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THE ROLE OF GREEN ECONOMY IN BUILDING SUSTAINABLE ECONOMIC GROWTH IN INDONESIA

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Abstract

Massive natural resource exploitation-based economic development has triggered various environmental crises, including increased greenhouse gas emissions, deforestation, biodiversity loss, and widening social inequality. Although conventional growth models have succeeded in raising economic output, they have proven inadequate in ensuring environmental sustainability and social justice. In this context, the green economy emerges as an alternative paradigm that not only promotes economic growth but also preserves ecosystems and strengthens social inclusion. This study aims to evaluate the contribution of the green economy to sustainable economic growth in Indonesia through a systematic literature review of scientific journals published over the last decade, with a particular focus on developments over the period 2019-2023. The analysis reveals that the implementation of the green economy exerts a significant positive impact on economic growth, especially through resource use efficiency, energy cost reduction, and mitigation of environmental damage. Moreover, the green economy fosters technological innovation, enhances business competitiveness, raises public environmental awareness, and drives policy reforms that support low-carbon development.The adoption of the green economy is a strategic key to building resilience and sustainable economic growth in Indonesia, serving as a preventive measure against the negative consequences of exploitative development. Proper implementation through multi-sector collaboration will accelerate the achievement of the Sustainable Development Goals (SDGs), particularly regarding inclusive economic growth and improved social welfare.

Keywords: Green Economy; Sustainable Economic Growth; Technological innovation

Introduction

Over the past two decades, the world has confronted increasingly complex environmental crises, including environmental degradation, global warming, and extreme climate change. These phenomena not only threaten the sustainability of ecosystems but also exert serious impacts on the socio-economic lives of communities worldwide, including Indonesia. Despite its abundant natural resources, Indonesia faces severe challenges due to excessive exploitation that has led to air, water, and soil pollution, deforestation, and uncontrolled land-use changes (Yulianti, 2015).

Historically, Indonesia's economic growth has heavily relied on the exploitation of primary sectors such as crude oil, natural gas, coal, gold, and other minerals. However, an economic approach focused predominantly on resource extraction without due consideration for environmental aspects has triggered significant environmental degradation, reduced natural carrying capacity, and exacerbated poverty among communities dependent on these resources (Yulianti, 2015; Anwar, 2022). In this context, the emergence of the green economy paradigm becomes increasingly relevant and urgent as an alternative and solution-oriented approach.

The concept of the green economy emphasizes resource efficiency, emission reduction, and investment in environmentally friendly technologies as strategies to foster sustainable economic growth. It transcends mere technical strategies to offer systemic solutions addressing intertwined social, economic, and environmental crises (Anwar, 2022). Correspondingly, Lako (2015) highlights that without the adoption of a green economy, high economic growth may intensify social and environmental crises, manifesting as increased inequality, unemployment, and natural disasters resulting from uncontrolled and rapacious economic exploitation.

Indonesia's Gini ratio, which currently exceeds 0.41, reflects rising economic inequality and underscores the critical need to reformulate development pathways towards sustainability. By promoting inclusive economic activities based on environmental conservation and creating green jobs, the green economy can serve as a pivotal pillar in balancing economic growth with social justice. According to Qoiriyah et al. (2024), the implementation of the green economy does not solely focus on economic growth but also emphasizes social equity and environmental preservation. Integrating sustainability principles into development policies potentially creates new environmentally friendly employment opportunities, enhances resource efficiency, and reduces greenhouse gas emissions. This aligns with Indonesia's efforts to tackle climate change and persistent socio-economic disparities across regions. Nevertheless, realizing these goals requires strong commitment from government, private sectors, and society to ensure the equitable distribution of green economy benefits.

Indonesia's potential to implement the green economy is substantial, especially given its abundant natural resources and rising demand for clean energy. However, this transition demands significant investment in green infrastructure, technological innovation, and multi-stakeholder collaboration involving government, private sector, and civil society (Yasa, 2010; Putthiwanit, 2016). Globally, the concept has gained legitimacy through initiatives like the United Nations Environment Programme's (UNEP) Global Green New Deal, which encourages countries to reform their economic orientations from profit-driven to environmentally sustainable models (Shachi, 2018).

Economic development that neglects sustainability principles often leads to a trade-off between growth and environmental preservation. This aligns with the Environmental Kuznets Curve (EKC) hypothesis, which posits that in early development stages, environmental degradation increases alongside economic growth, but after reaching a certain income level, societies begin allocating resources to environmental improvement (Pratiwi et al., 2018; Vinod, 2001).

In this context, the green economy paradigm emerges as a crucial and urgent alternative for sustainable development. According to data from the Indonesian Central Statistics Agency (Badan Pusat Statistik) covering the period from 2019 to 2023, Indonesia's economic growth exhibited dynamic responses to global challenges as presented in Table 1:

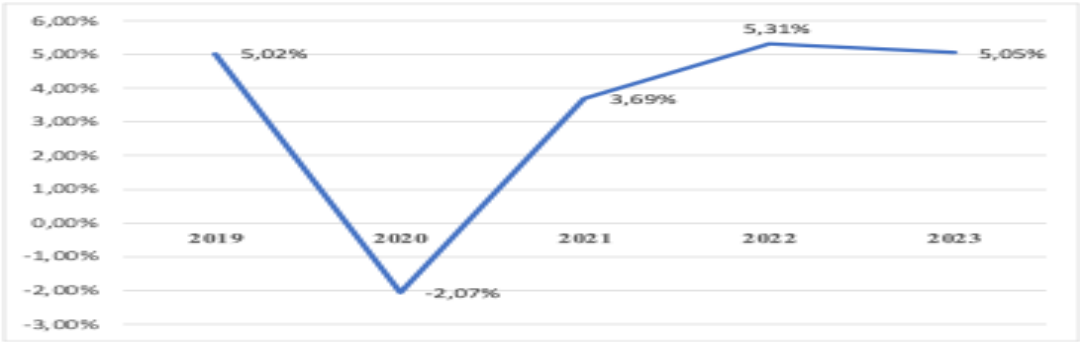

Figure 1
Indonesia Economic Growth Data (2019-2023)

Indonesia's economy grew by 5.02% in 2019, contracted by -2.07% in 2020 due to the COVID-19 pandemic, then rebounded with growth rates of 3.69% in 2021 and 5.31% in 2022. Although growth slowed slightly to 5.05% in 2023, this resilience reflects the effectiveness of government recovery policies. Notably, the transportation and warehousing sector recorded the highest growth at 13.96%, underscoring the strategic role of logistics in driving economic recovery. Despite these positive trends, ongoing environmental challenges and the limitations of traditional growth models emphasize the necessity for more sustainable development approaches.

Green growth thus becomes essential. As Kasztelan (2017) elucidates, green growth, green economy, and sustainable development are interrelated and inseparable concepts. Green growth ensures economic expansion through efficient resource use, pollution avoidance, and overall enhancement of social welfare

Literatur Review

Green economy concept

The concept of the green economy has emerged as a comprehensive response to the growing challenges of environmental degradation, resource scarcity, and social inequality. It is defined as an economic model that prioritizes environmental sustainability, resource efficiency, and social well-being, aiming to decouple economic growth from environmental harm. According to Loiseau et al. (2016), the green economy is characterized by strategies that promote efficient resource management, reduce pollution and waste, and support the transition toward renewable energy and clean technologies. This model stands in contrast to conventional economic systems that often rely on the unsustainable exploitation of natural resources.

Philosophically, the green economy has been influenced by ecological economists such as Herman Daly, who advocates for a shift from unlimited economic growth toward a steady-state economy that ensures ecological balance and intergenerational equity. Similarly, Jeffrey Sachs (2015) argues that a green economy goes beyond environmental preservation by integrating economic, social, and ecological dimensions to achieve long-term prosperity. Thus, the green economy encompasses both environmental protection and social justice as pillars of sustainable development.

The term "green economy" was first introduced in the report Blueprint for a Green Economy published in 1989 by a group of British environmental economists. This report offered strategic policy recommendations to

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guide the United Kingdom toward sustainable development. The concept gained renewed global attention during the 2008 global financial crisis, when the United Nations Environment Programme (UNEP) promoted a "green stimulus" as a sustainable recovery strategy. In its 2011 report, UNEP defined the green economy as one that "results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities."

International organizations have since elaborated on the concept. For instance, the International Labour Organization (ILO) (2019) conceptualizes the green economy as a development model that integrates economic, environmental, and social dimensions, thereby fostering sustainability across all sectors. The Sustainable Development Knowledge Platform (n.d.) also highlights the green economy as a prospective engine of environmentally friendly growth, capable of addressing climate change and promoting inclusive development.

The European Commission (2022) further supports this view by emphasizing that green economy strategies in the European Union are designed to stimulate sustainable innovation in sectors such as renewable energy, green transportation, and circular economy practices. These initiatives not only contribute to ecological preservation but also open new economic opportunities, particularly in job creation and investment in sustainable infrastructure.

In practical terms, the principles of the green economy can be realized through policy interventions and technological innovations. For example, Kristianto (n.d.) illustrates this by referring to the replacement of conventional plastic bags with biodegradable alternatives made from cassava, demonstrating how green economic practices can reduce environmental impact while fostering economic value. Such practices align with the core principles of the green economy, which include:

1. Efficient use of natural resources
2. Reduction of greenhouse gas emissions and pollutants
3. Investment in renewable energy sources such as solar, wind, and hydro
4. Development and application of environmentally friendly technologies
5. Conservation of biodiversity and natural ecosystems.

Economic Growth Theory

Economic growth remains a central theme in development economics, widely regarded as a fundamental indicator of a country or region’s progress. It not only signifies an increase in productive capacity but also reflects broader improvements in societal welfare. While it is not the sole determinant of development success, increased economic output is frequently interpreted as a tangible manifestation of successful development trajectories (Todaro, 2006). From a quantitative standpoint, Bhinadi (2003) delineates three primary indicators of economic growth: total output growth, indicating an expansion of productive capacity through increased labor and capital; output growth per worker, representing gains in productivity and competitiveness; and output growth per capita, which is widely accepted as a proxy for assessing economic welfare improvements.

The evolution of economic growth theories reflects a dynamic intellectual tradition encompassing classical, neoclassical, historical, and modern frameworks. Classical economists such as Adam Smith and David Ricardo laid the foundational groundwork by emphasizing market mechanisms, capital accumulation, and labor specialization as engines of growth. Smith (1776) argued that economic progress stemmed from increased division of labor and efficient capital use, whereas Ricardo noted potential limitations arising from resource scarcity and population-induced wage constraints, which could eventually decelerate growth.

Neoclassical theories, represented by the contributions of Joseph Schumpeter and Robert Solow, brought forth a paradigm shift by underscoring the critical role of technological innovation and entrepreneurship. Schumpeter (1934) highlighted the disruptive potential of innovation in driving structural transformation, while Solow’s (1956) growth model emphasized capital accumulation and exogenous technological progress as determinants of long-term economic stability. The Solow-Swan model, in particular, posits that steady-state growth is achievable when labor, capital, and technology function in harmony within the production process, with technological advancement serving as the principal driver of sustained growth in output per capita.

In contrast, historical and evolutionary theories take a broader sociological view. Friedrich List and Bruno Hildebrand conceptualized economic development as a staged process, transitioning from primitive modes of subsistence such as hunting and pastoralism, through agricultural and artisanal phases, to industrial and commercial economies. These theories recognize the interplay between institutional frameworks and cultural factors in shaping economic transformation over time.

Modern growth theories, particularly the Harrod-Domar model, identify investment as a central driver of economic expansion. Harrod (1939) and Domar (1946) argued that investment simultaneously stimulates aggregate demand and enhances productive capacity, thereby contributing to both short-term economic momentum and long-term sustainability. This dual effect underscores the importance of capital formation in maintaining equilibrium between savings and investment to prevent cyclical instability.

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Moreover, Kuznets (1971) introduced a more empirically grounded approach by defining economic growth as a long-term increase in a country's capacity to supply diverse economic goods to its population. He attributed this to three interrelated factors: continuous capital accumulation, technological innovation, and the efficient and effective application of technological knowledge. His framework underscores the structural transformation required to achieve sustained economic growth, moving beyond simplistic measures of output to consider the qualitative changes in economic production and distribution systems.

Impact of Green Economy on Economic Growth

The foundation of the green economy's relationship with economic growth can be traced to classical economic thought, notably Adam Smith's (1776) principle of the "invisible hand," which emphasizes market efficiency in resource allocation. However, classical models often neglect environmental externalities costs borne by society but excluded from market transactions. Pigou (1920) addressed this by introducing the concept of negative externalities, advocating for state intervention to internalize these costs through taxes or regulation. Hardin's (1968) "Tragedy of the Commons" further illustrates the overexploitation of shared environmental resources in the absence of institutional control, underscoring the urgency of integrating environmental sustainability into economic frameworks. These foundational ideas catalyzed the emergence of environmental economics, emphasizing the need to align economic decisions with ecological constraints.

In response, the green economy emerges as a transformative paradigm that seeks to harmonize economic growth with environmental stewardship. As defined by the OECD (2011), green growth prioritizes low-carbon development, energy efficiency, and social inclusion through investment in renewable energy, sustainable infrastructure, and clean technologies. This paradigm aligns with the Brundtland Report's (1987) notion of sustainable development, which emphasizes intergenerational equity. Furthermore, the Ecological Modernization Theory (Mol & Spaargaren, 2000) argues that environmental protection and economic development are not mutually exclusive; instead, through technological innovation and institutional reform, ecological sustainability can act as a driver of economic competitiveness. Empirical studies (e.g., Anwar, 2022; Kumajas et al., 2022) support this view, showing that green economic policies can foster employment, enhance energy productivity, and reduce long-term environmental costs.

Recent contributions from scholars such as Dr. Jessica Chen (Harvard University) emphasize that green economy practices yield multiple effects on growth by creating jobs, reducing future environmental liabilities, and increasing economic efficiency. Prof. David Suzuki (University of British Columbia) posits that transitioning to a green economy is essential not only for planetary health but also for long-term economic resilience. Prof. Nicholas Stern underscores that addressing carbon emissions and climate change presents opportunities for inclusive innovation and trade. The green economy also promotes resource optimization by adopting renewable energy, efficient waste management, and recyclable materials, thus improving competitiveness. Technological innovation stimulated by green investments expands markets and labor demand in areas such as clean energy and environmental services. Although initial implementation may require substantial investment, the long-term economic benefits reduced climate-related costs and improved public health can outweigh these costs. Hence, with the right policy instruments, such as carbon pricing and green subsidies, the green economy holds transformative potential for sustainable and inclusive growth.

Literature Study

This literature study will review various sources, such as scientific journals, books, government reports, and international organizations, to discuss the concept of Green Economy, social welfare indicators, and challenges and opportunities in implementing Green Economy to improve economic growth.

Methods

The method in writing this article, researchers use the literature review method, which is systematic, explicit, and reproducible to identify, evaluate and synthesize to summarize the results of research and thoughts previously made by researchers and practitioners. The data source of this research uses previous research from journals with data from the last 5 years. The analysis is based on the latest findings on the "Impact of Green Economy on Economic growth".

Results and Discussion

In recent years, the green economy has emerged as a central focus in addressing global environmental challenges while simultaneously promoting sustainable economic development. The influence of green economic practices on economic growth can be observed through several critical dimensions:

1. Energy Efficiency and Ecological Risk Mitigation

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The adoption of energy-efficient technologies and the reduction of environmental degradation can significantly enhance the competitiveness of businesses and increase the resilience of economic systems. These strategies not only lower energy-related costs but also reduce expenditures associated with ecological damage, such as public health deterioration and infrastructure losses. Thus, green economic implementation serves as a catalyst for growth by promoting cost efficiency and environmental security.

2. Improved Literacy and Social Engagement
   Growing public awareness of the necessity for a green transition has led to increased support and participation in environmentally conscious policymaking. This civic involvement fosters a collaborative dynamic between the government and communities, thereby facilitating the development of more sustainable policies and practices. Active public participation is therefore instrumental in strengthening the foundation of inclusive, environmentally-aware economic growth.
3. Promotion of Sustainable Technological Innovation
   Advancements in green technologies play a pivotal role in optimizing resource use and reducing production costs. Environmentally friendly innovations allow economic actors to achieve higher productivity with minimal ecological footprint. Furthermore, these innovations cultivate a collective consciousness regarding sustainability and broaden opportunities for stakeholders to engage in the development of practical green solutions.
4. Policy Consistency and Regulatory Integration
   Coherent and well-aligned policy frameworks are essential to support the green development agenda. Fiscal incentives, environmental regulations, and supportive market mechanisms function as primary drivers of green investment. Intersectoral policy harmonization helps to minimize conflicts between economic and environmental objectives, while also empowering societal involvement in the transition toward sustainable development.
5. Capacity Building and Equitable Access
   Empowering human resources and expanding access to finance and technology are foundational elements in advancing the green economy. Investments in green infrastructure and institutional capacity building promote economic efficiency and equitable development outcomes. Equal access to resources encourages broader community participation in sustainability-oriented decision-making processes.

Indonesia has undertaken several strategic initiatives to implement green economy principles at the national level. Key programs include:

1. Low Carbon Development Indonesia (LCDI)
   Coordinated by the National Development Planning Agency (Bappenas), LCDI aims to incorporate environmental sustainability into national development planning. The initiative covers energy efficiency, waste management, land conservation, and biodiversity protection (Bappenas, 2019).
2. REDD+ Program
   The Reducing Emissions from Deforestation and Forest Degradation (REDD+) initiative seeks to lower greenhouse gas emissions from the forestry sector. Indonesia has implemented REDD+ through sustainable peatland management and forest restoration programs (Ministry of Environment and Forestry, 2021).
3. Sustainable Transportation
   The government has promoted low-emission transportation systems, such as light rail transit (LRT), mass rapid transit (MRT), and electric vehicles, supported by fiscal incentives and regulatory frameworks aimed at reducing emissions in the transport sector (Presidential Regulation No. 55/2019). As part of its decarbonization agenda, the government is also accelerating the development of electric vehicle (EV) infrastructure, including the installation of Public Electric Vehicle Charging Stations (SPKLUs) in bus terminals and railway stations. This initiative seeks to facilitate the transition to EVs and reduce dependency on fossil fuels, aligning with Indonesia's broader commitment to lowering greenhouse gas emissions and improving urban air quality.

Conclusion

The study underscores the transformative potential of the green economy in fostering long-term sustainable economic growth. The efficient allocation and utilization of natural resources not only lead to a reduction in energy costs but also diminish environmental vulnerabilities, thereby enhancing overall economic resilience and the competitiveness of businesses. A significant contributing factor is the increasing level of public awareness and active participation in environmentally conscious initiatives, which bolsters societal endorsement for sustainable policy interventions. Moreover, technological innovations in the realm of green development have proven instrumental in improving resource efficiency, thus serving as a catalyst for economic modernization. The role of institutional frameworks—characterized by coherent regulatory mechanisms, targeted financial incentives, and investment-friendly environments—is indispensable in

attracting and sustaining green capital flows. Equally important is the emphasis on capacity building and equitable access to environmental assets, which underpin the advancement of inclusive and sustainable technological infrastructure. Collectively, these dynamics illustrate that the green economy is not merely an alternative development trajectory but a critical strategy for achieving durable and equitable economic transformation. Accordingly, it is imperative for both governmental bodies and private entities to intensify collaborative efforts, invest in green innovation, and integrate sustainability considerations into core development agendas to maximize the long-term socioeconomic benefits of a green economy.

Limitations and Recommendations

This study is subject to several limitations related to data availability, time constraints, methodological scope, and local context. The secondary data utilized may lack precision and may not fully capture long-term developments or dynamic changes over time. The analytical approach employed may also fall short in addressing the complexity of the relationship between economic growth and green economy transitions. Furthermore, it may not adequately reflect the contextual variability across different countries or regions. Future research is encouraged to enhance the understanding and practical implementation of sustainable green economy strategies. It is recommended that upcoming studies incorporate primary data collection, adopt interdisciplinary approaches, conduct longitudinal analysis, engage relevant stakeholders, and consider contextual variables to generate more comprehensive insights.

The development of this paper remains open to improvement. Constructive feedback and suggestions are highly appreciated to enhance the overall quality. Additionally, with regard to the execution of collective tasks or project work, there is a need to foster better teamwork, strengthen communication, and reinforce shared responsibility among all participants.

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