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CIRCULAR ECONOMY APPLICATION IN REGENERATIVE TOURISM DEVELOPMENT: STATUS QUO AND SOLUTIONS FOR THE CENTRAL COAST REGION

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PALABRAS CLAVE

Turismo regenerativo

Economía circular

Turismo sostenible

Región de la Costa Central

Vietnam

RESUMEN

Recientemente, el sector turístico ha experimentado un crecimiento significativo, pero este desarrollo en ocasiones ha generado resultados insostenibles que perjudican tanto a la población local como al entorno. La creciente preocupación por el medio ambiente y la creciente presión sobre los recursos naturales han popularizado la idea del turismo regenerativo, integrado con la economía circular. Esta es una vía viable para lograr la sostenibilidad a largo plazo del crecimiento turístico. El objetivo de este estudio es investigar cómo se podrían utilizar las ideas de la economía circular para promover el turismo regenerativo en la Costa Central de Vietnam. Mediante una investigación cualitativa, que incluyó una revisión bibliográfica y una investigación de campo, que abarcó de mayo a diciembre de 2023, los resultados del estudio revelan que, si bien el turismo en la zona ha impulsado considerablemente la economía local, también ha generado diversos problemas sociales y ambientales.

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1. Introduction

The global trend toward sustainable tourism development has garnered considerable attention, particularly in the context of regenerative tourism (Alvarez, 2024; Schmidt Rojas et al., 2024). This approach goes beyond sustainability, aiming to create long-term positive impacts on both the environment and local communities. In the context of the Central Coast Region, which is a vital economic region with strong maritime advantages but is facing pollution problems due to overtourism, integrating circular economic principles is critical in fostering regenerative tourism (HANH & ANH, 2024; Nguyen Thi Thanh Ngan, 2016).

The Central Coast Region of Vietnam holds significant economic and cultural value, especially in terms of its coastal and maritime potential. According to the development plan for the North Central and Central Coast regions during the 2021-2030 period, with a vision toward 2050, there is a clear focus on accelerating the sustainable development of marine-based industries, particularly in services, industry, and tourism. Tourism, as one of the key service sectors, has proven to be a major economic driver for the region, offering substantial economic benefits to local communities. Comprising more than 71% of Vietnam's total domestic tourists, the North Central and Central Coast areas welcome over 78.5 million domestic tourists in 2024. With 17.52 million international tourists, the whole area is expected to receive approximately 96 million visitors. With 28.3% of the total tourism income accounted for, this amazing influx of tourists generates a total tourism revenue of 237 trillion VND, much above the average for the six economic regions of the country.

Notwithstanding these encouraging economic results, the fast expansion of tourism has negative consequences, especially in coastal regions. Among the main problems resulting from much tourism development are environmental damage and resource depletion. These difficulties highlight how urgently the circular economy ideas should be implemented in the growth of tourism. Emphasizing waste reduction, resource reuse, and building regenerative systems, circular economy offers a workable way to lessen the negative effects of tourism while advancing long-term sustainability.

Thus, the purpose of this paper is to investigate how the ideas of the circular economy might be included in the Central Coast Region's tourism development. It will examine the present situation of tourism development, the related difficulties, and suggest doable solutions for using circular economy ideas. Incorporating circular practices, such as sustainable waste management, resource efficiency, and community involvement, allows Central Coast Region tourism to move toward a more responsible and regenerative one.

2. Literature review

2.1. *The circular economy in tourism*

In the tourism sector, the circular economy is a change from the conventional linear model of "take, make, dispose" to a more sustainable approach targeted at waste reduction, resource reuse, and natural system regeneration (Jain et al., 2024). Emphasizing the need for long-term environmental and social sustainability, this means reevaluating the lifetime of goods, services, and infrastructure in tourism. In the context of mass tourism development, circular economy approaches seek to close the loop of production and consumption, so guaranteeing efficient use of resources, waste minimization, and a

positive impact of the tourism sector on nearby ecosystems and communities (Day et al., 2022; Jain et al., 2024).

The circular economy's all-encompassing character can define how the tourism sector develops sustainably, which includes resource management, waste reduction, energy efficiency, and sustainable supply chains. Many previous studies have shown that applying a circular economy in tourism brings positive impacts, especially in protecting the environment and improving the efficiency of energy, infrastructure, and human resources (Manniche et al., 2021; Tomassini & Cavagnaro, 2022). Incorporating circular ideas will help tourism companies lower their environmental impact, improve their social responsibility, and provide value to nearby populations as well as tourists. By means of resource-sharing, eco-design, and waste-to-resource approaches, circular practices can revolutionize the delivery of tourism services, so lessening the reliance on limited resources and minimizing negative environmental effects. The circular economy's importance for tourism is found in its ability to inspire long-term industry resilience, so producing a more sustainable and regenerative tourism model that advantages not just the environment but also the economy and society.

2.2. Trend of regenerative tourism with a circular economy

Beyond sustainability, regenerative tourism seeks to improve ecosystems and communities touched by tourism (Schmidt Rojas et al., 2024). It is a reaction to the growing knowledge that conventional sustainable tourism sometimes neglects the more general and deeper effects of tourism operations on local economies, cultures, and environments. Reversing the negative impacts of tourism and promoting long-term resilience in the places it affects, regenerative tourism stresses making positive contributions to both natural and human systems. Under this paradigm, the emphasis is on revitalizing ecosystems, so supporting local businesses, safeguarding cultural legacy, and so empowering local populations via tourism-related activities (Corral-Gonzalez et al., 2023).

Regenerative tourism is absolutely essential in helping to solve the continuous social and environmental problems caused by mass tourism (Schmidt Rojas et al., 2024). It motivates those involved in tourism to go beyond only reducing damage and concentrate on enhancing and revitalizing the surroundings and communities they interact with. Regenerative tourism, for instance, might combine active local community participation in decision-making with reforestation, marine conservation, and cultural heritage restoration (Zaman, 2024). Though its use is still developing, regenerative tourism is becoming more and more acknowledged as a required change in the tourism business.

Many studies show how regenerative tourism can help to offset the negative consequences of overtourism by offering useful advantages including more biodiversity, better local businesses, and more social cohesiveness (Corral-Gonzalez et al., 2023; Day et al., 2022; Dredge, 2022). Recent research also shows that tourists are seeking experiences that let them help the places they visit to be better and are growing more interested in using regenerative tourism practices (Zaman et al., 2023). Growing interest in eco-tourism, community-based tourism, and nature-based tourism, all of which closely relate to regenerative tourism ideas, represents this trend.

Although the idea of regenerative tourism is becoming more and more popular, its application is still difficult (Dredge, 2022; Omar et al., 2024). Scholars and business professionals point out several

obstacles, including the need for a change in the attitude of both tourists and tourism providers as well as a lack of clear frameworks and policies for their general implementation. Some studies contend that effective regenerative tourism calls for a systems approach, whereby several stakeholders, including governments, companies, and local communities, coordinate to create and carry out projects aiming at revitalizing ecosystems and empowering local people.

From environmental damage to cultural erosion, regenerative tourism provides answers to many of the issues confronting tourism today, so increasing its relevance. It aims to build a tourism model that not only reduces damage but also actively helps to restore and improve the very surroundings and communities that tourism depends on. In this sense, regenerative tourism offers a hopeful route for producing a more sustainable, responsible, and resilient tourism sector. Several earlier studies have looked at how regenerative tourism and circular economy might be used in different settings (Bellato, 2024; Bellato et al., 2023; Bizzarri & Micera, 2024). The necessity of a paradigm change in how tourism is seen and controlled runs across as a recurring issue in these studies. Focusing on waste reduction, resource optimization, and more sustainable consumption patterns.

All things considered, including circular economy ideas into the development of regenerative tourism offers a good path to produce a more responsible and sustainable tourism market. The literature does, however, show that practical implementation, stakeholder cooperation, and the necessity of unambiguous frameworks and policies still present major difficulties. More study is required to better grasp the obstacles to the application of these ideas and to find workable answers for their general acceptance.

2.3. Conceptual framework

Like many other businesses, the tourism sector is changing toward more environmentally friendly, regenerative methods. Combining a circular economy model, which seeks to reduce waste, maximize resource efficiency, and rebuild natural systems, is one such method. Especially in the context of tourism, this model emphasizes encouraging cooperation, value co-creation, and innovation across many business models to ensure that the tourism ecosystem operates harmonically with both human and non-human stakeholders. Not only is the environmental impact of tourism activities to be lessened, but long-term resilience and sustainability within destinations also aim to be improved.

Applied to tourism, the circular economy model stresses a regenerative approach whereby resources are constantly used, repurposed, and returned to the ecosystem, so minimizing waste and optimizing value. According to the CE360 Alliance's model, which emphasizes the need for cooperation and value co-creation among many stakeholders spanning across industries including waste management, energy, construction, utilities, finance, and regulation, this connectivity helps sustainable business models that can flourish in a circular economy to be developed (CE360 Alliance, 2020).

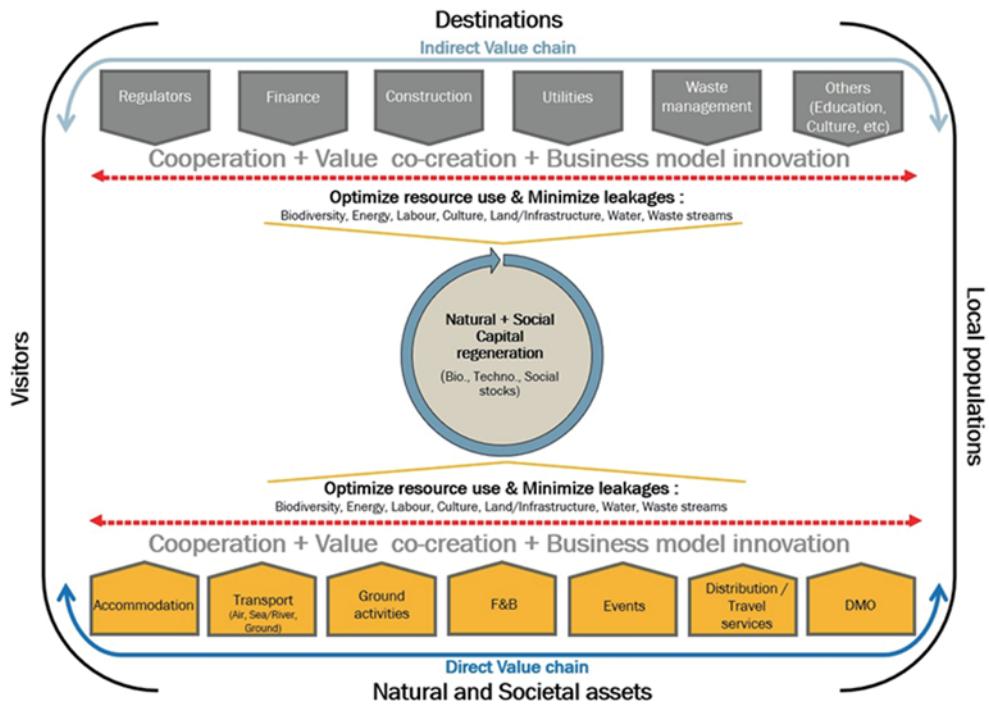


Figure 1: Model of the circular economy in the tourism ecosystem

Source: (CE360 Alliance, 2020)

Crucially for a sustainable tourism ecosystem, the circular economy aims to maximize resource use by combining practices including waste reduction, energy efficiency, and preservation of biodiversity, so lowering environmental leakage. The circular economy sees a system in which resources are constantly cycled, so reducing reliance on limited resources and lessening the environmental impact of tourism, instead of stressing linear production and consumption models that lead to waste accumulation.

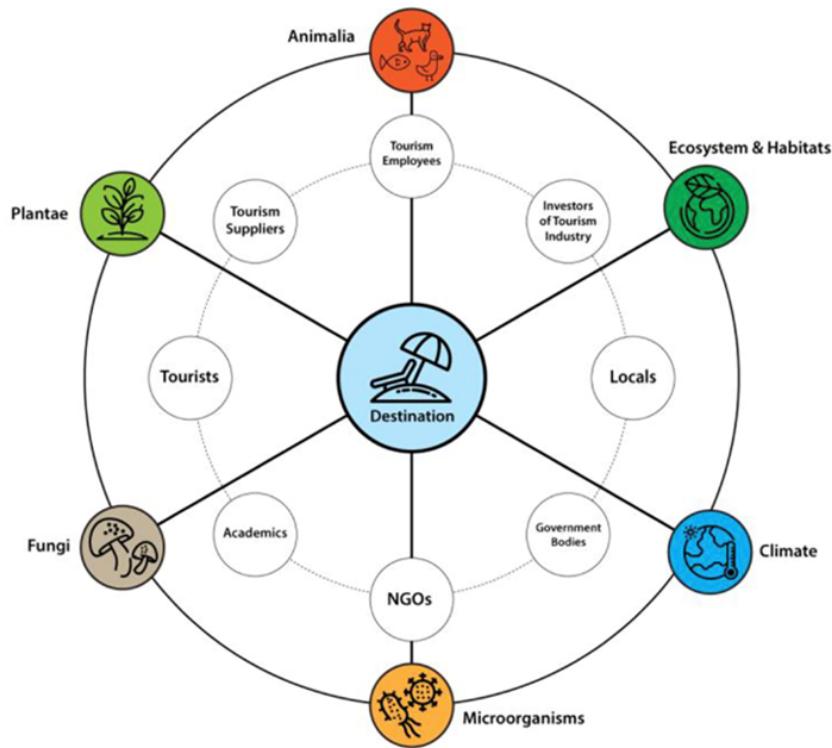


Figure 2: Regenerative stakeholder framework

Source: (Husamoglu et al., 2024)

The integration of a circular economy in tourism depends critically on the acceptance of regenerative stakeholder involvement. Beyond conventional models that concentrate only on economic and human-centric stakeholders, the idea of regenerative tourism includes non-human elements that maintain the environment and make tourism destinations viable over time. Husamoglu et al. (2024) claim that the regenerative stakeholder framework recognizes that tourism is a complicated, linked system involving both human and non-human participants. Especially those dependent on natural resources, the sustainability of tourism destinations depends on the interactions among these stakeholders.

Conventional tourism models mostly concentrate on human players, including tourists, staff, nearby companies, and legislators. These human players affect the social, political, and financial aspects of tourism as well as the regulations. The regenerative model claims, however, that this viewpoint is inadequate. The tourism ecosystem also consists of non-human stakeholders including flora, fauna, bacteria, ecosystems, and climate. Though they serve vital purposes, such as pollination, water purification, soil fertility, and climate control, that are vital for the health and longevity of tourism destinations, these non-human participants are sometimes disregarded in conventional tourism development models.

Emphasizing the interdependence of human and non-human entities, the regenerative stakeholder framework offers a more whole Figure. The framework acknowledges that tourism should take into account the larger environmental setting in which it is conducted in addition to meeting personal

needs. Attracting and keeping tourists depends on healthy ecosystems, biodiversity, and environmental sustainability; hence, their preservation and regeneration have to be top priority in tourism management plans.

Human stakeholders still play a critical part within the regenerative stakeholder paradigm. Sustainable tourism practices are fostered in part by NGOs, government agencies, tourists, tour operators and travel agencies, researchers, tourism providers, and investors, each of which has unique but related influence. Policies, research, and practical solutions to improve sustainability and regenerative practices in tourism are shaped in great part by these human stakeholders. Policy development and advocacy campaigns headed by non-governmental organizations and government agencies help to direct tourism toward more environmentally friendly practices. Tourists are consumers as well as influencers; their choices directly impact the environmental impact of the tourism sector. Investors are very important in funding projects that support long-term sustainability in the tourism industry, especially in regenerative tourism projects that aim to balance economic development with ecological restoration.

Tourism staff and providers, such as hotel operators, tour guides, and transportation companies, are accountable for the application of sustainability practices in daily operations. Under the regenerative tourism paradigm, non-human participants, including animals, plants, bacteria, soil, water, and more expansive ecosystems, are seen as essential members. Conventional tourism models, which mostly focus on human actors, sometimes ignore these entities. Nonetheless, non-human stakeholders play important roles that help to maintain the ecological integrity of a place, so supporting the tourism sector itself.

This paper presents a theoretical framework combining the ideas of a circular economy with the regenerative stakeholder model to provide fresh knowledge of how tourism might develop into a more sustainable, regenerative industry. Emphasizing cooperation, value co-creation, and the interdependence of human and non-human stakeholders, this model offers a road toward more resilient and ecologically responsible tourism methods. Incorporating regenerative techniques that improve biodiversity, increase resource efficiency, and lower waste will help tourism to become a tool for ecological restoration while providing significant, long-lasting experiences for tourists. Embracing these linked models will help tourism to evolve such that the environment and the business coexist peacefully.

3. Methods

This study used qualitative research methods, including secondary document research and field research in the Central Coastal Region.

Reviewing and evaluating current literature, reports, and statistical data on tourism development, circular economy practices, and regenerative tourism, this paper uses a documentary research approach. This approach offers a basis for comprehending the present situation of tourism development in the Central Coast Region and pointing to pertinent theories and frameworks for the use of circular economy ideas in regenerative tourism.

Field research was conducted from May to December 2023 in the central tourism city of provinces in the Central Coastal Region to assess the current status of mass tourism development and the

application of sustainable tourism development solutions. These provinces comprise Thua Thien – Hue, Da Nang, Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan, and Binh Thuan. The fieldwork concentrated on obtaining primary data by means of direct contacts with local authorities, tourism companies, and tourists.

The field research covers evaluations of the coastal areas' current infrastructure, tourism attractions, and sustainable tourism development plans under use. This entails assessing the efficiency of present tourism policies, including resource use, waste management systems, and attempts to support environmentally friendly and regenerative tourism activities. The field study also looks at how local tourism management plans are including circular economy ideas and investigates the chances and difficulties for their more general acceptance. The survey also seeks to highlight areas of infrastructure and policies that might impede the shift to more regenerative and sustainable tourism models.

4. Results and discussion

4.1. *Status quo of tourism development and environmental issues*

Sea tourism development associated with the maritime industry is especially popular in Vietnam's Central Coastal Region (Nguyen Thi Thanh Ngan, 2016). This region is a rich natural setting with beautiful beaches, islands, and sea culture (Kim Hong et al., 2023). Leveraging its significant maritime resources, this area has developed a vibrant tourism industry with an internationally famous marine tourism brand. The growth rate of tourist arrivals in the period 2011-2020 reached 16%. By 2019, the number of tourists reached 68,871.579, of which international tourists reached 15,379.061. The proportion of tourism service revenue of the region compared to the whole country increased from about 5.2% in 2010 to about 9.2% in 2019. Total tourism revenue in 2019 reached 197,625 billion VND. In the period 2012-2020, the Central Coast region attracted a large number of Russian and Korean tourists (Ministry of Planning and Investment, 2024).

In 2024, the area welcomed over 78.5 million domestic tourists, accounting for over 71% of the national total, and roughly 17.5 million international tourists, so generating a total tourism income of almost 237 trillion VND, which represents 28.3% of Vietnam's total tourism revenue (Vietnam National Administration of Tourism, 2024). With many diverse types of tourism, including beach vacations, water sports, eco-tourism, and cultural tourism, the tourism industry in the area offers a diverse portfolio of attractions appealing to different types of tourists. For example, millions of people visit well-known sites including Da Nang, Nha Trang (Khanh Hoa), and Phu Yen yearly, so they greatly contribute to the GDP of the area. While Khanh Hoa province has seen tourism income rise by almost 15% year-on-year for the past five years, Da Nang alone contributed around 20% to the economic output of the city.

Notwithstanding these amazing figures, this increase in coastal tourism is mostly dependent on a few key locations; hence, smaller, less developed regions are underused. Although tourism helps these areas, the expansion has not been evenly spread, which results in socioeconomic disparities between urban and rural areas as well as between popular tourism destinations and newly discovered ones. Furthermore, the area's over-reliance on mass tourism, especially during peak seasons, has resulted in negative impacts on the environment, natural resources, and social risks (Hà et al., 2016; Hòa & Lê, 2018). In many central coastal areas, especially near residential areas, people arbitrarily dump

garbage and wastewater into the environment... In addition, the activities of restaurants and hotels are not controlled in terms of water and waste treatment.

In marine environments especially, environmental damage is quite alarming. Rising waste, plastic pollution, and the depletion of marine resources have caused a drop in water quality in several beaches along the Central Coast during the past ten years. According to statistics from the Institute for Tourism Development Research in 2019, on average, each staying tourist has about 1.2 kg of waste per day and night; while each non-staying tourist has an average amount of waste of about 0.5 kg per day. Of which, plastic waste accounts for about 60%, mainly disposable plastic products such as plastic bags, foam boxes, plastic bottles, plastic straws, brushes, combs, hair masks, cotton swabs, etc.

For example, a study by Vo Van Ngan (2025) showed that the level of pollution in Nha Trang Bay shows that marine environmental pollution is becoming a serious problem, especially pollution from microplastics and heavy metals. Analytical indicators of seawater quality exceeded the permissible limits, especially mercury and lead. With estimates of a 30% increase in waste during peak seasons, the local government of Nha Trang revealed an alarming increase in waste created by tourists (Khanh Hoa Department of Tourism, 2023). This directly affects coastal ecosystems and local marine life, so compromising the long-term viability of the tourism industry of the area, which mostly depends on natural beauty and biodiversity.



Figure 3: Household waste surrounds Sa Huynh saltwater lagoon (Duc Pho, Quang Ngai) (Source: Resources and Environment)

Survey results indicate that the tourism strategy of the area has brought advantages as well as drawbacks for the residents nearby. Although tourism has raised living standards in many places, it has also increased sociometric disparity. Uneven development results from rural and less visited coastal areas struggling to profit from tourism income. On the other hand, highly visited cities like Da Nang, Nha Trang, Phan Thiet have seen inflation in living expenses and real estate prices, which increases poverty among local people not directly involved in tourism-related companies. Particularly in places where local customs and traditions collide with mass tourism practices, the flood of tourists has also generated social and cultural conflicts.

The current approach to sustainable tourism lacks effective policies, mostly focused on waste sorting and awareness campaigns. Field research results in the area show that The Central Coast region has mainly failed to implement sensible solutions for long-term sustainable tourism development despite several attempts to address sustainability. Much of the sustainability agenda has been limited to simple actions like waste sorting and awareness campaigns, which, although vital, are inadequate to handle the more general issues raised by overtourism. For instance, waste sorting in hotels and resorts is only in its infancy. Just thirty percent of the tourism businesses in Da Nang have thoroughly implemented waste management systems (Da Nang Tourism Department, 2023). Although most companies concentrate on separating plastic waste from organic waste, they neglect to apply systematic waste reduction techniques or recycling policies. Moreover, even if awareness campaigns about responsible tourism are rather popular, they usually focus on tourists' actions instead of structural changes inside the tourism business itself.

One of the main concerns of the present strategy is the lack of strong rules endorsing circular economy ideas in the tourism industry. The Central Coast region lacks a thorough plan that combines eco-design, sustainable energy use, and resource optimization, among circular economy ideas, into tourism development. This is in spite of increasing awareness of the need for circular economy ideas in reducing the negative effects of tourism on the surroundings. Reports show that less than 5% of tourism companies in the area have embraced circular economy models; most of them concentrate on small-scale projects like lowering single-use plastics. Still a major obstacle is the lack of cooperation among local governments, companies, and community stakeholders. Regional policies that support sustainability across all phases of tourism development, from infrastructure and business operations to community involvement, clearly lack presence. Consequently, the tourism sector of the area is still quite scattered, with initiatives driven by individual companies rather than a shared regional vision for sustainable tourism development.

4.2. Need for development of regenerative tourism in the Central Coastal region

Rising rapidly in recent years, Vietnam's tourism industry is today a main economic driver to promote socio-economic development, preserve and exchange culture, protect resources, and enhance the country's image (Prime Minister, 2020).

In the context of competing destinations with countries in the region, the country wants to keep raising its ranking as a top destination; thus, it is obvious that the tourism sector has to shift towards sustainable development and improve service quality. Nowadays, sustainable tourism is not a trend or choice; it is rather a need to ensure that the industry can continue to develop in the future. Tourists are realizing more and more the social and environmental consequences of their excessive tourism consumption behavior.

Vietnam, and particularly its Central Coastal Region, has to change with these changing needs by implementing sustainability to raise the profile of its brand. Apart from making the region appealing to eco-aware tourists, sustainable tourism choices will enable Vietnam to become known as a responsible, futuristic destination in the global tourism scene. Vietnam is not an exception; countries deemed leaders in sustainability attract more high-value tourists. By offering unique experiences that leisure and also benefit the local communities and the environment, the shift toward sustainability can help Vietnam's competitive edge to be strengthened.

Recently, the government has issued many policies to promote green and sustainable tourism development in the Central Coast. This shows the urgency of sustainable tourism development in this important, potential, and dynamically developing marine economic region.

Decision No. 509/QĐ-TTg approving the Tourism System Planning for the 2021-2030 period, with a vision to 2045, and Decision No. 147/QĐ-TTg of the Prime Minister: Approving the Vietnam tourism development strategy to 2030 both emphasizes sustainable and creative tourism development, on the basis of green growth, maximizing the contribution of tourism to the United Nations' sustainable development goals; protecting the environment, responding flexibly and effectively to risks and climate change; ensuring security, national defense, social order and safety.

Decision No. 376/QĐ-TTg of the Prime Minister: Approving the Planning of the North Central and Central Coastal Regions for the period 2021 - 2030, with a vision to 2050, emphasizes the need to exploit and use natural resources effectively and sustainably, especially forest and marine resources; focus on protecting the environment, especially marine ecosystems and environments; ensure the ability to provide essential products and services of marine ecosystems for human life; and develop a sustainable marine economy. This decision also emphasizes the development of a circular economy and a green economy.

One of the most significant changes affecting the course of tourism is the growing demand of tourists, especially international tourists, for premium and environmentally friendly tourism products (Chin et al., 2018; Ramchurjee & Ramchurjee, 2018). Particularly from more developed markets, tourists are giving sustainability first importance when choosing their holiday destinations and activities. More than 40% of international tourists are ready to pay a premium for sustainable tourism experiences, according to a UNWTO (2023) research; 60% of them currently consider sustainability when making tourism plans.

Clearly, the Central Coastal Region is seeing this trend as demand for eco-friendly hotels, tourism agencies providing sustainable tours, and events supporting environmental preservation arise. The area's natural beauty and coastal ecosystems are key attractions; Tourists are especially drawn to sites that give top priority for sustainability and offer environmentally friendly experiences. The Central Coastal Region has to match its tourism offers with these evolving tastes as the worldwide customer migrate toward sustainability to remain competitive and draw foreign tourists seeking for environmentally friendly destinations.

4.3. Advancing regenerative tourism with a circular economy to promote sustainable tourism development

Adopting sustainable and regenerative practices will help the tourism development in the Central Coastal Region to have long-term survival. The present tourism model, which mostly relies on mass tourism, seriously compromises the surroundings, culture, and local communities of the area.

Especially dependent on foreign tourists, who have more criteria about the quality of services, environmental responsibility, and cultural preservation, is the Central Coastal Region. Without

turning toward regenerative tourism that actively helps ecosystems and communities to be rebuilt, the area runs the risk of losing appeal to this important tourist group.

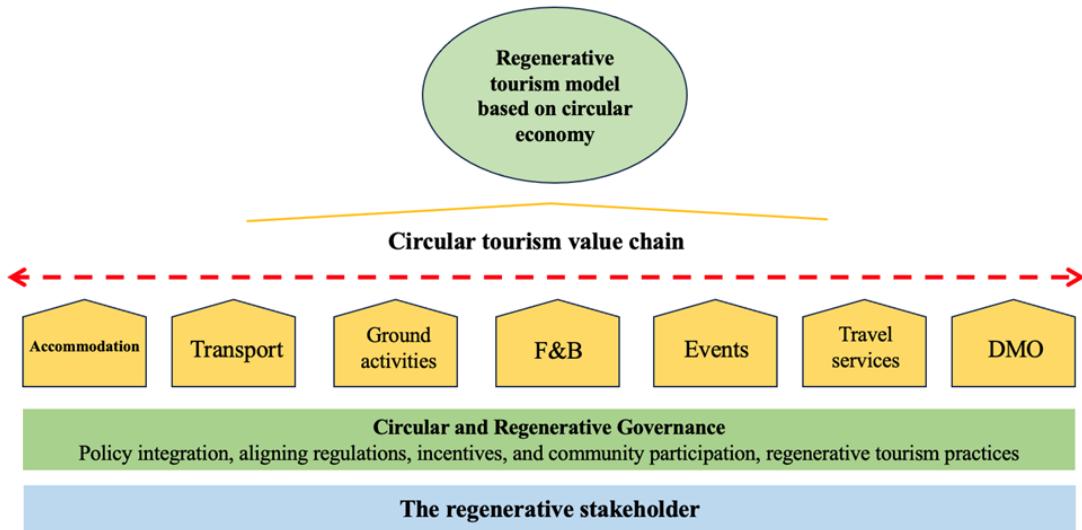


Figure 4: Regenerative tourism model based on circular economy

Source: (Tuyen, 2025)

Regenerative tourism is what will help the Central Coastal Region remain an attractive and sustainable destination over time. This approach stresses not only on minimizing damage but also on creating positive effects that restore ecosystems, enhance cultural legacy, and empower surrounding people. Restoring coral reefs, reforestation, and sustainable management, for example, helps to protect the local resources and concurrently improve the tourism experience by means of these activities. By focusing on practicing circular economy, the area can show a more unique and important tourism offering that attracts high-value tourists and benefits surrounding businesses for a long run.

Using regenerative tourism techniques not only improves the local economic viability but also helps to protect the environment. Regenerative tourism can provide financial benefits by means of new, environmentally friendly tourism products appealing to the growing segment of eco-aware tourists. Supporting events like community-based tourism helps local residents create more sustainable livelihoods by ensuring more equitable distribution of tourism income and ensuring local involvement.

The suggested regenerative tourism model includes circular economy concepts in tourism activities to enhance the resilience and sustainability of tourism destinations. This model aims to build systems that maximize resource use, extend product lifetimes, and increase the effectiveness of tourism-related activities. This will help to reduce the environmental impact of the tourism sector by so reducing the demand for resources.

Circular tourism value chain

Circular tourism value chains are meant to maximize resource efficiency, extend product life cycle, and increase the general effectiveness of tourism operations by means of which Including circular economy concepts into tourism will enable businesses and sites reduce environmental damage, cut waste, and recycle resources. This model promotes cooperation, value co-creation, and innovation

inside corporate models even as it defines the direct and indirect value chains of the tourism system (CE360 Alliance, 2020).

Sustainable material management, waste minimization, and energy efficiency are three main elements of the circular tourism value chain (Bellato et al., 2024; Dredge, 2022). By means of regenerative technologies including energy efficiency, biodiversity preservation, and reduction of environmental leakage, this approach seeks to maximize resource use and lower waste. For instance, hotels, resorts, and other tourism companies can use solar energy sources, water-saving strategies, and complete waste management systems. The circular economy model also encourages cooperation among many sectors, including waste management, utilities, construction, finance, and regulatory authorities, so sustainable tourism results. Working together, stakeholders will enable the tourism sector to become stronger and help to solve environmental issues.

Good involvement of stakeholders

The paradigm of stakeholders in regenerative tourism recognizes that tourism is a complex and linked system including many human and non-human (Husamoglu et al., 2024). The regenerative stakeholder paradigm emphasizes the need to include non-human as well as human aspects in tourism business operations. Conventional tourism models mostly center on human participants, including tourists, employees, and related companies. Conversely, the regenerative approach broadens the perspective to include non-human species, such as flora and fauna, that are essential for the general well-being and sustainability of an ecosystem of a destination (Bellato & Cheer, 2021; Omar et al., 2024).

Under the idea of regenerative tourism, each individual is seen as connected and essential for the success of environmentally friendly policies. This covers the nearby towns, the surroundings, the environment, and the ecosystems providing the basic resources for tourism, together with the businesses and tourists directly involved in tourism activities. By realizing the inherent value of non-human stakeholders, so benefiting human stakeholders simultaneously and so promoting economic gains, this framework guarantees that tourism activities improve the health of ecosystems, biodiversity, and cultural preservation.

Circular tourism management

Circular tourism management is the active encouragement and implementation under the direction of sustainable practices by local governments, businesses, and government agencies (Jain et al., 2024). Government agencies in great part define regulatory frameworks, provide incentives for sustainable practices, and ensure that tourism development fits social and environmental objectives. Local governments, including tax breaks for environmentally friendly businesses or subsidies for projects involving circular infrastructure, should embrace policies endorsing economy practices in tourism.

Parallel with this is the obligation of tourism businesses, resorts, hotels, restaurants, homestays, and tour operators to include circular economy concepts in their operations (Julião et al., 2020). This covers including reducing energy consumption, cutting waste generation practices, using eco-friendly products, and supporting surrounding towns with careful sourcing. Among the ways hotels might do are waste-to-energy systems, reusable goods instead of single-use plastics, and local supplier cooperation to offer locally grown food and goods.

Furthermore, the success of circular tourism management is the active participation of tourists. Growing awareness of the impact their activities have on the surroundings drives tourists to seek regenerative tourism experiences. Tourists can greatly contribute by choosing responsible actions, including minimal waste, respect of local ecosystems, support of sustainable businesses, and meaningful interaction with local cultures. This change in consumer behavior will drive the demand for regenerative tourism products, so creating a feedback loop that motivates businesses and governments to adopt greener policies.

Regenerative tourism practices by tourists

Since sustainability is now very important to modern tourists, more and more they are seeking for opportunities for regenerative tourism that allow them to support the locations they visit (Ingrassia et al., 2023; Liu, 2014). Emphasizing rejuvenation and renewal, regenerative tourism goes beyond traditional sustainable practices. Tourists can support environmental education programs, volunteer for local cultural preservation, or donate to conservation efforts. Apart from supporting the preservation of the local ecosystems and cultures, these interactions provide tourists closer, more important links to the places they visit.

Those dissatisfied with passive tourism that merely avoids damage have a growing need for experiences labeled as regenerative tourism. Rather, they want to actively assist in the preservation and restoration of natural resources as well as cultural ones. For tourists ready to pay more for experiences aligned with their values, tourism decisions become ever more crucial. Through supporting regenerative tourism practices, destinations can satisfy this growing demand for ethical and transforming tourism experiences.

Thus, the integration of circular economy concepts into regenerative tourism projects is absolutely essential to ensure the long-term survival of tourism destinations. By maximizing material use, extending product lifecycles, and promoting cooperation among stakeholders, the tourism industry can reduce its environmental impact and help nearby communities. Good stakeholder involvement, circular tourism management, and tourists engaged in regenerative tourism experiences will help to meet the twin goals of preserving natural resources and so fostering economic development and resilience in the tourism sector.

Table 1: Model of regenerative tourism practice associated with circular economy

No.	Domain	Detailed practices
1	Circular tourism value chain	- Implementing a closed-loop system for resource use, where materials are reused, recycled, and remanufactured.
		- Hotels and resorts using sustainable construction materials (e.g., recycled steel, wood).
		- Implementing water-saving technologies (e.g., low-flow faucets, water recycling systems).
		- Introducing digital solutions for reducing paper usage (e.g., e-tickets, digital guides).

2	Biodiversity preservation	<ul style="list-style-type: none"> - Creating wildlife protection programs or eco-tourism experiences that contribute directly to the preservation of endangered species and ecosystems. - Organizing reef restoration projects or planting mangroves to restore coastal ecosystems. - Encouraging tourists to participate in nature conservation efforts like volunteering for local environmental projects. - Establishing designated eco-tourism zones to limit the impact on fragile environments.
3	Energy efficiency	<ul style="list-style-type: none"> - Installing solar panels or wind turbines to generate renewable energy at tourism sites. - Implementing smart energy systems that optimize energy usage, such as energy-efficient lighting and heating in accommodation and public areas. - Encouraging tourists to use energy-saving modes in rooms (e.g., lights, heating/cooling systems). - Integrating green building standards in the design of new resorts and hotels.
4	Waste reduction & management	<ul style="list-style-type: none"> - Introducing composting programs for organic waste in hotels and restaurants. - Using biodegradable or reusable packaging for products and amenities, especially in coastal or marine tourism areas. - Providing recycling stations and offering incentives for tourists who recycle during their stay. - Adopting zero-waste policies for events, conferences, and large gatherings. - Promoting digital forms of communication to reduce paper waste (e.g., e-brochures, apps instead of printed guides).
5	Collaboration among stakeholders	<ul style="list-style-type: none"> - Forming partnerships with local communities, environmental organizations, and local businesses to create shared value in tourism projects (e.g., creating joint eco-tourism experiences). - Collaborative waste management programs between local municipalities and tourism businesses to address regional environmental issues. - Establishing regional sustainability standards for tourism with input from various sectors (e.g., accommodation, transport, waste management). - Organizing workshops, seminars, and training programs to educate local businesses and communities about sustainable practices in tourism.
6	Circular economy in	<ul style="list-style-type: none"> - Offering products and services that are designed for reuse and recycling, such as modular furniture and biodegradable packaging.

	business models	<ul style="list-style-type: none"> - Hotels and resorts implementing take-back schemes for used products (e.g., toiletries, linens).
		<ul style="list-style-type: none"> - Encouraging local sourcing of materials and goods, reducing carbon footprints associated with imports.
		<ul style="list-style-type: none"> - Developing business models that integrate the concept of 'product-as-a-service' rather than ownership (e.g., car rentals instead of car ownership for tourists).
7	Regenerative stakeholder involvement	<ul style="list-style-type: none"> - Incorporating local communities into the tourism decision-making process, ensuring they have a voice in how tourism develops and contributes to local well-being.
		<ul style="list-style-type: none"> - Providing incentives for tourism businesses that contribute to the restoration of local ecosystems (e.g., coral reef restoration, reforestation efforts).
		<ul style="list-style-type: none"> - Including tourists in activities that directly contribute to ecosystem regeneration (e.g., tree planting, wildlife monitoring).
		<ul style="list-style-type: none"> - Collaborating with environmental NGOs to support regenerative tourism projects that improve both ecological health and local livelihoods.
8	Government role	<ul style="list-style-type: none"> - Implementing financial incentives for businesses that adopt circular economy practices, such as grants for renewable energy installations or waste management systems.
		<ul style="list-style-type: none"> - Establishing policies that enforce sustainability standards for the tourism sector, such as waste reduction targets or mandatory biodiversity preservation efforts.
		<ul style="list-style-type: none"> - Funding and promoting public-private partnerships aimed at creating sustainable infrastructure (e.g., electric public transport, eco-friendly tourist centers).
		<ul style="list-style-type: none"> - Providing clear guidelines and certifications for sustainable tourism practices.
9	Tourism business management	<ul style="list-style-type: none"> - Resorts, hotels, and tour operators adopting eco-certifications and engaging in continuous sustainability audits.
		<ul style="list-style-type: none"> - Promoting sustainable food practices, such as using local, organic ingredients and reducing food waste through better portion control and donation programs.
		<ul style="list-style-type: none"> - Encouraging eco-friendly transportation options for tourists, such as electric cars, bikes, or shared transportation.
		<ul style="list-style-type: none"> - Reducing the carbon footprint of tourism packages by promoting off-peak tourism, virtual tours, or local experiences to minimize long-haul flights.

10	Tourist participation in regenerative tourism	<ul style="list-style-type: none"> - Encouraging tourists to choose eco-friendly accommodations, support local artisans, and participate in community-based tourism experiences. - Organizing events like beach clean-ups, wildlife conservation programs, or cultural heritage restoration activities that tourists can join during their visit. - Promoting the 'leave no trace' philosophy, encouraging tourists to minimize waste and respect natural spaces. - Educating tourists about sustainable tourism practices before and during their trip through information provided by tourism operators or apps.
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4.4. Practical implications

First of all, local government should develop and implement robust strategies that support environmentally friendly tourism choices. These models should include clear rules and policies supporting circular economy ideas in tourism, that is, waste reduction, resource optimization, and the use of renewable energy. Governments should also provide businesses adopting sustainable and regenerative practices financial incentives including tax breaks or subsidies. These guidelines should also focus on ensuring local people actively participate in the expansion of tourism so they might benefit from it without being subjected to displacement or exploitation.

Second, businesses in the tourism sector have to be pushed to embrace ideas of the circular economy and implement sustainable business models. Top focus of the company strategy should be local procurement, waste minimization, and the application of sustainable practices, including the use of environmentally friendly materials. Tour operators and travel agencies should be urged to offer eco-friendly experiences supporting resource economy, including guided eco-tours, sustainable tourism options, and lodging with energy-efficient systems. Among other things, hotels can reduce their environmental impact by including solar panels, water-saving methods, and lessening of plastic waste. Priority should also be creating business models that directly assist to regenerate social and environmental features and support cooperation with surrounding companies.

Third, several players, government, businesses, local communities, and tourists, should cooperate to ensure the effective implementation of regenerative tourism. Cooperation among local environmental organizations, waste management companies, tourism agencies, and regional governments will help to create a shared vision of sustainability. This can mean organizing group initiatives for local biodiversity restoration, beach clean-up, or wildlife protection campaigns. Public-private cooperation can also help to enhance the infrastructure supporting sustainable tourism in waste management systems, environmentally friendly transportation options, and renewable energy plants.

Fourth, much more research on the financial, environmental, and social impact and effectiveness of regenerative tourism is essential. Studies should mostly focus on how regenerative tourism methods might enhance surrounding ecosystems, slow down environmental damage, and promote long-term community welfare. Moreover, research on consumer behavior of tourists, especially their growing interest in sustainable and environmentally friendly tourism choices, is absolutely essential. Knowing what motivates tourists to engage in activities related to regenerative tourism and their decision-making will enable marketing plans to be tailored and more concentrated educational projects to be developed. Improving the model and ensuring its global relevance depends on extensive research on the effectiveness of several regenerative approaches in different geographical regions.

Fifth, in order to enable tourists to embrace sustainable tourism practices, education and awareness of local communities and tourists must first take the front stage. Tourists should be advised on the benefits of regenerative tourism and given clear directions on how they could minimize their effect on the surroundings here. For instance, hotels and tourism agencies can offer instructional resources stressing the need of protecting surrounding ecosystems and implementing moral tourism practices. Local communities should also be taught in sustainable tourism approaches to ensure they are ready to manage the increase of tourism without compromising their environmental and cultural legacy. By means of awareness-raising campaigns and educational activities, regenerative tourism can become a more common activity, so benefiting local populations as well as tourists.

Sixth, it is essential to include sustainable tourism certifications and standards to guarantee correct application and maintenance of regenerative technologies. Tourism businesses can demonstrate their commitment to sustainability and provide consumers with open options for eco-friendly sites by means of green tourism certification schemes. Companies in their sustainability projects will be guided, consistency across the industry will be guaranteed, and tourism operators will have clear instructions for responsible tourism by means of universal standards for regenerative tourism.

Conclusion

This paper aims to investigate how circular economy concepts might be included into the development of regenerative tourism in the Central Coast region. The goal was to assess how these concepts might support sustainable tourism that not only lessens negative environmental impact but also aids in the rebuilding of local ecosystems and communities. Research methods include field research and secondary document research.

The main findings reveal that although the tourism in the Central Coast area mostly depends on its natural marine and coastal resources, current approaches sometimes lead to overtourism, so affecting the environment and society. Although some projects have been undertaken to include waste management and sustainable practices, these are insufficient to address the more general issues brought about by overdevelopment and environmental damage. The paper underlines the need of a more integrated approach to regenerative tourism, which consists in the active participation of all stakeholders, adoption of circular economy concepts, and more attention on long-term sustainability including adoption of these ideas.

Several research implications are given, including policy development to incentivize sustainable practices, the need of cooperation among stakeholders (including businesses, governments, and local communities), and the need of more research on the environmental and social impacts of regenerative tourism. Moreover, this study calls for more awareness campaigns and education for local residents as well as for tourists endorsing sustainable and regenerative tourism choices.

Still, the study has some limitations. Initially, the study focused on a specific geographic area, therefore maybe limiting the generalizability of the findings to other places. Second, the study provides interesting examination of the possibilities for integration of the circular economy, but it does not include comprehensive quantitative research on the actual consequences of such approaches on local ecosystems and companies. Future research could focus on longitudinal studies to assess the long-term advantages and challenges of implementing regenerative tourism models, while keeping an eye on measuring the ecological, social, and financial effects. Moreover, exploring the behavior and motives of tourists would help one to understand how to inspire participation in regenerative tourism.

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