



Bibliometric Review of Indonesia's Progress on the Sustainable Development Goals 2014 - 2024

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Abstract. Sustainable Development Goals (SDGs) is a global sustainable development agenda that contains 17 sustainable development goals. This program was adopted by the United Nations (UN) for the first time in 2015 and was the continuation of the Millennium Development Goals (MDG) program. The SDGs exist to address global challenges to realize a more fair, prosperous, and sustainable world by 2030. The programs listed in the sustainable development agenda were adopted by 191 countries, including Indonesia. In Indonesia, the achievement of SDGs from 2015 to 2023 has a score of 69.43 out of 100. This research aims to review the achievement of SDGs in Indonesia and the aspects studied in journal articles through keywords that appear in the results of related publications from 2014 to 2024 on Google Scholar, using the Publish or Perish application. The data that appears will be visualized using the Vosviewer application as the basis for analysis. The results of this study show that the achievement of SDGs in Indonesia tends not to be as fast as during the pandemic. The topics examined, in this case the SDGs, are only limited to certain areas including health, forestry, cities, and sanitation. This shows that the topics that arise related to SDGs only touch on a few indicators and have not worked on all 17 SDGs goals. Based on the data provided, there is no real effort to accelerate the achievement of SDGs in Indonesia until 2030. This is proven by the absence of keywords that appear related to the achievement of the SDGs.

Keywords: Indonesia, Post-pandemic, SDGs.

1 Introduction

The Sustainable Development Goals (SDGs) are a series of targets created by the United Nations to address global challenges covering politics, economics, and the environment. This program is a continuation of the Millennium Development Goals (MDGs) that were created in the year of 2000. The 17 sustainable development goals comprise No Poverty; Zero Hunger; Good Health and Well-being; Quality Education; Gender Equality; Clear Water and Sanitation; Affordable and Clean Energy; Decent Work and Economic Growth; Industry, Innovation, and Infrastructure; Reduce Inequality; Sustainable Cities and Communities; Responsible Production and Consumption; Climate Action; Life Below Water; Life on Land; Peace, Justice, and

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Strong Institutions; and Partnerships for the Goals. The goals were adopted by 191 countries in the world in 2015, including Indonesia [1].

The Indonesian government has shown a strong commitment to the achievement of the SDGs through various policies. One important step is the issuance of Presidential Regulation No. 59/2017 which establishes the SDGs as a national development agenda. Within this framework, the SDGs are integrated into the National Medium-Term Development Plan (RPJMN) 2015-2019 and RPJMN 2020-2024 [2]. This policy covers various aspects of sustainable development, including poverty alleviation, quality education, gender equality, and environmental protection.

In Indonesia, the overall progress of SDGs implementation from 2015 to 2023 tends to increase and get better from year to year. However, there are several indicators that have not been fully touched and still require special attention [3]. Based on the SDGs achievement report in 2022, out of a total of 289 indicators, there are still 54 indicators or around 19% of indicators that require special attention. Moreover, these 54 indicators experienced a decrease in achievement in 2020 [4]. These untouched indicators are still rarely being discussed or deliberated. This is shown by the discussions available in the last 10 years that tend to target only a few goals or indicators, which include health, sanitation, population, and water.

Indonesia is making progress on several SDGs indicators, such as reducing extreme poverty and increasing access to basic education. Data from the macrotrends shows that the poverty rate in 2022 was 62.60% which indicate a 0.1% decline from 2021, despite the COVID-19 pandemic affecting economic and social stability [5]. The government's efforts in providing social protection, such as the Family Hope Program (PKH) and the Basic Food Card, contributed greatly to this achievement [6]. In the education sector, Indonesia made progress in primary and secondary gross enrollment rates, although the quality of education still requires attention. Initiatives such as the Smart Indonesia Program (PIP) and the development of education infrastructure in remote areas are important strategic efforts.

However, major challenges remain, particularly related to social and environmental inequalities. Inequalities between urban and rural areas are a major obstacle to equitable achievement of the SDGs [7]. Indicators such as reducing greenhouse gas (GHG) emissions and increasing the use of renewable energy still face structural constraints, including dependence on fossil fuels and the complexity of energy transition regulations. In addition, Indonesia faces environmental pressures, such as deforestation, land degradation, and marine pollution, which may hinder ecological sustainability goals. Initiatives such as Social Forestry and Agrarian Reform have been launched to address these issues, but implementation and oversight still need to be strengthened [8].

Bibliometric analysis is a method used to evaluate scientific literature by analyzing bibliographic data, such as the number of publications, citations, keywords, and inter-author relationships. The main objectives of bibliometric analysis are to understand research trends, evaluate the scientific contributions of an institution or individual, and identify emerging themes in a particular field. Publish or Perish is software designed to help analyze scientific citation data. It uses various data sources, such as Google Scholar to generate bibliometric indicators. VOSviewer is software used to create network visualizations from bibliographic data. These visualizations include relationships between authors, keywords, institutions, or publications based on data processed from sources such as Google Scholar. The combination of bibliometric analysis with tools such as Publish or Perish and VOSviewer enables in-depth and structured analysis of SDGs research trends.

Based on the background above, this study aims to evaluate Indonesia's academic contribution in supporting the implementation of SDGs over the past decade. The study also highlights the linkages between the scientific literature, public policy, and tangible results on the ground to provide strategic guidance for achieving the SDGs goals by 2030. This approach not only helps identify successes but also reveals areas that require greater attention, such as strengthening cooperation between actors and improving data capacity in SDG reporting. Therefore, this research aims to review the real efforts to accelerate the achievement of SDGs in Indonesia until 2030 which have not been optimized.

2 Literature Review

The journal article Viewpoint: accelerating the implementation of the SDGs written by Walter Leal Filho in 2020 discusses efforts to accelerate the implementation of the Sustainable Development Goals (SDGs) in facing global challenges such as climate change, poverty, and inequality [9]. Historically, the discourse related to the SDGs has basically been discussed since 2012 in Rio de Janeiro (Rio +20). The idea of the SDGs was motivated by the aim to address increasingly urgent environmental, political and economic problems. The SDGs are designed to replace and improve the Millennium Development Goals (MDGs), which were considered less successful in their goals during the period 2000-2015. The MDGs failed due to several reasons such as lack of funding, no mechanism to measure the progress achieved, and the relatively low popularity of the MDGs.

This journal article discusses the importance of accelerating the implementation of the SDGs for several reasons. The first reason is that it is getting closer to the 2030 deadline but there are still many challenges to be faced. If there is no acceleration, the SDGs run the risk of having the same fate as the MDGs, namely that the goals are not maximally

achieved. Global welfare is also one of the reasons for accelerating the implementation of SDGs. This is because the success of SDGs will have an impact on the welfare of the global community, so by accelerating implementation, we can improve health, education, and overall quality of life, and reduce social and economic injustice. Overall, accelerating the implementation of the SDGs is a crucial step to ensure that the world can face pressing challenges and create a sustainable and better future. Filho emphasized the importance of an evidence-based approach and accurate measurement of SDG achievements as a way to improve implementation effectiveness. Dr. Filho also emphasized the importance of an evidence-based approach and accurate measurement of SDG achievements as a way to increase the effectiveness of implementation

The other journal article, “Exploratory Bibliometrics: Using Vos Viewer as a Preliminary Research Tool” written by Andrew Kirby in 2023 explores the role of Vos viewer as a tool in preliminary bibliometric analysis to identify patterns, trends, and relationships in academic literature [10]. Kirby discusses how Vos Viewer, with its visualization capabilities, can help researchers understand the map of literature on a particular topic, such as keyword clustering, inter-author collaboration, and citation network analysis. Vos Viewer can visualize networks of keywords, authors, and institutions, showing how a particular topic has evolved over time. Through the resulting clusters, Vos Viewer can show the literature that plays a central role in a particular field as well as the latest research trends that need more attention.

The use of Vos Viewer results in an efficient and comprehensive analysis of the literature in a short period of time, especially beneficial for researchers who are new to a field or topic. Kirby used a case study on the field of “remote sensing” to measure the contribution of this research in the implementation of the Sustainable Development Goals (SDGs). The case study used in this research used Scopus and Vos Viewer data to analyze co-occurrence data among publications in six journals, focusing on the role of remote sensing in the SDGs. The study found that remote sensing research has only recently started to focus on sustainability. The analysis showed that sustainability-related terms have only become prominent in recent years, indicating a new subfield in remote sensing. A research gap lies in the absence of studies on how effective Vos Viewer is in specific disciplines, such as social sciences or engineering, which may have different literature characteristics and citation structures. Based on the previous studies, this research seeks to review the achievements of SDGs in Indonesia using Vos Viewer bibliometric analysis.

3 Methods

This research uses a qualitative methodology with a bibliographic review approach and applies the Vos Viewer program to create data visualizations and Publish or Perish to

search, access, and analyze citation and publication data. The data used in this study came from Google Scholar papers within a ten-year period (2014-2024), which were considered as the most recent for research purposes. Then, we used the keywords “SDG” and “Indonesia” to determine current trends through the Publish or Perish program, subsequently Vos Viewer was used to process data from the 1000 most relevant publications to provide a data visualization that can explain the development of SDG research in Indonesia from 2014 to 2024.

Some of the keywords that reflect the trend or focus of research in those years that rose to the surface include “health”, “covid”, “society”, “economy”, “city”, “forest”, “sanitation”, “population” and even “water”. According to the results of the Vos Viewer data visualization, it can be concluded that the topic of SDG in Indonesia as a research/discussion topic still needs to be developed. This is based on several SDG sectors and indicators that have not appeared and have not been connected to SDG discussions in general. This data illustration also indicates that the focus of literacy in Indonesia is still strongly influenced by the situation and development of SDG as objects of study and government goals. It could be hindering the acceleration of SDG achievement in Indonesia, because the SDG studies that have been discussed have not targeted all SDG sectors and indicators.

The first step, publications are assembled using the Publish or Perish program, with requirements as below:

The image shows a screenshot of the Google Scholar search interface. The search criteria are as follows: Authors (empty), Publication name (empty), Title words (empty), Keywords (SDG, Indonesia), Years (2014 - 2024), ISSN (empty), Maximum number of results (1000), and Include options (CITATION records, Patents, Only reviews, New). The Search button is highlighted in green.

Figure 1 The data search for publications related to the SGD discussion using the Publish or Perish program

At this stage, we searched for 1,000 publications from 2014 to 2024 with the keywords SDG and Indonesia.

After we get the publication data, we use the Vos Viewer program to determine the minimum number of occurrences of a term contained in a publication that is determined as 10. It means that it is necessary to have 10 occurrences of a word in an article to be included as a term used in this study.

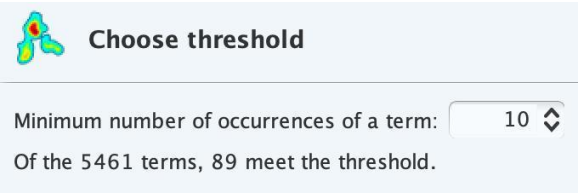


Figure 2 Threshold determination of terms related to SDG discussions using the Vos Viewer program

Out of 5461 keywords that can be generated from publications, the 89 keywords that have 10 repetitions in the article actually reach the criteria.

The next step is calculating the terms/keywords used by dividing the total number of terms by their relevance.

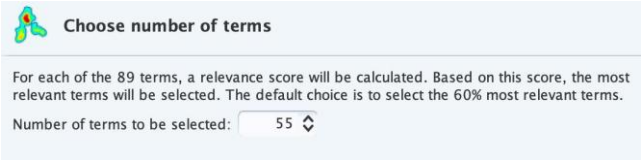


Figure 3 Number of terms that will be chosen in the study

By using the predefined configurations, it emerged that 60% or 55 words that were considered to be the most relevant phrases were covered in this study.

4 Results and Discussion

After completing the data processing stage, the results of data visualization by Vos Viewer show that the correlation between SDGs and Indonesia based on publications, can be illustrated below:

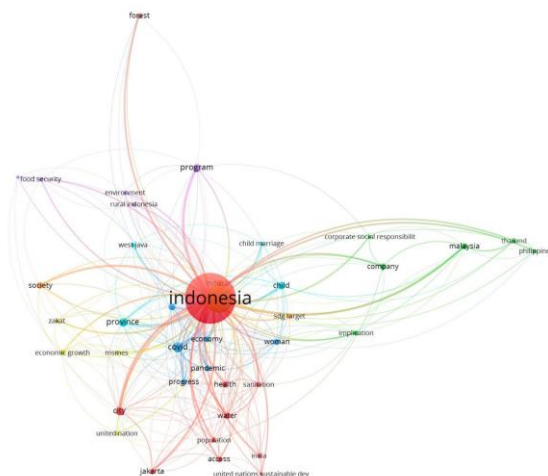


Figure 4 Visualization of terms extracted from publications related to SDGs in Indonesia from 2014 to 2024

Based on the Vos Viewer data visualization above, keywords related to SDG indicators in certain sectors are not appearing. The focus of SDG studies so far tends to be only on a few sectors or indicators such as health, sanitation, population, and water. There are other keywords such as “food security”, “environment”, and “forest” but they do not have a direct correlation with SDG keywords. The other keywords that are probably relevant including education, energy, climate action, gender equality, etc are not shown. It indicates that there is no real effort to accelerate the achievement of SDGs in certain sectors published. Topics that are examined or that may appear related to the SDGs are

limited to certain fields and only target a few indicators or some goals, in other words, not all indicators of the 17 goals are touched upon.

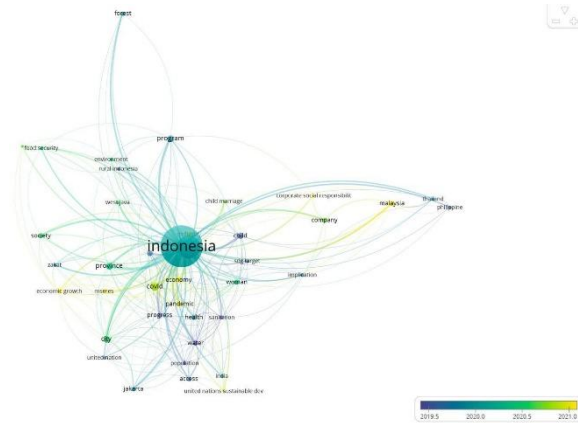


Figure 5 Visualization of terms extracted from publications related to SDGs in Indonesia from 2014 to 2024 based on publication time

Based on data visualization that displays time indicators, the trend shows that the most publications were made in 2019–2021. In 2019, most discussions focused on the health, sanitation, water and population sectors. Meanwhile, discussions related to SDGs or sustainable development goals began to be widely discussed in 2020 to 2021. The bar indicator in the data visualization shows the time span of 2019 - 2021 where the range of years is the period of the most publications carried out. It indicates that after 2021, the discussion related to SDGs and their related sectors is not so abundant or in other words, the discussion related to this matter is relatively weak.

5 Conclusion

The analysis reveals an imbalanced focus on certain goals, with discussions and efforts frequently targeting areas such as health, sanitation, and water, while other indicators receive limited attention. This selective approach may hinder Indonesia’s ability to achieve comprehensive progress across all 17 SDG goals, which are inherently interconnected. With the 2030 deadline approaching, there is an urgent need for Indonesia to accelerate its efforts in achieving the SDGs. This includes increasing the focus on under-prioritized indicators to ensure more balanced and holistic progress.

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