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THE ROLE OF THE CIRCULAR ECONOMY: STRATEGIES TOWARDS GREEN ECONOMIC GROWTH

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Abstract

A circular economy is an approach to an economic system that focuses on the efficient use of resources, reducing waste, and returning materials to the production cycle. This concept aims to overcome limited natural resources, reduce environmental impacts, and create long-term sustainability in economic activities. In a circular economy, resources are considered valuable and kept within the economic circle for as long as possible. This approach differs from traditional linear economic models that focus on resource extraction, production, use, and disposal as waste. Green economic growth is seen as a solution to the exploitative economic system which has tended to damage the environment. The green economy and circular economy have the same goal, namely encouraging economic growth while meeting social and environmental goals. However, both have different focuses. The green economy focuses on encouraging economic growth while taking into account the availability of existing natural resources and ecological balance to ensure sustainability. Meanwhile, the circular economy focuses more on optimizing the use of resources, such as recovering and regenerating products and materials. This article employs a form of literature review that includes hypotheses pertaining to the issue under investigation. A methodical and iterative methodology was used to obtain a full grasp of the role of the circular economy: a strategy towards green economic growth—during the literature search for this extensive review. The definition and guiding principles of the circular economy, growth strategies for the green economy, and the interplay between the two are covered in this study.

Keywords: circular economy, strategy, green economic growth

INTRODUCTION

The world is currently experiencing a crisis of ecological awareness. The influence of consumerism makes humans on earth carry out their consumption activities arbitrarily. Of course, this can ultimately be captured as a business opportunity by producers to reap maximum profits. Damage to the earth cannot be avoided, recent extreme weather changes often hit life on earth due to human indiscipline in managing consumption. The development concept that has been offered so far has not fully reduced the irresponsible behavior of consumers and producers. Thus, the design of the Sustainable Development Goals (SDGs) with 17 goals is expected to make the world's development model adaptive to human life, especially avoiding exploitation of the earth. In its implementation, one of the alternative concept offers that has emerged as an economic concept is the Circular Economy (CE) model as an answer to the mainstream economic concept which has been the development economic model used throughout the world. The conventional economic model, which has so far moved in one direction (linear economy), is widely considered to be one of the causes of the environmental crisis currently occurring throughout the world. The term conventional economic model is called a linear economic model because it only works in a straight line starting from take, make and dispose (Sillanpää & Ncibi, 2019).

In contrast to the linear economic model, the circular economy concept does not have a straight model but is more circular in nature through the 3R principle (Reduction, Reuse and Recycling) so that in a linear economy the final process of the production process ends in disposal, but in a circular economy model it is designed from the product , use, end of life, remanufacturing (Valavanidis, 2018). In this case, production results or consumption residues that no longer have value in a circular economy are converted into products that can be reused. Apart from economic reasons, it also maintains the sustainability and harmony of the environmental ecosystem. One of the accumulative impacts of market mechanism-based economic activity which is considered the only ideal mechanism for distributing resources optimally is environmental issues and inequality. Although in practice the market is considered to fail to create social justice and cannot avoid the existence of negative externalities remaining from production and remaining consumption. The Sustainable Development Goals (SDGs) concept is expected to be a point that can complete the four pillars in the development process, namely the pillars of social development, environmental development, pillars of economic

development and pillars of legal and governance development (Rogers et al., 2017, United Nations, 2015).

Changing the concept from a linear economy to a circular economy is a necessity to solve the crisis problems faced by the world. Until now, many efforts have been made to resolve the problem of the environmental degradation crisis, one of the activities that is considered a contributor to environmental degradation is economic activity. So that neoclassical economics as mainstream economic governance throughout the world with its market mechanisms and GDP concept is considered as one of the causes of the ongoing environmental crisis (Daly & Farley, 2004).

Santeramo, F. G. (2022) stated that an economic system that is exploitative and environmentally destructive, which has an impact on climate change, the greenhouse effect and excessive use of natural resources, is no longer relevant. Several countries are now changing their direction to a green economy which is considered to be a solution to the regular-conventional economic system which has so far been considered to tend to damage the environment. Quoting the official page of the Ministry of Energy and Mineral Resources, a "green economy" is an economic concept that strives to lower environmental risk while simultaneously enhancing social equality and wellbeing in society.

Thus, a "green economy" is also one that preserves social justice, uses minimal or no carbon dioxide emissions, and conserves natural resources. What distinguishes the green economy from traditional economic theories is the direct assessment of ecological services and natural capital as economic value and cost accounting, where costs realized to society can be identified and evaluated as liabilities—an entity that does not destroy or neglect assets. One of the primary plans for medium- to long-term economic reform in Indonesia is the green economy plan, which was formed by the government. The introduction of a carbon price policy, which will take the shape of a carbon tax and cap and trade program, is one way that the green economy will be put into practice. Resource efficiency, which aims to increase wellbeing while lowering resource use and emissions, is one component of a green economy (Zhang et al., 2023).

Reducing waste and pollution, regenerating natural systems, and keeping used goods and resources for as long as feasible are some of the claimed tenets of the circular economy. Put differently, the idea behind a circular economy is to accomplish more with less. By reducing supply chains, for instance, a circular economy can help prevent food loss and waste as well as

repurpose it for more profitable uses like composting and biogas production. Agricultural biodiversity may also be enhanced by regenerative agriculture and more regionalized value chains (Houssam et al., 2023).

In fact, both the green economy and the circular economy have the same goal, namely encouraging economic growth while meeting social and environmental goals. However, both have different focuses.

The Waste4Change Institute says the green economy focuses on encouraging economic growth while still paying attention to the availability of existing natural resources and ecological balance to ensure sustainability.

Meanwhile, the circular economy focuses more on optimizing the use of resources, such as recovering and regenerating products and materials, thereby changing production and consumption patterns such as use and disposal into circular patterns (Söderholm, 2020).

RESEARCH METHOD

This article employs a form of literature review that includes hypotheses pertaining to the issue under investigation. A methodical and iterative strategy was used to obtain a full grasp of the Role of the Circular Economy: Strategies for Green Economic Growth during the literature search for this extensive review. Among the first phases are clearly defining the scope of the literature study, identifying important subjects such as the theoretical framework, optimization approaches, social and cultural aspects, and useful implementation suggestions (Paré & Kitsiou, 2015).

Subsequently, an assessment of the theories and notions employed is conducted using easily readable literature, particularly from articles published in different scientific journals. Research, particularly scholarly research with the primary goal of advancing theoretical and practical excellence, needs to involve a process of literature review or studies.

RESULT AND DISCUSSION

Definition and Principles of Circular Economy

An economic system or model known as a "circular economy" aims to create economic growth by prolonging the value of products, materials, and resources in the economy, according to Kirchherr et al. (2023). It is believed that by using such a system, the harm that a linear economic strategy does to society and the environment will be reduced. Resource efficiency and emission reduction are just two of the many interventions that are part of the circular economy. Quoted from the European Parliament website, the circular economy

carries three pillars as its model, namely less raw materials, less waste and fewer emissions.

An economic system that emphasizes resource efficiency, waste reduction, and recycling materials back into the manufacturing cycle is known as a circular economy. This concept aims to overcome limited natural resources, reduce environmental impacts, and create long-term sustainability in economic activities (Corvellec et al., 2022).

Different people define a circular economy in different ways. As per the Ellen Macarthur Foundation (2019), a circular economy is a system that can address global issues like climate change, biodiversity loss, high waste and pollution levels, and more by distributing goods and materials at their highest value and promoting natural regeneration.

Shirvanimoghaddam et al. (2020) state that the circular economy is a substitute for the traditional economy, in which economic activity is conducted by preserving resources for as long as feasible, maintaining their value when used, and reusing them to create new goods when their useful lives are coming to an end. Then, a circular economy, according to Mishra et al. (2021), is a system that promotes behaviors like zero-waste design, reusing, repairing, and sharing resources in order to maximize the product life cycle from resource selection, production, consumption, to disposal. 10 It is clear from the definitions above that there is a difference between the linear and circular economies.

A linear economy is a system of economic activity implemented with a 'take-make-use-dispose' cycle, where resources are extracted from the earth (take), then processed to become a product (make), then the product is consumed (use) and immediately disposed of. when the product no longer has use value (waste) (Ritchie et.al., 2021). Meanwhile, the circular economy concept recognizes the 'take-make-use-return' cycle (Ritchie et.al., 2021), where resources are taken responsibly (take), then processed into a product (make), then the product is used while continuing to maintain value (use) and at the end of its useful life the product is returned to be processed into a new product (return) (Shirvanimoghaddam, et.al., 2020).

In a circular economy, resources are considered valuable and kept within the economic circle for as long as possible. This approach differs from traditional linear economic models that focus on resource extraction, production, use, and disposal as waste.

The main principles of a circular economy include:

1. Sustainable Product Design

Products are designed with their entire life cycle in mind. Sustainable design involves selecting recyclable raw materials, using environmentally friendly materials, extending product life, and ease of recycling.

2. Efficient Use of Resources
   The goal of a circular economy is to maximize the use of resources by reducing waste, increasing efficiency and retaining material value in the economic cycle for as long as possible. This can be done through practices such as repair, maintenance, reuse and sharing of products.
3. Material Recycling and Recovery
   Once a product reaches the end of its life, the materials used in the product are recycled or recovered for reuse in the economic cycle. The recycling process can involve processing materials into new raw materials or used as alternative energy.
4. Collaboration and Involvement of Related Parties
   Implementing a circular economy requires collaboration between various parties such as government, companies, consumers and other institutions. This includes supply chain coordination, investment in recycling infrastructure, increased consumer awareness and education, and the development of policies and regulations that support circular economy principles.

By applying circular economy principles, the main goal is to reduce negative impacts on the environment, reduce the use of limited natural resources, reduce waste, increase economic efficiency, and create a sustainable economic system.

According to Flanders (2020), a circular economy can be applied in six (six) stages of the product life cycle, which include raw materials, product design, manufacture, sales, consumption, and end of life. In line with the circular economy's tenets, each of these processes aims to save resources from disposal and return them to production or consumption (Colucci, 2021).

Further, the implementation of a circular economy in the six stages is as follows:

1. Raw Material Stage
   At this stage, a circular economy can be implemented with resource efficiency, which focuses on using fewer resources in making products (Bocken et.al, 2016). Resource efficiency can be done in three ways, namely: using renewable and sustainable raw materials, reducing resource consumption and minimizing waste (Dissanayake et.al., 2021)
2. Design Stage

At this stage, a circular economy can be implemented through creating designs for circularity. According to Dissanayake et.al. (2021), this can be implemented in five ways, namely:

a. Design for Long Life
   Product design is intended so that the product has a long service life. According to Dissanayake et.al. (2021) this can be achieved in two ways, namely: design for durability and design for longevity. In this case, the product is designed to be durable and have a long service life in order to reduce people's consumption levels (Urbinati et.al., 207). So, it can further help slow down resource cycling (Bocken et.al, 2016).
b. Design for Customization
   Product design that allows consumers to purchase personalized clothing (Dissanayake et.al., 2021). In the customization process, each consumer becomes a codesigner who is actively involved in the customization process so as to increase consumer attachment to the product. The existence of personalized designs can reduce consumer intensity in using trend-driven products and can reduce the potential for excess production and excessive consumption, extend product life, and minimize waste
c. Design to be Demountable
   Product design ensures that the component parts of the product can be easily disassembled or remanufactured for further use (Dissanayake et.al., 2021).
d. Design for Recycling
   Product design is intended so that the product can accommodate the recycling process. This can be done by selecting recycled materials, reducing material complexity by minimizing the use of mixed materials and other materials (Sandvik et.al., 2019).
e. Design for Composting
   Product design using materials that can be decomposed by nature.

3. Production Stage
   At the production stage, a circular economy can be implemented by taking into account energy and water consumption and not using chemicals that are harmful to humans, animals and the environment (Vecchi, 2020).
4. Sales Stage
   At this stage, a circular economy can be implemented by sharing assets. For example, products can be rented or collaborative consumption. Apart from

that, product sales can also be done by sharing buildings with a consignment sales system (Vecchi, 2020).

5. Consumption Stage
   At this stage, a circular economy can be implemented through repairs and maintenance that can extend product life (Freund et.al., 2019). Repair services can allow the product to last longer.

6. End of Life Stage
   At this stage, a circular economy can be implemented by considering other alternatives besides throwing away products. For example, such as reuse, reproduction, or recycling processes (Freund et.al., 2019).

Strategy towards Green Economic Growth

According to Hao et al. (2023), there are three pillars of sustainable development: social, environmental, and economic. Growth that preserves the foundation of the economy is known as economic sustainability. Both biodiversity and a stable climate are components of environmental sustainability. Integration of the three dimensions is necessary. A multitude of evaluation instruments are at one's disposal to enable this amalgamation. But in real life, relationships are more about reconciliation than integration, which is where the idea of a green economy comes in handy. Low carbon, resource efficiency, and social inclusion are the hallmarks of a green economy. The engine driving job and income growth in a green economy is public and private investment in economic activities, assets, and infrastructure that promote reduced carbon emissions and pollution, enhanced energy and resource efficiency, and the preservation of biodiversity and ecosystem services (UNEP, 2022).

In summary, green economics aims to generate growth through environmentally sound investments that benefit the disadvantaged. This idea can assist in shifting the debate's focus from reconciliation to relational synergy. By utilizing materials and energy, a green economy must solve the issue of economies of scale overall. If we limit our production to green goods, GDP growth can go on. Insofar as it motivates policymakers, economists, and businesspeople to critically discuss alternate development paths with other stakeholders, the idea of a "green economy" is helpful. Then, economic factors must be taken into account in addition to social, political, cultural, and ecological sustainability factors in these comparisons. Economic policies and

practices determine the degree of sustainability of a development path because they are the primary drivers of employment, education, and health as well as excessive waste production and overexploitation of natural resources (Fang et al., 2022).

To ensure a sustainable future for the environment, there must be a shared social commitment to greener jobs, greener production and consumption, and greener technology for energy, transportation, agriculture, waste management, water supply and wastewater sanitation, disease prevention, and health. Concerns span across multiple sectors and topics, all of which are inextricably intertwined as dynamic socio-economic and ecological systems. Real and creative green economic ideas and practices have the potential to create a new "economy" that is centered on social justice and sustainability. In policy talks, it is important to keep in mind three primary points: there are many distinct types of green economies; divergent views on what constitutes a green economy can cause conflicts between various sustainable development programs; and comparisons with the green economy. There might be an environmental utopia when the green, complementing industries driving economic growth include waste materials that can be recycled, renewable energy, organic and diverse agriculture, and financially successful forest and wildlife conservation. It is possible to argue that conservation plans centered on parks and other protected areas clash with the usage of land for agriculture. Ultimately, policy discussions center on these various forms of greenness, whether overtly or covertly.

Notwithstanding these challenges, the concept of a "green economy," which by definition promotes ecologically undesirable alternatives, will push society and government to think about sustainable solutions. Sustainable development plans heavily rely on the notion of a "green economy," which addresses the core of the issue and structures the economy to be in harmony with long-term dynamics and ecological requirements both locally and globally. In the upcoming decades, humanity will face several difficult challenges, including growing inequality, biodiversity loss, and climate change. Because of their interdependence, these systemic global challenges cannot be addressed separately. However, achieving a healthy balance between social and environmental aims is beyond the capabilities of our current economic system. In essence, an economy is a set of conventions and laws that encourage particular conduct. Our economy as it currently exists promotes excessive consumerism, weakens social bonds, and devastates natural resources. However, this is neither unavoidable nor inevitable; what matters is that the

economy's methods must change. A fresh perspective on the economy is required to solve this issue.

Everyone can succeed in a green economy as long as they stay within the planet's ecological bounds. Its five main tenets, which collectively draw from significant historical examples of international politics, can direct economic reform in a variety of situations. The welfare principle comes first: in a green economy, everybody can create and profit. emphasizes growing wealth as a means of promoting prosperity. In addition to money, this richness includes all forms of capital: social, physical, natural, and human. The investment in and access to healthy natural systems, together with the infrastructure, knowledge, and education that every person needs to thrive, are given first priority. Justice Principles: Mohsin et al. (2022) claim that the green economy promotes equality within and between generations.

The green economy is nondiscriminatory and inclusive. This entails equitably dividing up the expenses, benefits, and decision-making process; avoiding elite capture; and supporting women's empowerment in particularIt takes a long-term view of the economy, creating wealth and resilience to meet the requirements of both current and future inhabitants while also acting swiftly to reduce the complex poverty and inequality that currently exist. Planetary Boundary Principle: The green economy protects, restores, and invests in nature. An inclusive green economy recognizes and upholds a variety of natural values, including diverse natural values, practical values in providing goods and services that support the economy, natural cultural values that support society, and natural ecological values that support all life. Principles of Efficiency and Sufficiency: Encouraging sustainable production and consumption is the aim of the green economy. An inclusive green economy is one that is low-carbon, circular, resource-efficient, and diverse. Principles of good governance: An integrated, accountable, and resilient set of institutions forms the basis of a green economy. An interdisciplinary, evidence-based, green economy that incorporates local knowledge and sound economics and science is founded on institutions, norms, and evidence.

Relationship between Circular Economy and Green Economy

The Green Economy is beginning to be widely adopted in a number of nations, including China and South Korea. This system aims to preserve natural equilibrium in order to establish a sustainable economy. The exploitative economic system, which has a tendency to harm the environment, is also viewed to be solved by the green economy. Apart from the green economy, we

may also be familiar with the term circular economy (D'amato, D., & Korhonen, 2021).

Both have the same goal, namely encouraging economic growth while meeting social and environmental goals. However, both have different focuses. Reporting from Waste4Change, the Green Economy focuses on encouraging economic growth while still paying attention to the availability of existing natural resources and ecological balance so that it is sustainable. Meanwhile, the circular economy focuses more on optimizing the use of resources, such as recovering and regenerating products and materials.

According to Belmonte-Ureña et al., (2021) a circular economy is very important because it offers a sustainable approach to resource use and waste management. Here are some reasons why a circular economy is important:

1. Overcoming Resource Limitations
   A circular economy enables more efficient use of resources and reduces dependence on the extraction of increasingly limited natural resources. Due to the ever-increasing global population and increasing human need for resources. By implementing a closed loop, where products, components and materials are reused, recycled or recovered, the circular economy can extend the lifetime of resources and reduce pressure on the environment.
2. Reduce Waste and Pollution
   The circular economy model seeks to minimize waste disposal and reduce negative impacts on the environment. By designing products that are durable, easy to repair, and recyclable, you can reduce the amount of waste that pollutes the environment. By using the principles of recycling and value recovery, waste can be transformed into new resources, reducing the need for landfill.
3. Increasing Economic Efficiency and Competitiveness
   In business they can optimize the use of their resources, reduce production costs, and increase efficiency. By extending product life and reducing the need for new raw materials, companies can save costs and increase their competitiveness in the market. Apart from that, it can also create new business opportunities in the recycling, energy recovery and repair services industries.
4. Innovation and Job Creation
   The implementation of a circular economy encourages technological innovation, product design and new business models. This creates new opportunities for the development of environmentally friendly products, performance-based services and sustainable solutions. This innovation

could result in the creation of new jobs in related sectors such as circle design, material recovery and waste management.

5. Environmental Sustainability and Ecosystem Balance
   In the long term, a circular economy contributes to environmental sustainability and ecosystem balance. By reducing pressure on natural resources, minimizing waste, and maintaining environmental quality, it helps protect biodiversity and mitigate climate change.

The application of a circular economy is in the implementation of the Green Industry Concept. All stages in the Green Industry Concept are closely related to the circular economy or what is known as Extended Producer Responsibility (EPR). The implementation of EPR creates efficiency so that producers are highly competitive.

Policy makers should prioritize economic activities that generate employment and produce goods in order to preserve a sustainable economic environment for the benefit of the Indonesian people in the current and future generations. Therefore, the idea of a "green economy" is required to uphold the fairness and well-being of domestic market participants and provide them the chance to advance the Indonesian economy. The goal of a green economy is to preserve the national economy while simultaneously enhancing the wellbeing of the populace. As a result, the government must integrate green economic concepts in all of its micro and macroeconomic development initiatives. Based on a green economy, there are five guiding principles for economic development. A green economy must, first and foremost, be able to bring wealth to the whole community. It must also be able to establish equality between generations. Thirdly, it needs to have the capacity to invest in, sustain, and restore a variety of natural resource-based operations. Fourth, the ability to support sustainable levels of output and consumption is hoped for. Fifth, it needs to be backed by a robust, unified, and responsible system.

CONCLUSION

An economic system that emphasizes resource efficiency, waste reduction, and recycling materials back into the manufacturing cycle is known as a circular economy. This concept aims to overcome limited natural resources, reduce environmental impacts, and create long-term sustainability in economic activities.

In a circular economy, resources are considered valuable and kept within the economic circle for as long as possible. This approach differs from

traditional linear economic models that focus on resource extraction, production, use, and disposal as waste.

The main principles of a circular economy include:

1. Sustainable Product Design
2. Efficient Use of Resources
3. Material Recycling and Recovery
4. Collaboration and Involvement of Related Parties

The Green Economy is starting to be widely implemented by several countries such as South Korea and China. This system aims to preserve natural equilibrium in order to establish a sustainable economy. The exploitative economic system, which has a tendency to harm the environment, is also viewed to be solved by the green economy. The green economy and circular economy have the same goal, namely encouraging economic growth while meeting social and environmental goals. However, both have different focuses. The green economy focuses on encouraging economic growth while taking into account the availability of existing natural resources and ecological balance to ensure sustainability. Meanwhile, the circular economy focuses more on optimizing the use of resources, such as recovering and regenerating products and materials.

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