

Applying circular economy model for small and medium enterprise in Viet Nam

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Abstract: *The circular economy has become a popular economic model worldwide due to the increasing severity of environmental pollution. Businesses must also make the transition to circular economic models. This article aims to analyze the application of the circular economy in some small and medium enterprises in Vietnam. The article is based on the data and theory of the circular economy, analyzing the current situation of applying the circular economy in Vietnam. Based on the application of SMEs' circular economy, make some policy suggestions for the Vietnamese government and Vietnamese businesses in applying and transforming to the circular economy model.*

Keywords— SMEs, circular economy, Viet Nam

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are an essential part of the private economic model and account for a large proportion of the Vietnamese business community. In 2019, Viet Nam had about 541,753 SMEs operating in the economic model, with a total registered capital of about 130 billion USD. Every year, SMEs contribute 40% of GDP, contributing 33% of industrial output value, 30% of export value, and employ nearly 60% of employees. Currently, SMEs mainly produce based on a linear economic model, on the principle of exploiting resources from the natural environment as an input to the economic system through production, consumption, and finally discharged into the environment. Meanwhile, shortly, all enterprise has to comply with environmental and social goals according to regulations of global sustainability. In addition, the linkages between SMEs in Vietnam are weak, and there are few links between small and large-scale enterprises that are even weaker. Therefore, applying the circular economy model to production in Vietnamese enterprises is in the early stages. This study will evaluate the circular economy models that SMEs can apply towards the circular economy in the near future.

2. LITERATURE REVIEW

Pearce & Turner [1] first officially used the term circular economy. Based on the principle that “everything is an input to everything else,” the authors critically looked at the traditional linear economic system and developed a Circular Economy model. The relationship between economy and environment is prominent in this model, which combines three financial functions of the environment: i) as the source of resources; ii) as a waste assimilation agent, and iii) as a source of utility. Since then, many studies have explained the Circular Economy in different ways.

“Industrial ecology” is a discipline that follows a systems approach and involves a holistic perspective when dealing with human economic activity and sustainability [2]. This

principle specializes in natural ecosystems, and manufactured industrial systems function similarly and flow materials, energy, and information [3]; [4]. The transition towards a sustainable industrial economy will require structural and technological changes combined with economic and cultural developments to achieve optimization of energy and materials. In this context, Turner et al. [1] argued that the optimization of the entire system requires improved production processes “to minimize the generation of non-recyclable waste (including thermal waste) as well as minimizing consumption of scarce energy and raw materials.” In their view, innovation is needed in the production and design of products and processes to effectively redirect materials back into the manufacturing process that was previously considered waste.

The circular economy is an economic system that regenerates and restores through proactive planning and design, replacing the concept of the “end of life” of materials with restoration and displacement. The circular economy is a closed circle that includes production, recovery, and transition towards renewable energy without harmful chemicals. Circular economy is an economic model in which design, production, consumption, and service activities aim to reduce the exploitation of raw materials and materials, prolong the product life cycle, limit waste generation, and minimize destructive impacts on the environment. This sustainable development strategy is being proposed to solve the pressing problems of environmental degradation and resource scarcity. This new model minimizes input resources, waste, emissions, and energy in the production and consumption processes from design, maintenance, repair, reuse, and remanufacturing. , long-term refurbishment and recycling based on economic motivation, towards a zero-emission economic model. a circular economy based on three main principles, including preserving and enhancing natural capital by controlling finite reserves and balancing flows of renewable resources; optimizing resource productivity by rotating products, components, and materials to the highest degree; enhancing

system efficiency by minimizing negative externalities such as pollution of water, air, soil and noise, toxic substances [5].

The benefits of the circular economy model can be seen as efficient use of waste, saving input resources, and creating competitive goods in the market, bringing production efficiency to enterprises. Many large enterprises have also adopted a circular economy and have recently begun encouraging their supply chains to adopt a circular economy. The most frequently cited circular economy definition is the one given by the Ellen MacArthur Foundation [6] that the circular economy is a regenerative and restorative system through masterful planning and design. It replaces the concept of "end of life" of materials with the concept of recovery, shifting towards using renewable energy, not using harmful chemicals that harm reuse, and towards reducing waste reduction through the design of materials, products, systems engineering, and business models within its scope." Sauv e et al. [7] defined the Circular Economy as the production and consumption of goods through closed-loop material flows that affect the environmental circumstances associated with the extraction of pure resources and generate waste (including pollution). In their view, the main focus of the Circular Economy is to reduce resource consumption, pollution, and waste during each step of the product life cycle. Preston [8] defines a circular economy as "an approach that can transform the function of resources in an economy. The waste from the factory becomes a valuable input to another process – products that can be repaired, reused, or upgraded instead of being thrown away. The EEA [9] defined the Circular Economy as "primarily referring to the physical resource aspects of the economy – it focuses on the recycling, reduction, and reuse of physical inputs economy and using waste as a resource leads to a reduction in primary resource consumption." Carlar [10] emphasized the importance in the Circular Economy of maintaining resource usage for as long as possible and extracting maximum value from products and materials by using them for as long as possible, then restoring and using them again. Heck [11] emphasizes that sustainable energy use has not achieved equal status compared to recycling and waste management. To this end, he suggests that the transition to a Circular Economy will require addressing the challenge of establishing a sustainable energy supply and decisive action in a number of other areas such as agriculture, water, soil, and biodiversity.

3. APPLYING CE FOR SMES IN VIET NAM

The circular economy is currently considered an economic model that meets the requirements of solving environmental pollution, responding to climate change, and serving sustainable development. Vietnam is trying to develop its economy sustainably, minimizing adverse environmental impacts, and the circular economy is a model of concern and development orientation. In creating a circular economy, Vietnam also faces many opportunities and challenges.

3.1 Opportunities to apply circular economy in Vietnam

Vietnam has a high speed of deep integration into the economy, especially participating in bilateral and multilateral free trade agreements, new-generation free trade agreements. Most of these agreements have regulations and agreements on sustainable development, environmental protection, response to climate change, and compliance with waste and emission standards. This premise promotes Vietnam to accelerate its transformation to a circular economy model.

Applying the circular economy model, Vietnam has advantages in learning from the practical experience of developing economic models of developed countries globally, taking advantage of cooperation opportunities in receiving remittances transfer of modern design, manufacturing, and information technology technologies. Currently, Vietnam has a number of approaches to the circular economy, such as the collection and recycling of scrap metal, the collection and recycling of paper, etc.; cleaner production model in medium, small, and micro-scale industrial production.

Along with this advantage, the State has issued many guidelines and policies on transforming the growth model towards sustainability; strengthening the management of natural resources, protecting the environment in response to climate change; increase recycling and reuse. Vietnam is perfecting the socialist-oriented market economy institution to develop a fast and sustainable economy.

Meanwhile, the circular economy model can meet the above goal in the policy of the State. Along with that, policies to encourage and create mechanisms for the private economy to develop in the context of a competitive market will have many opportunities for private sector investment in implementing circular economy development in the near future.

The Industrial Revolution 4.0 strongly affects all areas of social life, the research and promotion of technological innovation, and moving from the real world to the digital world. This situation will be an excellent opportunity to implement circular economy development, bringing higher growth efficiency than the previous growth method. This development will drive force and an opportunity for Vietnam to accelerate the development of a circular economy.

3.2. Situation to applying circular economy for SMEs in Viet Nam

After 35 years of renovation, Vietnam's economy has undergone a remarkable change. However, along with the growth results, the traditional linear economic model following the cycle of exploitation, production, and emissions has consequences on environmental pollution. According to the Institute of Health and Environment for the Community (under the Vietnam Union of Science and Technology Associations), the linear economic model poses three problems:

Firstly, the traditional linear economy causes an increase in waste.

According to forecasts, the amount of waste in Vietnam will double in less than 15 years, and Vietnam is also one of the ten countries most heavily affected by air pollution. Meanwhile, the recycling rate in Vietnam is less than 10% of the total waste.

Second, a linear economy increases resource and energy consumption. Energy consumption in Vietnam in recent years has increased faster than economic growth. Vietnam has become a net importer of energy, including coal and oil power. Consuming a lot of raw materials and energy and wasting waste causes the gradual depletion of resources, adversely affecting the environment, and causes high production costs, reducing the competitiveness of enterprises. Karma.

Third, Vietnam has a high rate of deep integration into the economy, especially participating in bilateral and multilateral free trade agreements and next-generation free trade agreements. Most of these agreements have regulations and agreements on sustainable development, environmental protection, response to climate change, and compliance with waste and emission standards. The commitments in the new generation FTA force Vietnam businesses to focus on the environment, labor, sustainable development, and governance. The problems in the 4.0 Revolution, including the research and promotion of technological innovation and the transition to the digital world, affect all areas of social life. The above problems are a premise to promote Vietnam to build a roadmap to transition to a circular economy model.

According to the Institute of Health and Environment for the Community, circular economy has become an inevitable development trend today, not only for environmental goals but also for economic goals. Specifically: ((1) The circular economy is not simply about treating and recycling the waste of the existing production process, but towards redesigning the entire production system and strategy to make the most efficient use of it. Resources and waste generated can be reused; (2) Circular economy is a way to improve competitiveness through saving resources, using resources more efficiently, and at the same time opening up new and creative opportunities in different industries a. Accordingly, the essence of the circular economy model is that design, production, and service activities aim to prolong the life of materials and eliminate negative impacts on the environment. In other words, the circular economy model focuses on the management and regeneration of resources in a closed-loop. Wastes are reused, recycled as input materials for different production processes, towards No discharge to the environment, bringing economic efficiency.

Vietnam implements the Agenda global 2030 into a National Action Plan with 17 sustainable development goals and 115 targets suitable for specific conditions [12]. The Action Plan of Viet Nam focuses on the goals of hunger eradication and poverty reduction, environmental protection,

and climate change; make sure people everywhere can enjoy peace and prosperity. One of the important goals is to manage sustainably, use economically and rationally in the face of increasingly depleted natural resources towards sustainable production and consumption. One of the critical solutions is to convert the economic model to a circular economy model.

The circular economy model will promote manufacturers to use resources efficiently, minimize waste and emissions, and move towards a clean economy; promote the greening of the distribution system and develop the national supply chain of environmentally friendly products and services; promote the development of environmental industry, waste recycling industry. The National Action Program on Sustainable Production and Consumption for 2020, with a vision to 2030, is the legal framework for a comprehensive approach to the contents and tasks of production, sustainable consumption. Many Vietnamese scholars agree that several fields have related aspects and have been concerned. However, the circular economy is still a new issue in the general perception in Vietnam, while it has been operated in many countries around the world. Many countries in the EU, China, Japan, Australia... have focused on research and institutionalization in the practice of the circular economy, and at the same time, protection and improvement of the environment towards building a green planet [10].

3.3.The challenges for Viet Nam SMEs to apply circular economy

The transition to a circular economy has been posing many challenges for Vietnam, typically:

Firstly, the policy framework for developing a circular economy model has not been completed. Currently, Vietnam still lacks mechanisms and policies to promote the development of the circular economy, such as Regulations on the responsibility of enterprises for recovering and recovering resources from used products, economic tools, and policies such as resource tax, environmental protection fee, etc.

Secondly, awareness of the circular economy and the need to switch to a circular economy model is still limited. The correct awareness of the circular economy needs to be done from design to implementation for each industry. Each field needs to be agreed upon and unified from leaders and management levels to each enterprise and person.

Thirdly, resources for the transition to circular economy development in Viet Nam are still weak. The circular economy must be associated with scientific innovation and access to advanced technology. Besides, a circular economy requires a team of suitable experts to solve problems well, from the beginning to the end of the whole process.

Fourth, Vietnam still lacks enterprises capable of technology in recycling and reusing used products. It is difficult to immediately change society's production and consumption habits for many easy-to-use products such as plastic bags and products to using only recyclable materials

and products. Vietnamese small and medium-sized enterprises find it challenging to invest in technological innovation.

4. SOME DISCUSSION AND CONCLUSION

Vietnam should be synchronously implemented the following solutions to promote the development of a circular economy

First, Vietnam Government must amend and supplement the Law on Environmental Protection, specifying the specific responsibilities of manufacturers and distributors for the recovery, sorting, and recycling or payment of disposal costs for discarded products based on the number of products sold in the market. Vietnam's government should establish the roadmap for developing and applying environmental standards and regulations equivalent to the group of advanced countries in the region.

Enterprises are the central driving force, and the State plays a constructive role; organizations and individuals participate in implementation. The State's tectonic role is shown in creating an environment for the circular economy to develop. Therefore, Vietnam should consider including both approaches to implementing the international circular economy in the roadmap for developing circular economic models.

Second, Viet Nam should build an in-depth economic growth model, effectively use input resources, apply science and technology to industries, especially waste treatment, to regenerate new materials. They regulated a roadmap to replace fuels and products using hazardous materials and single-use products with environmentally friendly fuels and reusable products, prolonging their useful life.

Third, the Government should adjust energy planning and gradually reduce dependence on energy from fossil fuels, hydroelectricity. Vietnam should control and selectively attract investment projects considering production scale, production technology, environmental engineering, and project implementation location and building a technology transformation roadmap based on energy saving and efficiency criteria and waste reduction.

Fourth, the implementation of the circular economy needs to be associated with technology development, the digital economy, and the Industrial Revolution 4.0. New technologies will help implement an effective circular economy model, reduce pollution emissions, conserve nature and biodiversity, and avoid over-exploitation of resources and create new job opportunities ensuring the goal of this model.

Fifth, manufacturers need to clearly define the top priority of enterprises to expand the circular economy. Product durability and sustainable manufacturing are essential instead of making products as quickly and cheaply as possible. Products need to be designed to be easily recyclable if they do not end up in landfills.

Sixth, it is necessary to propagate and educate people to raise awareness about the separation of waste at source, creating conditions for collection, transportation, reuse, and recycling more convenient and accessible.

Policy suggestions for the circular economy to small and medium enterprises

Towards the transition to a new economic model with SMEs in Vietnam, the Government should have policies on:

- Using recycled products or environmentally friendly materials, aiming to establish and develop standards for recycled products and biomaterials;
- Consider imposing less tax on recycled products or bio-based products than those made from virgin materials, boosting the market for recycled products;
- There are measures related to product labeling, standardization, and certification for green products to help consumers easily make reasonable choices.

In addition, the Government needs to have mechanisms and policies on fiscal and monetary to mobilize social resources to participate in the production of raw materials, develop supporting industries to support industries for mutual development. There are clear policies to help businesses invest in clean technology, especially tax policies, to encourage funding or reduce bank interest rates.

From the operating principles of today's SMEs, it can be seen that there is a huge opportunity to improve business productivity and social and environmental performance in these enterprises. Strategies to apply the CIE in businesses are integrated through activities throughout the supply chain. They are based on the resources available at SMEs today, such as Renewable raw materials, infrastructure communication layer, means, and technology for recovery, thereby aiming at goals such as:

- Design and redesign products in collaboration with customers to optimize resources, reduce energy consumption, use renewable energy, promote the use of biofuels through activities distribution and collection;
- Reduce packaging or use biodegradable packaging materials;
- Use 100% recyclable materials;
- Applying 4.0 technology to manage data across the entire supply chain, establishing networks in each industry field;
- Training human resources to meet the awareness of science and technology and the management board to commit to operating the model;
- Apply eco-labels to products and service systems, emphasizing repair where possible.

Vietnam is a developing country, the promotion of the self-contained economic model should be based on

endogenous SMEs. These businesses need to have a connection to create a network to connect and share information in effectively applying the knowledge-based

economy model. Each enterprise can perform an activity in the chain of "Design - Supply - Production - Distribution - Use - Recovery" to help form ecological industrial clusters

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