

CIRCULAR ECONOMY IN KENYA AND SOME IMPLICATIONS FOR VIETNAM

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ABSTRACT

A linear economic model based on exploiting resources for production and consumption is gradually becoming ineffective and causing negative impacts on the environment [1]. Instead of using a linear economic model, many countries have shifted to a circular economy with changes in development philosophy to reduce dependence on natural resources and reduce waste and pollution's environment while ensuring economic growth. This paper will analyze Kenya's circular economic model to give Vietnam some implications in its transition to a circular economic model.

Keyword: *circular economy, economic development, environment*

1. INTRODUCTION

There are many economies globally based on the exploitation of resources to create products to meet consumer needs. This way has brought economic growth and improved people's living standards for many years in the global. However, as the economy is expanding and resources are gradually depleting, the linear economy no longer maintains its former value but has many negative environmental impacts. Therefore, many countries' trend is to shift to a circular economy. Korhonen, Honkasalo, and J. Seppälä stated that a circular economy with the core of recovery and regeneration would reduce resource extraction and minimizing waste discharged into the environment [2]. The global is currently facing many severe environmental challenges and ecosystems such as forests and grasslands. Resources have also begun to run out with unsustainable human exploitation. Environmental degradation has also resulted in rural to urban migration and residence in informal settlements in urban areas. That is why countries worldwide are starting to adopt circular economic strategies to minimize environmental damage while maximizing sustainable development.

Kenya has started implementing circular economic activities such as building biogas digester, reusing plastic, and banning plastic bags. The establishment of biogas plants in rural and densely populated areas in Kenya has created electricity for lighting. Recycling and using household solid waste and municipal solid waste

in Kenya has helped improve sanitary conditions in slums.

Vietnam is also facing the inevitable consequences of the linear economy and is meeting the need for change. In recent years, Vietnam's energy consumption has doubled compared with GDP growth, making Vietnam one of the net energy importers. It is forecasted that by 2030, Vietnam may have to import up to 100 million tons of coal. Besides, Vietnam is the 5th largest plastic consumer globally, with about 1.8 million tons per year [3]. Therefore, some implications can be drawn from Kenya's circular economic activities for Vietnam.

2. LITERATURE REVIEW

A circular economy is a new approach to economic development, aiming to connect the end of the process back to the beginning, even restore and regenerate the material and repeatedly keep the material reusable. Stahel & Reday-Mulvey (1981) [4] introduced the concept of the circular economy. To date, the circular economy has been widely recognized and launched at the 2012 global economic conference. "The circular economy is a system of revitalization and regeneration through planning and functional design. It replaces the "end of life" concept of materials with the idea of restoring, shifting towards using renewable energy, not using harmful chemicals that harm reuse and aiming to reduce waste reduction through the design of materials, products, engineering systems and business models within that system"[5]. The

nature of the circular economy is Restorative and Regenerative, with three basic contents: (i) Preservation and development of natural capital through the proper control of non-recoverable and balanced resources with renewable resources, renewable energy sources; (ii) Optimizing resource returns by recirculating products and materials as much as possible across engineering and biological cycles; and (iii) Improve overall system efficiency by identifying and designing negative externalities (waste design, pollution design). From these three contents, complex operations to be performed are aggregated, including groups of Regenerate, Share, Optimize, Loop, and Virtualize. and Exchange [6].

3. FINDING

3.1. Some basic features of the circular economy in Kenya

3.1.1. Circular economy in Kenya

Kenya has adopted several legal frameworks to strengthen circular economic realization. The basic laws include the Act of Congress, bills, and legal documents of government agencies. In 2010, Kenya introduced a new Land and Environment Constitution outlining citizens' obligations to ensure the sustainable exploitation of natural resources and protecting the environment. The Constitution on the environment and natural resources are essential steps for a circular economy. Concepts of the circular economy began to be recognized in Kenya since the Environmental Management and Coordination Act (EMCA) came into effect [7]. The EMCA Act has led to various organizations aiming to achieve environmental protection goals such as the National Environmental Court (NEMA), National Environmental Action Planning Committee (NEAP). NEMA is the government of Kenya's primary tool to implement all relevant environmental policies and implement general monitoring and coordination on all environmental issues. The Kenyan government also conducts environmental impact assessment activities. According to the Law on Environment, all domestic development projects must carry out an environmental impact assessment, cleaner production, and sustainable development [7]. That is an essential step towards realizing the achievement of a circular economy. Regular monitoring of developing domestic projects is also done regularly to ensure that all projects are

entirely in compliance with environmental regulations.

3.1.2. Circular economic models in Kenya

In 2016, the Kenyan Ministry of Natural Resources and Environment cooperated with UNDP to develop a model of urban solid waste management, which is one of the models supporting the circular economy called the Low Emission Capacity Building Program (LECB). The main objective of the LECB is to ensure cooperation between the private and public sectors, industries and other stakeholders to ensure the development of low emission approaches. The LECB program lasts until 2016 and operates in 25 countries, including Kenya and Vietnam. Kenya's urban reliable waste management approach aims to convert waste from treatment to recycling. Urban concrete waste management approaches would benefit from waste collection and recycling to improve household health, reduce CO₂ emissions, and increase compost waste agricultural activities. The circular economic model is expected to process about 90% of the total waste collected in Kenya, and the amount of this waste will be recycled. Kenya ranks among the highest globally in recycling, compared with some developed countries such as the US and Italy at 36 and 34.5%, respectively [8]. About 30% of recycled materials are recovered at the central recycling point and sold to industrial enterprises. The remaining 60% of the total amount of mainly organic waste will be transported to the composting plants for fertilizer production. They will dispose of the left waste as energy-generating through the cement kiln method.

3.1.3. The impact of the circular economy on economic growth in Kenya

The circular economy has provided the opportunity to drive economic growth through improved production and consumption patterns, cost savings, job creation, and economic innovation. The transition to a circular economy will bring higher growth rates to Kenya [9]. Besides, the circular economy will also affect and change production and manufacturing processes and other technological advances. Advances in industrial engineering can increase economic productivity each year by about 3%. A circular economy will reduce the exploitation of natural resources, increase the opportunity to recycle and

reuse waste. Recycling and reusing waste will increase household savings and reduce the costs of processing waste into the desired products, thus increasing GDP.

The adoption of circular economic strategies in developing countries will reduce unemployment due to increased job opportunities. Production and consumption patterns of both small and large-scale enterprises will apply new technologies in production and resource conservation. Manufacturing industries that use the circular model will create better quality products and increase consumption by creating new markets. Foreign investors and international financial lenders will also invest more in countries that adopt the circular economic model. According to Kirchherr, D. Reike, and M. Hekkert [5], consumer goods with recirculating material costs could save about \$700 billion globally. Innovations by replacing one-way conventional goods with those with designs and having after-sales services can be more economical. The advantages that circular economics offers include efficient use of energy and labor, better technology development, possibly cheaper material costs and higher profits. The circular economy offers the ability to improve the environment, reduce carbon emissions, and reduce home emissions.

It is forecasted that a circular economy could reduce the use of primary materials (construction materials, real estate, synthetic fertilizers, pesticides, agricultural water, electric and non-renewable fuels.) in Kenya by about 32% by 2030 and 53% by 2050 [8]. The circular economy is also expected to save Kenya billions of dollars annually in solving problems such as land degradation. The systematic use of organic waste also helps with soil regeneration and reduces the use of chemical fertilizers. Households in Kenya could reduce the cost of agriculture by 16% by 2030. The circular economy will also help control problems related to air and water pollution, climate change, land use and hazardous substances discharged into the environment.

A circular economy can also help businesses reduce lower input costs in production and increase profits. Brewing, for example, requires inputs such as grain, yeast and energy. Usually, the used materials will be destroyed. Still, if the brewers can use the recycled materials, they can save about \$ 1.9 per unit of beer, and total sales revenue will go higher. Clothing manufacturers

can also collect old clothes to use as raw materials for new clothes such as H&M. Also, the circular economy also helps businesses not rely entirely on raw material suppliers. It can therefore increase the production and consumption of goods. Producers in the recirculating economy are less dependent on natural ingredients and therefore less affected by natural disasters.

3.2. Some implications for building a circular economy in Vietnam

In Vietnam, the term "circular economy" has not been officially used in the Party's chapters and the State's laws and policies. However, many factors of the circular economy have been mentioned. In 1998, Directive 36/CT-TW said "applying clean technology, less waste, consuming less raw materials and energy," followed by Resolution 41 providing the orientations on "incentive. recycling, using recycled products ", ... From those policies of the Party, the State of Vietnam has issued laws and policies related to" exploiting and using resources economically, "using renewable energy, "3R," replacing plastic bags, "Producing and consuming sustainably, "green supply chain, "green consuming "...

Vietnam has also had some successful examples in shifting to the circular economy, such as the Garden-Pond-Shed model, which helps with gas recovery, waste reuse. As for an economic system approach, Vietnam has the advantage of UNIDO and the Global Environment Fund. Four eco-industrial zones have been formed, one model in the circular industrial park, in Ninh Binh, Da Nang and Can Tho, with 72 participating enterprises. In particular, the sharing and circulation of raw materials, energy, waste and water of these eco-industrial zones have saved about \$ 6.5 million per year [3]. The lessons learned from these four eco-industrial zones and the experience of cleaner production models, which started in the 1990s, will be the basis for the model's improvement and replication. However, it should be noted that the circular industrial zones and circular cities should be carefully designed, planned and built, avoiding subjective will. Danish experience shows that it can take a decade to complete a recirculating industrial park.

From the circular economy's experience in Kenya, Vietnam needs to offer a more comprehensive policy system on the circular economy. The

current circular economy has developed and not only on the utilization of materials but needs to be considered comprehensively in four phases: (1) Production (including design and production execution); (2) Consumption; (3) Waste management; and (4) Convert from waste to resources. From the above analysis based on international experience, this article proposes several policy suggestions to promote Vietnam's circular economic realization.

Firstly, Vietnam needs to institutionalize a circular economy and move towards implementing a circular economy in all activities. In a circular economy, the State plays a constructive role, and business is the central driving force. To promote that central dynamic, international experience shows that the circular economy's institutionalization is the solution chosen by many countries. First and foremost, transparent laws and policies will systematically and synchronize the circular economy, along with incentives (incentives in terms of administrative mechanisms and procedures, finance, access to resources) and clear and transparent sanctions. Since then, good circular economic models are encouraged and created a circular effect in all economic and social activities. Vietnam may consider developing its laws on a circular economy or completing and supplementing existing laws in a more specific and systematic direction.

Secondly, Vietnam needs to promote material recovery and limit hard-to-recycle waste. Material recovery plays a vital role in the circular economy. There are three main groups of solutions to enable this: source separation, expanding producer responsibility (EPR) and promoting new markets (including recovery and recycling markets), plastic, paper, metal and the market for recycled products). For the development of markets, the role of Green Public Procurement often has a considerable impact, and even government consumption in many cases can drive the production and consumption of the market.

Thirdly, Vietnam needs to prepare for the shifting of demand for resources when realizing a circular economy in climate change adaptation. The shift from a linear to a circular economy will likely lead to shifts in demand for resources. For example, to reduce greenhouse gas emissions, it is necessary to reduce energy from fossil fuels (coal, oil, etc.) and increase renewable energy (solar energy,

wind energy). Thus, the point where the economy reduces demand for coal increases the need for rare earth (used for making wind turbines). The primary market and the secondary market's effects should be taken into account in the resource sector.

4. CONCLUSION

The circular economy with the core connects the endpoint to the beginning of the economic system, helping the recovered materials back into the economic system's input, saving resources, and saving business costs. Industry, reducing waste into the environment, is an implementation choice of many countries around the world. However, the current circular economy is about managing and utilizing materials, but fully considered in all four phases: production, consumption, waste management and final. The same thing is to turn waste back into a resource. In particular, the circular economy is not a uniform model for the whole economy. Still, it is many different models in the economy built on the philosophy of regeneration and recovery. Kenya has a relatively good performance on the circular economic model and recycling and waste management. Vietnam is also on the way to a gradual transition to a circular economy, so Kenya's circular economy modes will also be lessons for Vietnam in applying the circular economic model for the whole economy.

5. REFERENCES

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