

Sustainable Development Goals (Sdgs) Research Mapping: Insight Towards The Green Economy Era

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ABSTRACT

Sustainable development has become an increasingly pressing global issue with the increasing challenges of climate change, social inequality, and environmental degradation. In response, the United Nations adopted the Sustainable Development Goals (SDGs) in 2015 as a global development framework until 2030. Since then, the SDGs have received widespread attention in academic literature, but the direction of research development needs to be systematically mapped to see the extent of their relevance to the green economy agenda that emphasizes innovation, resilience, and environmental sustainability. This study aims to map the trend of scientific publications related to the SDGs in the period 2013–2025 and analyze their relationship to the green economy agenda. The method used is bibliometric analysis with publication data taken from the Scopus and SINTA databases, then analyzed using VOSviewer and Biblioshiny software. The results show that there are 98 publications with a distribution of 77 publications in international journals indexed by Scopus and 21 publications in national journals indexed by SINTA. The number of publications has increased significantly since 2020, peaking in 2024. Keyword analysis yielded seven main clusters, with dominant topics including sustainable development, carbon emissions, eco-efficiency, agriculture, and green growth. Overlay visualizations demonstrate a shift in research focus from general sustainability issues to cutting-edge issues supporting green development. The results indicate that SDGs research in the global literature is increasingly consistent with green economy principles, while also opening up opportunities for further research on underexplored topics.

Keywords: Sustainable Development Goals, bibliometrics, green economy, publication trends, sustainable development

INTRODUCTION

Sustainable Development Goals (SDGs) is a global development agenda officially adopted by the United Nations in 2015 as a continuation of the Millennium Development Goals (MDGs) which ended in 2015. The SDGs contain 17 goals and 169 targets that serve as a shared guideline for countries in the world in realizing sustainable development until 2030. The presence of the SDGs reaffirms the importance of balance between social, economic, and environmental aspects as the basis for inclusive and sustainable development.

Although officially adopted only in 2015, discourse on *the post-2015 development agenda* has been emerging since 2013. This is marked by the increasing frequency of academic publications using the term SDGs to frame sustainable development issues. Therefore, this study sets the period **2013–2025** as the scope of the analysis, with 2013 positioned as the initial phase of the SDGs discourse before formal adoption. This timeframe is expected to capture the full dynamics of SDGs-related literature, from the early emergence of the concept to its latest developments.

In the context of the green economy era, the SDGs are closely connected as a comprehensive umbrella for global development. The SDGs encourage innovation, resilience, and transformation toward environmentally friendly economic practices. Research on the SDGs can reflect how the academic world contributes to strengthening the *green economy agenda* through issues such as *carbon emissions*, *eco-efficiency*, *agricultural sustainability*, and *green growth*. However, the direction of this research needs to be systematically mapped to identify key trends, dominant issues, and opportunities for future research development.

Based on this, this study aims to: (1) map scientific publication trends related to SDGs in the 2013–2025 period; (2) identify key keywords and thematic networks that are the focus of research; and (3) analyze the relevance of SDGs research directions to the *green economy agenda*. This study is expected to provide academic contributions in the form of literature

mapping and insights for the development of research and policies that are more aligned with sustainable development goals in the green economy era.

Based on the background that has been described, the research questions in this study are as follows:

1. What is the trend of scientific publications related to the Sustainable Development Goals (SDGs) from the beginning of the discourse in 2013 to 2025?
2. What are the main keywords *that* dominate SDGs research, and what is the pattern of relationships between the themes that are formed?
3. To what extent is the direction of research on the SDGs aligned with the *green economy agenda* that emphasizes innovation, resilience, and environmental sustainability?

In line with the research questions that have been put forward, this research has the following objectives:

1. Describes the trends in scientific publications related to the Sustainable Development Goals (SDGs) from the beginning of the discourse in 2013 to 2025.
2. Identifying the main keywords *that* dominate SDGs research and mapping the relationships between themes through bibliometric analysis.
3. Analyzing the relevance of research directions on SDGs with the *green economy agenda* that emphasizes innovation, resilience, and environmental sustainability.

This study offers novelty in two aspects. First, the bibliometric analysis was conducted over the time period **2013–2025** , thus not only highlighting the official phase of SDGs adoption in 2015, but also capturing the initial dynamics of discourse since 2013. Second, this study explicitly links the SDGs research map with the *green economy agenda* , a perspective that is relatively rarely used in previous bibliometric studies.

The results of this study are expected to provide benefits in several aspects:

1. **Academics** provide a comprehensive mapping of the development of SDGs literature and open up opportunities for further research on issues that are still under-explored.
2. **The policy** provides insights into SDGs research themes that are aligned with the green development agenda so that they can serve as a basis for formulating sustainable development strategies at the national and global levels.
3. **Practically** helps researchers, academics, and policymakers to understand current research directions, while identifying relevant research gaps to be addressed in the future.

LITERATU REREVIEW

Sustainable Development Goals (SDGs) as a Global Agenda

Sustainable Development Goals (SDGs) is a global development agenda adopted by the United Nations in 2015 through *UN General Assembly Resolution 70/1* as a continuation of the Millennium Development Goals (MDGs) which have been in effect since 2000 to 2015. (Halkos, 2021) In contrast to the MDGs which consist of eight goals and focus more on development issues in developing countries, the SDGs contain 17 goals and 169 targets. which are universal and apply to all countries, both developed and developing. The SDGs also emphasize the interconnectedness of social, economic, and environmental dimensions as the foundation of sustainable development.

Over time, the SDGs have become a global *framework* integrated into public policies, national development strategies, and even academic programs. Many countries have adopted the SDGs as guidelines for developing long-term development *roadmaps*, such as Indonesia through Presidential Regulation No. 59 of 2017 concerning the Implementation of the Sustainable Development Goals (SDGs). Furthermore, institutions international such as UNDP, World

Bank and OECD make SDGs as instrument main in push collaboration cross- country for overcome global issues such as poverty , inequality , change climate , and damage environment (Rashed & Shah, 2021).

In the academic realm, the SDGs are not only positioned as a normative policy issue, but have also become one of the most rapidly growing research topics in the last decade. Scientific publications on the SDGs span various disciplines, from economics and the environment to health and technology. The increasing publication trend from year to year demonstrates that the SDGs have become an important arena for global discourse, while also triggering the emergence of new academic literature related to *sustainable development* . A number of researchers like (Leal Filho et al., 2021) confirm that the SDGs have shifted the direction of development research from merely focusing on economic growth to a more comprehensive framework emphasizing the dimensions of sustainability, inclusivity, and social justice.

Green Economy and its Relation to SDGs

The concept of *a green economy* emerged as a response to the global environmental crisis, particularly climate change, natural resource degradation, and increasingly alarming social inequality. *United Nations Environment Programme* (Mikhno et al., 2021) define *green economy* as An economic model that results in improved human well-being and social equality while significantly reducing environmental risks. Unlike the conventional economic paradigm, which emphasizes resource-based growth, *the green economy* prioritizes energy efficiency, sustainable resource management, and environmentally friendly technological innovation.

The link between *the green economy* and the SDGs is inherent, as several goals within the SDGs directly represent the pillars of the green economy. For example , SDG 7 (*Affordable and Clean Energy*) encourages transition going to energy renewable , SDG 11 (*Sustainable Cities and Communities*) emphasizes development friendly urban environment , SDG 12 (*Responsible Consumption and Production*) underlines pattern production and consumption sustainable , and SDG 13 (*Climate Action*) emphasizes global action in face change climate

(Zhironkin & Cehlár, 2022). Thus, it can be said that the achievement of the SDGs cannot be separated from the application of green economic principles.

In the academic realm, discourse on *the green economy* has intensified since the 2010s, in line with growing attention to sustainable development post-MDGs. Several studies have highlighted that *the green economy* is not just policy jargon, but also a new development paradigm that demands systemic changes in the sector. industry, agriculture, transportation, and energy (Guo et al., 2020). Furthermore, the literature emphasizes the need to integrate *the green economy* with *innovation systems* and *resilience frameworks* to address increasingly complex global challenges, including the pandemic, inequality, and the climate crisis.

Thus, mapping SDGs research through bibliometric analysis can provide a picture of the extent to which the academic community has articulated issues aligned with the *green economy agenda*. Dominant emerging keywords, such as *carbon emissions*, *eco-efficiency*, *green growth*, *agricultural sustainability*, and *climate change mitigation*, serve as important indicators of how scientific literature contributes to shaping the direction of green development. This study is expected to not only record publication trends but also uncover gaps in SDGs research that have the potential to support strengthening the green economy in the future.

Bibliometrics as a scientific analysis tool

Bibliometric analysis is a quantitative approach used to map the development of knowledge through the study of scientific publications. Simply put, bibliometrics utilizes bibliographic data—such as titles, abstracts, keywords, authors, affiliations, and publication sources—to identify research trends, collaboration patterns, and map thematic in something field knowledge (Author et al., n.d.). Since its introduction by Pritchard (1969), bibliometrics has grown rapidly with the availability of digital databases and analysis software. Today, bibliometrics is used not only to measure publication productivity but also to assess the quality, influence, and future direction of research.

In a methodological context, bibliometrics is divided into several analytical techniques. One is *performance analysis*, which measures the number of publications, citations, and author and journal productivity. Another technique is *science mapping*, which maps the structure of knowledge using co-word, co-citation, or co-authorship (Agus Triansyah et al., 2023; Donthu et al., 2021) analysis. Tools such as VOSviewer, Biblioshiny, and CiteSpace are widely used to generate network visualizations that help researchers understand the relationships between topics and temporal trends in academic literature. With this approach, bibliometrics allows for the systematic creation of an "intellectual map" of a research field. In order to strengthen transparency and replicability, the bibliometric procedure in this study explicitly specifies the search strings, inclusion and exclusion criteria, database filters, document types, data-cleaning steps, and the standardization of keywords prior to analysis in VOSviewer and Biblioshiny.

Several previous studies have used bibliometrics to examine the topic of sustainable development. For example, (Sulaiman Kurdi et al., 2021) do bibliometrics in literature *sustainability in higher education*, whereas (Fonseca et al., 2020) analyze Global publications related to the SDGs since 2015 found that health, renewable energy, and food security were dominant topics. Bibliometric research was also widely used. For map issue change climate (Al-Delaimy et al., 2020), economy green (Liu et al., 2020), as well as *sustainable business models* (Bali Swain & Yang-Wallentin, 2020) These studies demonstrate that bibliometrics is effective for understanding the dynamics of cross-disciplinary research while identifying research gaps.

Thus, bibliometric analysis is considered relevant for mapping research on the SDGs. Through this approach, researchers can observe not only the growth of publications from year to year, but also the direction of research, dominant keywords, and its relevance to global agendas such as the *green economy*. This study also complements previous literature by covering a longer timeframe (2013–2025) and focusing specifically on the interconnectedness of the SDGs and the green economy.

RESEARCH METHODS

This research is a bibliometric study using a quantitative approach to map the development of scientific publications related to *the Sustainable Development Goals* (SDGs) between 2013 and 2025. Bibliometric analysis was chosen because it can systematically describe trends, collaboration patterns, and thematic mapping in academic literature (Donthu et al., 2021).

Research data were obtained from international and national publication databases accessed through Scopus for indexed international publications (Q1–Q4) and SINTA for indexed national publications (SINTA 1–2). The use of these two databases aims to observe the development of literature globally while highlighting the contribution of publications in Indonesia. The total number of documents collected was 98 scientific publications on the topic of SDGs in the period 2013–2025. The analysis was carried out through the stages of calculating the number of publications per year (2013–2025). Identifying the distribution of publications based on journal categories (Scopus Q1–Q4 and SINTA 1–2). Presenting data on authors, affiliations, and countries of origin of publications.

Co-word analysis: analyzing the most frequently occurring keywords. Network visualization: mapping the relationships between keywords (cluster analysis). Overlay visualization: identifying the development of research themes based on time periods. Density visualization: mapping research intensity based on dominant keywords.

Data were analyzed using VOSviewer software. VOSviewer was used to generate network visualizations (network, overlay, density). The research timeframe was set from **2013 to 2025**, considering that the SDGs discourse has been around since 2013, although it was only officially adopted in 2015. The year 2025 was used as the cutoff date because there is the latest published data indexed up to that period.

RESULTS

Table 1

Research Progress on *Sustainable Development Goals* (SDGs) 2013-2025

Publication Year	Amount	Percentage
2013	2	2%
2014	1	1%
2015	3	3%
2016	1	1%
2017	3	3%
2018	6	6%
2019	6	6%
2020	13	13%
2021	15	15%
2022	14	14%
2023	11	11%
2024	21	21%
2025	2	2%
Amount	98	100%

Table 2

Total Research on *Sustainable Development Goals* (SDGs) Based on SINTA Index Level

No.	Journal Name	Total Scientific Works	SINTA Index
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1	International Journal of Technology, Indonesian Journal of Science and Technology (IJoST), ASEAN for Science and Engineering in Materials (AJSEM), Journal of Islamic Education	6	1
2	Journal of Development Economics, Kontekstualita, Indonesian Journal of Biology Education (JPBI), Journal of Economics and Development Studies (JESP), The Journal of Indonesian Sustainable Development Planning (JISDeP), AZKA International Journal of Zakat and Social Finance, Journal of Islamic Studies and Humanities, JEEEMI, SODALITY, International Journal of Nusantara Islam, Jurnal Borneo Administrator, IQTISHADUNA, Journal of Governance and Public Policy	15	2
Total		21	

Table 3

Total International Journals on *Sustainable Development Goals* (SDGs) Based on the Scopus Index

No.	Source	Total Scientific Works	Scopus Index
1	Cibe.org.cn, Wiley Online Library, Elsevier, cell.com, Springer, mdpi.com, pnas.org, nature.com, Taylor and Francis, ceel.com, vbn.aau.dk, frontiersin.org	56	Q1

	Springer, hrcak.srce.hr, ageconsearch.umn.edu,		
2	mdpi.com, Taylor and Francis, emerald.com, journals.sagepub.com	14	Q2
3	Witpress.com, degruyter.com, search.ebscohost.com	3	Q3
4	Witpress.com, Springer, Ekonomiaisrodowisko.pl, agro.icm.edu.pl	4	Q4
Total		77	

Table 4

List of Authors and Country of Origin

No.	Authors	Country of origin
1	M Jasiulewicz-Kaczmarek, P Drożyner	Poland
2	V Bjornlund, H Bjornlund	Norway
3	JD Sachs	USA
4	D Le Blanc	USA
5	M Jasiulewicz-Kaczmarek, A Saniuk	Poland
6	T Hák, S Janoušková, B Moldan	Czech
7	M Stafford-Smith, et al.	Australia
8	V Gartner, et al.	USA
9	A Halafoff, M Clarke	Australia
10	V Somogyi, et al.	Hungary
11	BB Mathew, NB Krishnamurthy	India

12	A Giannakou, S Wyman, et al.	United States of America
13	Jlmi Garcia, Fm Llorens	Spanish
14	JD Sachs, et al.	USA
15	E Halisçelik, MA Soytas	Türkiye
16	A Veveris, et al.	Latvia
17	R Vinuesa, et al.	Sweden
18	RM Kalombe, et al.	South Africa
19	A Malak-Rawlikowska, et al.	Poland
20	M Gebaska, et al.	Poland
21	T Bennich, N Weitz, H Carlsen	Sweden
22	S Renwick	Grenada
23	C Apipoonyanon, et al.	Thailand
24	P Dziekański, P Prus	Poland
25	M Chankseliani, T McCowan	England
26	K Kluza, M Ziolo, I Bąk, A Spoz	Poland
27	P Sulewski, et al.	Poland
28	K Kais, M Gołaś, M Suchocka	Poland
29	SW Lee, K Xue	China
30	D Czerwińska-Kayzer, et al.	Poland
31	L Gauthrit, et al.	France
32	M Kobylińska	Poland
33	A Nowak, A Kobiałka, A Krukowski	Poland
34	M Gazdecki, E Goryńska-Goldmann, M Kiss, Z Szakály	Poland
35	R Kata, M Leszczyńska	Poland
36	R Teruel-Sánchez, et al.	Spanish
37	A Zakrzewska, A Nowak	Poland

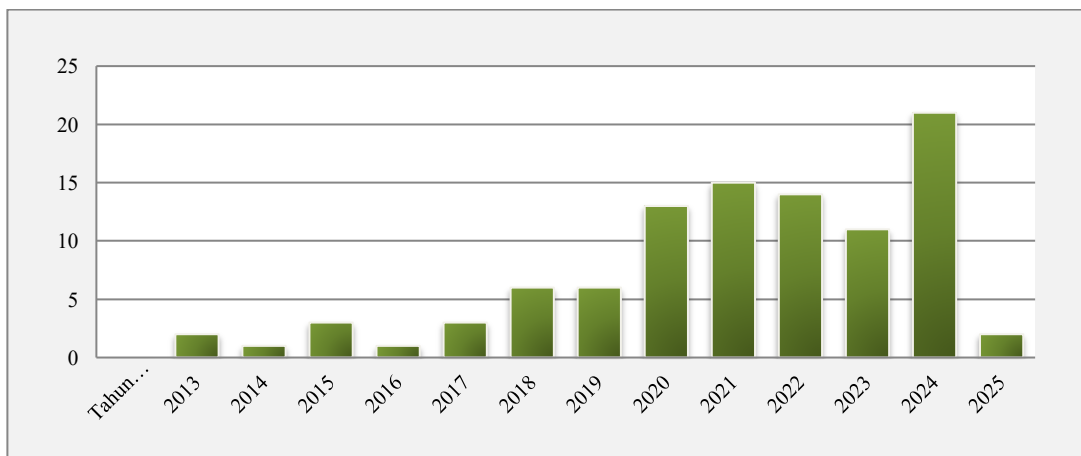
38	DM Harsell, C Barsky, S Golas	United States of America
39	A Doernberg, et al.	Germany
40	G Wang, R Shi, L Mi, J Hu	China
41	R Yasmeen, et al.	China
42	G Drozdowski, P Dziekański	Poland
43	G Suchanek, J Wołoszyn, A Gołaś	Poland
44	A Nowak, A Kasztelan	Poland
45	I Gołaś, JA Potorski	Poland
46	T Baležentis, V Dabkienė, D Štreimikienė	Lithuania
47	P Dziekański, et al.	Poland
48	M Remondino, A Zanin	Italy
49	FK Gündoğdu	Türkiye
50	A Beldycka-Bórawska	Poland
51	Z Gołaś	Poland
52	B Banerji, P Maitra	India
53	W Kozłowski, K Turkowski	Poland
54	Q Guo, B Guo, SM Adnan, A Sheer	China
55	W Pacura, K Szramowiat-Sala, J Gołaś	Poland
56	P Misztal, P Dziekański	Poland
57	W Jiang, B Su, S Fan	China
58	HS Mohd Yakin, et al.	Malaysia
59	A Nowak, A Kobialka	Poland
60	E McGuire, C Leeuwis, AM Rietveld, B Teeken	USA
61	A Nowak, M Różańska-Boczula	Poland
62	A Kasztelan, A Nowak	Poland
63	K Szramowiat-Sala, K Sornek	Poland
64	A Saud, A Ali, CA Quist-Jensen	Denmark

65	L Mao, F Pei, X Sun	China
66	I Arhin, et al.	China
67	B Salihoglu, et al.	Türkiye
68	A Raihan, et al.	Malaysia
69	P Merlo, J Michalak, K Andruszkiewicz	Poland
70	H Nguyen, TL Mai, TTT Pham, D Binh	Vietnamese
71	Y Yin, Y Zhang, et al.	China
72	MF Rabbi, M Abdullah	Hungary
73	Y Wang, S Yang, F Ahmad, AA Chandio	China
74	WJ Shyr, BL Wei, YC Liang	China
75	R Wijayanti, D Setiawan	Indonesia
76	L Ren, Y Cheng	China
77	Y Pan, et al.	China
78	A Fauzi, A Oxtavianus	Indonesia
79	MA Berawi	Indonesia
80	R Ferawati	Indonesia
81	YG Wibowo, A Sadikin	Indonesia
82	HF Jati, et al.	Indonesia
83	MA Berawi	Indonesia
84	N Afroz, Z Ilham	Indonesia
85	Z Hasan	Indonesia
86	I Novidsa, et al.	Indonesia
87	N Humaida, et al.	Indonesia
88	AT Nugraha, D Priyambodo	Indonesia
89	S Sjaf, et al.	Indonesia
90	W Paul, R Faudji, H Bisri	Indonesia
91	Z Ilham, et al.	Indonesia

92	VI Pertiwi, BN Harmawan	Indonesia
93	W Wartoyo, N Haida	Indonesia
94	R Kalalinggi, et al.	Indonesia
95	A Nurramadhani, et al.	Indonesia
96	J Basnur, et al.	Indonesia
97	TC Nugraha, ESESA Abdel, F Lukman	Indonesia
98	MRI Haq, et al.	Indonesia

Figure 1

Graph of Research Progress on *Sustainable Development Goals* (SDGs) 2013-2025



DISCUSSIONS

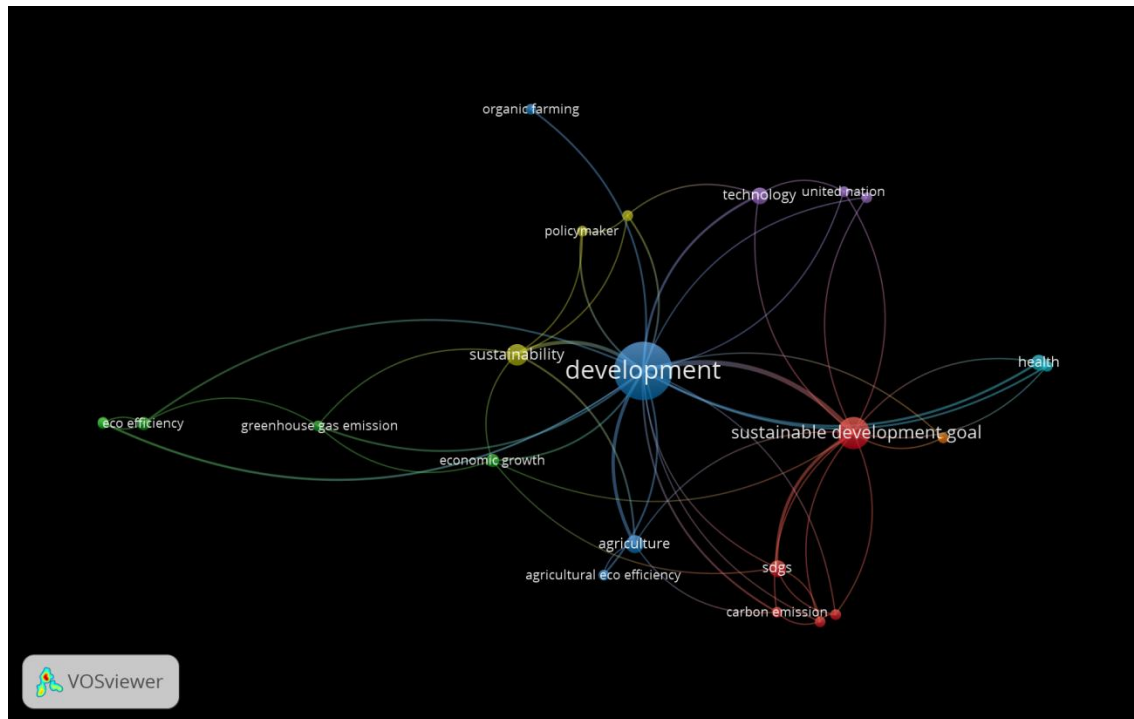
1. Publication Trends on SDGs

The table and graph above show 98 scientific publications on the topic of *Sustainable Development Goals* (SDGs). Twenty-one publications were indexed by SINTA and 77 were indexed by Scopus, covering the topic of *Sustainable Development Goals* (SDGs) from 2013 to 2025. Publications on this topic fluctuated between 2013 and 2023. However, 2024 saw a significant increase, becoming the year with the highest number of publications, with 21 publications.

2. Dominant Keywords and Theme Relationships

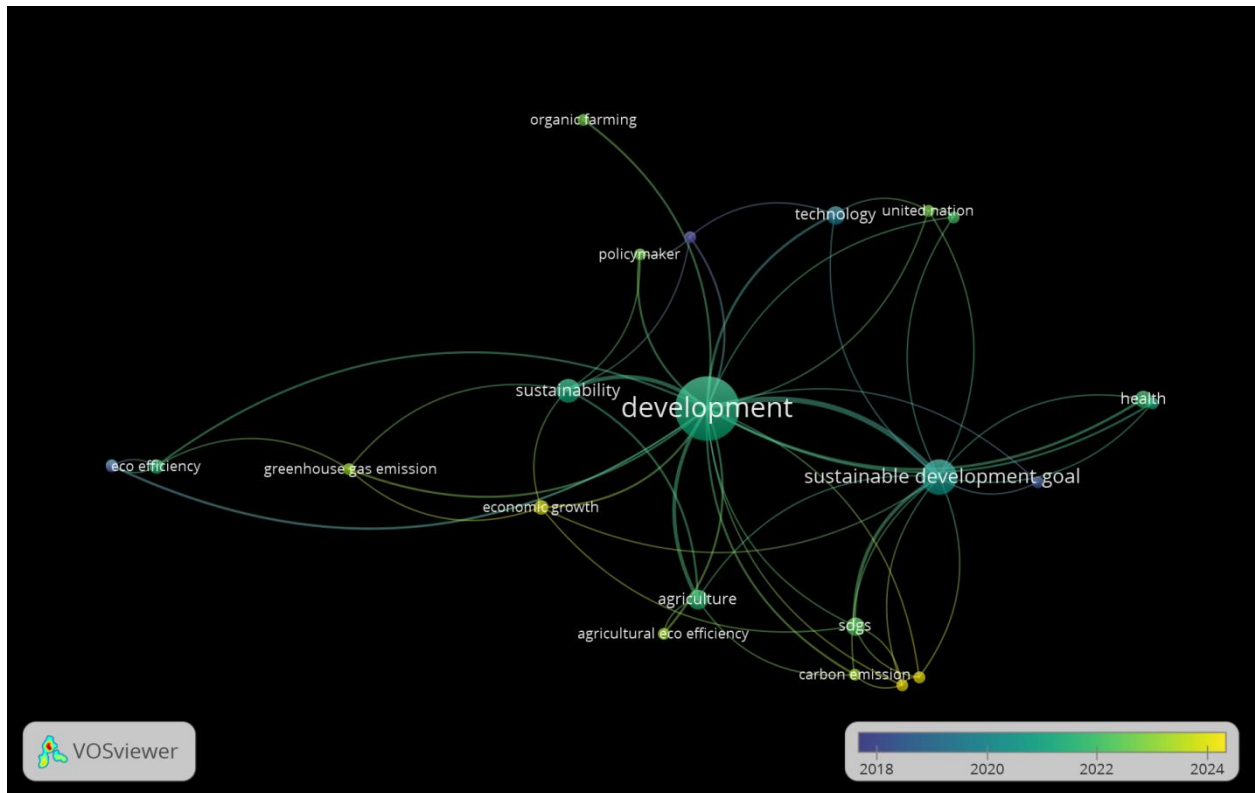
Figure 2

Network Visualization Sustainable Development Goals (SDGs)



In the network visualization shown above, we can see the relationship between several keywords. Several keyword *clusters* are indicated by different colors. In this visualization, there are 7 *clusters* or groups of keywords with a total of 96 lines (links). There are 23 items spread across several keyword groups. In the first group, there are 5 keyword items in red, namely *carbon emission*, *innovation*, *livelihood*, *SDGs*, *sustainable development goal*. The second group has 5 keyword items in green, namely *eco-efficiency*, *economic growth*, *greenhouse gas emission*, *natural resource*, *short food supply chain*. The third group has 4 keyword items in blue, namely *agricultural eco-efficiency*, *agriculture*, *development*, *organic farming*. The fourth group of keywords has 3 yellow items, namely *policymaker*, *sustainability*, *sustainable development practice*. The fifth group of keywords has 3 purple items, namely *technology*, *united nation*, *waste management*. The sixth group has 2 keyword items in light blue, namely *food security* and *health*. The seventh group has 1 orange keyword item, namely *business*.

Figure 3
Overlay Visualization Sustainable Development Goals (SDGs)

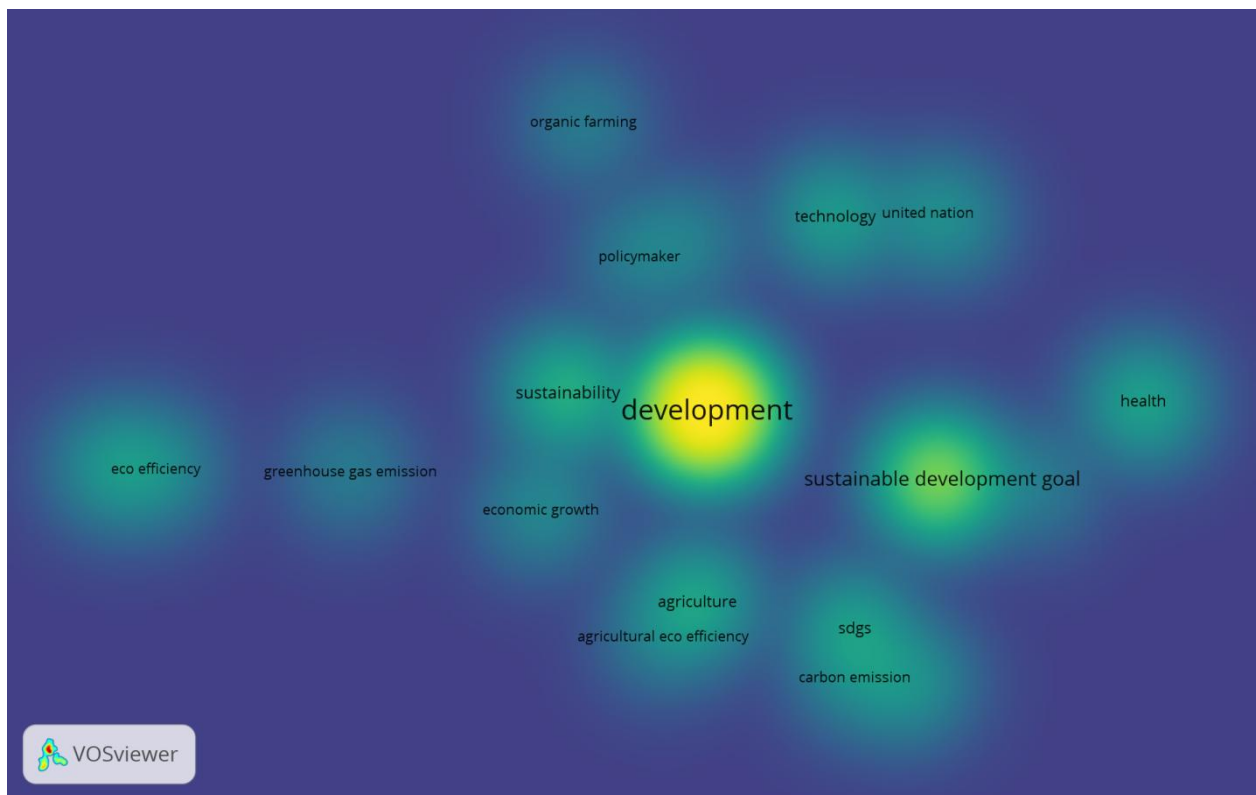


The data is then displayed in an *overlay visualization* , used to analyze trends or changes in research over time by looking at the color differences assigned by year. Keywords marked in bright yellow indicate the most recent year in the data, as in the visualization, the keywords "economic growth," "carbon emissions," "greenhouse gas emissions," and "agricultural eco-efficiency" continue to be relevant topics in current research. Keywords in green appear to be quite concentrated on keywords such as " organic farming," "policymaker," "united nation," "sustainability," "eco-efficiency," "development," "sustainable development goals," "agriculture," "SDGs," and "health." This illustrates that there are

increased focus on keywords related to the topic of *Sustainable Development Goals* (SDGs) around the period of mid-2020 to 2022. Then the dark blue keywords that appear to focus on

keywords such as "sustainable development practice", "technology", "business", and "natural resources" which show that in 2018 and back to 2020, the research analyzed tends to focus more on raising issues using these keywords related to *Sustainable Development Goals* (SDGs).

Figure 4
Density Visualization Sustainable Development Goals (SDGs)



Density Visualization is a visualization that is shown by the brighter the color that appears on a keyword, the more frequently the keyword is researched. Conversely, the dimmer the color containing a keyword, the less researchers have researched related to that keyword. The brightest keyword in this visualization shown in the image above is "development," which indicates that this keyword has been widely researched and various studies have raised issues related to the topic of *Sustainable Development Goals* (SDGs). Then, keywords such as

"economic growth," "carbon emissions," "greenhouse gas emissions," "agricultural eco-efficiency," "organic farming," "policymaker," "united nation," "sustainability," "eco-efficiency," "agriculture," "SDGs," and "health," and "technology" appear dimmer than other keywords. This illustrates that this keyword is still not widely researched and the research that raises the topic is not diverse enough. Therefore, this can be used as an opportunity to be used as a reference or material in determining further research using these keywords related to the *Sustainable Development Goals* (SDGs).

SDGs Publication Trends 2013–2025

Based on the analysis, 98 publications were produced between 2013–2025 with a significant increase after 2020. In the initial period (2013–2015), the number of publications was still limited, in line with the initial stage of the SDGs discourse. The increase began to be seen in 2018 and reached a peak in 2024 with the highest number of publications, namely 21 publications. This trend indicates that the topic of SDGs is gaining increasing attention in academic literature, especially after the adoption of the SDGs as a global agenda for sustainable development.

Journal Distribution and Indexing

Of the 98 publications analyzed, 21 were published in SINTA-indexed national journals (SINTA 1–2), while 77 publications were published in Scopus-indexed international journals (Q1–Q4). The distribution of publications in Scopus journals shows a dominance in the Q1 category (56 publications), indicating that SDGs research is generally published in highly reputable journals such as Elsevier, Springer, MDPI, Taylor & Francis, and *PNAS* and *Nature*. This demonstrates that SDGs research has become a global issue recognized at the highest academic level.

Author and Country of Origin

Analysis of authors and countries of origin shows a broad global distribution. Publications related to the SDGs are dominated by researchers from Poland, the United States, China, and Australia. Meanwhile, contributions from Indonesia are also quite significant, with more than 20 publications, including by authors such as R. Wijayanti, A. Fauzi, M.A. Berawi, Z. Ilham, and N. Humaida. This fact demonstrates that the SDGs issue has become a cross-national and multidisciplinary concern, with Indonesia contributing to the international literature.

Keyword Analysis and Visualization

Co-word analysis resulted in 7 main clusters that represent the focus of SDGs research:

- Cluster 1 (Red): *carbon emissions, innovation, livelihood, SDGs, sustainable development goals.*
- Cluster 2 (Green): *eco-efficiency, economic growth, greenhouse gas emissions, natural resources, short food supply chain.*
- Cluster 3 (Blue): *agricultural eco-efficiency, agriculture, development, organic farming.*
- Cluster 4 (Yellow): *policymaker, sustainability, sustainable development practice.*
- Cluster 5 (Purple): *technology, united nation, waste management.*
- Cluster 6 (light blue): *food security, health.*
- Cluster 7 (Orange): *business.*

The overlay visualization results show a shift in research themes from *sustainability, policymakers, and organic farming* (2015–2018) to more recent issues such as *carbon emissions, eco-efficiency, greenhouse gas emissions, and agricultural eco-efficiency* (2020–2025). Meanwhile, the density visualization results show that the keyword " *development*" is the most dominant, while keywords such as *eco-efficiency* and *greenhouse gas emissions* are still relatively under-explored, potentially creating future research gaps.

3. Alignment with the Green Economy Agenda

The findings of this study indicate that the direction of SDGs research is increasingly linked to the *green economy agenda*. Keywords such as *carbon emissions*, *eco-efficiency*, *agriculture*, *green growth*, and *sustainable development practice* highlight a shift in research focus toward issues that support green development. In other words, the academic community is discussing the SDGs not only as a normative agenda but also as a practical framework for fostering innovation, increasing resilience, and encouraging a more environmentally friendly economic transformation.

This result is in line with previous literature which confirms that the success of SDGs implementation is largely determined by the extent to which *green economy principles are implemented*. implemented in policy development (Chankseliani & McCowan, 2021; Vinuesa et al., 2020; WORLD BANK GROUP PARTNERSHIP FUND FOR THE SUSTAINABLE DEVELOPMENT GOALS, 2018) Thus, this bibliometric analysis not only illustrates publication trends but also shows that the direction of global SDGs research has moved towards consolidation with the green economy agenda.

CONCLUSION

This study shows that scientific publications related to *the Sustainable Development Goals (SDGs)* in the period 2013–2025 continue to increase, with a peak in 2024. Publications are widely distributed in both SINTA-indexed national journals and highly reputable international journals (Scopus Q1–Q4), indicating that the SDGs issue is receiving serious attention in the global academic literature. Keyword analysis reveals the existence of seven main theme clusters, with a trend of research shifting from basic sustainability issues to more applicable topics, such as *carbon emissions*, *eco-efficiency*, and *agricultural sustainability*. These results confirm that the direction of SDGs research is increasingly relevant to the *green economy*

agenda , where academic literature plays a crucial role in driving innovation, resilience, and transformation towards green development.

At the same time, these findings must be viewed within the limitations of the dataset used. This study relies only on Scopus and SINTA, which may not capture the full global landscape of SDG research; the keyword set is relatively limited; and coverage for 2025 is still incomplete. Therefore, future studies should expand data sources, refine keyword selection, and ensure more consistent bibliometric coverage to produce a broader and more accurate mapping of SDG-green economy research. Such improvements will strengthen the contribution of subsequent studies and provide more reliable insights for academic and policy development.

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