第 55 卷 第 10 期 农 业 机 械 学 报 Vol. 55 No. 10
2024 年 10 月 Transactions of the Chinese Society of Agricultural Machinery Oct. 2024

Research article
Agricultural technology: Natural resources and environmental systems
DOI：10.62321/issn.1000-1298.2024.10.6

Developing a Circular Economy Contributes to Promoting Green Growth: International Experiences and Lessons for Vietnam

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Abstract: The development of a circular economy aimed at green growth is becoming an inevitable global trend in the context of increasingly depleted and degraded resources, environmental pollution, and severe climate change, issues affecting Vietnam. Particularly, as Vietnam integrates deeply into the global economy with 17 signed Free Trade Agreements, coupled with the advancement of the Fourth Industrial Revolution, the imperative for sustainable development has become more urgent than ever. This necessitates concerted efforts from authorities and the community to foster economic development in parallel with environmental protection, aiming at green growth. This article focuses on examining the role and significance of circular economic development toward green growth while identifying this model as not only a trend but also an urgent requirement. Subsequently, the authors analyze the issues in depth and elucidate the shortcomings of implementing circular economic development toward green growth in Vietnam. The focal point of this article is reviewing circular economic models promoting green growth that have been successful in countries such as China, Japan, France, and Germany, which have achieved notable successes in transforming and developing a circular economy. Based on this analysis, we propose recommendations related to the strategies, policies, challenges, and benefits of a circular economy toward green growth. The effective application of this model will contribute to creating a sustainable future, protecting the environment, promoting economic development, and enhancing the quality of life for Vietnam in the current context.
Keywords: circular economy; green growth; environmental protection; international experience

发展循环经济促进绿色增长：国际经验与越南借鉴

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摘要: 在资源日益枯竭和退化、环境污染和气候变化日益严重的背景下，发展以绿色增长为目标的循环经济正成为全球必然趋势，这些问题影响着越南。特别是，随着越南与全球经济深度融合，签署了 17 项自由贸易协定，再加上第四次工业革命的推进，可持续发展的必要性比以往任何时候都更加紧迫。这需要当局和社会共同努力，在保护环境的同时促进经济发展，以实现绿色增长。本文着重探讨循环经济发展对绿色增长的作用和意义，同时认为这种模式不仅是一种趋势，而且是一种迫切要求。随后，作者深入分析了这些问题，并阐明了越南实施循环经济发展以实现绿色

Received: August 15, 2024 / Revised: September 13, 2024 / Accepted: September 22, 2024 / Published: October 31, 2024
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增长的不足之处。本文的重点是回顾中国、日本、法国和德国等国家在转型和发展循环经济方面取得了显著成就的促进绿色增长的循环经济模式。基于此分析，我们提出了与循环经济实现绿色增长的战略、政策、挑战和好处相关的建议。有效应用这一模式将有助于在当前情况下为越南创造可持续的未来、保护环境、促进经济发展和提高生活质量。

关键词：循环经济; 绿色增长; 环境保护; 国际经验

1 Introduction

The circular economy (CE) increasingly gains prominence as a strategic approach for nations and regions worldwide, including Vietnam, to reconcile the growing tensions between economic advancement and environmental stewardship, with the goal of fostering a green growth economy. A CE promotes the rational and environmentally friendly use of resources, creating a sustainable economy, generating new job opportunities, improving social welfare, and promoting equity in resource use and access. Given the urgency of addressing environmental challenges and the need for sustainable development, the application of CE principles is increasingly being recognized as a critical pathway toward a more sustainable and resilient future. Recognizing the importance of developing a CE to achieve green growth, Vietnam has become the first ASEAN country to enact regulations that incorporate CE principles into the Law on Environmental Protection and various other regulations to promote CE development across all sectors of life, with the ultimate goal of achieving sustainable economic development.

Based on the perspectives, guidelines, and policies of the Party and State, Vietnam has implemented a CE model in line with modern development trends. However, in operating this model, Vietnam faces several challenges, including an incomplete legal framework and policies for CE development, over-reliance on linear production models, limited recycling and reuse capacities, and pressing issues of resource depletion and environmental degradation. These challenges form the basis for this article to explore the experiences of implementing CE principles in various countries worldwide. By examining and studying successful examples and key lessons, this research aims to provide practical recommendations for Vietnam to effectively implement a CE and promote green growth.

2 Materials and Methods

The authors grounded their investigation of the research questions in the context of primary socioeconomic development directives and land-related policies promulgated by the governing party and state apparatus. In addition, the authors used the following research methods:

- *Research methodology:* This methodology was employed to search for data, process them, and evaluate prices using empirical evidence. Subsequently, the authors formulated hypotheses, sought to gather and evaluate evidence, developed arguments based on the evidence, with each argument contributing to the achievement of objectives. The culmination of these achieved objectives led to the fulfillment of the research goals.

- *Methods of researching legal doctrine:* The researchers employed this methodology with the objective of identifying laws, which are recognized as truths to achieve fairness and justice in an objective manner. Consequently, they sought to acquire knowledge about theories directly related to the research topic, thereby aiming to establish a solid foundation for constructing the theoretical framework to be investigated.

- *Legal analysis method:* The approach is applied throughout the structural framework in Sections 3 and 4 of the article to assess the rationale behind developing a CE for promoting green growth. This analysis subsequently reveals practical limitations and shortcomings. Broadly speaking, this technique serves to illuminate legal foundational issues that require further elucidation within the focal topic.

- *Statistical and synthetic method:* The authors utilize this methodology to conduct statistical analysis and synthesis of crucial documents directly pertinent to the research topic's scope. This approach serves as a foundation for proposing legislative amendments and enhancements, drawing upon experiential insights to inform the relevant recommendations and suggestions.

3 Results

3.1 CE

The concept of a CE originates from multiple theoretical foundations. CE has been the subject of scholarly inquiry since the 1970s, with the

concept first formally introduced by Pearce and Turner [9]. They employed the term to describe a novel economic model predicated on the fundamental principle that "everything is an input for something else," in contrast to the conventional perspective of the linear economy. The Ellen MacArthur Foundation [5] defines the CE as an industrial system that is restorative or regenerative by intention and design. It transitions toward the utilization of renewable energy sources, eliminates the use of toxic chemicals, and prevents waste that impedes reuse through superior design of materials, products, systems, and, consequently, business models. In simple terms, a CE transforms waste output from one industry into input resources for another or keeps the resources circulating within the operations of a single business. The CE partially contributes to increasing business value, reducing resource extraction, lowering waste management costs, and minimizing environmental pollution. A simplified understanding of the CE can be expressed as follows. The CE is an economic system built on business models in which the concept of a product's lifecycle end is replaced by reducing, reusing, recycling, and recovering materials throughout production, distribution, and consumption processes. Therefore, the CE can be applied at all scales: small (producers, companies, and individual consumers), medium (eco-industrial zones), and large (cities, regions, nations, and multinational levels). The CE aims for sustainable development that enhances environmental quality, promotes economic wealth, and fosters social equity, benefiting the present and future generations.

According to the Law on Environmental Protection 2020, a CE is an economic model in which activities related to design, production, consumption, and services aim to reduce the extraction of raw materials, extend product life cycles, minimize waste generation, and mitigate negative environmental impacts. Thus, the CE is a system in which resources are reused or recycled and waste streams are transformed into inputs for further production. The essence of the CE lies in its restorative and regenerative nature, with three key elements: (i) the conservation and enhancement of natural resources through judicious management of non-renewable resources and balancing them with renewable resources and renewable energy sources; (ii) optimization of resource yields by circulating products and materials to the maximum extent possible within both technical and biological cycles; (iii) enhancement of overall system efficiency through identification and elimination of negative externalities. These principles aim to create a sustainable and efficient system in which resources are used to their fullest potential, thus minimizing waste and environmental harm.

3.2 Green Economy

The concept of a green economy has been defined in various ways across the globe. According to the European Union (EU), a green economy is characterized as "smart, sustainable, and inclusive." The Green Economy Coalition offers a broader perspective, describing it as an economic system that "delivers a better quality of life for all within the ecological limits of the planet." From a business standpoint, the International Chamber of Commerce posits that a green economy is one where "economic growth and environmental responsibility go hand in hand and mutually reinforce each other while supporting social development." In synthesizing definitions from multiple nations, the United Nations Economic and Social Council [2] emphasized that a green economy should aim to minimize the adverse effects of economic activities on both environmental and societal domains.

The United Nations Environment Programme (UNEP) [8] has defined the green economy as "an economy that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities." This definition is considered the most accurate and comprehensive understanding of a green economy. According to this perspective, a green economy is characterized by low emissions, efficient and sustainable use of natural resources, and social equity. In a green economy, income and employment growth are achieved through state and private investments aimed at reducing carbon emissions, minimizing environmental pollution, enhancing energy and resource efficiency, and preventing biodiversity loss and degradation of ecosystem services. This model not only supports economic development, but also prioritizes environmental sustainability and social well-being.

3.3 Relationship between the CE and Green Growth

Green stimulus packages serve as catalysts for achieving green growth. Green growth and the CE mutually reinforce each other, contributing to the establishment of a green economy. A green economy is fundamentally the foundation for sustainable development. Notably, the UNEP [8] and World Bank [2] assert that implementing green growth and subsequently transitioning to a

green economy is an essential pathway toward sustainable development, especially in the context of a changing global economy and increasingly complex climate change impacts. Georgeson et al. [6], upon conducting an analysis of diverse global perspectives regarding these terms, proposed a developmental sequence that commences with green growth, progresses to a green economy, and ultimately culminates in sustainable development. Various economic concepts, including the blue economy, digital economy, efficient economy, sharing economy, knowledge economy, and others that are not yet clearly defined, will likely gain prominence and establish their relevance in emerging contexts, confronting novel challenges. These concepts also complement green growth and the CE in contributing to the construction of a green economy. For instance, the concept of the blue economy has recently emerged as the role of oceans in economies has gained increasing recognition [7]. Figuratively, green growth and the CE can be viewed as "bricks" that mutually support and complement each other, forming the foundation of a green economy. From this foundation, the "house" of sustainable development can be constructed. Without a solid foundation, the "house" of sustainable development cannot be built. However, the number of "bricks" required to build the foundation of a green economy may vary because of the unique characteristics of each country, scale of its economy, and choices and priorities of leaders and managers. These "bricks" may also overlap in certain aspects. The foundation of a green economy differs from those of conventional economic systems in that it possesses the potential for continuous expansion. For example, a country may prioritize building a green economy through policies related to green growth and the CE, and later, depending on socio-economic changes, it may add "bricks" such as the blue economy and digital economy. The case of Bhutan, which prioritizes improving the happiness of its citizens over economic and technological development, serves as a prime example [1]. In summary, the relationship between a CE and green growth is close and mutually reinforcing. The application of CE models not only helps protect the environment but also promotes green growth, generates new economic value, and enhances the quality of life. Vietnam needs to implement comprehensive solutions—from policies, investment, and education to international cooperation—to foster this relationship and move toward a sustainable economy.

3.4 Benefits of the CE

In the CE model, activities related to design, production, consumption, and services aim to reduce the extraction of raw materials, extend product lifespans, limit waste generation, and mitigate adverse environmental effects. This strategy for sustainable development is proposed to address the urgent issues of environmental degradation and resource scarcity. Within this framework, input resources, waste, emissions, and energy are minimized from the outset of production and consumption processes, encompassing design, maintenance, repair, reuse, remanufacturing, refurbishment, and recycling in the long term. These processes are driven by economic incentives, with the objective of achieving a zero-emission economy.

The Ellen MacArthur Foundation [5] has identified three key principles of a CE: (1) reducing and eliminating waste and pollution; (2) extending the lifespan of products and materials; (3) regeneration of natural systems.

Thus, the operation of a CE will result in the absence of waste release into the environment, effectively addressing the relationship between economic and environmental factors. The CE accomplishes two main objectives: (i) maximizing the minimization of raw material extraction from the natural environment while maintaining ecosystems and (ii) ensuring that waste is no longer released into the environment, which helps prevent pollution and environmental degradation, thus preserving environmental quality.

The CE has three fundamental components:

- *Conservation and development of natural resources:* This involves the reasonable management of non-renewable resources while balancing them with renewable resources and utilizing renewable energy sources.

- *Optimization of resource returns:* This is achieved by maximizing the circulation of products and materials within technical and biological cycles as much as possible.

- *Enhancement of overall system efficiency:* This is realized through the strategic identification and intentional design addressing negative externalities (encompassing waste and pollution considerations).

These components help the CE break the typical link between economic development and negative environmental impact. The CE focuses not only on material circulation but also on minimizing the use of hard-to-recycle materials. It does not merely address waste management; instead, it views waste as a misplaced or

undervalued resource. Consequently, the CE reduces reliance on resources and limits waste generation, while still delivering significant benefits and promoting economic growth.

A CE is based on the principle that natural resources serve as raw materials for entering the economic system. Throughout the production and consumption processes, surplus materials and waste are recovered and reintroduced as inputs back into the economic system. This approach contrasts sharply with the widely prevalent linear economic model. In a linear economy, raw materials are extracted from the natural environment to serve as inputs, and the economic cycle concludes with the disposal of waste into the environment. This leads to an increase in waste, the depletion of natural resources, and environmental pollution and degradation.

The CE has the following benefits:

- *For the country:* Developing a CE reflects the nation's responsibility to address global challenges posed by environmental pollution and climate change while also enhancing the capacity and competitiveness of the economy. The CE helps utilize used resources instead of incurring costs for waste management, minimizes the extraction of natural resources, maximizes their value, and limits waste and emissions released into the environment.

- *For society:* The CE helps reduce social costs associated with environmental management, protection, and climate change adaptation, create new markets and job opportunities, and improve public health.

- *For businesses:* The CE contributes to reducing risks related to product surplus and resource scarcity; it creates incentives for investment and technology innovation, lowers production costs, and enhances supply chains.

Implementing a CE model yields numerous economic benefits. Globally, the application of a CE is projected to generate economic benefits of $4.5 trillion by 2030 [12].

4 Discussion

In recent years, global economic growth has placed a significant pressure on resources. The rate of resource extraction significantly exceeds the rate of resource regeneration, concurrent with the presence of nonrenewable resources. According to the Circularity Gap 2020 report published in 2020, global consumption of natural resources exceeded 100 billion tons annually for the first time, while simultaneously experiencing a decline in global raw material recycling rates. This unprecedented level of resource utilization has prompted researchers to caution against the potential for a "global disaster." Another report from the non-profit organization Circle Economy, based in Amsterdam, Netherlands, indicates that resources serving the global economy increased by over 8% in a two-year period, rising from 93 billion tons in 2015 to 100.6 billion tons in 2017. Meanwhile, the rate of minerals, fossil fuels, metals, and biomass incorporated into the economy for reuse has declined from a modest level of approximately 9.1% to 8.6%. This underscores the urgent need to shift the economic model toward a more efficient and sustainable economy in terms of resource use, pollution reduction, environmental degradation mitigation, and adaptation to global climate change.

The Resolution of the XIII National Congress of the Communist Party [4], dated February 1, 2021, affirmed that building a CE is one of the key goals for the country's development from 2021 to 2030. To achieve this goal, Vietnam requires specific and synchronized solutions. The Law on Environmental Protection 2020 introduced many significant reforms and changes to the approach to environmental policy. One of the most notable and groundbreaking changes is the regulation of extended producer responsibility (EPR). EPR is an environmental policy approach that extends the responsibility of producers and importers of products or goods to the stage when the products or goods are disposed of. Producers and importers are required to take environmental responsibility throughout the lifecycle of a product, including the stages of design, production, consumption, and disposal [7]. EPR is a regulation inherited from the provisions on the recovery and treatment of discarded products of the Laws on Environmental Protection 2005 and 2014 and Decision No. 16/2015/QD-TTg regarding the recovery and treatment of discarded products but with a completely new approach, viewed as an economic tool. Accordingly, EPR is a method aimed at finding a financial solution for waste management and enhancing recycling to achieve environmental goals without increasing environmental taxes or fees.

The development of CE principles from several countries around the world will provide many opportunities for Vietnam. The development of a CE in Vietnam and globally includes three fundamental principles: (i) regeneration of natural systems, which involves the conservation and regeneration of natural resources by managing non-renewable resources responsibly and balancing the use of renewable resources while also limiting the use of fossil fuels and enhancing the use of renewable energy sources; (ii) keeping products and materials in

use, which is achieved by optimizing the return on resources by circulating products and materials as much as possible within the technical and biological cycles; (iii) the eradication of waste and pollution at the design stage, accomplished by enhancing efficiency through the identification of and progression toward superior methodologies for eliminating negative externalities. The adoption of these principles holds the potential to foster a more ecologically sound and adaptable economy while concurrently diminishing detrimental effects on the environment.

To achieve the goal of transitioning from a linear economy to a CE, it is essential to implement synchronized solutions across the entire economy. However, transforming a country's economic model is a long-term objective that occurs in multiple stages. In this process, Vietnam needs to leverage its economic strength while confronting various difficulties and challenges.

Vietnam has favorable conditions for the transition from a linear economy to a CE:

First, Vietnam is one of the most dynamic economies in Asia. While the Vietnamese economy still faces many challenges, particularly due to declining external demand resulting from global economic impacts, the country is striving to overcome difficulties by attracting foreign investment and promoting domestic demand to maintain sustainable growth by the end of 2023 [3]. The manufacturing industry is experiencing rapid expansion concurrent with advancements in scientific research and technological development, facilitating the emergence of innovative and resource-efficient business models. There is strong consensus among various stakeholders regarding the implementation of a CE. Consequently, several CE models have achieved initial success.

Second, Vietnam has issued policies, regulations, and legal frameworks for the development of a CE. These serve as foundational steps toward transitioning from a linear economic model to a CE model. Moreover, the incorporation of CE principles into the Law on Environmental Protection 2020 marks a significant advancement. Article 5, Clause 11 of the Law on Environmental Protection stipulates that environmental policies must "integrate and promote the CE and green economy models in the construction and implementation of strategies, planning, programs, projects, and socio-economic development proposals." The objectives of the CE model are also outlined in Clause 1, Article 142 of this law, which states that the goal is to "reduce the extraction of raw materials and resources, extend the life cycle of products, minimize waste generation, and mitigate adverse environmental impacts." Additionally, Decree No. 08/2022/ND-CP dated January 10, 2022, details certain provisions of the Law on Environmental Protection and specifies criteria, pathways, and mechanisms to encourage the development of the CE.

Third, CE models successfully implemented by various countries around the world, such as Japan, China, Germany, and France, serve as valuable references and sources of experience for Vietnam. In addition to internal economic factors, international experience plays a crucial role in the development of national policies. Observing how other countries build their circular economies can help identify effective solutions, shorten the time needed to achieve goals, and reduce resource wastage. Global empirical evidence demonstrates that the establishment and advancement of a CE constitutes a collective national endeavor, not confined solely to the public or private sector. However, each sector plays a distinct role; the government provides guidance and regulation, while the private economy serves as the primary driver in the process of transitioning the economic structure toward a CE model.

In addition to its advantages, our country also faces many difficulties and challenges:

First, the legal regulations on managing and regulating the economy are still incomplete. The government issued Resolution No. 50/NQ-CP on May 20, 2021, which identifies the goal of "renewing the forms of production organization to promote digital transformation, the digital economy, and the CE in agriculture; encouraging the development of circular economic models to utilize comprehensively and efficiently the outputs of the production process."

In addition, the government has approved the Project for Developing Circular Economy in Vietnam, which outlines general objectives and specific tasks for 2021–2030, with a vision for 2050 [11]. However, these regulations are indicative and lack specificity. The Prime Minister's decision does not adequately encompass all social groups. Consequently, many stakeholders have been unable to access or implement the legal policies related to the development of the CE. Therefore, legalizing the state's policies and orientations in CE development plays a central and strategic role. Despite the Law on Environmental Protection 2020 and its associated guiding documents having elucidated certain aspects of CE orientation, these regulations frequently remain

excessively broad and challenging to implement in practice. Furthermore, the criteria for identifying, assessing, and classifying CE models pose significant challenges. Thus, while specific goals for developing a CE have been set, there is a lack of foundation to determine the level and progress of implementation.

Second, there has not been sufficient focus on mobilizing resources to transition the economic model to a CE. To successfully shift to a CE model, it is essential to address the factors related to finance, technology, and human resources. A CE requires a solid financial foundation to ensure the stability of various sectors during the initial stages of transition from the previous economic model. Moreover, the development of a CE must be accompanied by technological solutions that facilitate the use of waste from production processes as input material for other production processes. This endeavor requires innovative scientific and technological solutions. Additionally, developing a CE requires a team of well-trained, dynamic, and creative experts who can devise solutions from the planning stage to the management of waste products.

Third, private sector enterprises tend to focus on short-term goals and have an incomplete understanding of the long-term benefits that a CE can provide. Meanwhile, the private sector accounts for a significant proportion of the economy. Consequently, manufacturing and business enterprises frequently prioritize economic profits over environmental considerations. Consequently, the practice of pursuing financial gains while disregarding legal environmental regulations remains prevalent. The application of CE principles in business development is primarily observed in large multinational corporations. In contrast, the management and recycling of waste products in smaller enterprises are implemented in a piecemeal manner and lack coherence. Furthermore, many businesses currently adopt CE models only when there are policy incentives, without considering their responsibilities toward environmental and social impacts.

Fourth, the trend toward environmentally friendly consumption remains limited. Although consumers are increasingly exposed to environmentally friendly consumption trends, this awareness does not encompass all consumer groups. Additionally, the initial costs for businesses to transition from traditional business models to environmentally friendly CE models are substantial. The majority of domestic enterprises are classified as medium or small-scale, which presents significant challenges for their capacity to invest in technological advancements. Therefore, in the absence of governmental incentives and support, few enterprises are inclined to assume the risks associated with transitioning their production and business models. Consequently, consumers face significant limitations in their choices. This underscores the need for policies that ensure business competitiveness when transitioning to a CE model.

4.1 Experiences in Developing the CE in Some Countries

In the context of the rapidly developing CE worldwide, learning from the experiences of certain countries that have made significant achievements in developing a CE will provide Vietnam with greater opportunities for circular economic growth that promotes green growth.

4.1.1 CE Model in Japan

Japan is one of the nations that has effectively implemented a CE model. The Japanese government has developed comprehensive legal policies to create a recycling-based society. The Recycling-based Society Act, implemented in 2002, establishes quantitative objectives for recycling and material recovery in the long-term context of Japanese society. Given its limited natural resources, recycling is of paramount importance for Japan. From 2017 to 2023, Japan achieved one of the highest recycling rates in the world. The country recycled 98% of the metals, with only approximately 5% of the waste sent to landfills [7]. More than 50% of electronic products are recycled compared to 30%-40% in Europe. More importantly, approximately 74%-89% of the materials contained in these devices have been recovered for production purposes, helping to save costs and reduce dependence on resource extraction [10].

To achieve these successes, Japan has long been oriented toward a strategy for developing a CE. Since 1995, Japan has implemented the Container and Packaging Recycling Law, which focuses on sorting waste, collecting sorted waste, and recycling containers and packaging materials. In 2019, the Japanese government introduced the Resource Circulation Strategy for Plastics. The goals of this strategy include designing for reuse and recycling by 2025, reducing the accumulation of single-use plastics by 25% by 2030, increasing the recycling rate of containers and packaging to 60% by 2030, doubling the use of recycled materials by 2030, maximizing the use of biomass plastics to approximately 2 million tons by 2030, and achieving a 100%

effective utilization of used plastics by 2035.

In 2022, the nation initiated the implementation of the Act on Resource Circulation Promotion for Plastics, which aimed to promote the recycling of plastic waste beyond packaging and containers, encompassing items such as plastic toys and clothing hangers. The act also encourages the recycling of other plastic products. Notably, it incorporates regulations for restaurants and retailers regarding the complimentary provision of plastic cutlery, stirrers, and straws to patrons. There are also provisions related to offering single-use toothbrushes, razors, and other items in hotels. Recycling and substituting plastic with alternative materials are crucial measures in achieving the goal of reducing plastic waste.

4.1.2 CE Model in China

Data from Visual Capitalist indicate that China is one of the top four contributors to oceanic plastic pollution, with an annual discharge of nearly 70,707 tons. Acknowledging the gravity of this environmental issue, Chinese authorities have implemented various strategies to mitigate pollution. The CE model was an early focus of research and development in China. Initially, CE principles were applied to eco-friendly manufacturing processes and industrial parks. In 2008, China enacted the Law on Circular Economy Promotion, which established specific regulations for CE implementation. This legislation emphasized three primary objectives: optimizing the use of environmental resources, increasing the utilization of cost-effective renewable resources, and ensuring these environmental initiatives were accessible to the general populace.

In addition to environmental benefits, China's CE policies ensure sustainable economic advantages for its businesses. China has developed three levels for advancing the CE: the small cycle (implemented at the factory and industrial park levels), the medium cycle (on a broader scale), and the large cycle (applied to the entire economy) [10]. This multi-level management of the CE helps China control the operation of its CE system more easily. Additionally, large-scale eco-industrial parks have been established to handle product processing. Statistics show that from 1990 to 2020, the scale of China's economy increased by 20 times. Notably, while the economy expanded significantly, energy consumption only increased fivefold [10]. To achieve this, the Chinese government has actively and comprehensively engaged in establishing a CE. In addition to focusing on legal and policy development regarding the CE, China has concentrated on ensuring the implementation of these policies and guaranteeing their feasibility and effectiveness.

According to China's Five-Year Plan (2021-2025), the country will enhance its capacity to recycle and manage plastic waste through incineration processes, promote "green" plastic products, and implement measures to combat the misuse of plastics in packaging and agriculture. The plan encourages businesses, retailers, and shipping companies to reduce the unreasonable use of plastic packaging and aims to increase the daily incineration of urban waste to approximately 800,000 tons by 2025.

4.1.3 CE Model in France

France has implemented a series of sustainable development strategies related to sustainable production and consumption since 2003. The most notable of these is the Sustainable Development Strategy for 2015-2018, along with the enactment of the Energy Transition for Green Growth Act in 2015. This marked a significant turning point in France's shift from a linear economy model to sustainable production and consumption, with a clear focus on the CE. On April 23, 2018, the French government officially announced its roadmap for developing the CE model, concentrating on recycling waste for reuse as raw material in industrial sectors. France has set the goal of reducing waste by 50% before 2025, making most by-products and scrap materials to create new products. Notably, the roadmap aims to generate 300,000 new employment opportunities in the CE between 2018 and 2025, which represents a substantial social welfare benefit, garnering widespread support and high esteem from the French populace, in addition to environmental and sustainable development advantages for the future. France's CE roadmap encompasses 50 measures, primarily focusing on two key aspects: encouraging manufacturers to produce durable products that are readily repairable when malfunctioning and promoting recycling initiatives, emphasizing the reuse of materials from products prior to their disposal in landfills.

Additionally, to encourage businesses to transition to more environmentally friendly production models, the French government has implemented a series of financial policy measures. Notably, the value-added tax (VAT) on recycled materials has been reduced to 5.5% from the previous rate of 20%. This measure aims to lower costs for businesses engaged in

recycling and reusing materials while also promoting the use of recycled materials in production. Furthermore, the government has introduced strict financial penalties for industries that fail to comply with the new environmental standards. These measures not only aim to reduce waste but also encourage production sectors to shift toward using more eco-friendly technologies and materials. This strengthens France's overall efforts to build a sustainable economy and minimize environmental impacts.

4.1.4 CE Model in Germany

Germany is one of the first countries in Europe to pursue a CE. Germany began implementing the CE in 1996 with the enactment of the Closed Substance Cycle and Waste Management Act. The legislation in question establishes a regulatory structure for managing waste within a closed-loop paradigm. It mandates that waste processing practices are conducted in an ecologically sound manner, aligning with the natural assimilative capacity of the ecosystem. Although the law has undergone several changes, its core principles remain the foundation of specific goals and actions. Germany's legal policies focus on increasing energy efficiency and decoupling energy consumption and greenhouse gas emissions from economic growth.

With the development of heavy industry, Germany has had a significant demand for raw materials. Therefore, when formulating policies for the CE, Germany places emphasis on the management and recycling of materials. As such, Germany's CE model is based on the characteristics of a modern industrial nation. The enacted legal policies aim to establish a CE that aligns with the specific challenges faced by the economy.

5 Conclusions

In the context of the continuously evolving global economy, the old economic models have gradually proven to be less effective. The transition of economic structures toward a CE model is becoming an inevitable global trend. Vietnam is one of the countries actively embracing this trend. The Law on Environmental Protection 2020 directly approaches the CE model. A dynamic and growing economy provides opportunities for Vietnam to promote CE development. The process of completing an economic model shift is long and challenging. Based on the analysis of Vietnam's opportunities, challenges, and international experience, the authors point out that CE development plays an important role in promoting green growth, contributing to the sustainable development of society. This work helps reduce waste and pollution by optimizing production and consumption processes. By encouraging the reuse, recycling, and recovery of resources, the CE not only protects the environment but also saves resources for future generations. The model facilitates innovation, promotes the development of environmentally sustainable technologies and products, and enhances business productivity. In addition, this model creates many sustainable job opportunities and improves the quality of life of the community. The development of a CE contributes to the enhancement of public health through the reduction of pollution. The aforementioned factors contribute to the establishment of an environmentally conscious, robust, and enduring economy for the future. To achieve this goal, we propose the following strategies to promote the adoption of CE principles:

First, it is crucial to formulate and enact policies that foster CE growth. These policies should be comprehensive, consistent, and applicable across all economic sectors. Specific legislation must be developed to regulate and guide individual economic areas while upholding CE principles. Education and public awareness are vital components. Educational initiatives should encompass: (i) environmental curricula: incorporating CE and green growth concepts into educational programs from elementary to tertiary levels; (ii) public outreach: conducting informational campaigns to elucidate the advantages of CE and its implementation strategies. Community engagement can be facilitated through: (i) recycling events: organizing community-wide recycling activities for the exchange or recycling of obsolete items; (ii) grassroots projects: promoting local initiatives such as urban and community gardens and environmental restoration efforts. These endeavors will expedite the implementation of legislation aimed at achieving national economic model transition objectives.

Second, a policy framework should be established to provide incentives and investment support for businesses undertaking CE-aligned model transformations. Particular attention should be given to assisting small and medium-sized enterprises in technology transfer processes. The focus should be on addressing the challenges encountered by businesses during various stages of their operational transition.

Third, international collaboration, technology transfer, and workforce development should be implemented to meet CE requirements. It is

essential to learn from global experiences and adapt them to align with the country's socioeconomic context, leveraging economic strengths to accelerate the transition to a CE model.

Fourth, emphasis should be placed on production output management. This involves researching technological solutions to convert waste and by-products into inputs for other production cycles, thereby developing a circular industry. Sustainable production should be encouraged through: (i) eco-friendly product design: supporting businesses in creating easily reusable, repairable, and recyclable products; (ii) clean manufacturing: investing in technologies that minimize waste and optimize resource utilization. Circular supply chains can be promoted by: (i) inter-business cooperation: fostering collaboration among supply chain entities to optimize resource use and minimize waste; (ii) in-house recycling: supporting companies in establishing internal systems for reusing waste in their production processes. This approach will enhance production efficiency and shift consumer mindsets by increasing the competitiveness of environmentally friendly products, thereby promoting stable and long-term development for businesses pursuing a CE model.

Conflict of Interest Declaration

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

Author Contributions

Conceptualization, T.T.K.; methodology, N.T.P.; validation, N.T.P.; formal analysis, N.T.P.; investigation, N.T.P.; resources, T.T.K.; data curation, T.T.K.; writing—original draft preparation, all authors contributed equally; writing—review and editing, N.T.P.; supervision, T.T.K.; project administration, T.T.K. All authors have read and agreed to the published version of the manuscript.

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