

POLICY BRIEF

Research, Evaluate And Propose
Solutions To Promote The Transition
To Circular Economy In Vietnam



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I. INTRODUCTION

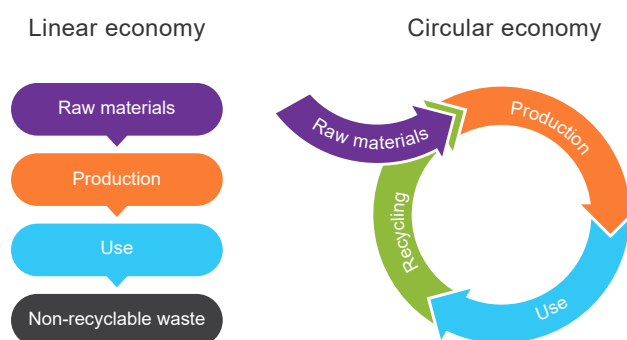
Linear Economy is a traditional economic model in which natural resources are exploited and provided as an input to the economic system, then be transformed into products that are used until they are finally discarded as waste. This model is believed to result in exhaustion of natural resources as well as an increase in waste generation and environmental pollution and degradation.

The Global Footprint Network (2018) estimates that humanity’s uses of ecological resources and services for their economic activities are now equivalent to 1.7 times the earth can regenerate. Over-exploitation is followed by the inevitable depletion of natural resources, even renewable resources. When it comes to waste, the research estimates that there are currently over 150 million tons of plastics in the ocean and by 2050, based on BAU, the ocean is expected to contain more plastics than fish (by weight) (Ellen MacArthur Foundation, 2016).

With 1.83 million tons of waste released into the ocean every year, Vietnam ranks 4th in the world for ocean plastic waste pollution (Jambeck et al., 2015). According to the World Bank (2016: 102), Vietnam lost 5.18 percent of its GDP in 2013 because of air pollution. One study also identifies that water pollution could cost Vietnam up to 3.5 percent of GDP annually by 2035 (World Bank, 2019). Besides, Vietnam has faced many other great threats to national economic development, including a decline in natural resources, an increase in soil contamination and land degradation, and climate change.

Under this context, many countries have been in the transition towards the Circular Economy (CE) model. Vietnam is also inevitably out of the trend. Theoretically, the concept of a circular economy is in line with the principle of thermodynamics, especially with the law of conservation of matter and energy and the law of entropy. Accordingly, CE creates a closed-loop or cycle in which discarded materials are retrieved for inputs into the economic system (Figure 1).

Figure 1: From linear to circular economy



Source: Government of the Netherland¹

Many agree that Circular Economy is the appropriate transition for Vietnam to achieve Sustainable Development Goals (SDGs) and respond to climate change. CE holds particular promise for achieving multiple SDGs, including SDG 9, SDG 12, SDG 13, SDG 14, SDG 15, and SDG 17.

¹Retrieved from https://www.government.nl/topics/circular-economy/from-a-linear-to-a-circular-economy?fbclid=IwAR1QAaaoW-8mUXc_5wbNvJV7b9Ysf3UNhDUsp0YmP0eUFaDj_xXC7ua-ClIgc

II. THEORETICAL BASIS ON CIRCULAR ECONOMY

The concept of “Circular Economy” (CE) was initially introduced by some environmental and ecological economists in the 1960s (Stahel & Reday, 1977). At present, this concept is no longer referred to as materials optimization and waste management. Instead, circular economy covers 4 stages; production, consumption, waste management, and waste to resource. According to the European Commission, circular economy encourages maintaining the value of products, materials, and resources for as long as possible by returning them to the product cycle at the end of their use, and minimizing waste generation. At the same time, the UN Environment Programme and the Organization for Economic Cooperation and Development (OECD) argued that a circular economy is the best way to decouple the economic growth from environmental degradation.

Circular Economy has three principles (Ellen MacArthur Foundation, 2012):

- Preserve and enhance natural capital by the management of rational use of resources and regeneration of natural systems; especially promoting the use of renewable energy.
- Optimize resource yields by circulating products and materials in both biological and technical cycles as long as possible.
- Foster effectiveness of the system by minimizing the negative externalities through sustainable design at the beginning of the manufacturing process.

The CE's principles are derived from the universal principles of matter conservation and entropy principle. Therefore, CE is not in conflict with other Green Growth, Green Economy, or Sustainable Development. By studying in-depth analysis of these terms, it reveals that CE is compatible with Green Growth and Green Economy, and all are approaches to sustainable development.



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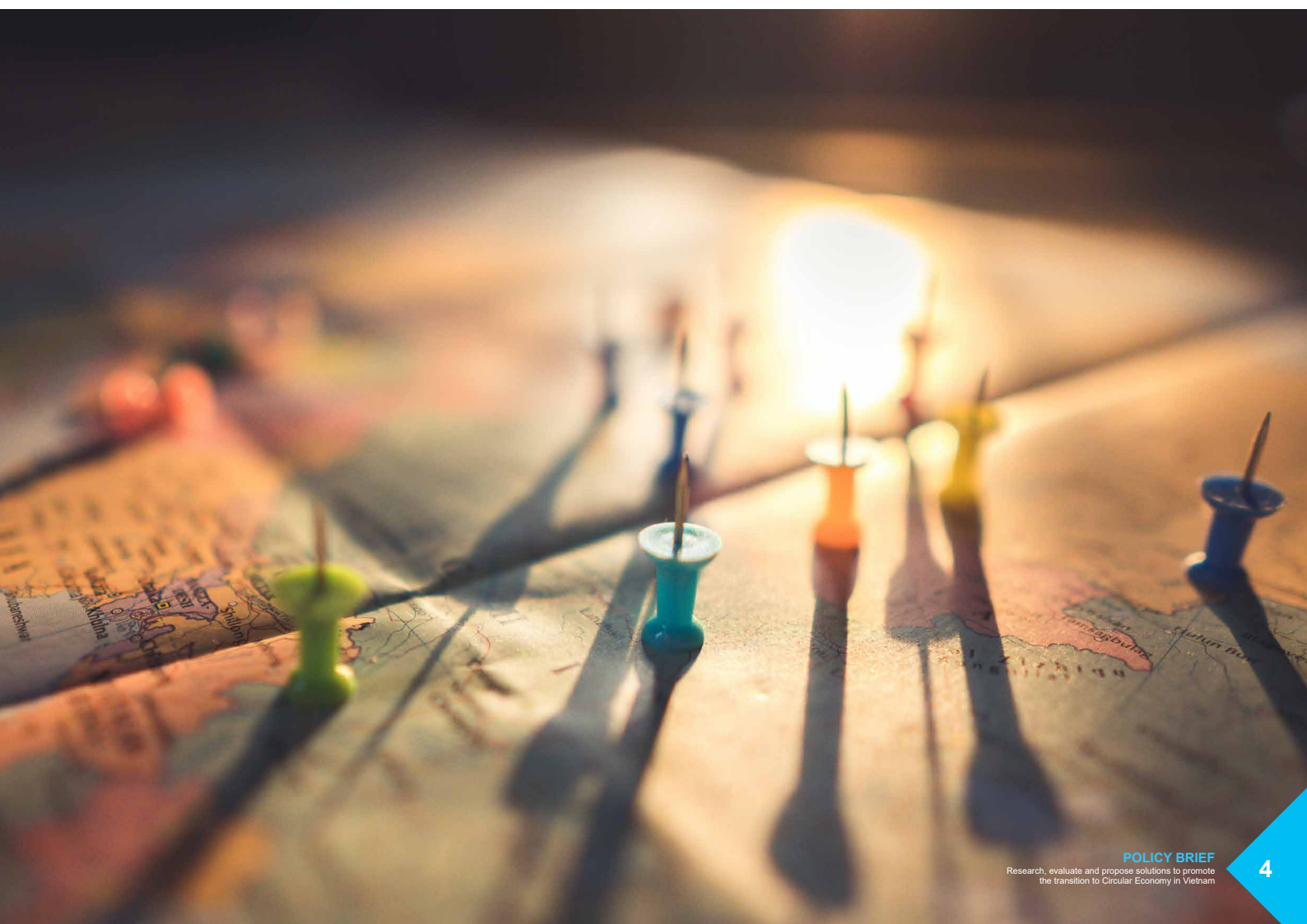
III. APPROACHES TO CIRCULAR ECONOMY IN THE WORLD

Currently, Circular Economy is widely recognized and implemented in many countries worldwide, including the EU (pioneers are the Netherlands, Germany, and Denmark), Canada, the United States of America, China, Japan, Republic of Korea, and Singapore.

Two main approaches to CE implementation can be distinguished as follows:

(i) Systemic economy-wide implementation: This approach aims to design and develop the new macro-scale establishment (e.g. city, industrial park) in which business and production activities are placed into a closed loop. The successful models are replicated in other regional areas, for example, Denmark, and China.

(ii) Implementation with a focus on a group of sectors, products, materials, and substances. This approach is based on the application of CE principles in priority sectors or products. It also promotes good initiatives and best practices in line with the characteristics of priority sectors/products. Successful case studies can be referred to EU, Canada (plastic waste), the USA, Australia (e-waste), Finland (the world's first national roadmap to a circular economy focusing on Finland's dominant sectors: sustainable food system, industrial loops, and transport and logistics).



IV. CURRENT PRESENCE OF CIRCULAR ECONOMY IN VIETNAM

4.1 Legal framework related to Circular Economy in Vietnam

Vietnam is now facing challenges related to resources management, environmental protection, and climate change, making this urgent to take appropriate policies and actions. In pursuit of sustainable development, Vietnam's Communist Party and the Government have issued a range of policies, directives, and regulations. These documents confirmed Vietnam's consistent viewpoints on sustainable development that included many existing principles of circular economy such as Directive 36/CT-TW dated June 25th, 1998 of the Politburo on strengthening environmental protection work in the period of national industrialization and modernization; Resolution No.41-NQ-TW dated November 15th, 2004 of the Politburo on environmental protection during the period of accelerated industrialization and modernization of the country; Resolution on Socio-Economic Development Strategy 2011-2020; Resolution on the 5-year Socio-Economic Development Plan 2016 - 2020; Resolution No. 24/NQ-TW dated June 3rd, 2013 of the Party Central Committee on proactive response to climate change and the improvement of natural resources management and environmental protection; Decision No. 432/QD-TTg dated April 12th, 2012 of the Prime Minister approving Vietnam's Sustainable Development Strategy for the period 2010-2020; Decision No. 1393/QD-TTg dated September 25th, 2012 of the Prime Minister approving the National Strategy on Green Growth; Decision No. 1419/QD-TTg dated September 7th, 2009 of the Prime Minister approving the Strategy for Cleaner Production in industry by 2020; Decision No. 491/QD-TTg dated May 7th, 2018 of the Prime Minister approving the adjustment of national strategy on integrated management of solid waste by 2025 with the vision towards 2050; Natural Resource Tax Law 2009; Mineral Law 2010; Law on Water Resources 2012; Land Law 2013; Law on Environment protection 2014.

It can be seen that in the Party's directions and the Government's policies and laws mentioned above, the term "circular economy" is not officially stipulated. However, such documents regulate many principles of circular economy, including rational and economical use of natural resources; reduce, reuse, and recycle, based on principles of waste management.

4.2 Current models related to Circular Economy in Vietnam

In Vietnam, there have been some manifestations of the circular economy, particularly the establishment of "circular economic-oriented models", namely eco-industrial park, VAC model (garden – pond - cage), VRAC model (garden – pond – cage – forest), VACB model (garden – pond – cage – biogas), eco-economic model, waste recycling villages, cleaner production models. In particular, the VACB model targets efficient use of animal husbandry waste and agricultural by-products through biogas plants. From 2013 to 2019, the Asian Development Bank (ADB) supported Vietnam to build 13,654 biogas plants under the Low Carbon Agricultural Support project that was implemented in ten provinces, namely Lao Cai, Son La, Phu Tho, Bac Giang, Nam Dinh, Ha Tinh, Binh Dinh, Tien Giang, Ben Tre and Soc Trang. In addition to these projects, three eco-industrial park pilot programmes have been developed in Can Tho, Da Nang and Ninh Binh provinces under the project "Implementation of Eco-Industrial Park Initiative for Sustainable Industrial Zones in Vietnam" funded by the United Nations Industrial Development Organization (UNIDO). All of these models are ultimately aimed at reducing waste through waste recovery and material circulation. However, the models have not been replicated or applied on a large scale because of their limitations. It is claimed that in these models, waste reuse and recycling are not as effective and still cause environmental pollution while the outstanding ecological criteria are also not clearly defined.

To illustrate, the recycling technologies used in craft villages² are out-of-date together with poor infrastructure and small-scale production that have resulted in serious environmental pollution.

4.3 Opportunities for applying circular economy principles to priority sectors

(i) Plastic sector

Since the last decade, increasing plastic waste has become one of the most concerns in Vietnam. The plastic consumption per capita has increased sharply by about 11 times, from 3.8 kilograms per person in 1990 to 41.3 kilograms per person in 2018³. To date, the total plastic waste of the country is over 1.8 million tons annually and is still growing at a rate of 10 – 15 percent a year (Ipsos Business Consulting, 2019). However, only 27 percent of the total plastic waste is recycled. Consequently, Vietnam was recognized as the 4th in the world in terms of plastic waste discharged into the seas with roughly 0.73 million tons of plastic debris annually (Jambeck et al., 2015). Plastic waste accounted for around 8 – 16% of waste to landfills (MONRE, 2017).

In the passing years, the Ministry of Natural Resources and Environment (MONRE), other ministries/line ministries and localities have actively implemented many synchronous solutions. These solutions focus on the review and proposal of amendments to mechanisms and policies to minimize generated waste and promote recycling and reuse of waste, as well as prevent the adverse environmental impacts of plastic waste. Regulations on the management of plastic scrap imports have become stricter, and at

the same time, the Government has issued many preferential policies for enterprises to invest in modern recycling technologies. According to the Vietnam Plastics Association (VPA), the demand for raw materials for plastic production in the country has increased by 10% annually. This shows enormous potential for the development and innovation of recycling plastic industry. It is evident that plastic recycling brings many socio-economic and environmental benefits, namely saving energy and resources and solving a variety of environmental problems caused by plastic waste. If domestic plastic recycling activities are promoted, Vietnam can meet 50% of raw materials for plastic manufacturing. If recycled plastic materials are used at the proportion of 35-50%, relevant enterprises can reduce production costs by more than 15%.⁴

²Article 3, 4 of Decree No. 52/2018/ND-CP of April 12, 2018 on development of rural trades: Craft village means one or many population clusters of village, hamlet or similar level in a commune, ward or a township engaged in rural trades, including processing and preservation of agricultural, forestry and fishery products; handicraft manufacturing; production of raw materials serving rural production and business lines; manufacture of products of wood, rattan, ceramics, glass, textiles, yarn, embroidery, wickerwork, small-scale mechanical engineering; ornamental species culture and trade; salt production.

³Retrieved from <https://th.boell.org/en/2019/11/06/plastic-wastes-pose-threats-vietnams-environment#:~:text=It%20is%20estimated%20that%20Vietnam.kg%20per%20person%20in%202018>

⁴Retrieved from <http://tapchimoitruong.vn/pages/article.aspx?item=C%E1%BA%A7n-%C6%B0u-ti%C3%AAngi%E1%BA%A3i-b%C3%A0>

(ii) Agriculture sector

Vietnamese agriculture has experienced remarkable growth over the past 20 years. Vietnam is one of the top five exporters of half a dozen agricultural commodities (rice, pepper, coffee, cashews, and shrimp) that contributed to poverty reduction, social stability, and food security. Nevertheless, agricultural growth has been rooted in the intensification of production and heavy use of land, natural resources, and chemicals rather than efficiency or valued additional gains. As a result, the agricultural sector has suffered from environmental negative impacts that thus low the position of Vietnam's commodities in international markets. A more circular model could ensure sustainable agriculture since it helps to reduce the pollutions caused by farming and ranching activities while providing enough food for the continuous pollution growth in Vietnam.

Vietnam has many opportunities for promoting circular economy practices in agriculture. In circulated agricultural production, the by-products are generated and through the process of physical, chemical, and biological transformation to become other repurposed agricultural products for various industrial manufacturing. These processes help to optimize the economic values for the producers. In particular, when applying modern technologies in agricultural circular economy models, it cannot only turn by-products into products but also generate energy (electricity, biodiesel, heat) to serve mechanization and automation in agricultural production.

As the Government of Vietnam aims to have the country join the world's top 15 most advanced countries in agriculture in the next 10 years, many policies and regulations have been issued to create favorable conditions for the transition to a circular economy model in agriculture. Decision No. 899/QĐ-TTg dated June 10th, 2013 of the Prime Minister approves the scheme on restructuring the agricultural sector towards raising added value and sustainable development, and Decision No. 24/2014/QĐ-TTg dated March 24th, 2014 of the Prime Minister on the mechanisms to support the development of biomass power projects in Vietnam.

(iii) Construction sector

In the past 10 years, the construction sector has been growing at an average of 8.5% annually in Vietnam. According to Business Monitor International (BMI), the growth rate of the construction sector will remain about 7.6% in the period of 2018-2025 when infrastructure investment is considered a top priority of the Government, while urbanization has been increasing rapidly across the country. Vietnam has the potential to become a new Southeast Asia's industrial center that contributes to expanding the industrial construction segment. The country also witnessed a trend of intelligent residential areas and smart buildings, using environmentally friendly building materials.

All construction, renovation, and demolition have generated a large amount of construction and demolition waste (hereafter referred to as CDW. According to MONRE (2011), it is reported that the CDW waste generation accounts for 10–12% of total municipal solid waste generation (about 60,000 tons/day). The current practice for CDW treatment is disposal at landfills, including the illegal dumping that can cause risks to human health and environment, as well as transportation obstacles (i.e. CDW on roadsides and pavements) that lead to accidents, impacts on the urban landscape, air pollution (dust), and degraded infrastructure (i.e. blocking the sewers). Circular No. 08/2017/TT-BXD of Ministry of Construction provides for classification, collection, reuse, recycling and treatment of CDW. Under this Circular, the waste collection service providers and waste treatment service providers, respectively, are in charge of imposing prices for CDW collection and transport services and formulating a plan for pricing treatment service as a basis for signing contracts. The People's committees of provinces shall approve plans for price of waste treatment construction in accordance with regulations and laws. The Departments of Construction of provinces shall cooperate with the Department of Finance of the same province in assessing the plans for pricing construction waste treatment services prepared by treatment facilities funded by state budget.

However, there is currently no specific regulation on standard cost estimates or public private scheme for collection, transportation and treatment of CDW.

The main components of CDW can be recycled and reused. The use of recycled materials thus contributes directly to saving resources, scaling down areas for CDW at landfills, reducing the risk of environmental pollution, and negative impacts on the urban landscape. The Government has promulgated a number of mechanisms, policies, and laws to promote the application of circular economy principles in the construction sector. Some noteworthy policies can be listed as Construction Law 2014, Decree 24a/2016/ND-CP dated April 5th, 2016 of the Government on construction materials management, Decree No.38/2015/ND-CP dated April 24th, 2015 of the Government on the management of waste and scrap, Decision No.1696/QĐ-TTg dated September 23rd 2014 of the Prime Minister on measures to treat ash, slag, gypsum from thermal power plants, chemical or fertilizer plants as raw materials for construction materials production.



V. RECOMMENDATION FOR VIEWPOINTS, OBJECTIVES, AND SOLUTIONS TO TRANSITION TO CIRCULAR ECONOMY IN VIETNAM

5.1. Viewpoints

By comprehensively studying international perspectives and considering the new development context of Vietnam, it proposes specific viewpoints, objectives and solutions to promote transition to CE in Vietnam as follows:

- Circular economy is a priority approach in the development of green economy that aims to achieve sustainable development goals (SDGs) in Vietnam.
- Transition to CE in Vietnam contributes to achieving SDGs in Vietnam. It is crucial to develop a timely roadmap, mechanisms, policies, and legislations for such transition.
- Transition to CE in Vietnam should be based on market principles. The Government plays a constructive role to create enabling policy environment while enterprises are the driving force in the transition to CE in Vietnam. Additionally, each organization and citizen has an important contribution to the implementation of CE in all activities.
- CE brings economic benefits to businesses and society. CE requires businesses and the community to become more active and creative to develop the appropriate CE models in their fields.

- It gives priority to some strategic breakthroughs, namely technical infrastructure, human resources and science & technology to accelerate the transition to CE in Vietnam.

These viewpoints should be integrated into Vietnam's Socio-Economic Development Strategy 2021 - 2030 and the 5-year Socio-Economic Development Plan 2021 - 2025 as follows:

“Solving harmoniously the relationship between economic development and environmental protection by encouraging the implementation of a circular economy model. Developing a roadmap, mechanisms, policies, and regulation to formulate and operate circular economy models, contributing to the achievements of sustainable development goals”.

5.2. Objectives

To harmonize the relationship between economic development and environmental protection by encouraging the implementation of circular economy model, thus contributing to the achievements of sustainable development goals.

5.3. Proposed solutions for the socio-economic transition to circular economy and society

(i) Improve the institutional system for transition to the circular economy in compliance with the socialist-oriented market economy

- Design and implement policies through trial and improve the legal framework to create favorable conditions for the transition to CE based on market principles.

- Institutionalize market principles as well as the “polluter pays principle” or “externality cost” so that environmental cost is incorporated into pricing for environmental pollution remedy, environmental rehabilitation, and habitat restoration, especially waste treatment (e.g. solid waste treatment should be charged at market prices).
- Enhance the application of economic instruments and financial mechanisms to regulate and accelerate the transition to CE (e.g. environmental taxes, environmental protection fees, environmental rehabilitation deposits, payment of ecosystem services, eco-labels, green public procurement, green bonds, and deposit-refund system).
- Consolidate the local government system; clearly define roles & responsibilities and authority between the central and local levels.
- Promote the role of people, businesses, socio-political organizations, professional organizations, and communities in the formulation, review, and supervision of the implementation of policies and laws on natural resource management and environmental protection, especially waste management.

(ii) Restructure the national economy in association with the transition to the circular economy

Effective implementation of economic restructuring in which core industries related to CE are formed.

- In the industry segment, prioritize the development of the green industry; pilot some clustering models in priority industries and develop new, energy-efficient, and environmentally friendly construction materials.
- In the agricultural segment, invest and develop organic agriculture and hi-tech agriculture⁵, and promote farmer cooperation and linkages in agricultural production.

- In the services segment, develop environmental services (e.g. drainage and wastewater treatment services; collection, treatment, disposal and recycling services; pollution remedy and waste management services).
- In the tourism segment, develop eco-tourism based on using, preserving, and restoring the functions of natural ecosystems.
- It is encouraged to establish a market for eco-friendly and recycled products.

(iii) Develop regions and economic zones to enhance intra-regional and inter-regional connectivity, focusing on regional and multi-sectoral masterplan

- Design appropriate circular economy models for regions and economic zones in conformity with regions’ characteristics and sustainable development goals.
- Build new rural models associated with circular economy. Increase investment in infrastructure, equipment, and technologies for waste management in rural areas.
- Develop an integrated management of water resources based on administrative boundaries and river basin levels.
- Develop synchronously and replicate models of coastal economic zones and eco-industrial parks in line with the formation and development of marine economic centers.

⁵Article 2 of Decision No.66/2015/QĐ-TTg of Prime Minister regulating criteria and procedures for recognition of hi-tech agricultural zones: A hi-tech agricultural zone means a centralized production area where high technologies are applied to produce at least one advantageous agricultural product which ensure high yield, quality, added values and environmental-friendly manner under regulations of laws.

- Formulate the linkages between regions in management and use of natural resources and environmental protection, focusing on the effective use of inter-provincial and inter-regional resources (such as water resources and natural habitats); as well as prevention and minimization of inter-provincial and inter-regional environmental issues and conflicts (wastewater, ocean plastic waste).

(iv) Enhance strategic breakthroughs in the infrastructure construction to accelerate the transition to circular economy

- Prioritize investing in waste collection and treatment infrastructure.
- Promote the development of renewable and clean energy infrastructure to meet the needs of socio-economic development and ensure energy security.

(v) Enhance mobilization and efficient use of investment resources for the circular economy

- Continue restructuring public investment. Investment capital is arranged to focus on low-carbon production and consumption.
- Encourage and attract non-state budget investment. Enhance public-private partnerships for infrastructure development for the green industry, eco-industrial parks, organic agriculture, and environmental services.
- Build financial institutions to support cleaner production enterprises and enterprises that apply circular economic models in their businesses.
- Promote innovation development of collective economic organizations and cooperatives that apply circular economic model in their operations.

- Promote the development of “green credit” and “green banking”; encourage increased investment in renewable energy, clean energy, and low-carbon production and consumption sectors.

- Discontinue the operation of projects using outdated technologies that are likely to cause environmental pollution or resource-intensive projects.

(vi) Develop human resources, education, and training to meet practical requirements in the transition to circular economy

- Improve the quality of human resources associated with labor restructuring that is required in the transition to circular economy (e.g. education and training of green jobs).
- Support campaigns and education activities to raise awareness on sensible use of resources and environmental protection.
- Integrate knowledge and skills on circular economy practices (e.g. reducing, sorting, recycling, and reusing of waste; water and energy savings) in educational programs at all levels.
- Foster knowledge and lessons learned of circular economy for government officials at managerial and policymaking levels who are involved in determining strategies, master plans, and socio-economic development plans.
- Organize training courses to improve the capacity of environmental protection and management, particularly solid waste management for specialized government officials at the central and local levels.

- Build capacity for agencies in both public and private sectors that are in charge of cleaner production, energy-saving, and waste recycling.
- Issue guidance for enterprises on how to use financial and technology tools to apply circular economy models in production and business activities.
- Design and implement communication programs to raise public awareness of schools, residential communities, state agencies, and production and business establishments on environmental protection, focusing on the reduction, classification, and reuse and recycling of solid waste.

(vii) Advance scientific and technological breakthrough solutions and innovation to promote the transition to circular economy

- Implement regulatory sandbox schemes to promote the deployment of circular economy models in all industries.
- Apply innovative technologies in the implementation of circular economy models to improve the efficiency of manufacturing processes.
- Strengthen the operation of the national innovation system and innovation ecosystem.
- Build the system of national and local data and knowledge centers on circular economy to create learning network and peer-to-peer support systems.
- Enhance international cooperation in natural resources management and environmental protection, specifically on the effective protection and use of natural resources, and solid waste management.
- Accelerate the application of the best available technology (BAT) to gradually replace the existing outdated production lines that cause serious environmental pollution.

(vii) Improve the social perspectives and social responsibility in the transition to circular society

- Build a circular society where people are more engaged and actively responsible for reducing, reusing, and recycling waste.
- Promote green lifestyle and sustainable production and consumption.
- Improve the social responsibility of enterprises and residents in compliance with legislation on environmental protection and the efficient use of resources.

(viii) Strengthen national defense, ensure national security, social order during the transition to circular economy

- Ensure national independence, sovereignty, territorial integrity, and the country's interests concerning natural resource management and environmental protection (e.g. issues related to transboundary hazardous waste, imported scrap which are used as raw materials).
- Ensure water security; promote cooperation with upstream countries and international organizations in protection and use of transboundary watercourses, especially the Mekong Delta and Red River.
- Support domestic enterprises to implement terms of commitment on natural resources and the environment in new-generation free trade agreements (e.g. terms on clean energy, low-emission technologies, renewable energy).
- Develop strategies in handling and solving issues on establishments that cause serious environmental pollution.

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