analysis of top prolific journals reveals that research on donor funding, sustainability, and public health is concentrated in a few highly productive outlets that serve as key platforms for shaping global and regional discourse. Sustainability (Switzerland) leads with 126 publications and over 4,000 citations, reflecting its interdisciplinary scope that integrates environmental, economic, and social perspectives on sustainable development. Social Science and Medicine and World Development also stand out as significant contributors, offering robust outlets for evidence-based policy and interdisciplinary scholarship in health and development. Journals such as Journal of Cleaner Production, The Lancet Planetary Health, Resources Policy, and Water (Switzerland) highlight the increasing relevance of environmental management, natural resource governance, and planetary health in relation to donor funding and sustainable development. Other outlets, including Environment, Development and Sustainability, Environmental Science and Policy, and Technological Forecasting and Social Change, demonstrate a growing interest in linking sustainability with applied innovation and governance challenges, particularly in developing economies. These patterns underscore the dominance of high-impact, often open-access international journals in facilitating knowledge exchange. However, the relative absence of African-based journals in the top ranks indicates a missed opportunity to strengthen regional publishing platforms, which could amplify indigenous scholarly voices and ensure that Africa-specific perspectives on donor funding and sustainability are more prominently reflected in the global academic landscape.

Table 4: Most relevant journal

Rank	Source	TC	NP	PY_start
1	Sustainability (Switzerland)	4054	126	2015
2	Social Science and Medicine	2433	162	2015
3	World Development	1844	54	2015
4	Journal of Cleaner Production	2187	28	2016
5	The Lancet Planetary Health	2198	20	2019
6	Resources Policy	666	29	2016
7	Water (Switzerland)	523	37	2015
8	Health And Place	429	17	2015
9	Environment, Development and Sustainability	644	28	2017

10	Environmental Science and Policy	431	19	2016
11	Human Resources for Health	558	20	2015
12	Food Security	894	13	2016
13	Health Security	266	25	2015
14	Sustainable Development	449	23	2018
15	Food And Nutrition Bulletin	285	12	2015
16	Journal of Empirical Research on Human Research Ethics	389	9	2015
17	Morbidity And Mortality Weekly Report	587	11	2015
18	Technological Forecasting and Social Change	517	10	2016
19	Third World Quarterly	217	13	2015
20	Aids Care - Psychological and Socio-Medical Aspects of AIDS/HIV	347	18	2015
21	BMC Medical Education	177	16	2015
22	BMC Medical Ethics	198	13	2015
23	Developing World Bioethics	198	16	2015
24	Ecological Economics	335	9	2016
25	Ethnicity And Health	125	10	2016

Source: Authors' computation from Scopus extracts (2024)

4.8. Most frequent word occurrences

Figure 5 presents the most frequently occurring keywords in the dataset, highlighting the central themes that dominate research on the sustainability of donor funding in Africa. "Public health" emerges as the most prominent term with 1,144 occurrences, underscoring the sector's centrality in donor-related research. This is followed by "Africa" (780) and "Human" (627), which further emphasize the geographic and human-centered focus of the literature. Gender dimensions are also strongly represented, with "Female" (402) and "Male" (347), indicating that many studies integrate gender considerations into analyses of public health and sustainability. The presence of "Sustainability" (343) confirms the growing prioritization of long-term impact in donor funding discourse. Other frequently used terms such as "South Africa," "Sustainable development," and "Developing countries" reflect regional and developmental concerns, while keywords like "Global health" and "Climate change" suggest a broadening of the research agenda to align with global policy priorities. Overall, the keyword distribution reveals that the field is anchored in public health and African contexts, with increasing attention to gender, sustainability, and global development challenges.

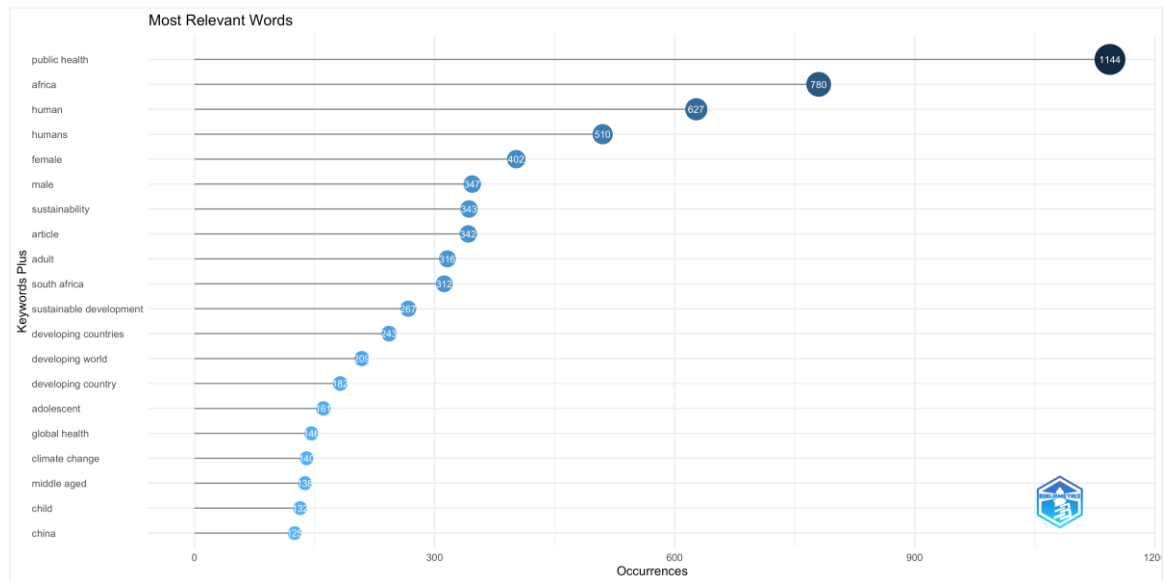


Figure 5: Most frequent word occurrences
Source: Authors' computation from Scopus extracts (2024)

4.9. Trends in key-word occurrence

Figure 6 presents a keyword co-occurrence network generated in VOSviewer, which highlights the main thematic clusters shaping research on donor funding, sustainability, and public health. The map shows "Africa" at the center of the network, strongly linked with terms such as public health, sustainability, Covid-19, and foreign aid, underscoring its centrality in the discourse. The clusters reveal distinct but interconnected research themes: the red cluster groups around public health, Covid-19, disease, and outbreak, reflecting the significant scholarly focus on pandemics and health crises; the yellow cluster emphasizes mortality, child health, age, exposure, and risk factors, pointing to demographic and epidemiological dimensions of public health; the green cluster is centered on economic growth, African countries, sustainable development goals, investment, and renewable energy, showing the intersection between health, sustainability, and economic development; while the blue cluster relates to foreign aid, governance, partnerships, and policy transformation, indicating attention to institutional and development governance. Together, these clusters demonstrate that research in this field is multidisciplinary, linking health outcomes with sustainability, economic development, and governance, and that Africa remains the focal point of interconnected global debates.

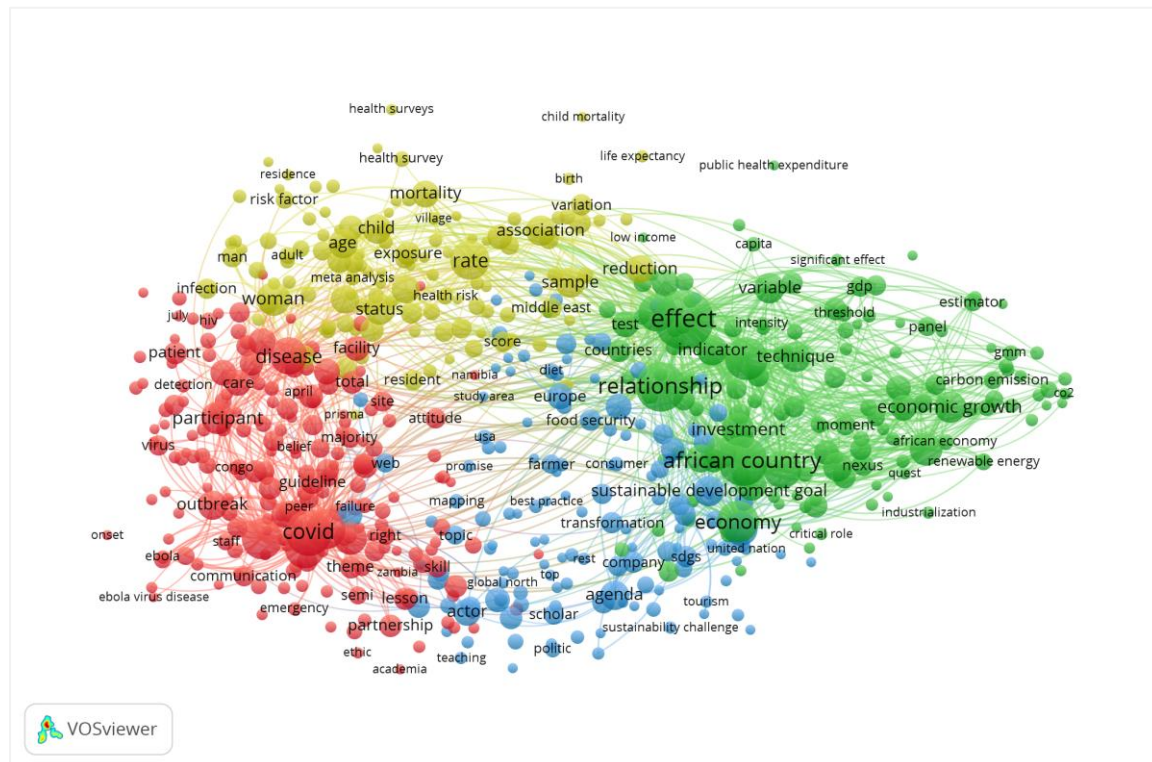


Figure 6: Trends in key-word occurrence
Source: Authors' computation from Scopus extracts (2024)

In addition, Figure 7 illustrates the evolution of trend topics over time, showing how new terms have emerged within the donor funding and public health research domain. The figure highlights that since 2023, concepts such as disability-adjusted life year, ecological footprint, machine learning, and sustainable development goal have gained prominence, reflecting a shift toward more interdisciplinary and data-driven approaches in sustainability and health research. Earlier periods were dominated by themes like public health, Africa, sustainability, HIV infections, and developing countries, which have remained foundational to the discourse. The emergence of newer terms signals a broadening of the field to incorporate advanced methodologies, environmental considerations, and global development agendas, aligning research with both technological innovation and international policy frameworks.

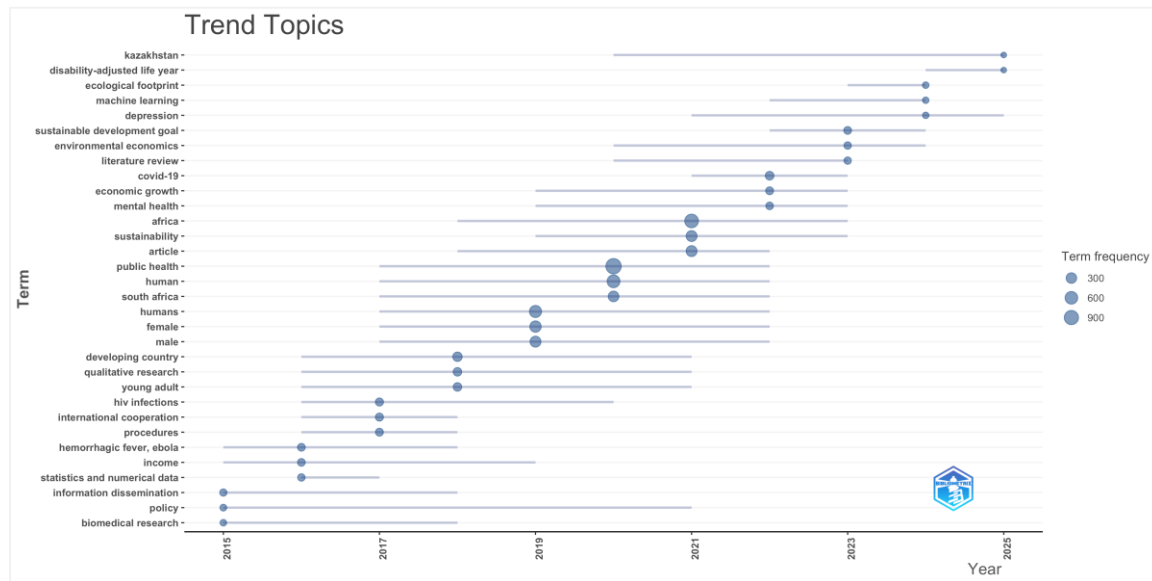


Figure 7: Trends in key-word occurrence
Source: Authors' computation from Scopus extracts (2024)

4.10. Most frequent word occurrences

A conceptual structure map was generated using Multiple Correspondence Analysis (MCA) in Biblioshiny, which applies factorial analysis to explore the conceptual relationships among keywords, titles, and abstracts in the dataset. The analysis identifies thematic clusters and keyword proximities, where terms that appear closer together are conceptually related within the literature. For example, "health policy" is situated close to "developing countries", suggesting that health policy research in this field is largely contextualized within low- and middle-income settings. The upper-right quadrant highlights a cluster of terms including sustainability, climate change, Africa, Asia, and sustainable development, indicating strong linkages between sustainability discourses and regional development contexts. Other clusters emphasize health-related themes, with global health, epidemiology, economics, healthcare, and public health forming a dense grouping, while Covid-19, sub-Saharan Africa, public policy, and developing world appear closely connected, reflecting the intersection of pandemics, governance, and development challenges. Overall, the MCA-based conceptual structure map illustrates the multidimensional nature of donor funding and sustainability research, with Africa emerging as a central focus linking health, policy, and sustainable development.

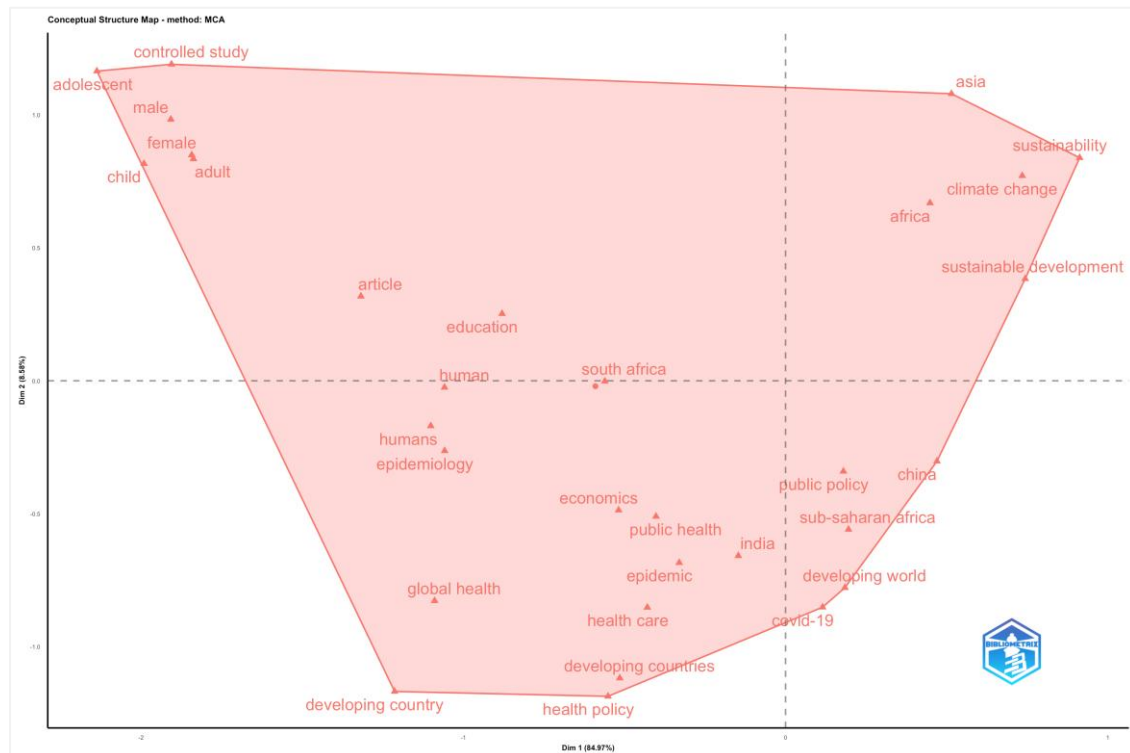


Figure 8: Most frequent word occurrences

Source: Authors' computation from Scopus extracts (2024)

4.11. Top global research country collaboration networks

It is also noteworthy that the evolution of keywords over time highlights “Africa” as the most consistently growing research theme, underscoring its centrality in donor funding, sustainability, and public health debates. This sustained growth suggests that Africa is not only a subject of increasing scholarly attention but also a focal point in international research collaboration. The country collaboration networks further reveal that African research is deeply embedded in global partnerships, with strong linkages to authors and institutions in the United States, the United Kingdom, China, and other leading research hubs. This indicates that while Africa remains at the core of the discourse, much of the knowledge production is driven through cross-border cooperation, emphasizing the globalized nature of donor funding and sustainability research.

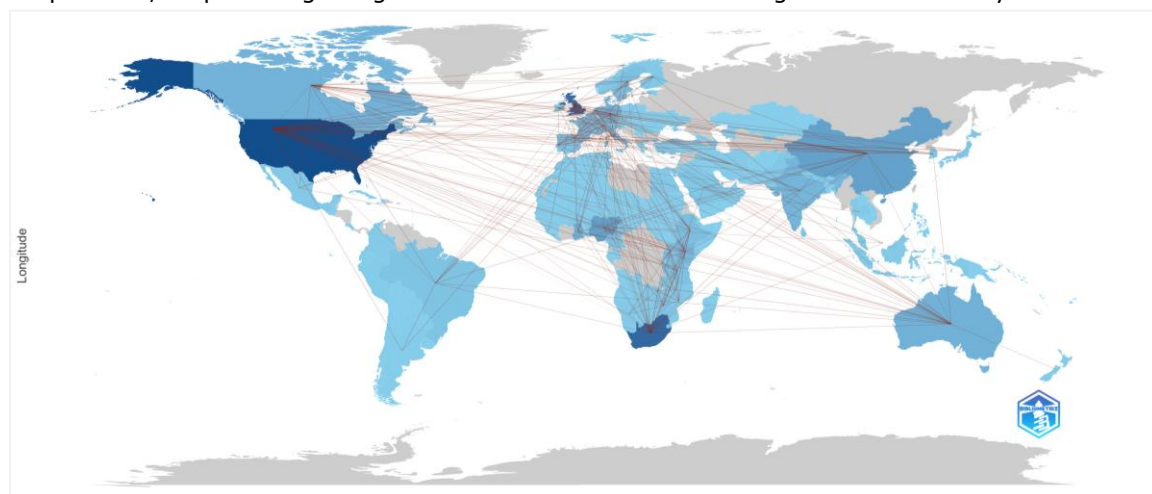


Figure 9: Top global research country collaboration map

Source: Authors' computation from Scopus extracts (2024)

4.12. Bibliometric analysis of co-occurrence networks

The co-occurrence network in Figure 10 visualizes the relationships between frequently used keywords, highlighting how terms cluster together based on their co-appearance across publications. The blue cluster, positioned at the top left, is dominated by terms such as public health, human, humans, article, developing countries, and health care. This cluster represents the broad foundation of public health research, particularly in developing regions, and incorporates methodological aspects like surveys and qualitative studies. Public health emerges as the largest and most central node, confirming its dominant role and strong connections to terms like human and developing countries. The red cluster on the bottom left centers on Africa, China, climate change, sustainability, and economic development, reflecting research on sustainability and development with Africa as a geographic and thematic focal point linked to global policy and geopolitical contexts. The green cluster on the bottom right contains terms such as sanitation, COVID-19, sub-Saharan Africa, economics, and India, pointing to research on public health economics, pandemic response, and sanitation in resource-constrained settings. The purple cluster, located to the right, includes demographic terms like female, male, adult, adolescent, child, and HIV infections, representing population-based epidemiological studies, particularly on HIV/AIDS. Despite their clustering, keywords are interconnected across themes. For instance, Africa in the red cluster connects strongly to public health and sub-Saharan Africa, while COVID-19 in the green cluster bridges into the blue cluster, linking pandemic research with broader public health debates. Overall, the map suggests that while public health is the central research theme, it is interwoven with sub-themes on sustainability and development (red), health economics and policy (green), and demographic health challenges (purple). Africa stands out as a pivotal geographical anchor, consistently intersecting with diverse global health and sustainability themes.

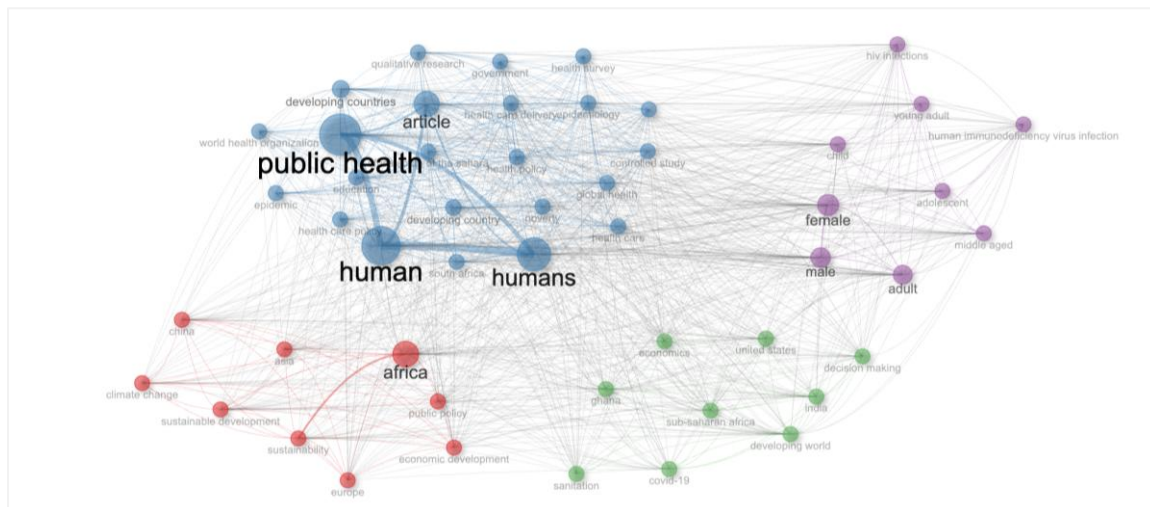


Figure 10: Co-occurrence network

Source: Authors' computation from Scopus extracts (2024)

4.13. Bibliometric analysis of thematic evolution

Figure 11 presents the thematic evolution map, which classifies keywords based on their degree of development (density) and centrality (relevance) within the research field. The analysis shows that public health, human, and humans fall under the motor themes quadrant, meaning they are both highly developed and central to the discourse. These keywords represent mature research areas that not only dominate scholarly attention but are also strongly connected to other themes, confirming the centrality of public health and human-focused research in driving knowledge production around donor funding and sustainability. In contrast, Africa, sustainability, and sustainable development are positioned in the declining or emerging themes

quadrant. Their placement indicates that while these concepts are globally significant, they remain underdeveloped or less integrated within this specific body of literature. This suggests that research directly linking donor funding sustainability to African contexts and sustainability frameworks is still relatively limited, representing a gap and an opportunity for future scholarly exploration. Interestingly, the niche themes and basic themes quadrants are empty, meaning there are no isolated but well-developed themes, nor are there central but weakly developed foundational concepts in this dataset. Going forward, the positioning of Africa and sustainability as underdeveloped themes highlights them as priority areas for future donor funding research, particularly in exploring how sustainable development goals can be operationalized within African public health systems.

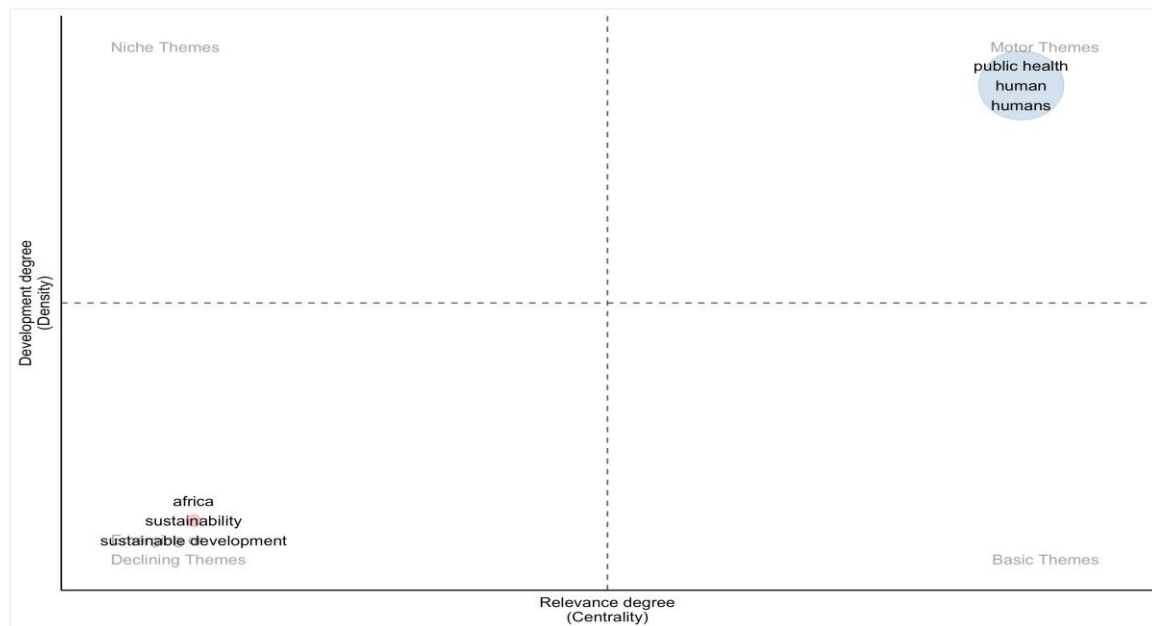


Figure 11: Thematic evolution map

Source: Authors' computation from Scopus extracts (2024)

5. Discussions

This bibliometric review shows that research on the sustainability of donor funding for public-health interventions in Africa has expanded rapidly since 2015, yet remains uneven in emphasis and ownership. Output is concentrated among a small set of prolific authors and globally visible journals, with African universities increasingly prominent but still embedded in collaboration networks anchored in the United States and United Kingdom. Keyword, co-occurrence, and conceptual-structure analyses confirm that public health and human-focused topics function as “motor themes,” while Africa and sustainability, despite their salience, appear as underdeveloped or emerging themes. This asymmetry suggests that the literature has not fully integrated sustainability frameworks into African public-health financing debates, even as aid-supported programs have delivered major gains in HIV, malaria, immunization, and child survival (UNAIDS, 2020; World Health Organization, 2019; Gavi, 2021; Global Fund, 2022).

The patterns observed resonate with longstanding concerns in the global-health financing literature. First, heavy dependence on external resources creates fragility when priorities shift or cycles end; strengthening domestic public financing and fiscal space is therefore essential (Lu et al., 2017; World Health Organization, 2021). Second, sustainability requires moving beyond vertical, disease-specific logics toward models that simultaneously deliver priority services and build cross-cutting system capacity, the so-called “diagonal” approach (Ooms et

al., 2018). Third, distinguishing routine health-system support from true health-system strengthening remains critical; much aid finances inputs without durable improvements in core functions (Chee et al., 2016). Our co-occurrence and MCA maps, linking public health, governance, and development but showing thin integration of sustainability, mirror these critiques. These findings carry practical implications. For African governments and regional bodies, the evidence supports accelerating domestic resource mobilization, medium-term expenditure frameworks for health, and integration of donor-financed programs into national benefit packages to avoid parallel systems (World Health Organization, 2021; Lu et al., 2017). For donors and implementing partners, program designs should explicitly include transition plans, pooled or blended financing instruments, and investments in data systems, supply chains, and workforce, areas most likely to yield post-donor resilience (Asa et al., 2024; Atun et al., 2016; Pfeiffer et al., 2017). Aligning aid with nationally defined priorities, rather than external agendas, can mitigate misallocation and strengthen accountability (Harman, 2016; Negin & Martiniuk, 2016). For practitioners, the strong gender signals in the keyword landscape argue for mainstreaming gender-responsive budgeting and measurement into funding models and monitoring frameworks.

There are also implications for the research ecosystem. The dominance of non-African outlets and affiliations, alongside robust multiple-country publications, indicates valuable collaboration but also risks reproducing epistemic dependency. Expanding African-led scholarship, elevating regional journals, and fostering South–South research networks would improve knowledge sovereignty and contextual relevance. Substantively, the field would benefit from prospective evaluations of donor-transition strategies; comparative studies of financing reforms (e.g., earmarked taxes, insurance expansions, PPPs); and analyses that integrate sustainability metrics into routine program evaluation, areas still underrepresented in the most-cited corpus. In a nutshell, Africa sits at the thematic center of global debates on donor funding and public health, yet the sustainability dimension remains insufficiently theorized and empirically tested within African contexts. Advancing from dependency to durability will require coordinated reforms in domestic financing, donor practice, and research governance, grounded in diagonal, system-strengthening logics and aligned with national priorities (Ooms et al., 2018; World Health Organization, 2021; Atun et al., 2016).

6. Future Research Directions

The field on donor funding sustainability in African public health has grown fast since 2015, but sustainability is still weakly embedded in Africa-specific financing debates. Work is concentrated among a few prolific authors and global journals, with African scholars rising mostly through North–South collaborations. Priority research needs include: (1) more African-led studies and stronger regional journals; (2) rigorous evaluations of innovative financing (earmarked taxes, social health insurance, blended finance) to reduce aid dependency; (3) evidence on governance, implementation, and indigenous knowledge for post-donor sustainability; and (4) rapid-response analyses that track real-time funding shocks and inform policy. Policy practice should, in parallel, focus on building domestic fiscal space, integrating donor programs into national budgets, investing in cross-cutting system capacities, and strengthening community ownership. Embedding these elements can shift the continent from aid dependency toward resilient, long-term health gains.

References

- Asa, A. R., & Nautwima, J. P. (2022). Determinants of financial capability: A situational analysis for Namibia. *International Journal of Innovation and Economic Development*, 7(6), 7-13. doi: <https://doi.org/10.18775/ijied.1849-7551-7020.2015.76.2001>
- Asa, A. R., Nautwima, J. P., & Villet, H. (2024). An integrated approach to sustainable competitive advantage. *International Journal of Business and Society*, 25(1), 201-222. <https://doi.org/10.33736/ijbs.6907.2024>

- Atun, R., Silva, S., Knaul, F. M., Frenk, J., & Horton, R. (2016). Innovative financing instruments for global health 2002–15: A systematic analysis. *The Lancet Global Health*, 4(6), e558–e567. [https://doi.org/10.1016/S2214-109X\(16\)30054-0](https://doi.org/10.1016/S2214-109X(16)30054-0)
- Chee, G., Pielemeier, N., Lion, A., & Connor, C. (2016). Why differentiating between health system support and health system strengthening is needed. *The International Journal of Health Planning and Management*, 31(2), 124–135. <https://doi.org/10.1002/hpm.2330>
- Gavi. (2021). Progress report: Gavi-supported vaccination programs. <https://www.gavi.org>
- Global Fund. (2022). Results report 2022. <https://www.theglobalfund.org>
- Harman, S. (2016). The Bill and Melinda Gates Foundation and legitimacy in global health governance. *Global Governance*, 22(3), 349–368.
- Lu, C., Schneider, M. T., Gubbins, P., Leach-Kemon, K., Jamison, D., & Murray, C. J. L. (2017). Public financing of health in developing countries: A cross-national systematic analysis. *The Lancet*, 375(9723), 1375–1387. [https://doi.org/10.1016/S0140-6736\(10\)60233-4](https://doi.org/10.1016/S0140-6736(10)60233-4)
- Moucheraud, C., Sparkes, S. P., & Kutzin, J. (2015). Toward a systematic approach to aid coordination in health: Lessons from the health sector in Haiti. *Globalization and Health*, 11(1), 1–10. <https://doi.org/10.1186/s12992-015-0088-7>
- Nautwima, J. P., & Asa (2021). The relationship between inflation and unemployment in Namibia within the framework of the Phillips Curve. *International Journal of Innovation and Economic Development*, 7(5), 7–16. doi: <https://doi.org/10.18775/ijied.1849-7551-7020.2015.75.2001>
- Nautwima, J. P., Asa, A. R., & Atiku, S. O. (2023). Testing Unemployment–Entrepreneurship Nexus in Namibia Using the Schumpeterian Approach. *Sustainability (Switzerland)*, 15(18), 1–15. <https://doi.org/10.3390/su151814023>
- Negin, J., & Martiniuk, A. (2016). Sector wide approaches for health in low-income countries: More harm than good? *BMJ Global Health*, 1(3), e000055. <https://doi.org/10.1136/bmjgh-2016-000055>
- Ooms, G., Van Damme, W., Baker, B. K., Zeitz, P., & Schrecker, T. (2018). The 'diagonal' approach to global health financing: A cure for the current aid architecture? *Global Health*, 14(1), 1–8. <https://doi.org/10.1186/s12992-018-0389-z>
- PEPFAR. (2022). Uganda country operational plan 2022. <https://www.state.gov/pepfar/country-operational-plan>
- Pfeiffer, J., Johnson, W., Fort, M., Shakow, A., Hagopian, A., Gloyd, S., & Gimbel-Sherr, K. (2017). Strengthening health systems in poor countries: A code of conduct for nongovernmental organizations. *American Journal of Public Health*, 98(12), 2134–2140. <https://doi.org/10.2105/AJPH.2007.125138>
- UNAIDS. (2020). Global AIDS update 2020. <https://www.unaids.org>
- World Health Organization. (2019). World malaria report 2019. WHO.
- World Health Organization. (2021). Public financing for health in Africa: From Abuja to the SDGs. WHO.