

DEVELOPING CIRCULAR ECONOMY: THEORETICAL PERCEPTION AND CURRENT STATUS IN VIETNAM

Dr. To Hien Tha

tohientha@gmail.com

Le Quy Don Technical University, Vietnam

Abstract

The circular economy has been is a concept of interest to many scientists and governments. Circular economy development is gradually becoming a trend of countries, especially developed countries with few resources, especially when the world's resources are increasingly depleted. Vietnam is also facing an increasing amount of waste generated while raw materials and fossil fuels are increasingly depleted. Besides, most Vietnamese enterprises have outdated and outdated technology, small production scale and lack of investment resources for recycling technology. Faced with that fact, choosing a circular economy for Vietnam is an indispensable requirement in order to overcome the limitations of the traditional growth model, to help Vietnam avoid dependence on the external economy, to develop in a sustainable way economy. To promote the development of the circular economy in Vietnam, it is necessary to synchronously implement solutions from raising awareness to perfecting institutions and implementing organizations. This paper focus on clarifying the concept and content of the circular economy; clarify the role of circular economy for the national economy; analyze the current situation of circular economy development of Vietnam in recent years, thereby proposing some solutions to promote the development of circular economy in the coming time.

Keywords: *circular economy; sustainable development; linear economy.*

1. Introduction

Experiencing a process of development of the world economy from backward agricultural production to modern industry and industry and towards the digital economy, global economic growth has achieved great achievements.

However, along with that is the shortage of natural resources, increasing environmental pollution, changing ecosystems and climate change. To overcome these problems to ensure stable economic development, there is no shortage of input sources for the economic system, and to minimize waste released into the environment, towards an economy that is not waste, converted from a linear economy, based on the principle of exploiting natural resources from the natural environment as an input to the economic system, through the process of production and consumption and finally discharged into the environment into a circular economy, based on the principle that the output waste of

economic activities will be recovered as input materials for the economic system and not generated. discharged into the environment.

In Vietnam, economic activity has so far been mainly based on the traditional approach that is linear economy, which is also the basic cause of the shortage of natural resources and especially the lack of natural resources. especially causing serious environmental pollution, in order to realize rapid and sustainable development, solve the relationship between economy and environment "without trade-off" between economic growth and environmental pollution and degradation, The transition to a circular economy is an appropriate direction. However, this transformation requires seizing the opportunities and accepting the challenges that need to be overcome.

2. Methods

The article is based on the general methods of the social sciences and published scientific works related to the research topic being sources of reference for the author to complete this article. In the research process, the author uses a combination of different methods such as analysis, synthesis, generalization, abstraction, statistics, comparison...

The data in the article are collected through official reports of the General Statistics Office; reports of the Ministry of Natural Resources and Environment, Reports of the Ministry of Industry and Trade and other scientists.

3. Results

3.1. Concept and role of circular economy

** Concepts and classifications*

The circular economy is fully understood as an economic model in which the design of operations, production and services aims to prolong the life of materials and eliminate negative activity on the environment. This is an economic model in which special attention is paid to the management and regeneration of resources in a closed loop, in order to avoid creating waste and polluting the environment.

According to Ellen MacArthur Foundation (2012), the circular economy is a system that restore and regenerate through devices proactive design. It replaces the concept of "end-of-life" of materials with the concept of concept of restoration, shifting towards use renewable energy, do not use harmful chemicals that damage the reuse and aim to reduce substances waste through the design of materials, products, products, technical systems and even models business model within the system that system. If the "linear economy" is only concerned with resource exploitation, production, consumption and discharge into the environment, it leads to the creation of a large amount of waste, as well as the maximum exploitation of natural resources. However, for socio-economic development, the concept economy focuses on the management and regeneration of resources in a closed loop to avoid

creating waste. The transition to a private economy is also a great opportunity for rapid and sustainable development, not only achieving socio-economic and environmental goals but also effectively responding to climate change; raise people's awareness about reuse, waste recycling, and limit unnecessary consumption of single-use items. At the same time, extending manufacturer responsibilities to support 100% waste-to-material recycling is the shortest path to a low-carbon economy, especially in heavy industries...

This is a model of economic development in the world aimed at sustainable development, towards achieves 3 goals: (i) Responding to exhaustion of natural resources; (ii) Fix state cell environment in development in output; (iii) Harmoniously combine economic growth with a protective environment. In addition, the circular economy also brings many benefits to countries, helping to save costs, reduce price fluctuations and risks from suppliers, increase new calculations created by the technology eplacement of products.

The circular economy has many different approaches, divided into three levels by level:

At a low level, the circular economy focuses on the production process of businesses and the production of agricultural products, producers are encouraged and required to adopt cleaner production methods and equipment, ecological design.

At the medium level, the circular economy includes the development of eco-industrial parks and other agro-ecological systems; Designing to give your business the best chance of implementing a circular economy.

At a high level, all stages of the production process are designed, with no waste released into the environment. Waste is reduced to a minimum and reused.

Also a type of economy based on creative intelligence, the circular economy is the connection between economic activities in a reasonable and scientific manner, in which each of these economic activities forms a premise for other economic activities. another economic activity and into an economic cycle. Circular economy should be understood not as a closed, rigid, and at the same time circular economy has broad and narrow meanings. Broad meaning is in the whole country or a large area. With creativity, scientific calculation and the special support of technological achievements, several large manufacturing industries are logically arranged as a cycle, supporting each other to develop and create new products. quality products. In a narrow sense, it is a circular economy, where one product is an input for the production of another, including the reuse of waste as raw materials for further production activities.

* The role of the circular economy

The circular economy has a huge role to play in resource utilization taking on many forms, from redesign, reduce, repair, reuse, recycle, and geared towards sharing or leasing.

The circular economy describes an economic system based on business models that replace the concept of “end of life” with the reduction, reuse, recycling and recovery of materials in processes. production/distribution and consumption at the micro level (manufacturers, businesses, consumers), the intermediate level (eco-industrial parks), the macro level (cities, regions, countries and beyond), with the objective of achieving sustainable development, ensuring good environmental quality, economic prosperity and social justice, meeting present and future interests. While Linear Economy is only interested in the exploitation of resources, production, consumption and does not care much about discharging into the environment, it has maximized the exploitation of natural resources leading to the creation of natural resources. a huge amount of waste, while the circular economy focuses on the management and regeneration of resources in a closed loop, avoiding waste.

The transition to a circular economy is a great opportunity for rapid and sustainable development, not only achieving economic, social and environmental goals but also helping to respond to climate change. The transition to a circular economy helps meet the goals of the 2030 Agenda for Sustainable Development. Approaching the transition from a linear economy to a circular economy brings benefits in the context of resource scarcity and climate change. Besides, this approach is not only adjustments to mitigate the negative effects of the traditional economy - linear economy, but also a systemic change that creates long-term resilience. , business opportunities as well as environmental and social benefits.

At the same time, this is also a premise to realize the Sustainable Development Goals (SDGs 2030) through ensuring sustainable production and consumption, such as reducing the rate of “declining” resources, preserving meet the needs of future generations; raising people's awareness about reuse and recycling of waste, limiting unnecessary consumption of single-use items; extend manufacturer's responsibility to support 100% waste-to-material recycling. This is the path towards a low carbon economy, especially in heavy industries. Calculations of the European Union (EU) show that the circular economy through measuring and controlling activities from the demand side can help reduce emissions from industries by more than half. The circular economy is the best way to break the link between economic growth and negative environmental impacts.

Vietnam is a small country ranked 68th in the world in terms of area, 15th in the world in terms of population, but we are currently ranked 4th in the world in terms of plastic waste, with 1.83 million tons/year. Resource depletion, rapidly increasing energy consumption, pollution and land degradation, especially climate change are seriously affecting economic development.

According to the World Bank, air pollution alone cost Vietnam 5.18% of GDP in 2013. Water pollution can also cost Vietnam up to 3.5% of GDP. Along with that, resource depletion, rapidly increasing energy consumption, pollution and land degradation, especially

climate change are seriously affecting Vietnam's economic development.

To address the risk of resource depletion, pollution and environmental degradation, we need to change our approach to transition from “traditional economic” models to “circular economy” This should be seen as a priority in the next stage of the country's development”

3.2. Current status of circular economy in Vietnam

According to the Ministry of Natural Resources and Environment, Environment, Vietnam's environment is under great pressure from domestic socio-economic development activities, international trade flows and cross-border impacts. The introduction of a large amount of waste (solid waste, wastewater, exhaust gas) into the environment, but the problem of waste control and management is still limited, leading to environmental pollution that continues to occur in many areas. where, many areas have been polluted quite seriously. The volume of solid waste generated has increased rapidly in quantity with increasingly complex composition. In addition, the import of scrap for use as raw materials for production or the import of used machinery, equipment, and vehicles also poses many risks to the environment. The management and treatment of solid waste in our country in the past time has not been applied according to the method of general management, solutions to reduce, reuse, recycle and recover energy from waste have not been applied yet. really focused. This leads to a high volume of solid waste that has to be buried. In some areas, waste buried in temporary and open-pit landfills has been a source of environmental pollution, affecting human health and human production. Linear economy causes resource depletion and waste increase. In Vietnam: solid waste increases by 10%/year, urban solid waste increases by 10-16%/year (the growth rate ranks 4th in Southeast Asia) (MONRE, 2017: 16); 11.6 million tons in 2016; 15.9 million tons in 2030 and 21.96 million tons in 2050, according to the World Bank.

Vietnam has sufficient conditions and has many favorable factors to apply circular economy. The socialist-oriented market economy institution is gradually being perfected towards modernity, synchronization and integration. The scale of human resources increased in all industries and fields, especially high-quality human resources in breakthrough industries and fields. Modern scientific and technological achievements are being rapidly and widely applied in many fields. Digital transformation of the economy is being strongly promoted. The national startup and innovation ecosystem is being formed. In particular, some models in the form of circular economy have worked remarkably effectively. All of the above expressions are a solid basis and an ideal environment for the application of the circular economy.

In Vietnam, although there are no official circular economic models, in fact there are some models close to circular economy in terms of industries, occupations and services. Typically in the field of industry, handicrafts in traditional craft villages have used scraps,

by-products and wastes from industrial production processes to produce recycled steel, produce recycled paper, and produce recycled products. furniture export. plastic, nylon, recycled glass... However, these activities mainly bring financial benefits to producers and consumers without taking into account the overall economic benefits. This is also one of the main causes leading to environmental pollution and degradation in many localities today.

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Recently, in Vietnam, there have appeared a number of new models moving closer to the circular economy such as the ecological industrial park model; model of processing aquatic by-products; Vietnam Packaging Recycling Alliance... However, businesses in Vietnam still have many limitations in terms of technological capacity and reuse. People and businesses still have an inherent habit in production and consumption of plastic bags and disposable plastic products. Meanwhile, Vietnam does not have a legal framework for circular economy development, this challenge needs to be overcome, otherwise the implementation of circular economy development will only be spontaneous and subject to regulation. market adjustment...

In Ben Tre, a province in the western part of Vietnam, models of reuse, recycling, and waste recovery have been established to bring financial benefits to production facilities and benefits to consumers and to the public. community. The most obvious in industrial and handicraft activities is the coconut flower cake made from copra ingredients with a mix of available ingredients into natural flavors unique to Ben Tre; After separating and removing all the coconut oil in the silk shell, the coconut residue will be discarded and become the input materials of animal feed processing facilities... Currently, Ben Tre has successfully researched and applied it. There are many models of organic waste treatment in agricultural production such as thanks to the application of tannin separation technology, which has turned coco peat waste into clean soil, applying biotechnology to turn coco peat into fertilizer. organic for clean and organic farming; turn cocoa pods into nutritious feed for livestock... In Can Tho city, there is an insect farm of Kim's Garden Can Tho Ecological Garden Co., Ltd. has successfully implemented insect solutions and probiotics into closed-loop agriculture, reducing 80% of feed costs. industrial food, especially minimizing waste from livestock to the environment. In Binh Duong province, since 2018, Binh Duong waste treatment complex has been put into operation, in addition to collecting and treating waste,

the province's waste treatment complex is also invested with many new technologies. to turn waste into raw materials to create valuable products. In Tien Giang province, there are currently 26 establishments applying high technology in animal husbandry, which apply a closed cage breeding system, which can manage temperature, humidity and wind power in the barn. have a waste treatment system (biogas cellar, HDPE, biological buffer ...), limit odors, do not pollute the environment. Model of eco-industrial park in Ninh Binh and Da Nang saving 6.5 million USD/year.

According to the Ministry of Industry and Trade, Over the years, the cleaner production (CP) model has been promoted to widespread adoption. Up to now, nearly 350 enterprises and production facilities have been supported for rapid assessment, and 90 enterprises supported for CP application have become model points for CP application. After 10 years of implementing the CP Strategy in industry, by 2020, 68.5% of enterprises are aware of the benefits of CP application, an increase of 20.5% compared to 2010. 46.9% of production facilities production applied cleaner production, an increase of 35.9% compared to 2010, 12% of which achieved savings of 8% or more in reducing energy, raw materials per unit of product. In addition, 21% of medium and large enterprises have a department dedicated to cleaner production. In addition, the Strategy's activities in this period also have many advantages when integrated with other programs such as the National Industrial Promotion Program, the Sustainable Production and Consumption Program, the Savings Program, and the National Industrial Promotion Program. save energy and use energy efficiently... A number of typical models in the direction of circular economy in the field of economical and efficient use of energy have been actively deployed in recent times, typically: Building and implementing a model of using energy pilot use of alternative forms of energy and energy-saving household models; Applying the energy management model in industrial facilities; Building, disseminating and replicating successful demonstration models of alternative energy use in production and business establishments in many provinces and cities across the country; Develop, deploy and replicate demonstration models of households using renewable energy forms (such as solar, biogas, etc.) on an industrial scale.

Besides, the movement of Households to use energy economically and efficiently has been deployed on a large scale in the provinces, cities of Hanoi, Ho Chi Minh, Can Tho, Ba Ria - Vung Tau, Dong Thap, Binh Thuan, Can Tho, Tien Giang, Bac Ninh etc. The Ministry of Industry and Trade also organizes campaigns and competitions for energy-saving families with the goal of creating a popular movement and implementing solutions and using high-efficiency household appliances in each household. Currently, the National Program on economical and efficient use of energy for the period 2019-2030 has been promulgated by the Prime Minister with the aim of mobilizing all social resources to implement all solutions on energy use. effective savings to achieve the target by 2025. Specifically:

achieving energy savings of 5.0 to 7.0% of the total national energy consumption in the period from 2019 to 2025; reduce power loss to less than 6.5%; reduce the average energy consumption for industries/sub-industries compared to the period 2015 - 2018. The program also sets the goal of building 1 energy data center in Vietnam and at least 2 training centers. National Committee on economical and efficient use of energy together with the establishment of a fund to promote economical and efficient use of energy through socialization, sponsorship and cooperation of individuals and organizations at home and abroad.

Through these activities, businesses and production units are better defined and actively apply cleaner production solutions to reduce waste emissions, consume raw materials, energy and water, save money. production costs for the business. Thereby, enterprises and production units gradually actively implement fully the provisions of the law on environmental protection.

Overall though, Vietnam has just stopped at reuse and recycling of waste, bringing financial benefits to production and consumption establishments, but not bringing economic benefits, so the operation of those models has caused pollution. pollution and environmental degradation. Vietnam does not yet have a legal corridor to develop a circular economy, although there have been many initial transitions towards rapid and sustainable development, response to climate change and building a circular economy. Vietnam does not have a set of criteria to identify, evaluate, summarize and provide an accurate classification of the development level of the circular economy, which is a big challenge to know how the current economic development has continued. approach to circular economy development in sectors, fields and localities. Along with that is the decline in resources, energy, soil pollution and land degradation, especially climate change, which is seriously affecting the socio-economic development of Vietnam in recent years. Meanwhile, economic activities in Vietnam have so far been mainly based on the traditional approach, which is a linear economy, which is also the basic cause of the shortage of natural resources. nature, especially causing serious environmental pollution.

The development of the circular economy in Vietnam in general and the provinces and cities in particular is still mainly spontaneous, while the awareness of the circular economy and the need to switch to the development of an economic model circulation is limited. The circular economy requires new technological advances, but our country is a developing country, most of the technology is outdated, the production scale is small, this is a big challenge to overcome. Another important issue is the lack of good experts to solve well from the design stage to the final stage of reuse and recycling of waste.

3.3. Solutions to develop circular economy in Vietnam

In Vietnam, sustainable economic development is a matter of special concern to the

State with its determination to renew the growth model from width to depth associated with labor productivity, science and technology, and innovation, create. Circular economy is becoming an inevitable trend to meet the requirements of sustainable development in the context of increasingly degraded and depleted resources, polluted environment, and fierce climate change. Building a circular economy has been identified as one of the country's development orientations for the 2021-2030 period in the documents submitted to the 13th National Congress of the Communist Party of Vietnam. In particular, the Covid-19 pandemic has been affecting all aspects of global socio-economic life, deepening the demand for changing growth models towards sustainable development.

In the period of 2021 - 2030, it is necessary to focus on implementing many solutions to promote the circular economy in Vietnam in order to take advantage of cooperation opportunities in accessing and receiving technology transfer and digital transformation for development. sustainable development of the country. In particular, the State plays a leading and constructive role, businesses establish a management system, implement and comply with legal regulations, people must raise awareness, sense of responsibility, carry out supervision. community, promoting the role of mastery in building and developing circular economy in Vietnam. Specifically, it is necessary to implement a number of solutions to promote the development of the circular economy as follows:

First, strengthen communication work to raise awareness of the responsibility of the business community and people about the circular economy; on the responsibility of sorting waste at source for recycling and reuse; change consumer behavior towards environmentally friendly products.

Secondly, it is necessary to consider the development of the circular economy as an inevitable solution to renew the growth model, improve the quality of growth, improve the national competitiveness, ensure sustainable production and consumption, contribute to solving social problems, creating jobs, eradicating hunger and reducing poverty; allocate, manage and effectively use resources, protect the environment and respond to climate change.

Third, lead and direct the review, amendment, supplement and promulgation of new mechanisms, strategies, policies and laws to promote circular economy development, in line with the Party's guidelines and trends. In the new world, regulations and standards have been formed in the region and on a global scale.

Fourth, ministries, ministerial-level agencies, and provincial-level People's Committees shall integrate circular economy right from the stage of developing development strategies, master plans, plans, programs and projects; waste management, reuse and recycling. Considering natural resources as a source of natural capital that needs to be accounted for, monitored, evaluated and proportionately balanced with other capital sources

in the process of policy making and administration at all levels, sectors and fields. Treat waste as a valuable resource that can be recycled, reused, created jobs and added value to the economy.

Fifth, bring into play the strength of the entire political system, thoroughly grasp the Party committees and authorities at all levels; strengthen propaganda widely throughout the society about the role, meaning, benefits and importance of circular economy development; integrate the requirements of circular economy development into the lives and practices of people, communities and the whole society.

Sixth, implement solutions to transform the economic model such as adjusting energy planning, gradually reducing dependence on forms of energy from fossil fuels, hydroelectricity; building a roadmap for technology and digital transformation based on energy efficiency and saving criteria, minimizing waste.

Seventh, specify the manufacturer's specific responsibilities for the recovery, recycling or disposal of discarded products based on the number of products sold in the market; develop environmental industry, market for environmental goods and services, environmentally friendly products...; project management according to the life cycle, establishing a roadmap for the development and application of environmental regulations and standards (emissions and technology) equivalent to the group of advanced countries in the region.

Eighth, focus right from the planning, production design, product design to strengthen the connection of the circular production chain. Select a number of industries, fields of industry, agriculture and services to follow the circular economy model such as: paper industry, iron and steel production, thermal power, cycle water management. To develop urban centers, industrial parks, export processing zones and thermal power centers according to the circular model. Develop a set of indicators and criteria to monitor, evaluate and apply policies to encourage the transition to a circular economy at the national, regional and local levels, including contents on effective use of resources, resource consumption, waste utilization and emissions.

Ninth, building a market institution, promoting the application of market-based tools in the fields of resource management and environmental protection to encourage technological innovation, management methods, and consumer behavior. use of society in the direction of exploitation, rational and more efficient use of natural capital that nature bestows on the economy, avoiding the trap of resource curse; encourage better utilization of the economy's waste, preserve and protect the ecological environment, improve the resilience of natural systems and the resilience of the economy to natural shocks diseases, and climate change.

Tenth, promoting research and application of science and technology, taking digital

transformation and applying achievements of the industrial revolution 4.0 as a driving force in circular economy development.

Effective management, allocation and use of natural resources, environmental protection, proactive response to climate change, and natural disaster prevention and control are urgent requirements to promote sustainable development of the country. The Party cares about leading and directing with many guidelines, strategies and policies of the era. The circular economy is identified by the world as a total solution towards sustainable development. The Resolution of the 13th National Congress of the Party has identified building a circular economy as one of the country's development orientations for the period of 2021-2030, a solid basis for us to believe in the development of the circular economy. successfully take advantage of opportunities and transform challenges to develop a circular economy, contributing to the management, allocation, exploitation and efficient use of natural resources, environmental protection and response effective with climate change, sustainable socio-economic development of the country until 2030, with a vision to 2045.

4. Discussion and Conclusion

The circular economy is a concept that has evolved over the decades to become a viable alternative to the current system of wasteful consumption. It is slowly taking shape and being adopted, requiring little sacrifice by the consumer or the industry. This system will pioneer long-term design, maintenance, repair, reuse, remanufacturing, refurbishment and recycling. As the world becomes more and more aware of the impact of humanity on the existence and development of our planet, the new economic system must not only address the finite nature of non-renewable resources, but also handle the large amount of waste generated... In the objective law of nature, there is no waste, because, everything is transformed, acting as raw material for new cycles.

Countries around the world as well as Vietnam are aiming to develop a circular economy to solve the challenge between economic growth and environmental protection, the shortage of natural resources. It is required to minimize exploitation and efficient use of raw resources, minimize waste as well as reuse and recycle waste as much as possible by industrial symbiosis. In order to develop a circular economy in Vietnam, it is necessary to understand the nature and rationale of this development in association with public-private cooperation and the support of the consumer community. Recognizing the challenges and key technologies of the Fourth Industrial Revolution to approach and apply for circular economy development.

Developing a circular economy in Vietnam requires a clear understanding of the nature and rationale of this development. To develop a circular economy, it is necessary to summarize and evaluate existing development models for agriculture, industry, service and tourism sectors, thereby identifying development methods close to approaching the circular

economy as the basis for upgrading to development according to the criteria of the circular economy. Developing a circular economy, it is necessary to be aware of the opportunities to take advantage of these opportunities, on the other hand, must also see the challenges for the development of the circular economy that will be encountered in order to take measures to overcome. Developing a circular economy requires appropriate solutions based on Vietnam's practice and lessons learned from the world.

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