

# Green Economy and Green Accounting: A Bibliometric Analysis

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**Abstract:-** In 2021 Indonesia will produce up to 60 million tonnes of B3 waste, and no less than 2,897 manufacturing industries will produce B3 waste. Then no less than 2,103 industries in the agricultural sector (Argo industry) produce B3 waste, and the energy and oil and gas industry sector produces no less than 947 B3 waste industries. The Indonesian government has decided by 2030 to reduce greenhouse gas emissions by 29%. One form of embodiment of the government is through the Green Economy and Green Accounting concept strategies. This study uses the bibliometric method with the VOSviewer software application version 1.6.18 to produce a visualization of the research analysis. Bibliometric software analysis was performed using four metrics, namely citation, co-citation, bibliographic coupling, and co-occurrence. This research is intended to map the issues of Green Economy and Green Accounting. This mapping aims to find out the latest issues related to the topic. The data used are 900 articles in the Google Scholar database for five years, from 2017 to 2022. The results of the mapping analysis

show that there are five research clusters. The following research theme raised is the effect of green accounting on sustainable development. Then further research is needed on the themes raised by researchers. This mapping analysis is expected to add to scientific information and become a renewable resource for researchers on green economy and green accounting.

**Keywords:-** Green Economy, Green Accounting, Environment, Social, Bibliometrics Introduction.

## I. INTRODUCTION

Issues regarding the environment are of concern to researchers for discussion. Various environmental problems, such as air pollution, global warming, depletion of the ozone layer, water pollution, and overexploitation of nature. Greenpeace Indonesia's official website states that some main environmental problems come from developing countries, including Indonesia.

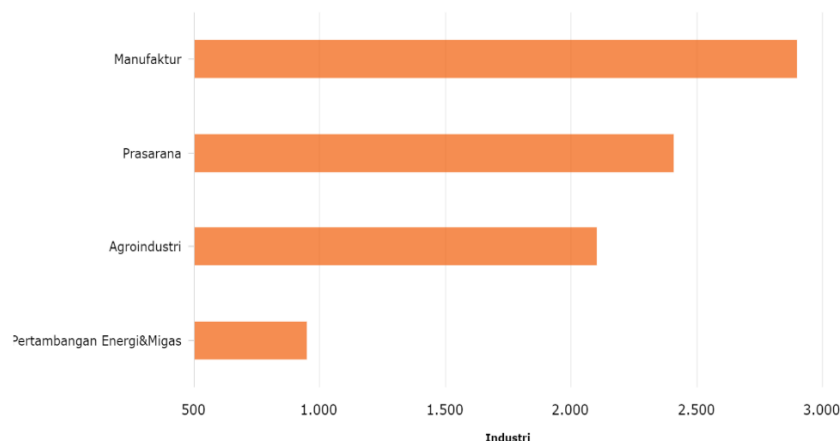


Fig. 1: Industrial B3 Waste for 2021

Source: Ministry of Environment and Forestry (2021)

Based on the above data, Indonesia will produce up to 60 million tons of B3 waste in 2021. B3 waste or hazardous and toxic materials come from the manufacturing sector. According to the Ministry of Environment and Forestry, no less than 2,897 manufacturing industries will generate B3 waste in 2021. Then no less than 2,103 industries in the agricultural sector (Argo industry) produce B3 waste, and the energy and oil and gas industry sector produces no less than 947 B3 waste industries. Based on the existing phenomenon, the government, as the decision maker, has taken various appropriate steps to overcome these problems to achieve sustainable development goals. One form of embodiment of the government is through the Green

Economy and Green Accounting concept strategies. Coordinating Minister for Economic Affairs Airlangga Hartanto at the EdHeroes Forum Oceania: Australia Chapter, in his plan to build a Green Economy through implementing low-carbon development policies, using Nationally Determined Contributions (NDC), the Indonesian government has decided in 2030 to reduce greenhouse gas emissions by 29%—an embodiment of the State of Indonesia to jointly succeed in Indonesia's economic growth and sustainable development.

The Government of Indonesia has issued Presidential Decree Number 98 of 2021 concerning the Application of Carbon Economic Value to achieve nationally determined contribution targets and handle greenhouse gas emissions in national development. Law Number 11 of 2020, concerning Job Creation, refines laws between various sectors, especially those related to the environment and forestry. The Coordinating Minister for the Economy also explained that the main purpose of creating the regulation was to facilitate business without destroying standards, safety, security and environmental sustainability. The growth and development of the Indonesian economy cannot be separated from the micro or macro companies that are currently developing. We can see, based on the waste source data, that the industrial sector will be the most significant contributor to waste generation in Indonesia in 2021. A company has the right to use its human resources and natural resources around it, but a company has an obligation to be responsible for all the consequences that arise. Has been carried out during the company's operational processes. As a good company, it does not only care about the interests of management and shareholders but also employees, consumers, society, and the environment. For a business and the environment to work together, the concepts of green economy and green accounting are created for business people.

Based on the explanation above, the purpose of this research is to map the issues of the Green Economy and green accounting. This mapping is done to assist researchers in determining and finding the direction of the latest research topics.

## II. THEORETICAL REVIEW

### A. Green Economy

Green Economy is a concept to advance the economy and improves people's welfare while still paying attention to the surrounding environment in minimizing carbon use and saving resources (Rayfinando et al., n.d.). The Green Economy concept is needed to guide policies in overcoming widespread economic problems. The principle of a Green Economy is advancing the economy while continuing to prosper the lives of the community and the surrounding environment. Presidential Decree Number 8 of 2022 concerning the 2022-2024 RPJMN refers to priority programs to improve the quality of the environment, increase resilience to disasters and climate change, and low carbon development. The Green Economy Policy is also applied to the Technical Ministries, namely the Ministry of Industry's Strategic Plan (Renstra) for 2021-2024, to realize an independent, competitive, advanced, and green industry.

### B. Green Accounting

Green Accounting emphasizes the concept of saving, namely saving land, saving materials, and saving energy (Justita Dura & Riyanto Suharsono, 2022). According to the Green Economy Guidelines of the Ministry of Environment and Forestry (2005), Green Accounting is identifying the costs and benefits of environmental preservation activities, presenting information with quantitative measurements,

supporting communication to achieve sustainable business development, and maintaining mutually beneficial relationships. According to Lako (2018), Green Accounting is a process of identifying, evaluating, recording, summarizing, reporting, and communicating economic, social, and environmental objectives, transactions, or events from the accounting process holistically to produce complete and integrated economic, social and environmental performance information that useful for users of economic and non-economic management information. Implementing Green Accounting means that the company has complied with the regulations of the competent authority at the company's location. Law No. 23 of 1997 concerning Environmental Management. The law regulates the obligations of everyone who implements or carries out an activity to maintain, manage and provide accurate and correct information about the environment. PSAK No. 1 of 2004 concerning Disclosure of Environmental Impacts, namely companies providing additional environmental reports, especially in industries that have resources related to the environment.

According to Edy Siswanto (2021), green accounting has two functions, namely:

#### ➤ Internal Function

Green accounting is applied by company management in managing environmental conversion costs to make financial reports as decision-making. In this case, it gives a company an overview of the implementation around the company's environment so that it is based on a green background.

#### ➤ External Functions

Green accounting is applied by a company's management to influence stakeholder decisions (customers, business partners, investors, and the public) for decision-making in conducting cooperation.

According to Sapulette and Limba (2021), green accounting has the following objectives:

- Green accounting as an environmental management tool used as a tool for evaluating the effectiveness of conservation activities based on a summary and classification of ecological conservation costs
- Green accounting is used as a communication tool to the public in conveying the negative impacts of environmental activities to the community.

## III. METHOD

This research utilizes data from the Google Scholar database intending to facilitate article access. Scientific articles published for 2017-2022 were downloaded from the Google Scholar database with the keywords Green Economy. The data obtained were then analyzed using the bibliometric method using the VOSviewer 1.6.18 software program. Bibliometric software analysis was performed using four metrics, namely citation, co-citation, bibliographic coupling, and co-occurrence.

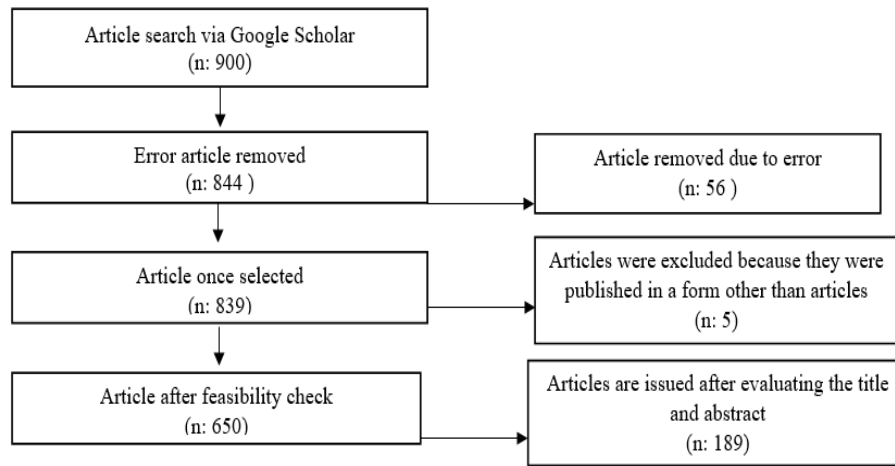


Fig. 2: Data Selection Process

The process of identifying, analyzing, and selecting search articles on Google Scholar is illustrated by the visualization of the chart above. The author, in the selection process, produced 189 articles as research reference sources.

**IV. RESULT AND DISCUSSION**

*A. Citations*

For citation analysis, the chosen unit is a document unit with a minimum number of citations = 0, so 189 documents reached the threshold. Visual parameters selected from the scale = 1.00; The label variant is a circle with size 0.50; maxLegth = 30; Row variable size = 0.50 and max rows = 1000.

*B. Co-citation*

Co-citation analysis is a scientific mapping method that assumes that publications that are frequently cited together show thematic similarities. In the analysis, the authors are cited at least twice. With this, 84 authors out of 1764 met at

least two citation threshold criteria. The selected image parameters are the same as the reference testing parameters,

*C. Bibliographic coupling*

Bibliographic coupling analysis  $\rightarrow$  (merging bibliography) that when two documents reference at least one document in common, the two documents are said to be bibliographically related (Kessler, 1963). When summarizing the bibliography into documents, it is assumed that the minimum number of document references = 1, i.e., 7 out of 189 documents meet the threshold.

*D. Co-occurrence*

Co-occurrence analysis examines existing or future thematic contexts within the research area, focusing on the written content of the publication itself. Keywords are limited to at least three occurrences, which results in a total of 172 keywords. The selected imaging meters are the same as the citation analysis parameters.

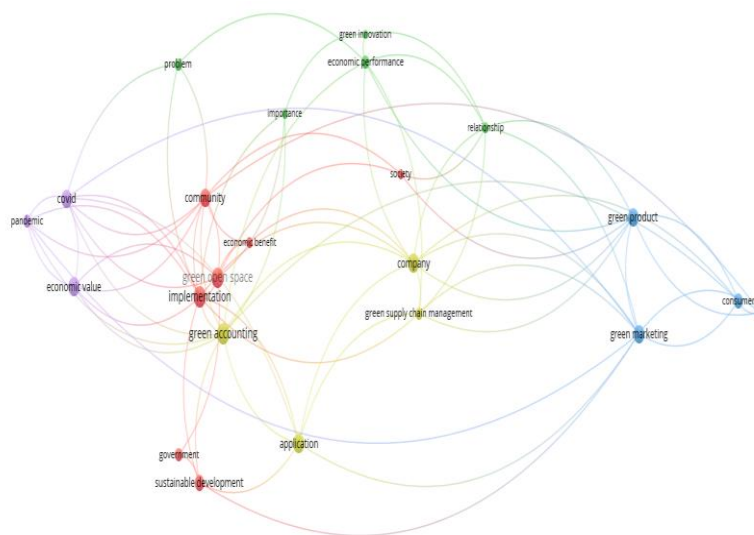


Fig. 3: Co-occurrence of Author's Keyword

The results of the article from the Google Scholar mapping database that has been carried out using the VOSViewer software show 23 items with 5 clusters, namely:

- *The first cluster is the community, economic benefit, green open space, implementation, governance, and sustainable development.*

The establishment of an institution is, of course, based on achieving maximum profit revenue. However, as an institution, it is not only income-oriented. The internal and external welfare of an institution must still be taken into account. A good institution must have responsibility for the use of Human Resources and Natural Resources that it uses. As a form of support for an institution to the Government, it can implement an open green area as one of the implementations of a healthy environment for realizing sustainable development.

- *The second cluster is a company, green accounting, green supply chain management, application*

The company is one of the revenue contributors to the Government. The implementation of green accounting is one of the manifestations of a company supporting sustainable development. It is hoped that the implementation of green accounting in companies can help preserve and protect the environment.

- *The third cluster is a green product, green marketing, customer*

The implementation of a green economy and green accounting is expected to produce products that are environmentally friendly and to protect the environment to remain sustainable and reduce ever-increasing waste. The existence of ecologically friendly products is expected to have a positive impact on customers and produce a good image of the company in the eyes of customers.

- *The fourth cluster is covid, pandemic, economic value*

The existence of the covid-19 pandemic that occurred in 2019-2021 has caused the economy to decline. All companies are competing to innovate and boost the economy. The implementation of green economy and green accounting is expected to help a company and Government to recover the economy. Economic recovery innovation by utilizing the environment is one of the achievements that can be made.

- *The fifth cluster is a problem, importance, green innovation, economic performance, relationship*

The implementation of a green economy and green accounting is an embodiment of solving an environmental issue that is being traversed. It is hoped that a company can implement a green economy and green accounting so as not to harm the company and maintain environmental sustainability. In essence, a company and the environment depend on each other, so a company must keep the background so that the company can operate adequately.

Based on the visualization of the linkage network image above shows a concept of linkages between the green economy, green accounting, and sustainable development.

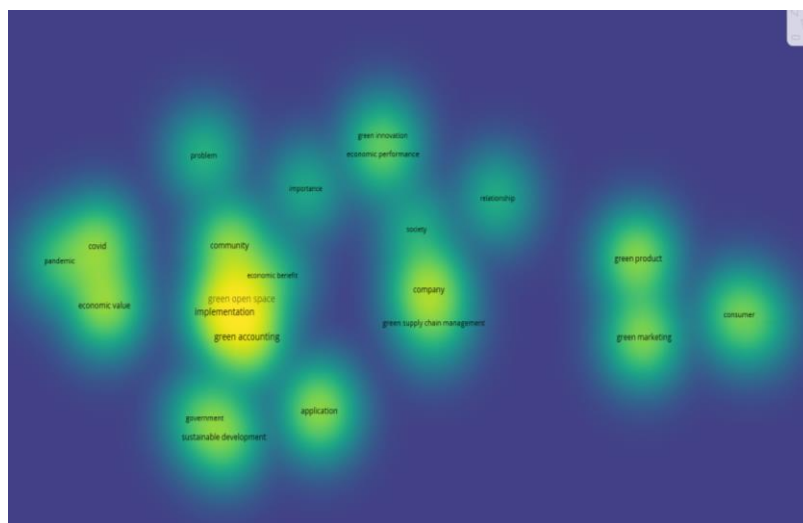


Fig. 4: Co-occurrence of Author's Keyword

In the overlay visualization image, it can be seen that the light green is small in size, indicating that the keywords have not been studied by the author. In this analysis, it can be seen that several keywords have high potential value to

be discussed further. The visualization of the image above shows that green accounting is one of the most discussed topics and is still the hottest topic for research.

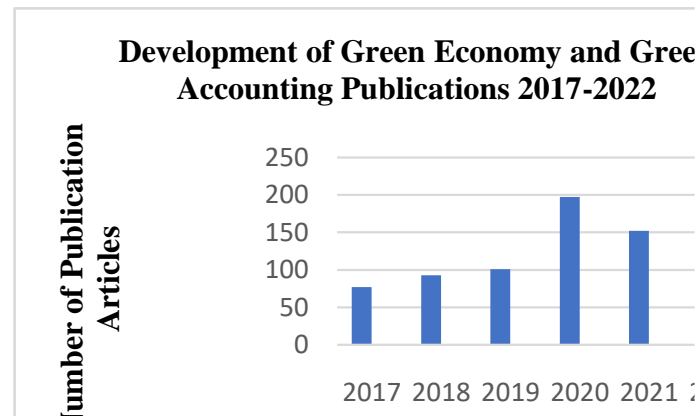


Fig. 5: Graph of Publication Development

The publication of articles related to the Green Economy and Green Accounting has increased significantly from 2017 to 2022. However, the graphical data on waste generators continues to grow every year, and this proves that an organization still does not pay attention to and implements Green Economy and green accounting correctly. Good. Based on the mapping analysis using VOSviewer, it shows that green economy and green accounting have an interest in being re-examined.

## V. CONCLUSION

Based on the bibliometric analysis mapping that has been carried out by researchers, the green economy and green accounting are still interesting to raise as topics. Several major journals were found as a basis for researchers for further research. The following research theme introduced is the effect of green accounting on sustainable development. Then further research is needed on the themes raised by researchers. This mapping analysis is expected to be able to add to scientific information and become a renewable source for researchers about the environment, especially in the field of accounting.

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