

Solutions for Developing a Circular Economy in Vietnam

Nguyen Thi Thu Trang, PhD.¹, Nguyen Pham Phuong Nhi², Tran Duc Tuan³, Phan Thien Toan⁴, Tran Tra My⁵, Nguyen Phi Tan Tai⁶, Truong Quang Vi⁷

¹⁻⁷ Ho Chi Minh city University of Banking

ABSTRACT: In the 4.0 Industrial Revolution, circular economic development has become an inevitable trend in the world and Vietnam. This article evaluates the current status of circular economy development in Vietnam and proposes some solutions to develop the circular economy in the near future. Research results show that the circular economy has brought many achievements in agriculture, industry, applying environmental taxes and fees, etc. However, many limitations still exist. To continue developing the circular economy in the coming time, the State needs to have clear guidelines and policies, a complete legal framework, encourage recycling activities, promote propaganda and education, Promote community participation in circular economy development.

KEYWORDS: circular economy, waste recycling, environment.

1. INTRODUCTION

We live in a world facing numerous challenges regarding resources, the environment, and sustainable development. The traditional linear economic model, based on single-use products, leads to the depletion of natural resources and threatens health and the natural environment. Therefore, to address this urgent issue, countries around the world, including Vietnam, are shifting towards developing a circular economy – a more sustainable and effective model and solution to the complex problem of balancing the economy and the environment. This helps address the alarming rate of resource exploitation and use, reduce negative impacts on the environment, and effectively respond to and mitigate global climate change.

Currently, Vietnam's natural resources are being depleted and the environment is severely polluted, even though we are only in the early stages of industrialization. Since 2001, Vietnam has had to import coal and became a net coal importer from 2015. Furthermore, we constantly need to import many other raw materials to support economic development, such as crude oil, iron, steel, base metals, raw plastics, and auxiliary materials for textiles and footwear. The amount of solid waste generated by Vietnamese cities in 2016 was 11.6 million tons (an average of 0.33 kg/person/day) and is predicted to double by 2050 to approximately 22 million tons. According to World Bank statistics from 2021, it is estimated that Vietnam has about 3.1 million tons of plastic waste on land and between 0.28 and 0.73 million tons of waste dumped into the ocean each year. This makes Vietnam one of the world's major sources of plastic waste.

In the current context, the circular economy is considered a necessary trend for all countries in general and Vietnam in particular, as it is one of the directions for sustainable economic development. Specifically, the 13th National Congress of the Communist Party of Vietnam identified the development of this economy as one of the key directions for the country's development in the period 2021-2030, aiming towards sustainable development.

2. THE THEORY OF CIRCULAR ECONOMY

2.1. Concept

The term circular economy was first officially coined in 1990 by authors Pearce and Turner, referring to a new model built on the fundamental idea that everything can be an input for something else, unlike the traditional economic model. Alternatively, the Ellen MacArthur Foundation (EMF) in 2021, in its exploration of a common language for the circular economy, argues that it is a framework for addressing global challenges such as climate change, biodiversity loss, waste, and pollution. It is built on three main principles: waste and pollution removal, the recycling of products and materials (at their highest value), and the restoration of nature. The circular economy is seen as a restorative or regenerative industrial system in which the value of products, raw materials, and resources is maintained within the economy for as long as possible and waste generation is minimized (Ho Que Hau, 2022).

This concept has many different interpretations; however, it can be understood as a closed-loop production process system where resources are reused, and waste materials are transformed into input resources to sustain

production or be used in other industries. The circular economy was formed to respond to the rapid development of the nation, the expansion of urbanization, and the remarkable advancements in technology. This helps save resources, reduce waste treatment costs, increase production efficiency, and provide value to businesses and society.

2.2. Characteristics

The circular economy model has key characteristics including: “Increased repair and remanufacturing of products, increased recycling of raw materials, products with longer shelf life; increased reuse, increased material productivity, improved asset utilization and changes in consumer behavior.” (An Hung, 2022)

Circular economy is not just about reusing waste, treating it as a resource input for other processes, but also about connecting economic activities to each other, creating a cycle of circular processes. It ensures the extended lifespan of products and raw materials, and the recovery and regeneration of output at the end of each production and consumption cycle.

2.3. The concept of circular economy development

Developing a circular economy is a crucial step towards a green economy and a sustainable future for Vietnam. The concept of a circular economy is understood as the rapid, efficient, and safe development of a new economic model where all activities are geared towards the primary goal of material regeneration and eliminating negative environmental impacts. A circular economy is an economic model that aims to minimize, reuse, refurbish, and recycle products, materials, and resources, thereby reducing environmental impact and the exploitation of natural resources. The circular economy operates through reuse processes involving sharing, repairing, refurbishing, reproducing, and recycling, creating closed cycles for resources within the economic system to limit the quantity of input resources and output waste, as well as the level of environmental pollution and emissions. The circular economy is considered a sustainable path for the economy and society.

3. THE CURRENT STATE OF CIRCULAR ECONOMY DEVELOPMENT IN VIETNAM

After more than 35 years of reform since 1986, the Vietnamese economy has achieved remarkable successes in Asia and globally. However, to date, economic activity in Vietnam is still primarily based on the traditional systems approach of linear economics, which is the main cause of resource depletion, climate change, and economic recessions. Resource management, environmental protection, and climate change adaptation are challenges that require appropriate policies and actions from all countries, including Vietnam. Circular economy is considered a method to

promote economic development while balancing these issues and is widely applied in many countries.

According to the 2021 National Environmental Status Report of the Ministry of Natural Resources and Environment, during the period 2016-2020, Vietnam recorded total greenhouse gas emissions accounting for approximately 0.5% of global emissions. The amount of solid household waste increased nationwide at an average annual rate of about 10-16%, especially in urban areas. Water, soil, and air in some areas remain polluted, negatively impacting public health and causing economic and social losses. Furthermore, large-scale illegal construction and exploitation of biological resources are also causing serious impacts on the environment and ecosystems. Agriculture continues to play a central role in the Vietnamese economy during the Covid-19 pandemic. However, pollution remains a complex issue directly affecting the agricultural sector. Furthermore, water pollution also causes significant damage to agricultural production, fishing, and aquaculture. In addition, Vietnam is among the countries most at risk of being severely affected by climate change. According to the Government's report "Vietnam's Nationally Determined Contribution" (updated 2020), the cost of adapting to climate change is projected to exceed 3-5% of GDP by 2030.

Although the circular economy and circular economy models have begun to emerge in the industrial and agricultural sectors in Vietnam, appropriate policies and the effective and flexible application of experiences from other countries are needed to build a circular economy model in Vietnam's specific and unique context. In recent years, the Government and the State have introduced many policies and measures to promote the development of sustainable growth models while increasing waste reuse. Currently, many management mechanisms have been systematized to regulate the development of the circular economy, such as waste sorting at source or the application of resource taxes and environmental protection fees.

Accordingly, most countries around the world are now widely applying resource taxes to monitor natural resource exploitation activities and limit indiscriminate resource extraction that negatively impacts the environment and human life. Resource taxes apply to products extracted from resources such as metallic and non-metallic minerals, crude oil, natural gas, forest products, etc. In addition to implementing environmental protection activities, Vietnam also commonly applies environmental protection fees for various causes of pollution. The purpose of applying environmental protection fees is to generate revenue for the Government to invest in environmental protection activities and encourage management agencies, individuals, and organizations to reduce the quality of pollution released into the environment. Currently, some types of environmental protection fees are applied in Vietnam, such as environmental

protection fees for wastewater, solid waste, mineral exploitation, and environmental sanitation fees.

The government issued Resolution No. 27/NQ-CP on June 12, 2009, aiming to develop the environmental industry through solutions such as applying new and environmentally friendly technologies for cleaner production; businesses need to change their industrial production models towards long-term sustainability and a green industry. In addition, guidelines and support policies are needed to promote the development of the circular economy, while minimizing negative impacts on the environment and resources. Furthermore, the Environmental Protection Laws of 2005 and 2014 also provide regulations on environmental protection, including the rational use of natural resources, encouraging recycling and reuse of resources, and minimizing waste, which are effective ways to protect the environment.

In Vietnam, several circular economy models have emerged, such as models for collecting and recycling materials like scraps of fabric, paper, and plastic. In agriculture, variations of the Garden-Pond-Livestock model, such as the Garden-Forest-Pond-Livestock model, utilize animal manure for crops and fish farming, and use crop products as animal feed. Aquaponics systems, which combine crop cultivation and fish farming, use significantly less water than traditional hydroponic or crop farming systems. Household biogas digesters, widely implemented in rural areas, are considered a convenient, economically and environmentally efficient method, allowing farmers to combine livestock farming with energy production. These models all aim to minimize negative impacts on the environment and water resources during cultivation, optimize resource utilization, and produce high-quality products.

Many businesses in the industrial and handicraft sectors have adopted the circular economy model in various forms: investing in the development of renewable energy such as solar and wind power; adopting green consumption models by using recycled products and saving energy; converting existing industrial parks into eco-industrial parks, a pilot project implemented in Can Tho, Da Nang, and Ninh Binh, combining several environmental protection solutions such as using renewable energy sources, minimizing environmental emissions, recycling and reusing products and materials, while also focusing on participating in the construction of green buildings, green spaces, and managing resources within eco-industrial parks; In addition, there are "Zero Waste to Nature" projects proposed by the Vietnam Chamber of Commerce and Industry (VCCI) to minimize the amount of waste, garbage, and toxic products released into the environment. Many large manufacturing and retail distribution corporations have formed alliances against plastic waste and packaging recycling, including 40 major businesses such as Friesland Campina Vietnam, Suntory PepsiCo Vietnam, Tetra Pak, Universal Robina Corporation,

and Nutifood... In addition, many entities have participated in establishing public-private partnerships in building a circular economy with the task of managing plastic waste in Vietnam.

Vietnam is currently a developing country with an economy that still has many limitations, and the transition from a linear economy to a circular economy has faced and continues to face many obstacles:

Firstly, the legal framework for the circular economy model is not yet complete and widely disseminated. Currently, Vietnam still has limitations in measures to support and promote the development of the circular economy, such as a lack of clear regulations on the responsibilities of businesses regarding the recovery and reuse of resources from used products. This makes it difficult for businesses to implement circular economy models in Vietnam, causing risks of environmental pollution and resource waste; there is also a lack of good coordination among ministries, sectors, and localities in the process of developing the circular economy in Vietnam, resulting in development policies not being exploited effectively and optimally.

Secondly, the concept of a circular economy is still unfamiliar to businesses. The majority of the business community, over 98%, consists of small and medium-sized enterprises (SMEs), and even micro-enterprises. The challenge lies in how these businesses apply, implement, and innovate their circular economy models within the global value chain. All types of businesses in the economic sector need to understand the benefits and methods of implementing a circular economy. Therefore, achieving sustainable economic growth requires the synchronized implementation of economic and social policies across all sectors and fields, along with the deployment of numerous training courses to enhance capacity in applying and sharing the circular economy.

Thirdly, the human resources for the transition to a circular economy remain weak in Vietnam. Implementing a circular economy requires a team of skilled experts capable of scientific innovation and access to advanced technologies to address issues from design to waste reuse and recycling. However, currently in Vietnam, there are not enough experts researching and developing the circular economy, and there is a lack of training courses in this field. This shortage of specialized personnel can cause several problems for this process. Firstly, without sufficient personnel with the skills and knowledge in the field of the circular economy, the process of scientific innovation and access to advanced technologies will face many difficulties and delays. Secondly, the shortage of specialized personnel can lead to a decrease in the quality and effectiveness of the transition process, due to the failure to ensure quality and safety standards in the production and business of the circular economy.

Fourth , linking the circular economy to technological innovation and production model design requires significant investment, but Vietnam lacks sufficient capital. In the context of a developing country like Vietnam, technological innovation remains outdated, and production is fragmented, posing a major challenge to the transition to a circular economy. Furthermore, domestic businesses are still struggling to secure funding, while foreign investment remains insufficient to meet the demands of the circular economy transition.

Fifth , the circular economy requires sorting before incorporating waste into the circular economy for reuse. Public awareness regarding waste sorting at source remains limited; different types of waste are mixed together, hindering recycling and reuse, and increasing the amount of non-reusable waste sent to landfills, leading to environmental pollution and resource waste.

Sixth , there are limitations in infrastructure for waste collection, processing, and recycling in the circular economy in Vietnam. Particularly in rural areas, infrastructure is still limited, hindering the implementation of recycling activities and the optimization of resource use. Specifically, many areas still lack proper waste collection systems, causing environmental pollution and affecting public health. At the same time, infrastructure for recycling and resource reuse is also limited; recycling plants are often concentrated in large cities, while rural and mountainous areas still lack the appropriate infrastructure to implement these activities.

4. SOLUTIONS FOR DEVELOPING A CIRCULAR ECONOMY IN VIETNAM.

Circular economy is a resource management and production approach that focuses on reusing and recycling resources to minimize waste and use resources more efficiently. This is a crucial direction in the context of the world facing challenges such as climate change and resource depletion. To develop a circular economy in Vietnam, we can apply the following solutions:

Firstly , promote policies that support and encourage investment in technologies and products that comply with circular principles. The Vietnamese government can establish investment incentive programs and provide grants to businesses, organizations, and individuals participating in circular economy development projects.

Secondly , building a more effective waste management system is crucial. Vietnam is facing serious problems related to waste management. The government needs to strengthen management and supervision of consumption and production activities to minimize waste and ensure that waste collection and treatment are carried out efficiently. Furthermore, the government needs to introduce policies to encourage and support recycling activities,

including establishing centers and distributing recycled products.

Thirdly , it is necessary to strengthen education and raise public awareness about the circular economy. Vietnam needs to introduce educational programs and help people understand the importance of this economic model and the impact of unsustainable resource use. This requires increased information and education for producers and businesses about the benefits and potential of implementing a circular economy in production.

Fourth , strengthen research and development of circular economy technologies. Vietnam needs to invest in research and development of circular economy technologies to enhance resource utilization and minimize waste. The government should encourage research institutes and domestic and international businesses to participate in the research and development of circular economy technologies.

Fifthly , building a circular economy trading system. The Vietnamese government can build a circular economy trading system to help businesses and individuals access and use products and services, and promote production and consumption activities that comply with the principles of a circular economy.

Sixth , strengthen the monitoring and evaluation of the implementation of the circular economy. Monitoring and evaluation will help assess the effectiveness of circular economy activities, identify areas for improvement and more effective solutions, and enhance the proactiveness and responsibility of everyone in implementing the circular economy and protecting the environment.

These solutions will help Vietnam develop a circular economy and enhance the sustainable use of resources, reduce waste, and contribute to minimizing the environmental and social impacts of production activities. Developing a circular economy is a complex process requiring cooperation and contributions from many stakeholders. However, with the solutions mentioned and the efforts of all stakeholders, Vietnam can develop a sustainable circular economy, contributing to environmental protection and improving the quality of life for its people.

5. CONCLUSION

The circular economy is a modern, innovative, green, and sustainable economic model. Developing a circular economy is the right choice for Vietnam to maintain economic development in the context of climate change and resource scarcity. It not only benefits Vietnam but also contributes to building a sustainable world. To achieve this goal as quickly as possible, it requires the concerted efforts of all stakeholders, especially the State and businesses playing a central role. However, certain limitations and obstacles remain, such as: an incomplete legal framework; weak human resource quality; lack of funding for implementation;... Therefore, to develop the circular economy model in

Vietnam, solutions such as encouraging investment in infrastructure and reuse technologies are needed; and strengthening education and awareness among the people are essential. Strengthening international cooperation is crucial; however, special attention must be paid to the participation of society towards sustainable and responsible consumption.

The shift to a circular economy is an inevitable requirement for the whole world, and for Vietnam in particular, in the context of the fourth industrial revolution. This is the best economic model to solve the difficult problem of balancing economic growth and environmental protection. Vietnam needs to seize this opportunity for transformation in order to gradually achieve the goal of a sustainable economy.

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