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Green economy, sustainability and implementation before, during, and after the covid-19 pandemic in Indonesia

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KEYWORDS
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ABSTRACT The idea of a green economy benefits sustainable development goals, especially in Indonesia. An economy with low carbon emissions that is resource-efficient and socially inclusive is known as a "green economy." This article is a compilation of research findings conducted by universities, non-governmental organizations, and governments in Indonesia and other countries. Study data on economic growth, green investment development, and green economic strategies were collected. The literature has paid greater attention to the green economy, increasing efforts, and emphasis on sustainable development and climate change. However, researchers have not agreed on a definition of this phenomenon. The research presented in this article provides an overview of the development of green economy research from 1990 to 2023. Bibliometric analysis highlights development trends and the current state of the green economy. This study aims to evaluate the implementation of a sustainable green economy in Indonesia and provide direction and a solid conceptual framework for readers to conduct further research. This article also uses a qualitative systematic review methodology to discuss the green economy, progress in sustainability, and adjustments made in Indonesia during and after the COVID-19 epidemic. Other researchers and policymakers may find the research conceptual findings provided in this helpful article.

1. INTRODUCTION

Natural resources are an issue that is still being developed. In the meantime, one of the assets to support the environment is its effective management. This topic can present and future society with numerous benefits (Karim & Bah, 2022). Three pillars support the development concept: economic (Alkon, 2012; Dong, 2016), social (Bracking, 2015;), and environmental (Chen, 2019). The scope of implementation is expanded because it incorporates development administration and other pillars. The anticipated outcomes of sustainable development remain unrealistic (Sholihah, 2022; Yeoman & McMahon-Beattie, 2019). For instance, to eliminate poverty and reduce disparities in living standards (Gazzola et al., 2020; Munaro & Tavares, 2023), production and consumption patterns based on the carrying capacity of the ecosystem and methods of implementation have been agreed upon (Darmayanti, 2023).

Long-term economic development requires an appropriate model (D'Amato, 2021; Jannah et al., 2023). According to (Bogoslovskiy et al., 2019; Siregar & Raihan, 2023), adopting a green economy as a new economic development model is expected to enhance human welfare while minimizing environmental impact. Indonesia's green economy concept emphasizes the internalization of efforts to eradicate poverty (Mishra, 2022), establish sustainable jobs (Croix, 2018), and ensure sustainable economic growth. In addition, Indonesia views the green economy as a means to accomplish sustainable development and the Millennium Development Goals (MDGs) (Dneprovskaya, 2018).

The central aspect considered in a green economy is the development of local communities and improving people's living standards (Fjællingsdal & Klöckner, 2020). Research has shown that a comprehensive approach to development policy is critical to the success of a green economy (Armanda, 2019; Hwang, 2020). Implementing a green economy depends on local communities (Bergius, 2018), research institutions (D'Amato, 2019), government, and industry. Jahanshahi (2020) explained further about the green economy by stating that the main goal is to overcome economic disparities between regions and form an environmentally friendly society. Economic efficiency is achieved by implementing policies with clear targets and an environmental focus (Oren, 2003). The policy outcomes are helpful for policymakers in encouraging low-carbon development and creating green spaces. Therefore (Sugianto et al., 2022), this article is primarily interested in a deeper understanding of implementing environmental policies essen-

tial in shaping the green economy (In'am et al., 2023; Knuth, 2018).

The green economy is an extension of standard economic strategy, which includes the goals of distributive justice and environmental quality. Other authors see this concept as a catalyst for creating economic conditions that promote social and ecological justice for all humans, nonhuman organisms, nature, and ecosystems. The green economy concept is defined as investment in economic sectors that promote natural resources such as renewable energy, low-carbon transportation, energy-efficient buildings, clean technology, better quality waste management, increasing clean water supplies, sustainable agriculture, forestry, and fishing. To achieve this goal, national policies, international development policies, and market infrastructure must be clearly defined. Globally, the implementation of green economy concept policies has developed significantly. Tax reform, environmental regulations, standards, certification systems, payments for ecosystem services, integrated natural resource management, and economic tools to support activities and investments. Sustainable investing is just one such initiative.

In recent decades, researchers have paid greater attention to the green economy. For example, Kosgey (2013) developed a conceptual framework that shows the ability of green economy methods, tools, and concepts to move a country's economy toward greater sustainability. Green economy interventions have significantly impacted various sectoral indicators and investments in ecosystem services and low-carbon development in South Africa (Weber, 2017). Additionally, (2016) shows the relationship between the informal economy in several ministries and institutions that have implemented efforts to implement this sustainable green economy. Therefore, it is argued that by including the informal economy in discussions of the green economy, environmental policy and planning will become more informed, leading to a more sustainable and socially just environment (Bergius, 2020).

Other research on the green economy in Indonesia focuses on agriculture, buildings, urban areas, energy, fisheries, forestry, manufacturing, tourism, transportation, waste, and water, which are priority sectors currently operating for the development of a green economy (Nhamo & Mukonza, 2020). The researchers found that policymakers should increase women's awareness of interventions and opportunities to strengthen their capacities at the conceptual and management stages. Mukonza (2020) and Wenjia C et al. (2011) found that factors influencing green entrepreneurial activities in Indonesia, including access to information, funding knowledge, skills, private sector support, and government support, are critical to support startups in the green economy. Apart from that, community involvement is also the main focus of implementing sustainable green economy activities. This research has mapped the implementation of green economy sustainability in Indonesia. Research has examined issues arising from Indonesia's transition to a green economy in previous years. The problems found in this study include integrating environmentally friendly building technology and applying ecologically friendly information technology.

2. METHOD

This literature review follows a series of procedures for conducting a review based on national and international publications or journals about green economy sustainability. Several actions have been taken, as in Figure 1.

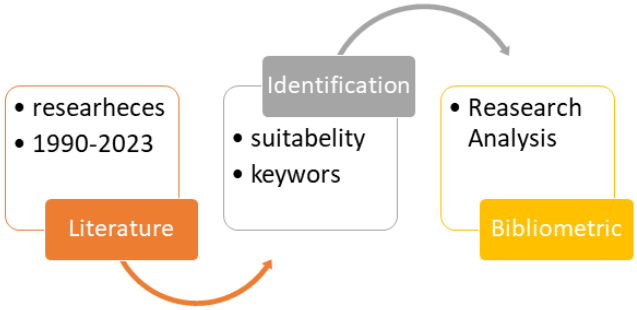

FIGURE 1. Literature Review Procedures

Figure 1 shows that this research was conducted with literature on accredited relevant research using several databases. The databases used include *Google Scholar*, *Google*, and *DIKTI E-Journal*. Following investigation to *Scopus*, *ScienceDirect*, *EBSCOHost*, *Web of Science*, *ACM Digital Library*, *AISel*, and *Proquest* are well-known scientific articles databases. This initial step is used to find content quickly and use keywords in the search. Research uses Harzing's Publish or Perish application at the identification and search stage.

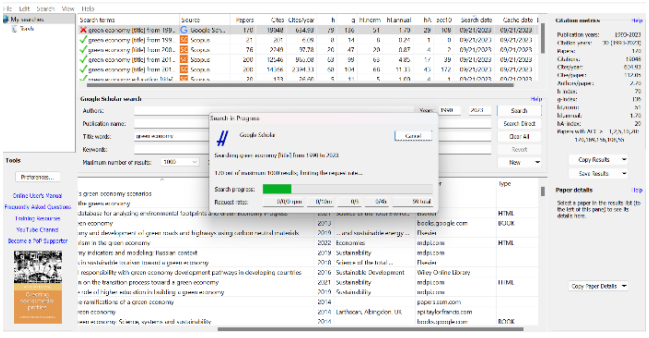

FIGURE 2. Literatur Review based Harzing's Publish or Perish

Figure 2 depicts the second stage occurring after the first stage. The second step is to identify existing databases based on the results of Figure 2, which selects various articles based on several criteria, including fully peer-reviewed articles published in national and international journals, empirical research, explanatory research techniques, and green economy-related research. The bibliography and substance of the research articles discovered during the search phase in both databases will be investigated. The articles resulting from conceptual and empirical research are divided into two categories. In this article, bibliometric analysis methodologies are used. Pritchard (1969) was one of the first researchers to use it. This method is increasingly acknowledged as efficient for conducting quantitative analysis to gain a deeper comprehension of a subject. Because articles from the Scopus database are more credible, Indonesia utilizes this source to evaluate publications about the green economy.

3. RESULTS AND DISCUSSION

3.1 Results

Since the first article on the green economy was published in the Journal of Development Economics in 1990, the bibliometric analysis will use publications from 1990 to 2023. All journal publications from 1990 to 2023 are exported in CSV (comma-separated values) and plain text. The format contains keywords, quotations, and bibliographic information.

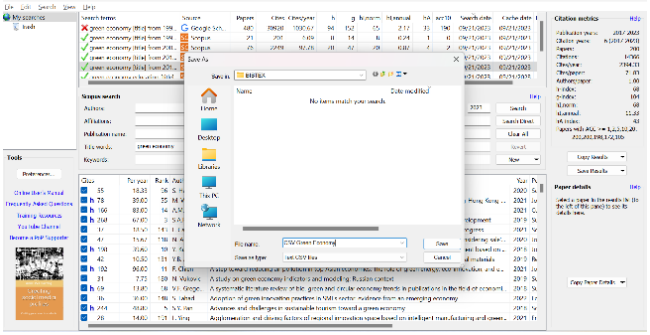

FIGURE 3. export to CSV

Based on the data collected in Figure 3, nine hundred and seventy-three publications were obtained for analysis to provide a representative and informative perspective.

Researchers such as (Antonioli, 2016; Bauhardt, 2014; Cavanagh, 2017; Chien, 2021; Jessop, 2012; Lynch, 2016; Perini, 2016; Shabunina, 2017; South, 2018; Swainson, 2018) obtained their research data from the Scopus database. Identification of essential parts of scientific publications is carried out using clustering techniques. This study uses VOS Viewer and Excel software to analyze data. VOS visualization software facilitates bibliometric analysis by generating co-occurrence, co-authorship, and co-citation maps. Other features like US search, zooming, and navigation in the software make it an essential tool in research (Bag, 2022; Barone, 2021). Figure 4 results of a study using Vos Viewer by focusing on the keyword "green economy" applied in this research.

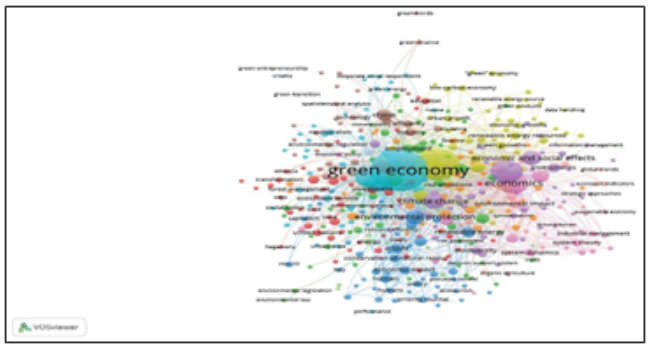

FIGURE 4. Keywords Analysis

Based on Figure 4, the next step is to focus on authors researching the green economy.

Based on the results in Figure 5, four hundred and forty-five authors reviewed research on the green economy. Then, through this data, the focus will be on authors who come from Indonesia. The analysis results based on country of origin.

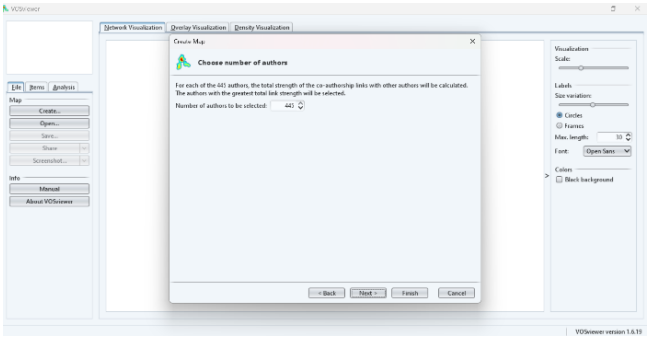

FIGURE 5. Bibliomatrics result based on Names

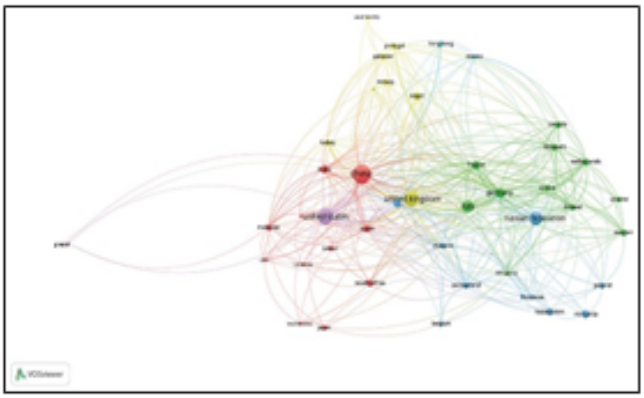

FIGURE 6. Analysis results are based on the author's country of origin

Figure 6 shows that Indonesia still needs more research on the green economy. It is essential to investigate the areas where green economy research originates. This study links this idea to these countries from That writer's origin. Number 3 provides information about the author's country of origin. This information shows recent progress in research on the green economy. Next, this systematic qualitative review seeks to gain insight into the impact of the COVID-19 pandemic on the green economy in Indonesia, with a particular concentration on sustainability, socioeconomics, and agriculture. To obtain analysis-relevant data, a Google Scholar search was conducted using the terms "Covid-19," "socioeconomic," "Indonesia," and "sustainability" individually and in combination. We included quantitative, qualitative, and meta-analysis studies in our search. The initial search returned 15,600 results, which included all studies published between 2019 and 2024. However, non-Indonesia-specific studies were excluded from the analysis. Due to constraints, only a few pertinent studies were incorporated into the calculation. In particular, seven of the most representative quantitative studies were chosen to illustrate the current state of Indonesia's green economy due to the COVID-19 pandemic. In studying the green economy, Indonesia focuses on five key discussion words, as seen in Table 1.

3.2 Discussion

Despite its widely acknowledged significance and the importance of relevant regulatory and policy tools, the green economy is acquiring prominence in financial journals. Additional research is necessary to bring this green economy to the attention of mainstream finance sources. Moreover, economic analysis is to complete the existing literature's

TABLE 1. Sustainable green economy strategy

Num	Findings
1	sustainable in Indonesia's development
2	Policies and Initiatives
3	Main institutions and organizations
4	Priority Sector
5	Sustainable green economy strategy
6	Covid-19

Source: (Hallaert, 2010; ?; ?; ?)

gaps. This research explains its findings in stages based on its results and what was discovered.

3.2.1 Sustainable development in Indonesia

In Indonesia, the public sector has devised sustainable development programs (Lam, 2019; Wang, 2019). This study demonstrates the implementation of the economic and non-economic instruments announced by BAPPENAS and the sustainable finance initiatives devised by OJK (de Oliveira, 2019). The government's achievements determine the direction and framework of other supporting policies related to Sustainable Development (Khoshnava, 2019). The sustainable finance initiative will incorporate seven key ecosystem elements: policies, products, market infrastructure, coordination between relevant ministries/organizations, non-governmental support, human resources, and awareness. In addition, it is necessary to employ both economic and non-economic instruments.

3.2.2 Policies and initiatives

The form of policy adopted by government agencies of the Republic of Indonesia to support the sustainability of the green economy is bolstering the role of institutions in promoting the sustainability of the green tea economy (Hu, 2019; Zhao, 2019). The most prominent example is establishing a climate change funding center within the Ministry of Finance (Kasayanond, 2019) —policies implemented by the Indonesian government. The results indicate Giving special consideration to priority sectors, participating in CO2 emission reduction programs, Reforming the public sector, and Implementing productivity-boosting programs (Khoshnava, 2020).

3.2.3 Institutions, organizations, and Industry Priorities

This literature review demonstrates that the green economy's priority sectors include forestry, transportation, fisheries, plantations, and tourism. The government has implemented policies regarding environmentally beneficial and sustainable economic Development. Some areas are prioritized above others. Forestry, transport, tourism, and finance are thus the priority sectors. Trade, trucking, palm oil, forestry, fisheries, textiles, paper, printing and metal products, construction, and transportation support are general services (Cheng, 2020; Li, 2020): forestry or financing. Agriculture, construction, urban, energy, fisheries, forestry, manufacturing, tourism, pollution, and transportation must be addressed. The general sector encompasses trade, road transportation, palm oil, forestry, fisheries, textiles, paper, printing and metal products, construction support services, and transportation.

3.2.4 Sustainable green economy strategy

The study's findings indicate that the green economy strategy has been implemented in multiple disciplines. For conservation purposes, indigenous community participation in the forest sector has been optimized. Increase the quantity and quality of public works, enhance access to public services (Asongu, 2020; Liu, 2020), and increase the amount and quality of public works. They empower communities by engaging indigenous communities in forest conservation through the agency's standards-setting principles, low-carbon Development, the Development of environmental services, and promoting the sustainable use of biological resources (Karieva, 2020; Merino-Saum, 2020).

3.2.5 Sustainability, agriculture, and socioeconomic impact of Covid-19 on the Green Economy

The complex dynamics of COVID-19 transmission are detrimental to human health. The global lockdowns that followed the initial cases of COVID-19 had both positive and negative effects on the environment and climate (Hasanah et al., 2022; Humaidi et al., 2022). They influenced the agricultural, social, economic, psychological, and political fields during the specified period. The COVID-19 pandemic precipitated a severe economic contraction worldwide, including in Indonesia. In many Asian countries, COVID-19 has impacted the environment, health, economy, agriculture, and social domain (Dash, 2021; Lahcen, 2020). Concerning the situation in Indonesia, research indicates that the economy contracted by 5.32 percent year-over-year in the second quarter of 2020 and by 2.07 percent for the entire year (Ngo, 2022). Despite its apparent adverse effects, little research has been conducted in Indonesia on the impact of COVID-19 on the green economy, sustainability, sociology, and culture.

This section's findings are founded on the seven quantitative studies listed previously. Using a computable general equilibrium model, Hartono et al. (2021) assess the impact of COVID-19 and its stimulus policies on macroeconomic indicators, energy consumption, and emissions at the national and regional levels—the same level. Short-term performance of macroeconomic indicators with the current stimulus policy is generally poorer than long-term performance. The most significant impact was felt by refined oil energy consumption, coal energy consumption, and total electricity demand. According to the author, COVID-19 has hampered Indonesia's economic status, but the post-pandemic situation could improve contingent on the policies implemented. To avoid the reverse effects of energy consumption and carbon emissions, the authors recommend that governments promote low-carbon technologies, an environmentally benign energy transition, increased energy efficiency, and sustainable development. Coordination between central and regional administrations is required to formulate fiscal policies for a low-carbon path.

In a second survey-based study, Halimatussadiah et al. Overall, the study demonstrates that a resurgence in palm oil prices, rising wages in the agricultural sector, and a narrowing labor productivity disparity have assisted the farm industry in leading the recovery. However, there are still environmental impact concerns regarding this sector. The

authors consider the national oil palm rejuvenation program and how small producers and the environment can benefit more significantly. In conclusion, there is no doubt that research on the Covid-19 era and the green economy is accelerating. However, scientific evidence regarding the macro-level effects of COVID-19 on various social, cultural, gender, and economic factors is still insufficient. Moreover, the majority of research is quantitative. It is strongly suggested that additional qualitative research be conducted in Indonesia to obtain a comprehensive understanding of people's subjective experiences and how they perceive the impact of COVID-19 on their daily lives.

This study acknowledges that developed countries dominate academic research on the green economy. Additionally, the statistics are likely to stay mostly the same over time. Because of that, the green economy problem in the country, That is, development, should be considered as an area of focus in future research.

4. CONCLUSION

This report uses bibliometric techniques to analyze current trends and the status of green economic development. Using ranking analysis and illustrative examples of significant factors from published works, we identify essential data that aids in precisely describing the topic. After conducting a keyword analysis of the literature on the green economy, it was determined that it is necessary to view it as an interdisciplinary phenomenon encompassing policies and investments in climate adaptation and finance. According to the author's analysis of the country of origin, most studies in the green economy sector are conducted in developed nations.

The green economy is an essential topic that is gaining increasing scholarly interest. Recent research indicates a growing interest in the green economy but a decline in mainstream finance and economics journals. This creates a void, enabling researchers to focus their efforts in the following direction: 1) Since the green economy is an economics-based subject, analyzing economic issues from a financial perspective is necessary. 2) mainstream finance periodicals should cover topics such as green governance, green bonds, and green issues management. Unquestionably, research on the COVID-19 era and the green economy is accelerating. However, scientific evidence regarding the macro-level effects of COVID-19 on various social, cultural, gender, and economic factors is still insufficient. Moreover, the majority of research is quantitative. To obtain a comprehensive understanding of people's subjective experiences, it is strongly recommended that additional qualitative research be conducted in Indonesia on green economy issues from a green economy perspective in development. The impact of COVID-19 on their daily lives will assist policymakers and managers in developing and aligning distinct policy objectives.

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