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Ecotourism potential of the southeast coastal area of Ho Chi Minh City, Vietnam - Can Gio mangrove forest

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Abstract

Can Gio is a coastal district about 90 km southeast of Ho Chi Minh City center, south Vietnam. Can Gio is a unique area in Ho Chi Minh City having mangrove forests with a complex river network, characterizing for tropical river mouth. In December 2000, Can Gio Mangrove Forest was officially recognized by UNESCO as a World Biosphere Reserve with an area of 10,734.95 ha, the first biosphere reserve in Vietnam. It has an important role in terms of national security and the development of marine economy especially, the general planning of socio-economic in Can Gio by 2020, with a vision to 2030, this area has been identified as one of the typical clusters of eco-tourism system in Ho Chi Minh City. However, the situation of eco-tourism exploitation in Can Gio area is quite fragmented and spontaneous. In this paper, we focus in analyzing the natural potential and humanity potential for ecotourism development of Can Gio area based on the comprehensive analysis view, and field survey. This study showed that Can Gio has special ecotourism values: the unique landscape of the estuarine coastal area is still pristine with high biodiversity mangrove ecosystem; special cultural festivals; historical relics and tradition. This study also assesses the current status of ecotourism in Can Gio, where it is being promoted as a strategy for balancing regional economic growth and conservation objectives. Through an evaluation of the existing tourism- national park- community relationships, opportunities and constraints are identified. The resolutions of management and development of eco-tourism in Can Gio such as improvement of infrastructure, strengthening environmental education as well as encouraging the participation of local communities in tourism activities are proposed.

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Introduction

Ecotourism is a type of natural- based tourism or natural tourism, that only exists and develops on the area having typical ecosystems with distinctly ecological diversity and high biodiversity. Thus, ecotourism activities are usually developed in the natural reserves, that are the natural parks existing forests with high biodiversity and wildlife.

Almost natural parks and conservation areas are common ecotourism destinations in the developing countries where it has been linked to sustainable development initiatives, to carry out regional and community development strategies (Ceballos-Lascurain, 1993; Nenon and Durst, 1993; Hummel, 1994). Ecotourism was existed at a minimum concept to involve travel to natural environments both visitors and local people mutually satisfied in rural developing countries (Campbell, 1999; Weaver, 2005). Moreover, ecotourism is socially responsible travel, generate funds and support on conservation efforts, and provide benefits to the local residents (Cater, 1994; Ceballos-Lascurain, 1993).

In Vietnam, ecotourism has recently received much attention and linked to sustainable development and protected conservation areas that are national parks existing in both upland and lowland.

In Ho Chi Minh City, Can Gio national park has a special landscape and mangrove ecosystem with high biodiversity.

It is located about 90 km to the southeast of Ho Chi Minh City and was recognized by UNESCO as a World Biosphere Reserve in 2000 (UNESCO, 2000; Le *et al.*, 2002). Together with ecotourism activities that have considerable efforts to maintain and develop on natural tourism, there are many cases where tourism activities are unconnected and occurring competition against in business.

It is a virtual ecotourism and has been fallen short of objectives, consequently, more such tourism

destinations have been closed down and/ or reduce their scopes. Such cases usually occur on the coastal and/ or rural areas where tourism and ecotourism have separately operated. In Can Gio area, tourism has started in the last 20 years and tourists mainly visited beach and mangrove forest parks. From 2011 to 2016, about 3.4 million tourists visited Can Gio with annual average of 570,000 tourists, increasing up to 17.4%. It is not a big number but gradually growing up. Ecotourism is mainly operating at the three national parks in the Can Gio Biosphere Reserve, other tourism activities exist in the beach, island, religious relics on the south, and traditional craft villages in the north and northwest of Can Gio is also an ecotourism potential.

This study focuses on ecotourism potential or at least what is being promoted and developed as ecotourism in Can Gio.

The study is exploration in nature and in examining the existing relationships, it is intended to provide a planning direction to the managers that will enhance the capacity of ecotourism at destinations to generate benefits in both the local communities and the parks, therefore contributing to the sustainable development of Can Gio district.

Material and methods

Main materials are collected and helpful in this study as follows:

Topographic map and land use map of Can Gio district in scale 1/25,000.

Statistical data of years 2011 - 2016 from The People Committee of Can Gio district. Method of field survey and field work, sociological investigation in study are to collect primary and secondary data, to examine, modify, and supplement natural as well as human resource, infrastructure data serving directly for ecotourism activities and other related documents; Statistical method and comparative analysis; Mapping method to express the distribution of ecosystems, natural resources, tourist destinations.

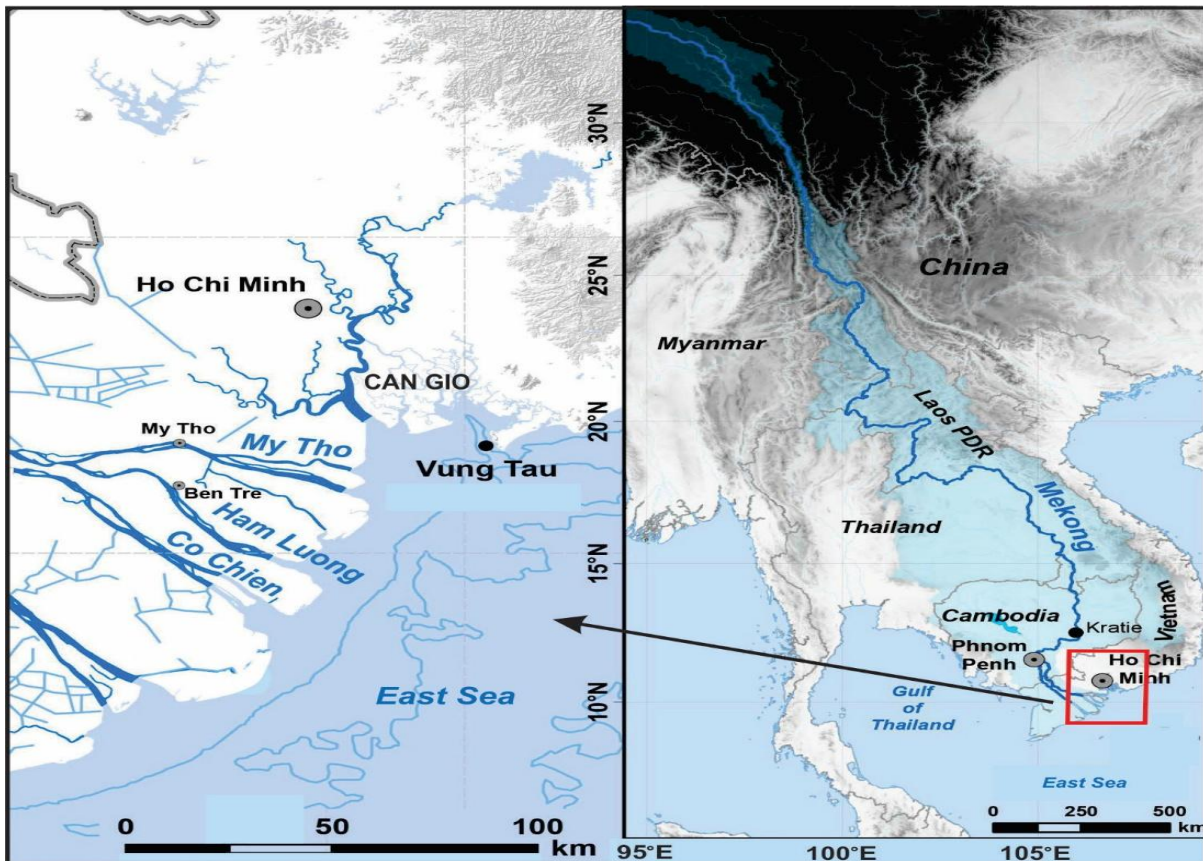


Fig. 1. Location of Can Gio in Ho Chi Minh City (left) and Vietnam (right).

Results and discussions

Ecotourism potential of Can Gio area

-Natural tourism potential

Can Gio area is located the on the coastal area, about 90 km from Ho Chi Minh City, extending from 10°22' to 10°40' North and 106°46' to 107°01'East (Fig. 1).

The Can Gio is about 704.21 km² in area consisting of 339.17 km² forest; 22.16 km² for a complex system of river and tidal creek; 47.73 km² for agriculture; 2.06 km² for salt field. Can Gio area is mainly occupied by wetland, a small area of coastal plain on the south being fringed by 23 km long shoreline.

Table 1.The number of visitors to Can Gio in 2011 – 2015.

Year	Domestic visitor	Foreign visitor	Total
2011	402,160	54,840	457,000
2012	373,800	46,200	420,000
2013	406,800	45,200	452,000
2014	441,440	54,560	496,000
2015	478,192	65,208	543,400
2016	1,031,184	84,816	1,116,000

It is almost low-lying topography excepting an exposed basement rock approximately of 1 ha in area with its peak to be 10.5 m altitude. The wetland occupies low topography of 1.0 to -0.5 m altitude consisting of mangrove marsh, salt marsh and tidal

flat, meanwhile the coastal plain, relic beach ridge and sand dune are about 1.5- 3 m altitude with over 23 km long shoreline.

Can Gio is a tropical monsoonal zone with two distinctive seasons of which rainy season is from May to October and dry season is from November to May. Rainfall and humidity have a considerable change in the dry and rainy seasons. Annual average precipitation in Can Gio ranges from 1,300 to

1,400mm with highest monthly average precipitation of 300- 400mm in September. The rainfall in Can Gio is lower than in Ho Chi Minh City and decreases gradually southwards. The humidity is 79% to 83% in rainy season and from 74% to 77% the dry season.



Fig. 2. Photographes of ecotourism potential of Can Gio: (a) Estuarine mangrove, (b) Can Gio beach, (c) Salt field in Can Gio.

Can Gio has beautiful nature landscapes, it is characterized by a sandy coastline backed by extensive mangrove swamp and barrier island separated by estuaries. The main barrier islands on the southern coast are generally 25 km in length and 2.5 km wide and are better developed on the central coast. In the south-eastern coast, the barrier islands are narrower and appear as remnants of beach ridges due to wave action and tidal erosion in and around the associated tidal creek network. The Can Gio beach (Fig. 2a). Consist of very fine-grained, mica-rich sand with obvious anti-dunes on active beach faces. These beaches usually have moderate (less than 1 m) wave heights, and the very wide intertidal beach faces often greater than 750 m with gentle slope profiles ranging from 1:60 to 1:180. Beaches on the southern coast are slightly finer grained and flatter, and the tidal amplitudes for this region are 2.5- 3.4 m.

River system and mangrove forest: Can Gio area is the gateway to Ho Chi Minh City opening waterway to worldwide. The Dong Nai river system is characterized by meander channels indicating the mature system, and divided into three main distributaries of Cai Mep, Long Tau, and Soai Rap

and entering the sea to the south Ho Chi Minh City. Together with these main rivers, a dense system of tidal creeks that are characterized by meander channels, about 0.4 – 3 km in width and meander coefficient being 1.5- 2.5 indicating the landform within tide- dominated delta. Hence, these rivers and tidal creeks are widespread and surrounded mangrove forests to prettify nature landscape in Can Gio area (Fig 2b). In addition, the Cai Mep and Long Tau rivers are also the main shipping waterways, allowing ships of up to 30,000 tons carrying capacity to enter Ho Chi Minh City sea ports.

Area of the mangrove forest is about 33,917 ha covering about 50% Can Gio coastal region while the distributaries and tidal creeks cover 22,161 ha reaching 32%. In 1991, the Can Gio mangrove forest has been recognized an "Environmental Protection Forest" by the Vietnamese government, and became a World's Biosphere Reserve by the UNESCO, namely the Can Gio Biosphere Reserve in 2000. The Can Gio Biosphere Reserve has a great diversity of fauna and flora typical of tropical mangrove ecosystem. It indicates a high values of biodiversity aquatic organisms, a variety of plants, wild animals and birds.



Fig. 3. Mangrove forest and ecotourism destination of Can Gio.

Mangrove species consists of 33 true mangroves belonging 19 genera and 15 families. The number of true mangrove species recorded in Can Gio Biosphere Reserve is quite high and comparison to other Asian countries. It is characterized by abundant species of *Sonneratia alba*, *Rhizophora apiculata*, *Xylocarpus granatum* association formed on mudflats; *Avicennia officinalis*, *Ceriops decandra* and *Excoecaria agallocha* associations (UNESCO, 2000; Le *et al.*, 2002). It is approximately of 150 species of aquatic fauna to be found in this region, particularly, Asian Sea Bass (*Late scalarifer*), Silver Stripped Catfish (*Pangasius spp*), Tiger Prawn (*Penaeus monodon*) and mangrove crabs (*Scylla serrata*) are abundant and being mainly aquatic products. In addition, sea swallow is a common bird and local residents have established the trade villages to exploit swallow's nest. There are also several bird species red listed by

the IUCN, such as the Spotted Greenshank (*Tringa guttifer*) the Asian Dowitcher (*Limnodromus semipalmatus*). Further wildlife including of wild pigs, monkeys, otters, saltwater crocodiles, snakes have been living in the Can Gio Biosphere Reserve (Le *et al.*, 2002).

Human tourism potential

In Can Gio area, it is about 75,000 in population and mainly concentrated in Can Thanh town to the south, and low density to the north and west areas. Based on the landform of Can Gio, a small coastal plain located far-away on the south is separated from Ho Chi Minh City through the widespread mangrove forest.

This small area is a highest land where ancients occupied and subsequently their activities were discovered by archaeologists in 1994. A discovered

archaeological site (Giong Ca Vo) is located on the relict beach ridge, approximately of 5 ha in area and 5 km long to present coastline. The ground is 1.5- 2 m altitude and archaeological layer being of about 2 m thick. On the excavation, ancient traces are recorded by the ancient graves showing the vestige of Oc Eo-Sa Huynh culture and dated about 2,500- 1,500 years ago (Ho Chi Minh City Institute of Archaeology, unpublished). These data are also discovered at the site in Ho Chi Minh City, around 120 km long to the north. Can Gio has a considerable history and culture that illustrated not only archaeological data but also the warfares in Vietnam. Moreover, traditional culture has been preserved and displayed by religious festivals such as buddhism, the giant fishes welcome festival on the coastal villages. The traditional crafts consisting of salt production (Fig 2c), fishery, mat making are preserved and gradually rehabilitating for the ecotourism development. These crafts are well-known traditional villages in this area. *Cyperustagetiformis* is available raw-material for mat making and growing up on the marsh deposits.

Status of ecotourism in Can Gio

Number of visitors

Ecotourism activities in Can Gio started in 1995, growing rapidly from 1997 to present, tourists have visited mangrove forest, vacation and swimming in Can Gio. In the period 2011-2015, Can Gio has attracted about 2,368,400 visitors to the resort, an average of 475,000 visitors per year, an average annual growth rate of 9.8% (Table), tourism turnover is 5 - 6 million USD / year. In 2016, over one million tourists visited Can Gio, doubling the average number of tourists in 2011-2016, the turnover was more than 10 million USD.

Major tourism destinations

Having an advantage over adjacent areas, some ecotourism parks were established in the last 5- 6 years in this coastal region. Dan Xay ecotourism park is located in the Can Gio Biosphere Reserve (Fig. 3) and managed by the Can Gio Mangrove Management Board. It is a system of natural rivers and mangrove

forest and prettified by the wildness and greatness of the green mangroves hugging saline rivers. The above mentioned typical flora and fauna point out a wonder experience of mangrove forest ecosystem. Tourists discover a lot such as the internal roads in the mangrove forests along the rivers, beautiful canals, and also rowing, sightseeing, fishing and enjoying the panoramic view of the great natural scenery of green forest. Coming here, tourists also have a good opportunity to interact with forest guardians, enjoy fishing and tasting the rural meals that are really ecotourism experiences.

Vam Sat ecotourism park is about 2,000 ha in area and belonging to the Can Gio Biosphere Reserve (Fig. 3). This park also has a beautiful landscape, typical flora and fauna of mangrove forest ecosystem. There is a bat sanctuary located along the tidal creeks existing for 1,000 bat individuals. A mature bat has its wingspread being 0.5 m long and about 1 kg in weight. A bird sanctuary is about 600 ha containing over 10 species listed in the Red Book. It has a great view of the diverse three-level fauna system: birds at the top, mammals in the middle, and aquatic organisms including sea and brackish water species, at the lower level. Tourists have good experiences how is wonderful the mangrove ecosystem, a nice landscape showing the tidal creeks meander in the mangrove forest and some wild animals appear around on the tourists such as cats, python, snake, monkey and rarely meeting the varan and pig.

Rung Sac ecotourism park is located in the mangrove forest surrounded by an interlacing system of rivers and creeks (Fig. 3). Rung Sac means mangrove forest in Vietnamese language. Particularly, this park is also a Vietnamese war memorial with widespread system of floating stations and bases for army activities maintained such as the command office, medical care, ordnance and Rung Sac commando soldiers during Vietnamese war. It is also interesting to experience two models collected freshwater in the rainy and dry seasons displaying at the museum. Because freshwater is not available in the mangrove

forest. This park has also some interesting places such as Monkey island where is home of natural monkey, semi-natural crocodile pools.

Similar to some regions in Vietnam, tourism and ecotourism have been separately operating in Can Gio. Some national parks that seem to have enough criteria for ecotourism assessment such as protection antecedents, recreation resources, tourism facilities, but it is lack of historical artifacts, and also should be supplemented on maintaining the native culture, educating awareness on nature environment (Hummel, 1994; Boyd, 2000). The others seem to be only tourist destinations that should be combined with the forest parks and traditional craft villages to set up ecotourism. Can Gio has a great potential for the development of ecotourism required that it is environmentally and socially responsible travel, generate funds and support for conservation efforts, and also provide benefits to local community (Lindberg, 1991; Carter, 1994; Ross and Wall, 1999).

Ecotourism potential development in Can Gio area

In the last few years, there has been a significant growth of tourists in the Dan Xay Vam Sat, Rung Sac park and beach destinations, and these excursions have become increasingly popular. Increasing demands of tourism creates problems of natural environment, particularly environmental disturbance and pollution occur on the beach and surroundings, meanwhile, efficient managements have been applying in the three national parks (Dan Xay, Vam Sat and Rung Sat park destinations) where ecosystem and biodiversity have been protected, and attracting more tourists in both domestic and foreign. Beside these ecotourism parks, tourists have also separately visited the beach, historical and cultural sites. It is similar to another region, the co-existence of coastal ecosystems and tourist activities results in the unavoidable degradation on resources and environment through the negative impacts on the economic and social value.

The study is exploration in nature and in examining the existing relationships, it is intended to provide a planning direction to the managers that will enhance the capacity of ecotourism at destinations to generate benefits in both the local communities and the parks, therefore contributing to the conservation and sustainable development of Can Gio coastal area.

Recently, tourism and ecotourism are complex, involving both public and private organizations. It is a big problem for environment pollution and tourism development recently and future. The main ecotourism parks have been established and operating on the basis of their advantages, and the other tourist sites should be incorporated to these parks enhancing the attract attention for ecotourism. Together with ecotourism must exist and develop in the natural and/or international parks, it might be confirmed a really ecotourism if the following principles:

First, tourists had better to understand the natural environment and to raise their awareness and involved conservation activity. Ecotourism should be associated with conservation, sustainable development, people loving nature and protecting environment. Many tourists are not interesting on management and conform to the regulations. Some tourists are not fully aware of environmental protection and do not payment of conservation fees. After finishing the tour, tourists understand that it is necessary to protect environment ecosystem for people.

Second, maintaining history and native culture and involving local communities in ecotourism: It is clearly that both domestic and foreign tourists are often like visiting rural villages to observe history and native culture, meeting local people, and participating in traditional activities. The rural residents usually maintain the distinctive lifestyles, cultural and traditional customs. These features are part of the real value of ecotourism and should be maintained and promoted. In addition, local people still live in

poverty, their life closely associated with natural resources. The economic benefits of ecotourism need to be shared with them, but this will not happen without community participation. Owing to local characters of north and northwest villages, traditional crafts could have a help selling the native products, enjoying the rustic views and also doing homestay business to be the main income source for local people. The improvement of the livelihood of local people by diversifying their income-earning activities remains a key factor in conservation and sustainable development of the coastal region.

Through and evaluation of the existing ecotourism park- community relationships, opportunities, and constrains are identified. Ecotourism development was found to be at an early stage in the Can Gio area. Socio-economic benefits for the local communities have been limited and tourist activity have not contributed revenues towards conservation. However, community residents generally support conservation and are optimistic that tourism growth will yield benefits. In light of the study findings and the considerable literature, planning direction is offered with the intention of enhancing the capacity of ecotourism to generate benefits in both communities and forest parks, and thus contribute to the sustainable development of the region more generally.

Environmental and socio-economic impacts of ecotourism in Can Gio

Recently, in Can Gioarea, one of the essential issues of ecotourism is the lack of standards regarding its practice. It should be considered that ecotourism is a multidimensional, complex practice being characterized by a higher degree of risk, novelty, and interaction with culture and natural fragile biological diversity. Therefore, the fragile sites of ecological and cultural significance are being exposed to the risk of degradation by uncontrolled tourism development. Natural habitat is also being destroyed through the ecotourism services as well as infrastructures development like lodges, roads and private reserve. It

indicates that biological diversity might suffer heavy losses because of invasion of nature conservation area. Under the pressures of logging, agriculture, and fishing, forest and marine habitats are being destroyed and some wildlife is being driven to extinction.

Ecotourism is a positive economic and environmental tool and requires policies that foster responsible nature tourism development, actively local participation and natural conservation. This is necessary in order to properly regulate and manage as well as protect the environment and native culture from overbuilding of tourist facilities. It is necessary in raising awareness of local community about the value of biological resources, increasing local participation in the benefits of biodiversity conservation through new jobs and incomes, and generating revenues toward conservation. This will enhance participation involvement of all stakeholders in the sustainable ecotourism development of the region. International exchange of information and know-how about nature tourism opportunities and operations, through technical and management training, to meet the needs and interests of international and domestic nature tourists is necessary for good practices. The ecotourism activities entail promoting environmentally responsible tourist operations that conserve energy, recycle waste, and proper adherent to regulated rules and policies guiding the parks and protected areas usage.

Tourism activities in Can Gio have started since 1997 and subsequently, local people and government are interested in development of tourism. From 2011 to 2016, it was average of 570,000 tourists per year, annually increasing of 17.4%. It considers that the investment of ecotourism has changed markedly on infrastructure being transportation, water and electricity, communications, accommodation, but it is also need more investments for this aspect. Moreover, providing tourists with opportunities to spend money locally, through development of tourism facilities and

services such as food concession, souvenir visiting native culture and traditional crafts ... that could help in this respect and also encourage tourists to return in the future (Lindberg, 1991, Ross and Wall, 1999). Awareness for tourism culture and environmental protection of local people is improved, and overall, community integration gives good opportunities for expandable visiting to the rural villages where tourists have more experience on native culture and traditional crafts and also activities of ethnic minorities (Hvenegaard and Dearden, 1998; Nenon and Durst, 1993).

At the moment and in general, the impact of tourism on the local economy and society is positive. Some local community has a good income mainly concentrated on service at the beach and Can Thanh town, but it appears only a small scale. The most visible and general benefit to the local community is improvement in the local infrastructure being new bridge, good roads, water supply, communications and electricity that support tourism also improve the life of local residents. It is also having some negative impact on the environment and community. Particularly, on holidays tourists increase rapidly going on beyond all expectation, consequently, environmental pollution has been appeared in a big problem. The refused materials are thrown on the beach and surrounding road creating insanitation and bringing too bad effects to ecotourism. This problem is also occurred on the ecotourism parks. It considers that local people involved in tourism and tourist company employees should be reorganized and given training basic knowledge and relative environment in sustainable ecotourism. A good management board should be set up to control the activities of the stakeholders do not go beyond all reason. A sustainable utilization of goods without destroying ecosystem itself is crucial to ensure local, regional benefits of mangrove forests. Moreover, park management has made an effort to educate local residents, providing them relative information how importance of protecting the forest, ecosystems and wildlife of the park, but residents have not an

opportunity to participate actively in generally (Hummel, 1994). This problem occurs on the parks because local residents adjacent to national parks have frequently been overlooked and / or not interesting (Boyd, 2000). It is important matter because of generation of community benefits and positive attitudes towards ecotourism must be a large degree dependent on resident's ability to participate ecotourism activities (Campbell, 1999, Ceballos-Lascurain, 1996, Nepal, 2000). When local people do not involve the ecotourism activities, it could lead to poorly integrated conservation- development mission that damage the natural ecosystems and reduce tourism' potential to generate benefits (Cresswell and MacLanren, 2000).

Conclusion

Can Gio has a great potential for ecotourism development: the unique landscape of the estuarine coastal area is still pristine with high biodiversity mangrove ecosystem; special cultural festivals; historical relics and tradition of Rung Sac base.

Along with the diverse tourism resources, the convenient means of access to Can Gio and the ability to meet the demand for electricity, water, communications and accommodation have changed positively that are favorable for ecotourism development.

Recently, the number of tourists visiting Can Gio is increasing, the current tourism status has initially reached the requirements of ecotourism development principles such as preserving and developing the value of natural and native cultural environment, raising awareness of environmental protection and initially raising the standard of living of local communities. However, the ability to meet the high demands on quality of accommodation, food hygiene and safety, environmental sanitation is limited; travel products, entertainment activities are monotonous, less attractive.

To develop ecotourism in Can Gio sustainably, it is needed to care about investing in infrastructure for tourism, diversification of tourism products, environmental protection education and linking local communities to participate in tourism activities. In addition, it is necessary to increase the promotion of Can Gio tourism images in the media and internet.

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