



Orienting Sustainable Planning for Quang Nam Province's Coastal Tourism, Vision to 2050

Le Thi Kim Anh^{1,2(✉)}, Phan Bao An², and Pham Ngoc Tuan³

- ¹ Institute of Postgraduate Education, The University of Architecture Ho Chi Minh City (UAH), 196 Pasteur Street, District 3, Ho Chi Minh City, Vietnam
ltkanh@ute.udn.vn
- ² District Hai Chau, Da Nang City University of Technology and Education, Da Nang City (UTE), 48 Cao Thang Street, Danang City, Vietnam
- ³ University of Architecture Ho Chi Minh City (UAH), 196 Pasteur Street, District 3, Ho Chi Minh City, Vietnam

Abstract. Coastal tourism was considered the oldest segment in the tourism industry containing negative impacts on the environment. Quang Nam's coastal tourist industry is not exception. There are huge numbers of tourists and a lack of strict environmental management having extremely negative impacts on the integrity of the natural environment as well as social life in that. Furthermore, building traditional tourism infrastructures has affected other buffer zones of coastal tourism facilities which suffer the natural disasters and climate change increasing. Therefore, the authors propose the diffused planning model being new creative works adapting to sustainable planning standards for developing Quang Nam sustainable tourism. This can be considered the optimal and potential solution for Quang Nam's coastal tourism in decreasing global climate changes.

Keywords: Coastal tourism · Sustainable coastal tourist model · Diffused planning · Global climate change · Tourist infrastructure

1 Potential Tourism of Quang Nam Province

1.1 Analysis and Assessment of Coastal Tourism Resources in Quang Nam Province

Quang Nam is a province situated in central Viet Nam, between Hue and Da Nang. The region boasts a 125 km coastline, encompassing approximately 40,000 km² of fishing ground, which includes a 10,000 ha intertidal zone home to a wide range of valuable seafood. The province boasts many picturesque beaches, such as Cua Dai, An Bang, and Ha My, which are perfect for various leisure activities, including swimming, sports, adventure sports, and yachting. Furthermore, Quang Nam benefits from a mild, refreshing coastal climate all year round, making it ideal for outdoor tourism activities. The province has significant potential for tourism development, which has resulted in the creation of tourism projects in various forms and models, such as the marine eco-tourism

of Cham Island and the conserved tourism of Thien duong dao. These initiatives have successfully attracted tourists from various countries, contributing significantly to the region's economic growth [1, 2].

Notwithstanding the tourism potential, Quang Nam faces several limitations, difficulties, and challenges in developing its local tourism industry. Firstly, there is significant competition from two neighboring tourist destinations, Hue and Da Nang. Secondly, there is a lack of tourism infrastructure, including transport infrastructure, tourism services, entertainment, and medical facilities in certain central areas. Thirdly, severe weather at some of the coastal tourist destinations has adversely affected the quality of tourism. Finally, the quality of tourist services in Quang Nam, particularly in terms of food and hotel accommodations, is subpar and not up to par with international standards. These limitations and challenges above showed, that the local government and stakeholders have to enhance the region's tourism industry and promote sustainable tourism development [1, 2]. It means that sustainable coastal tourism seeks to create a balance between economic development, environmental conservation, and community well-being. It aims to provide visitors with enriching experiences while preserving coastal ecosystems and benefiting local communities responsibly and sustainably. In addition, sustainable coastal tourism is becoming an increasingly important planning trend for tourism nations around the world. There is a growing recognition among governments, tourism organizations, and industry stakeholders that coastal areas are fragile ecosystems that require special attention and protection.

Therefore, by developing a sustainable tourism framework, Quang Nam's coastal tourism industry can promote economic growth while preserving the region's natural and cultural heritage for future generations.

1.2 The Current State of Quang Nam's Coastal Tourism

1.2.1 The Actual Situation of Quang Nam's Ocean Environment

Quang Nam's coastal biodiversity environment played an important role in a biosphere reserve, especially Cham Island. It is being threatened by the increasing number of tourists and public waste from the tourist industry. Therefore, water quality from basins rivers has a risk of pollution, because of unreasonable exploitation, and wastewater without treatment, like Thu Bon, Vu Gia, etc. Furthermore, climate changes and harsh weather have adversely affected leading to salinization, eroded ocean phenomenon, floods, disasters, etc. Not to mention the lack of residents' awareness of protecting the ocean environment [1, 3] (Table 1).

1.2.2 The Number of Tourists Visiting Quang Nam from 2013 to 2025 [2]

2 Theory Basis

2.1 Characters of Sustainable Planning in Developing Tourism

Sustainable tourism development planning refers to the process of strategically designing and implementing tourism activities and infrastructure in a way that minimizes negative impacts on the environment, respects and enhances local communities and cultures, and maximizes economic benefits in a long-term and equitable manner.

Table 1. Stating the number of domestic and international visitors to Quang Nam (Source Quang Nam's Culture and Tourism department)

No	Year	2013	2014	2015	2016	2017	2018
1	Total of tourist number visiting, staying in Quang Nam	3.437.124	3.680.000	3.850.000	4.360.000	5.350.000	6.520.000
2	International visitors	1.634.938	1.769.000	1.887.000	2.250.000	2.767.600	3.800.000
3	Domestic visitors	1.802.186	1.911.000	1.963.000	2.110.000	2.582.400	2.720.000
	Year	2019	2020	2021	2022	Chi tiêu 2023	Chi tiêu 2025
4	Total of tourist number visiting, staying in Quang Nam	7.790.000	1.477.700	355.200	4.802.500	7.000.000	12.000.000
5	International visitors	4.666.000	766.200	18.100	690.000	1.500.000	5.000.000
6	Domestic visitors	3.124.000	711.500	337.100	4.112.500		

The goal of sustainable tourism development planning is to create a balance between the economic, social, and environmental aspects of tourism. It involves careful consideration of the impacts of tourism on natural resources, local communities, and cultural heritage, and finding ways to mitigate negative effects while promoting positive outcomes [4].

- Tourism activities must not harm the local environment. Protecting biodiversity areas and natural resources is essential to avoid overexploitation of marine, forest, and river resources [5].
- Reserving local cultural values should serve suitable tourism models that introduce visitors to local culture and history through interesting tourist activities [6].
- Cultural tourism activities can generate economic benefits that contribute to local budgets and support other community projects. Balancing social benefits between local residents and tourism businesses is crucial [7].
- Synchronization among government, relevant partners, local experts, scientists, environmental managers, and economic and social leaders is necessary for effective planning [8].

- Cutting-edge technology applications should be used to manage effective tourism activities, such as visitor experience, cultural tourism promotion, and providing local tourist information, among others [9].

2.2 Trends in Developing Sustainable Tourism

There are several sustainable coastal tourism trends that can help reduce the impact of tourism activities on global climate change. The main types of trends are:

- a. Ecotourism: This coastal tourism model focuses on experiencing nature while also respecting the environment [10].
- b. Resort tourism: This trend focuses on improving the relaxation demands of tourists, especially in coastal areas [11].
- c. Cultural tourism: This trend allows visitors to experience the activities of coastal fishermen while also exploring unique historical, cultural, and architectural sites in fishing villages [12].
- d. Adventure sports tourism: This trend offers attractive options for tourists who enjoy sports activities such as windsurfing, scuba diving, and coral diving [13].
- e. MICE model: This trend combines tourism with conferences, seminars, exhibitions, and events [14].

2.3 Analysis of Pros and Cons of Coastal Tourism Models

Based on theoretical and legal Fields [19], the authors propose the planning orientations of Quang Nam's coastal tourism and the diffused planning model being a new creative work from authors, according to the Sustainable Coastal Tourism criteria. Meanwhile, Diffused planning is a theoretical approach to planning that emphasizes collaboration, inclusiveness, and the involvement of multiple stakeholders in decision-making processes. The theoretical basis of diffused planning draws from several key concepts and perspectives: (1) Planning decisions have implications and benefits for multiple groups within society, including residents, tourists, and businesses; (2) Adaptive Management: This approach acknowledges the need for iterative decision-making, continuous learning, and the ability to adjust strategies and actions based on new information and emerging climate trends. It enables ongoing monitoring and evaluation to ensure that climate initiatives remain effective and adaptable over time. For example, combining efforts in renewable energy development, sustainable transportation, and green infrastructure can lead to more comprehensive and effective climate change responses; (3) Enhanced Resilience and Adaptation: Diffused planning recognizes the importance of building resilience in the face of climate change impacts. By involving communities and stakeholders in planning processes, there is a greater focus on understanding vulnerabilities and developing adaptive strategies. This can include measures such as improving infrastructure, enhancing ecosystem resilience, diversifying local economies, and implementing early warning systems. By incorporating local knowledge and perspectives, diffused planning can help identify context-specific adaptation measures that are more likely to be effective and sustainable (Table 2).

Table 2. Analysis of coastal tourism solutions

No	Model	Main activity	Pros	Cons
1	Ecotourism [15]	Protect environmental resources by outdoor activities; Introduce local culture and experiencing with locals for visitors	Promote local cultural values; Adapt to criterias of sustainable tourism; Improve local economy	Small project scale being difficult in tourism business, calling investment by expensive cost
2	Community-based Tourism [16]	Visitors and locals manage, exploite nature; Coordinate tourist with fishermen's locals	Conserve local culture; Community manage tourism; Develop local economy effectively	Depends on cooperation community, business and government; Small tourism model
3	Sustainable Coastal Tourism [17]	Protect environment by outdoor activities, Diversify local economy, Reduce tourist business risk; Deal to natural disasters; Balance social interests between tourists and locals	Maintain sustainable environment; Increase economic benefits and quality fishman's life; Adapt climate changes criteria; Improve cultural tourist experiences	Depend on coordination of authorities, tourist organizations and locals; Expensive infrastructure costs; Lack of opportunity competition; Exist negative environment
4	Blue Economy [18]	Exploite sustainable coastal resources; Enhance coastal economic diversification	Reduce emissions, save resources; Strengthen regional economic linkages	Depend on government and non-government; Requires investment cost

3 Proposing the Diffuse Planning for Quang Nam Province

3.1 Proposing an Approach for Sustainable Tourism Planning

- Promote the protection of environmental resources and respond to climate change in a sustainable manner for Quang nam's coastal tourism;
- Foster regional linkages between rural areas and urban centers, prioritize the development of basic infrastructure for cultural tourism routes, improve high-quality destinations, and attract private investments;
- Complete the basic transportation system and main infrastructure, such as the railway, highway 1A, Ho Chi Minh main road, the East–West route road connecting Quang Nam with the central highlands and Laos, and the Da Nang-Dung Quat Expressway;
- Develop cutting-edge technology systems to protect environmental resources and mitigate the impact of climate change, while enhancing visitor experiences;

- Create a favorable investment climate by leveraging key economic opportunities in the central region, leading to integration into the regional and international economy.
- Establish policy mechanisms that support Quang nam’s tourism industry, fostering cooperation between authorities, businesses, and local communities to achieve sustainable tourism goals.

3.2 Proposing a Diffuse Planning Model for Coastal Tourism in Quang Nam Province

3.2.1 The Diffuse Planning Model

The diffuse planning model is characterized by the dispersed distribution of residential areas instead of being concentrated in an urban center. This helps to reduce the pressure on urban infrastructure such as traffic and accommodations, leading to the possibility of sustainable urban development. Units with even and uniform infrastructure scales will develop around the urban center, increasing the potential for sustainable development.

Figure 1 shows the urban center (1) as the core point, which creates an equally distributed tourist services radius known as the services dispersion radius (SDR). The SDR depends on the invested scale, including central infrastructure (2), tourism services (3), and accommodation facilities (4).

Figure 2 shows the distance (R) between two core points C1 and C2. The SDRs of C1 and C2 can create an interference interval that forms a common services lobby (L), resulting in a shared service corridor and avoiding expensive costs for each core point. A reasonable distance for R among core points can be determined, and L includes tourist infrastructure, public transportation, accommodation facilities, and other necessary amenities.

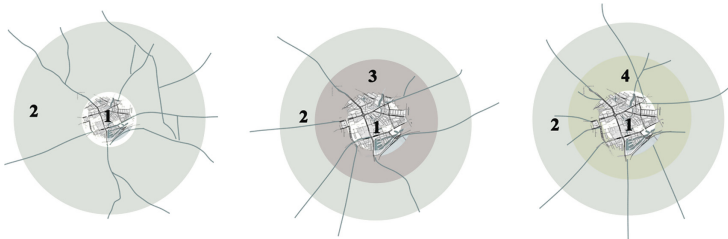


Fig. 1. Describe service impulse radius at core points

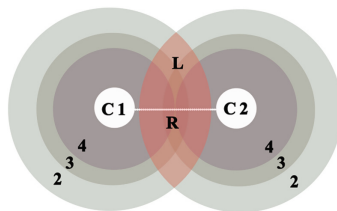


Fig. 2. Interference interval of SDR

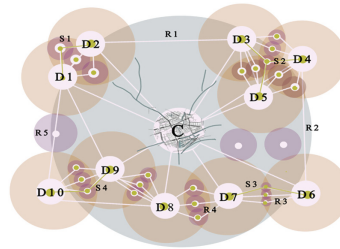


Fig. 3. Analysis pros and cons of SDR

Figure 3 shows typical distances between core points, ranging from R1 to R5, of starting points D1 to D10. Depending on the different distances of R1 to R5, there can either be an interference interval or none, resulting in large or small spaces of S1 to S4. This means that determining a reasonable distance for R is extremely important. If the distance between two cores is too far, like in the case of D2–D3, there will be no interference interval and no common service corridor. On the other hand, for D3–D4–D5, the three points have three overlapping intersections crossing each other, leading to the use of tourist services evenly amongst each other.

3.2.2 Analyze the Pros and Cons of the Diffuse Planning Model

Pros: (1) Economic benefits: reduces dependence on travel businesses and meets diverse tourism demands effectively, such as homestays in fishing villages and beach camping. (2) Infrastructure: saves costs for modern infrastructure development and promotes eco-friendly tourism. Since more than 65% of households in Quang Nam are poor, building a modern infrastructure system to offer tourist services is costly. (3) Environmental benefits: reasonable distances between core points enable tourists to travel in small groups of 5–15 people, using bicycles or motorbikes, reducing the number of large vehicles (16–50 passengers) on main roads. This reduces air pollution, emissions, and traffic accidents caused by tourist vehicles. (4) Tourist sports activities: offers public services for experiencing traditional fishing villages, underwater tourism, and other activities.

Cons: There is a lack of suitable application software for analyzing and evaluating visitor data, such as the number of check-ins and tourist hotspots. This makes it difficult to determine the appropriate distances between core points.

3.3 Proposing a Spatial Planning Approach for Sustainable Coastal Tourism in Quang Nam Province

According to the spatial orientation map of Quang Nam's coastal tourism from 2020 to 2030 by the Quang Nam construction department, tourist development is concentrated in densely populated and central areas such as Hoi An and Tam Ky. Hoi An has effectively utilized popular beaches like Ha My, Cua Dai, and An Bang, while Tam Ky has Tam Thanh mural village and Tam Hai beach. Therefore, it is necessary to prioritize tourist space development from Duy Xuyen to Nui Thanh along Highway 1A.

Developing coastal tourism in rural areas is considered a new potential tourism product that aligns with the criteria of social-economic development and sustainable environment. Examples of these include homestays in fishing villages, and fisherman experiences. Data from Quang Nam’s Culture and Tourism department indicates that the coastal tourist space of Duy Nghia beach, extending to Ky Ha port, lacks community tourism, fisherman’s village tourism, basic infrastructure, and underwater entertainment services. Therefore, based on Quang Nam’s general orientation from the government, as well as sustainable coastal tourism criteria, the authors propose “Orienting coastal tourist space in the sustainable development trend for Quang Nam province, vision to 2050.” The proposal aims to develop fisherman’s villages tourist services combined with visitor’s experiential tourism and improving fisherman’s infrastructure that adapts to environmental risks (Fig. 4).

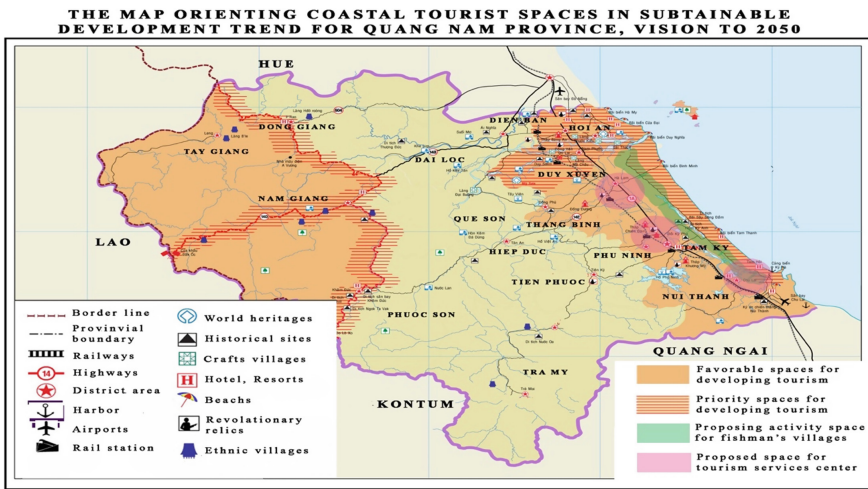


Fig. 4. Spatial planning map of Quang Nam coastal tourism, vision to 2050

3.4 Proposing a Diffuse Planning Model for Sustainable Coastal Tourism in Quang Nam Province

According to the social-economic data of Quang nam’s Culture and Tourism department, the average distance of beaches in Hoi An extends from 6 km to 15 km, with examples such as Cua Dai_Cu Lao Cham (15 km), Cua Dai_Ha My (7 km), Cua Dai_An Bang (5.7 km). Similarly, for Tam Ky, the average distance is between 6 km and 15 km, with examples such as Ha Thanh, Tinh Thuy (6.5 km) and Tam Hai_Tam Thanh (11.2 km). Therefore, it is evident that there is a lack of exploited beaches along Quang Nam’s coastline, particularly those far from the center, such as Binh Minh (28.3 km), Tam Hai (50 km), Ha Thanh (48.2 km), Tam Thanh (73.4 km), etc.

There are three main reasons why the authors propose “The diffused planning model for Quang Nam’s coastal tourism, according to the criteria of Sustainable Coastal

Tourism.” Firstly, there have been significant changes in visitors’ behavior due to the COVID-19 pandemic, resulting in increased awareness of personal and community health. This means that visitors are more focused on destinations with advanced medical systems and modern sports services to ensure their health and safety while traveling. Secondly, Quang Nam experiences severe weather conditions throughout the year, such as floods, natural disasters, and droughts, which make it extremely challenging to maintain daily life and business activities for locals, especially those in fishing villages. Finally, sustainable coastal tourism planning that adapts to global climate change is considered a priority criterion and plays an essential role in urban planning.

Therefore, the authors propose a reasonable gap of 10–15 km between tourist centers along the coast. This means that there should be a basic tourist center every 10–15 km, allowing visitors to walk, jog or cycle along the coast with a suitable gap. In some cases, it is possible to organize national and international sports activities, given Quang Nam’s natural resources that can meet international sports demands. This approach is the best way to combine experiential tourism with the development of coastal sports sites and bicycle lanes, which are currently lacking in urban areas of Vietnam (Fig. 5).

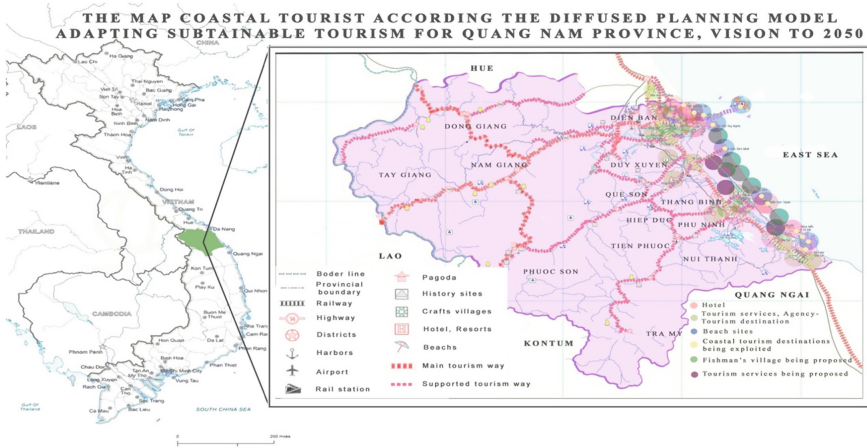


Fig. 5. Map of Quang Nam coastal tourism development

4 Conclusions

Quang Nam’s natural resources provide favorable conditions for the development of sustainable coastal tourism that is aligned with environmental protection criteria and plays a key role in the middle region’s economy. However, there are several challenges associated with coastal tourism in Quang Nam, including adverse weather conditions, a lack of awareness among residents regarding environmental protection, difficulty in attracting private investment, and limited tourist product diversity. In light of these challenges, the authors propose several suggestions, including balancing the mutual social-economic

benefits of tourism economic growth and climate change solutions, developing Quang Nam's coastal tourism with a sustainable trend that considers the present and future, creating a reasonable tourism plan in the current context of Quang nam, and introducing Quang nam's culture to visitors from both the nation and international visitors through various tourism activities.

The authors' proposed article, "The Diffuse Planning Model," represents a new creative solution that contains useful and effective methods for planning Quang nam's coastal tourism, despite its few shortcomings. We hope to address these issues in the future.

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