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Transition Toward Green Economic Growth: Conceptual and Institutional Analysis in Sustainable Development

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Abstract

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This study analyzes the dynamics of green economic growth as a new development paradigm that aims to balance economic progress with environmental sustainability. Through a descriptive qualitative approach based on literature review, this study examines various theories, policies, and practices of green economy implementation in a global context over the past five years. The study reviewed scientific literature, international agency reports, and policy documents relevant to the transition to a low-carbon economy. The results of the analysis show that the implementation of a green economy requires cross-sectoral policy integration, strong institutional support, and active community participation in promoting green innovation. Factors such as the development of environmentally friendly technologies, green investment, and transparent environmental governance play an important role in accelerating structural transformation towards sustainable development. This study concludes that the success of green economic growth depends not only on economic performance, but also on social, political, and institutional capacity to manage change towards an inclusive development system that is resilient to environmental challenges.

1. Introduction

Today's global economic development faces a major dilemma between achieving economic growth and preserving the environment. Massive industrialization has driven GDP increases in various countries, but at the same time exacerbated environmental degradation and increased carbon emissions. This phenomenon has revived the Environmental Kuznets Curve (EKC) discourse, in which an increase in per capita income tends to be followed by environmental damage to a certain point before environmental quality begins to improve (Demissew Beyene & Kotosz, 2019). In this context, the concept of green growth or green economic growth has emerged as a new paradigm to integrate economic development with environmental sustainability (Fankhauser & Jotzo, 2018).

The concept of green growth seeks to answer the need to balance economic activities with the conservation of natural resources. Green growth emphasizes energy efficiency, low-carbon technological innovation, and fiscal policies that support the transition to a green economy (Fabozzi et al., 2022). This model focuses not only on increasing income, but also on the quality of growth that takes into account social and ecological dimensions (Cheng et al., 2019). In line with that, the OECD (2019) emphasizes that sustainable development needs to include new variables such as green investment, eco-innovation, and resource efficiency in macroeconomic policy formulation.

However, the implementation of the green growth concept is not free from challenges. The main obstacles include weak institutional design, lack of public awareness of environmental degradation, and the dominance of conventional

investment patterns oriented towards short-term profits (Adamowicz, 2022). In this context, previous research on the Green Growth Program by National Development Planning Agency (*Badan Perencanaan Pembangunan Nasional*/ BAPPENAS) (Rany et al., 2020) shows that the success of the green economy is highly dependent on inter-institutional coordination, political support, and the effectiveness of funding for green technology research and innovation. A similar study by Long et al. (2022) found that the low-carbon energy transition plays a significant role in strengthening economic resilience while reducing greenhouse gas emissions.

Furthermore, the green economy is not just an environmental policy, but a structural transformation towards an inclusive and energy-efficient economic system. Technological innovations, such as renewable energy and sustainable production systems, are the main catalyst for developing countries to achieve the Sustainable Development Goals (SDGs) (Ali et al., 2021). In addition, the application of development indicators such as the Inclusive Wealth Index and Green GDP is considered more representative than conventional economic indicators (Melnyk et al., 2020).

Given the complexity of the problem and its potential impact on the well-being of the global community, the study of green growth and sustainable development is important. This article aims to analyze the dynamics of green economy implementation, the challenges faced in implementing low-carbon development strategies, and the contribution of technological innovation and governance in promoting sustainable development. The approach used is qualitative

descriptive based on recent literature studies, with a focus on policy analysis and relevant theories in the last five years.

2. Literature Review

2.1. Concepts and Theories of Green Economic Growth

The concept of green growth is rooted in the global need to create a balance between economic development and environmental conservation. This theory views that economic growth is not only measured by an increase in Gross Domestic Product (GDP), but also by how much economic activity is able to maintain the sustainability of natural resources and reduce carbon emissions. According to Fabozzi et al. (2022), green growth economic theory rejects conventional economic views that assess progress only in quantitative terms, and emphasizes that true growth is qualitative, inclusive, and oriented towards green innovation. Meanwhile, Fankhauser and Jotzo (2018) emphasized that the transformation towards a low-carbon economy requires reconstructing development models to accommodate energy efficiency, fiscal policy reform, and investment in renewable energy.

This approach is in line with the view of the Environmental Kuznets Curve (EKC) which states that there is a non-linear relationship between economic growth and environmental degradation: in the early stages, growth increases environmental damage, but at a certain income level, environmental awareness increases and damage begins to decrease (Demissew Beyene & Kotosz, 2019). From these various theories, it can be concluded that green growth emphasizes the integration of economic, social, and ecological dimensions. Economic growth is no longer just

about increasing production, but also about transformation towards a sustainable, efficient, and just system. This is the basis for the emergence of the concept of green economy, which is oriented towards technological innovation, green investment, and responsible resource management.

2.2. Green Economy and the Transition to Sustainable Development

The transition to a green economy is the main strategy in realizing sustainable development. In the global context, the green economy is a policy instrument that directs countries to reduce carbon emissions and strengthen socio-economic resilience. According to Long et al. (2022), low-carbon energy transition strategies play a vital role in creating a balance between energy needs and greenhouse gas emission reduction targets. These efforts include the development of renewable energy, the improvement of industrial energy efficiency, and the promotion of green transportation.

Adamowicz (2022) added that policies such as the European Green Deal and green investment funds show a shift in the global economic paradigm towards clean production and efficient energy use. Meanwhile, research by Cheng et al. (2019) found that the implementation of a green economy in developing countries requires strong institutional support, intersectoral coordination, and community involvement in development planning. Thus, the transition to a green economy is not only a technical reform, but also a structural transformation towards an inclusive and resilient economic system. This process demands cross-disciplinary collaboration between governments, the private sector, and civil society, with the aim of building

a global economic foundation that is in line with the principles of the Sustainable Development Goals (SDGs) and the vision of long-term sustainable development.

3. Method

This study uses a descriptive qualitative approach with the library research method as the main basis for data collection. The qualitative approach was chosen because it is able to provide a deep understanding of complex and dynamic phenomena related to the concept of green growth and sustainable development. This method emphasizes the interpretation of the meaning behind the data obtained, rather than just quantitative measurements. The focus of this research lies in a descriptive analysis of green development theories, policies, and practices put forward by various academic sources, international institutions, as well as official government documents and research institutions.

The main data sources of research were obtained from Google Scholar-indexed scientific literature and reputable international journals in the last five years. In addition, the research also refers to documents as a contextual reference regarding the implementation of the Green Growth Program in Indonesia. The use of this reference aims to enrich understanding of green economy implementation practices and the challenges faced in the context of developing countries, without limiting the analysis to specific regions.

The research stage begins with the collection of secondary data through systematic tracing using keywords such as green growth, low-carbon development, sustainable development, and green economy policy. This process involves

identifying relevant journals, then selecting articles that meet the criteria of novelty, credibility, and relevance to the research focus. After the data is collected, a content analysis is carried out on the text and empirical findings studied in various previous studies.

Qualitative descriptive analysis in this study uses comparative and interpretive approaches to assess the relationship between conceptual variables such as green investment, technological innovation, energy efficiency, and environmental policy. Researchers do not manipulate the data, but rather interpret emerging patterns and trends based on the synthesis of the literature. The results of the analysis are then presented in the form of a systematic narrative, starting from a conceptual explanation, the main findings of various studies, to the drawing of theoretical conclusions regarding the direction of green economic development in the future.

This approach was chosen because of the multidimensional nature of the green growth issue which involves economic, social, and environmental aspects simultaneously. Using a comprehensive literature study and in-depth descriptive analysis, this research is expected to make a conceptual contribution to the development of theory and become the basis for further research related to the implementation of green economy and sustainable development in the era of global energy transition.

4. Results

The results of this study highlight the dynamics of the application and development of the concept of green growth in the context of sustainable

development, by emphasizing three main dimensions: economic policy transformation, strengthening green technology innovation, and implementation challenges in developing countries. Analysis of the current literature shows that although the green economy paradigm is increasingly adopted globally, its success depends heavily on institutional integration, technological capacity, and public awareness of the value of sustainability.

Globally, the concept of green growth has become an important part of the UN's post-2030 Agenda development strategy. The OECD (2019) emphasizes that economic growth in the 21st century must be inclusive and environmentally friendly, taking into account negative externalities such as pollution, deforestation, and overexploitation of resources. On the other hand, Jabeen and Khan (2022) UNEP developed a Green Economy Progress Framework framework that helps countries assess the extent to which their economic policies contribute to the balance between resource efficiency and improved social welfare. The two institutions emphasized that strengthening the green economy is not only a moral choice, but a structural need to maintain global economic competitiveness in the midst of the climate crisis and the deterioration of ecosystem quality.

The research of Fabozzi et al. (2022) reinforces this view by underlining the need for qualitative growth in the modern economy. Growth that is quantitative without taking into account ecological capacity tends to generate social inequality and environmental degradation that ultimately suppresses long-term productivity. Fabozzi et al. said that the new economic theory must place energy efficiency, technological innovation, and resource redistribution as the core of economic

development. Thus, the transition to a green economy requires a restructuring of the economic paradigm that is no longer solely oriented towards increasing GDP, but also on improving the quality of human life and environmental sustainability.

Meanwhile, Fankhauser and Jotzo (2018) affirm that low-carbon growth can only be achieved through consistent fiscal and energy policy reforms. They identified four main channels linking climate policy to economic growth: clean technology innovation, energy efficiency, carbon pricing reform, and green job creation. In this context, public investment in renewable energy sectors such as solar, wind, and bioenergy has been proven to have a multiplier effect on the economy, both through reducing emissions and increasing employment opportunities.

The results of Long et al.'s (2022) research show that developing countries in Southeast Asia are beginning to adopt low-carbon energy transition strategies focused on increasing renewable energy capacity and efficient resource management. Their study highlights the success of cross-sectoral policy integration, particularly in the areas of transport, agriculture, and industry. However, they also note that implementation is often hampered by funding limitations, technological infrastructure, and non-adaptive bureaucracy. Thus, the role of the government is crucial in creating a policy environment conducive to green innovation through fiscal incentives, clean energy subsidies, and research support.

Analysis from Adamowicz (2022) shows that policies such as the European Green Deal serve as an effective model in integrating social, economic, and environmental aspects in a single policy framework. This approach focuses on creating green jobs and reducing emissions simultaneously. In the case of Europe,

massive investments in clean energy technologies, green infrastructure, and public transport resulted in a 32% reduction in emissions between 2010 and 2020. This model can be adapted by developing countries by adjusting their fiscal capacity and domestic industrial structure.

The results of the study by Cheng et al. (2019) confirm the importance of the social dimension in the implementation of the green economy. They found that the success of a low-carbon economic transition is highly dependent on the role of society and the private sector in driving changes in consumption and production behaviors. Public awareness of the benefits of clean energy, waste management, and resource efficiency are important factors that determine policy sustainability. Furthermore, civil society involvement strengthens policy legitimacy and encourages accountability of public institutions.

From an institutional perspective, Rany et al.'s (2020) provides empirical evidence that the success of Green Growth Programs in Indonesia depends on synergy between government agencies, international organizations, and the private sector. The program has four main pillars: renewable energy development, sustainable landscapes, green economic zones, and the Green Climate Fund. However, Rany et al. emphasized that there are serious challenges in the form of limited research budgets, overlapping regulations, and low public awareness of the value of natural resources.

Similar findings were also conveyed by Melnyk et al. (2020) who assessed that in the context of sustainable development, methodological weaknesses in the measurement of green indicators often hinder the effectiveness of policies. They

propose the use of indicators such as Green GDP, Inclusive Wealth, and Ecological Footprint to complement traditional economic indicators. This approach helps policymakers measure development progress by considering the balance between growth and sustainability.

Ali et al. (2021) highlight the importance of the involvement of the industrial sector in supporting green transformation. Through quantitative analysis in developing countries, they found that low-carbon performance in the industrial sector is positively correlated with energy efficiency and technological innovation. However, their research also suggests that external pressures, such as international market demands and trade policies, can be a key driver of changes in industrial behavior towards more sustainable production practices.

In addition, Bai (2022) discusses the role of the green finance system in accelerating the transition to carbon neutrality. Case studies in China show that the development of green bonds, carbon financing policies, and environmental risk indicators in financial institutions contribute significantly to the achievement of carbon peaking targets. Thus, the green financial system is an important instrument in channeling capital to sustainable sectors, reducing dependence on fossil fuels, and accelerating low-emission technological innovation.

From a macroeconomic perspective, research by Pretorius et al. (2021) found that the green economy has great potential to support regional development through job creation, increasing regional income, and strengthening local economic resilience. They used a qualitative approach to explore green economy opportunities at the regional level and concluded that consistent policy support can increase local

community participation in sustainable projects such as renewable energy, ecotourism, and organic agriculture.

Yang et al. (2021) added that the mining sector, which is often considered a source of environmental damage, can also play a role in encouraging green growth when implementing low-carbon practices. Studies in South Africa show that by integrating Sustainable Development Goals (SDGs) 7 (Clean and Affordable Energy) and 13 (Addressing Climate Change), the mining industry can transform into a catalyst for technological innovation and energy efficiency. However, this change requires strong commitment from companies and adequate public policy support.

An empirical study conducted by Haque and Ntim (2018) broadens the understanding of the relationship between environmental governance and green growth. They found a threshold effect where the energy transition is only effective if it is followed by strong environmental governance and consistent policies. Countries with weak environmental governance have experienced stagnation or even regression in green performance despite increasing clean energy investment. This shows that institutional capacity and policy integrity are decisive factors in the successful implementation of the green economy.

Finally, a synthesis of the entire literature shows that the transition to a green economy is not just a technological change, but also a social and institutional transformation. The success of sustainable development depends on cross-sectoral integration and alignment between economic, energy, and environmental policies. With the collaboration of multi-actor governments, industry, academics, and the

green economy community, it can be the driving force for inclusive and resilient development that not only reduces carbon emissions, but also improves people's quality of life in a sustainable manner.

5. Discussion

The findings of this study reinforce the view that the transition to green growth is inseparable from structural reforms in economic policy, environmental governance, and technological innovation. Integrating economic growth with environmental sustainability requires a paradigm shift in development from short-term exploitation of natural resources toward a long-term approach that prioritizes efficiency, justice, and inclusivity. In line with Fankhauser and Jotzo (2018), low-carbon growth results from a coherent combination of fiscal policies, energy regulations, and technological innovations that support each other within a consistent national policy framework.

A key issue emerging from the synthesis of research is the implementation gap between developed and developing countries. Developed economies possess stronger technological, financial, and institutional capacities to execute green policies, while developing nations remain constrained by limited resources and dependence on fossil fuels. Fabozzi et al. (2022) emphasized that without international assistance in the form of technology transfer and green financing, developing countries will struggle to meet low-carbon development goals. In this regard, global instruments such as the Green Climate Fund and carbon trading

mechanisms serve as critical bridges linking economic capacity with environmental adaptation needs.

Beyond economic challenges, social dimensions also determine the success of the green economy. The study by Cheng et al. (2019) reveals that community participation enhances both the legitimacy and effectiveness of green policy implementation. Shifts in consumption patterns, rising environmental awareness, and active local involvement in sustainable resource management form essential foundations for accelerating the green transition. Consequently, environmental education and public communication become vital strategies for cultivating a culture of sustainability at the grassroots level.

Adamowicz (2022) further highlights the institutional dimension, emphasizing the need for consistency and coordination among development actors. Weak institutional frameworks can obstruct policy implementation through overlapping regulations, bureaucratic inefficiencies, and low transparency in managing natural resources. Therefore, environmental governance reform must be prioritized to ensure the effectiveness of green programs, supported by strong accountability mechanisms and cross-sectoral policy integration.

These findings demonstrate that the success of green growth depends not only on technological advancement but also on the maturity of supporting social and institutional systems. According to the OECD (2019), effective green development strategies require cross-disciplinary collaboration among governments, businesses, academia, and civil society. Such a multi-stakeholder approach broadens policy reach and reinforces synergy between economic and ecological interests. Hence, the

transition toward a green economy should be viewed as a systemic process involving innovation, coordination, and collective awareness aimed at building a sustainable future.

Ultimately, the evidence indicates that green growth represents more than an environmental agenda it is a comprehensive transformation encompassing fiscal reform, social participation, and institutional modernization. Achieving this transformation necessitates coherent policy alignment, international cooperation, and sustained political commitment to balance economic expansion with ecological preservation. By aligning technological innovation with inclusive governance, nations can foster resilient economies that protect natural ecosystems while generating long-term prosperity.

6. Conclusion

This research confirms that green economic growth is a new development paradigm that is oriented towards a balance between economic progress and environmental sustainability. The implementation of green growth requires structural changes in economic policies, strengthening environmental governance, and increasing the capacity of low-carbon technology innovations. Through a descriptive qualitative approach based on literature studies, this study shows that the transition to a green economy is not only a technical issue, but also a profound social and institutional transformation. The results of the literature synthesis show that the success of green economy implementation is determined by three main factors:

consistency of national policies, effectiveness of cross-sector governance, and community participation.

These three are the foundation for the creation of a resilient, inclusive, and environmentally friendly development system. In addition, green finance support, technology transfer, and collaboration between governments, the private sector, and academia are important prerequisites for accelerating the transition to sustainable development. Thus, green growth is not just an alternative economic policy, but a new direction of global development that places sustainability at the core of the growth strategy. Going forward, the synergy between innovation, policy, and social awareness will determine how far the world community is able to build an economically just, ecologically sustainable, and socially inclusive future.

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