

Ringer, G & Robinson, A (1999) *Con Dao National Park Ecotourism Management and Environmental Education Proposal*, Ho Chi Minh City & Hanoi: World Wide Fund (WWF) for Nature-Indochina Programme and Ministry of Agriculture & Rural Development.

**CON DAO NATIONAL PARK
ECOTOURISM MANAGEMENT AND ENVIRONMENTAL EDUCATION
PROPOSAL**

November 1999
Dr. Greg Ringer & Alan Robinson

CONTENTS

1. INTRODUCTION
 - 1.1 Physical Geography & Biodiversity
 - 1.2 Function & Duty of CDNP
2. CURRENT STATUS OF TOURISM IN CDNP & CON DAO DISTRICT
 - 2.1 Historical Attractions
 - 2.2 Nature Attractions
 - 2.3 Visitor Demographics & Preferences
 - 2.4 Transportation & Access
 - 2.5 Accommodations & Tourist Facilities
 - 2.6 Management Challenges
 - 2.6.1 Political & administrative
 - 2.6.2 Environmental & socioeconomic
 - 2.6.3 Ecotourism-related
 - 2.6.4 Summary of strengths, weaknesses, opportunities & threats (SWOT)
3. OBJECTIVES OF CDNP MANAGEMENT PROPOSAL
4. ECOTOURISM MANAGEMENT ACTIVITIES & GUIDELINES
 - 4.1 Development of a Visitor Interpretation / Environmental Education Center
 - 4.2 Nature Activities
 - 4.2.1 Day trips
 - 4.2.2 Interpretative trails
 - 4.2.3 Overnight accommodations
 - 4.2.4 Bicycling
 - 4.2.5 Nature conservation activities
 - 4.2.6 Agricultural activities
 - 4.3 Historical Attractions
 - 4.4 Ecotourism Management Zones, Regulations & Visitor Limits
 - 4.5 Fees
 - 4.5.1 Conservation Fund
 - 4.5.2 Concession fees
 - 4.5.3 Conservation development charge
 - 4.5.4 Student fares
 - 4.5.5 Fee table
 - 4.6 Maintenance & Revenue Sharing
 - 4.7 Future Management Challenges & Considerations
5. ENVIRONMENTAL EDUCATION ACTIVITIES
6. OTHER ECOTOURISM-RELATED TRAINING NEEDS
7. FACILITIES / INVESTMENT COSTS FOR ECOTOURISM & ENVIRONMENTAL EDUCATION
 - 7.1 Interpretative Center
 - 7.2 Bungalows
 - 7.3 Educational Material
 - 7.4 Construction of New Hiking Trails
8. ENVIRONMENTAL CONSIDERATIONS OF PROPOSED ACTIVITIES & DEVELOPMENT
 - 8.1 Summary of Proposed Activities and Development

- 8.2 Impacts on the Natural Environment
- 8.3 Impacts on the Historic Resources
- 8.4 Impacts on Social & Economic Conditions
- 8.5 Mitigations

APPENDICES

- A. Map of CDNP & Con Dao District
- B. Map of Existing and Proposed Activities
- C. Museum Visitors, 1997-98
- D. Facility & Site Design (* to be provided by FIPI and CDNP)
 - 1. Interpretative / Educational Center
 - 2. Bungalows

1. INTRODUCTION

This management proposal is intended to establish guidelines for the design, development, management, and marketing of ecotourism and environmental education activities, attractions, and facilities in Con Dao National Park (CDNP) and Con Dao District. As such, it provides specific recommendations and policies for developing and managing ecotourism and environmental education as tools for sustainable biodiversity conservation in the marine and terrestrial areas of CDNP, and for sustainable community development for the people of Con Dao island.

The major objective of this Ecotourism and Environmental Education Management Proposal is to create a flexible framework in which ecotourism and environmental education are viewed as part of a comprehensive planning and management process for Con Dao District and the National Park.

It should be emphasized that the purpose of this management proposal is not to criticize existing programs or policies. Nor is it intended as a separate Management Plan for CDNP or to suggest that ecotourism and environmental education alone will satisfy the social, ecological, and economic needs of the park and residents of Con Dao District.

Instead, the goal is to assist CDNP, Con Dao District, and Ba Ria-Vung Tau Province in their efforts to find a balance between economic development and environmental conservation, and to recognize the environmental benefits of CDNP to the district (including the interconnection between the forests and freshwater for local residents, and the beneficial role played by mangroves and coral reefs as breeding areas for local fishermen).

The guidelines and recommendations outlined in this proposal are based on input and consultations with staff from CDNP, district and provincial governments, local and government tour operators and small business owners, as well as Vietnamese and international tourists. They also consider the output and conclusions of several technical reports, including the DANIDA-funded Ecotourism Options for Con Dao National Park report prepared by Ross and Andriani (1998), and the Asian Development Bank (ADB 5712-REG) Coastal and Marine Environmental Management in the South China Sea (East Sea), Phase 2 Inception Report, Viet Nam Demonstration Project (1999).

Collectively, the recommendations are designed to assist both park managers and district officials in their efforts to:

- develop and promote Con Dao as an ecotourism destination for both foreign and domestic visitors;
- financially support environmental conservation and education projects in the park and district;
- provide economic benefits to the community; and
- promote collaborative partnerships and constructive communication among the various stakeholders involved, including the national, provincial, and district governments, park managers, the police and military, non-governmental organizations (NGOs), private businesses and tour operators, educational institutions, local residents, and visitors to Con Dao.

In this manner, it is hoped that ecotourism and environmental education together will be seen as an effective tool for proactively developing and managing the natural and cultural resources of Con Dao in a holistic manner that is 1) *sensitive* to local concerns to conserve and protect the island's significant natural and historical resources, 2) *supportive* of efforts to provide viable economic alternatives for residents, and 3) *sustainable* environmentally and socially over the longer term.

At the same time, implementation of this proposal will result in a more meaningful experience for visitors through improved information and interpretation, and the construction of activities, attractions, and facilities more compatible with the objectives of a national park.

1.1 Physical Geography & Biodiversity

Con Dao National Park is approximately 19,998 hectares in size, including 5,998 ha of forestland and 14,000 ha of marine habitat, making it the second largest marine park in Vietnam (Appendix A). The highest point in the park is Nui Thanh Gia, located on Con Dao island with an elevation of 577 meters. In addition to the main island, the park also includes nearly one dozen smaller islands that are protected for sea turtle nesting and dugongs, as well as coral reefs and mangrove forest systems identified for their ecological value and diversity -- including what is reputed to be the highest diversity of giant clams in the world.

1.2 Function & Duty of CDNP

The function of CDNP is to protect and conserve the ecological diversity of its marine and terrestrial habitats. At the same time, the park recognizes that ecotourism and environmental education are necessary components of its public management programs, providing 1) a potential source of funding conservation and community development activities, 2) a means of increasing salaries of park staff, and 3) enabling local residents and visitors to better understand the ecological values of the park's resources. However, park managers emphasize that ecotourism and the economic benefits it provides are secondary to the conservation objectives.

Because of its tremendous biodiversity and the high potential for ecotourism, Con Dao is included as an "Area of Highest Regional Priority" in the World Bank's Global System of Marine Protected Areas, and has been selected as a "demonstration project" by the Asian Development Bank and the

National Government of Vietnam, in conjunction with GEC Global Environmental Consultants Ltd., of Canada and the World Wide Fund for Nature-Indochina Program (WWF). The purpose of the ADB regional technical assistance program is:

to promote the sustainable use of coastal and marine resources in the western portion of the South China Sea (East Sea in Vietnam), including greater regional cooperation in the protection and management of coastal and marine environmental resources; and
to increase the capacity of countries in the region to manage their coastal and marine resources sustainably.

In addition, CDNP has identified ecotourism as a central component of its current and proposed Five-Year Management and Investment Plans (1998-2004), and both the District and Provincial governments have indicated their support for additional environmental and ecotourism management policies outlined in a workshop sponsored by the Asian Development Bank and WWF as part of the demonstration project (29-31 October 1999).

2. CURRENT STATUS OF TOURISM IN CDNP & CON DAO DISTRICT

Con Dao has a number of important historical and natural attractions that appeal to both Vietnamese and foreign visitors (Appendix B). While much of Con Dao is included within the national park, it is difficult to discuss ecotourism development for CDNP without consideration of the attractions and activities that exist outside the park since many of the historic sites are located on district land.

2.1 Historical Attractions

Perhaps the most significant historical attraction, from a cultural perspective, is an extensive prison complex located on district land. Initially constructed by the French colonial government in the mid-1800's, the prisons were further expanded by the former Saigon government in the late 1950s to include the infamous "Tiger Cages." A national cemetery nearby includes the gravesites of nearly 2,000 former prisoners (most unidentified), as well as those of Le Hong Phong and Vo Thi Sau, executed by the French and revered by the Vietnamese people.

Con Dao town also contains an historic district centrally located adjacent to the prison complex and hotels. Among the buildings included are the former head office and residence of the local governors, constructed in 1873. Considered to be the oldest surviving building on the island and unchanged for nearly 126 years, it now houses the Con Dao Museum with exhibits of the flora and fauna found on the 14 islands of the Con Dao archipelago, as well as a descriptive history of the prison complex.

Also situated nearby are a number of other culturally significant sites, including

Pier 914 (located directly across from the Museum building, the name refers to the number of prisoners who died during its construction),

the remains of a road and stone wall near Cau Ma Thien Lanh (Bridge 350), where nearly 350 prisoners reportedly died under the French, the Phi Yen temple, and the Salt Prison (though part of the prison complex, it is approximately 1.5 km from the town center on the road to Ben Dam port).

Within the park boundaries are located some smaller historic sites, including a small house on Hon Cau where Pham Van Dong was held prisoner, and the ruins of a former French plantation on Con Dao itself. Along with the prison complex in town, these sites are considered historically and culturally significant for both Vietnamese and foreign ecotourists.

2.2 Nature Attractions

Although Con Dao and the other islands located within the park's boundaries represent an isolated ecosystem, they have remained relatively undisturbed -- until recently -- because of the long-term prison activities (1862-1975) and the steep, mountainous interiors of the islands. As a result, nearly 300 species of trees have been identified by staff of the Ministry of Agriculture and Rural Development's Sub-Institute of Forest Inventory and Planning #2 (FIPI), including 44 species found nowhere else in Vietnam.

Staff from the Institute of Oceanography in Nha Trang, Vietnam and the Institute for Environment and Sustainable Development at Hong Kong University of Science and Technology have also documented diverse types and an abundance of fish and other marine life among the seagrass meadows and coral reefs of Con Dao, indicating that the islands may offer the highest species diversity of corals found in Vietnam. It is clear, therefore, that the local coral reefs are among the most attractive in all of Vietnam in terms of tourism.

Within these biomes are found a diversity of mammals and marine life, including deer mouse, the rare black squirrel, macaque monkeys, the giant water monitor lizard, butterfly and parrot fish, giant clams, and the endangered green sea turtle and dugong. Seasonal migrations of dolphins and "black whales" (*Prodelphinus malayensis*) have also been recorded in the coastal waters of the park.

2.3 Visitor Demographics & Preferences

At present, tourist visitation to Con Dao remains relatively small in number, with most visits during the months of April -- July when the dry season makes travel by boat to and among the islands more reliable. In 1997, a total of 2,742 domestic visitors were recorded, most traveling to the island for business and/or to visit the prisons, while only 124 foreign visitors were reported (local tour operators state that most of these were expatriates residing in Vietnam). Visitor records from the Museum indicate a total of 3,197 paid admissions (Vietnamese and foreign) for 1997 and 2,632 persons for 1998, with the highest attendance during the months of May-October (Appendix C).

Effective October 1999, a Malaysian-owned cruise ship from Star Cruise Lines began stopping at Con Dao once a week. Although the ship has a reported capacity of 600 passengers, interviews indicate it averages only 200 passengers (approximately half Asian and half Western) on its weeklong cruise from Thailand to Con Dao via Ho Chi Minh City. Of this total, approximately

60% (120-132 persons) elect to take advantage of the brief 3-4 hour shore excursion each week, in which they visit the central market, as well as the museum and selected prison sites.

Although Star Cruise Lines does not charge an extra fee for the shore excursion, most visitors state they feel quite harried by their experience on Con Dao and view it unfavorably. They also indicate that they do not receive information about the national park, nor is there sufficient time to explore the natural environments or to take advantage of any activities or attractions outside those scheduled by Star Cruise and Saigontourist (the tour operator in charge of the land excursions).

At present, there are conflicting reports that Star Cruise may cease its visits earlier than the year-long period for which they have already made arrangements (through September 2000). However, this has not been confirmed, nor have reports of additional cruise ships visiting Con Dao in the near future been verified (see Sections 2.6 and 4.5 for a discussion of the challenges and economic contributions this may present CDNP in terms of environmental management and education).

2.4 Transportation & Access

Access to Con Dao and CDNP is currently available only by boat or helicopter. The boat, which holds approximately 100 passengers, departs Vung Tau once a week, weather permitting, and takes 12-15 hours one-way. Otherwise, access to Con Dao by helicopter is available from either Ho Chi Minh City or Vung Tau three days/week with a maximum of 24 passengers. However, return flights cannot be confirmed for visitors remaining for an extended period, as preference is given to those who have weekend travel reservations (arriving Saturday and departing Monday). This is a serious limitation for those visitors interested in staying on Con Dao for a longer period, yet must be certain of returning to the mainland for work or onward travel connections.

The provincial government has announced plans to launch a high-speed boat, capable of carrying 200 passengers to Con Dao in only 7 hours, in late 1999. A South Korean firm has proposed a second high-speed boat, reportedly holding 220 passengers, to transport its own passengers to a planned hotel complex as well. Both the hotel and boat proposals are apparently on hold, however, due to economic difficulties experienced by the investor (see Sections 2.5 and 2.6.2 for further discussion of the hotel proposal and its environmental implications). The project could be reactivated by another investor though, since the required permits have already been granted by the province and national investment authorities. Again, the details remain unconfirmed at this time.

Within the boundaries of CDNP, there is a paved road that extends approximately 27 km from Co Ong Airport on the northeast of Con Dao island, along the southeastern side through town to Ben Dam port on the southwest. The district proposes to extend this road around the entire island. If completed, the extension would be routed almost entirely through park lands, causing serious environmental degradation (including a loss of habitat as well as soil erosion and sedimentation into the mangroves and coral reefs offshore). Possible problems in controlling access into ecologically sensitive areas of the park are also likely.

The old road to Cau Ma Thien Lanh is located approximately 1 km from the park headquarters. Now only partially accessible by jeep, it is used as a foot trail by park rangers stationed at the guard station at Bai Ong Dung. Park and FIPI staff have begun to post signs identifying many of the tree species found along the route and there is a proposal to extend a gated road to the guard

station so that enforcement and supplies could be more easily provided. The park director stated that vehicle traffic would not be permitted, other than for park operations.

2.5 Accommodations & Tourist Facilities

At present, there are three (3) tourist hotels on Con Dao, all located along the waterfront in close proximity to each other, the Museum, and the town's historic district. The smallest is the ATC (privately owned and operated), while the largest is the Saigon-Con Dao Resort (along with the Phi Yen Hotel, both of these are government-operated ventures). Rates among the three range from VND 20,000/person for shared rooms (6 persons) to approximately US\$ 30 for a double room at the resort managed by Saigontourist. Total capacity of all three facilities is approximately 44 rooms or 135 persons. Each of the hotels has its own restaurant, and there are a number of small cafes located throughout the town, as well as some small stores and the central market where food can be purchased.

A South Korean investor has received provincial approval to construct a 200-room hotel in the district as well, as noted above in Section 2.4. However, this project is on hold due to financial difficulties and the exact location and status of this facility remain unclear at this time.

Con Dao also has several stores that sell tourist-related souvenirs, including marine life (primarily mounted lobsters). In addition, the owner of a lacquer ware factory in Ho Chi Minh City has recently opened a shop near the central market in hopes of capitalizing on the growing tourism market. Several other stores, as well as the central market, provide products for the island's population, although the market is a designated stop for cruise passengers.

It should be added that the owner of the lacquer ware shop has asked Saigontourist to park its busses in front of his shop instead of the market in order to stimulate business, and the general manager of Saigontourist has apparently agreed since the lacquer ware factory in Ho Chi Minh City is part of their packaged tours in that city as well. This may have a negative effect on locally-owned businesses since cruise passengers will no longer be directed to the market.

At present, no lodging facilities exist on the outer islands, although the park staff does permit small groups of visitors – primarily expatriates from Ho Chi Minh City – to camp on the beach on Hon Cau, and has purchased a few cots for such use. Such visits are reportedly infrequent, however.

At present, the Museum serves as an informal information center. However, they do not provide information on CDNP or tourism-related facilities on Con Dao, and the guides speak only Vietnamese. The small – but increasing – number of foreign visitors who currently travel to Con Dao view these as serious limitations.

2.6 Management Challenges

The challenges addressed by this management proposal are environmental and socioeconomic, as well as political and administrative.

2.6.1 Political & administrative

Because many of Vietnam's current and recent leaders were incarcerated on Con Dao, the national government must formally approve all development plans related to CDNP. Indeed, the island's current 1993-2010 Master Plan was approved at the Prime Minister Level, a event unique for a district level plan in Vietnam. In addition, many of the recommended ecotourism sites and activities require advance approval from the military and Border Army on Con Dao, and visitors are required to surrender their passports before traveling by boat within the park's marine areas. Only the large boat owned by the park is legally licensed to carry passengers as well, and the set fee is financially prohibitive for groups of less than 20 people.

2.6.2 Environmental & socioeconomic

Among the more serious environmental issues identified by park and local officials is the potential shortage of drinking water in the future (particularly during the dry season). Although the district is currently expanding its water storage facilities, there is concern about the ecological impacts on the freshwater and mangrove systems, especially if the island's population should increase from its current level of 4,000 to 15,000 persons by the year 2010 as projected in the district's Master Plan. Given the limited amount of land available, there is further worry that such a population increase will place tremendous pressure on the park's resources.

In addition, there is no freshwater source on Hon Bay Canh, where the park maintains a guard station. As a result, water must be supplied by boat. The Vice-Minister of the Ministry of Agriculture and Rural Development (MARD) has voiced his intention to construct water cisterns on each of the islands where ranger stations exist.

Limited electrical capacity for Con Dao is also considered an issue since, at present, there is no electricity available between midnight and 6:00 AM except for the hotels and private homes with private generators. Although trash is collected by the district, waste disposal presents an environmental issue, with most residences relying on poorly-maintained septic systems for human waste and solid waste (including oil barrels used for the ongoing road project) dumped at scattered, open air sites within the park or district.

The small amount of arable land outside the park also means that helicopter or ship must import most food and supplies for the district and CDNP. In response, MARD has plans to develop a 20-hectare agricultural site within the park to provide fruits and vegetables for residents and ecotourists (**refer to Section 8 for a discussion of the Environmental Impact Assessments required for this or any other ecotourism activity proposed in Sections 4-5**).

2.6.3 Ecotourism-related

Data provided by Saigontourist and Vietnam Tourism (the 2 largest government tour operators) indicates that 46% of the international ecotourists who visit southern Vietnam – and by extension, Con Dao – are from East Asia, followed by Europe (7%), North America (3%), and Australia / New Zealand (1%). Other travel markets considered to have potential growth include Germany, Malaysia, Norway, Singapore, South Korea, Thailand, and Vietnamese students.

This mix of Asian and Western tourists has considerable implications for ecotourism development on Con Dao in terms of facilities, attractions, and activities since many Asian ecotourists prefer to

travel in larger groups and stay in comfortable accommodations, which might be described as standard hotel developments (such as the proposed South Korean-financed 200-bed hotel noted in Section 2.5). Many Western ecotourists, however, prefer to travel independently and seek authentic, cross-cultural experiences and opportunities, and a simpler standard of accommodation.

In addition, should the number and frequency of visits by cruise ships increase as some local tour operators suggest, this will significantly impact the park as well. Any increase in passengers may potentially benefit CDNP by generating additional income and interest in environmental conservation and education if their activities are expanded to include ecotourism options in the park. At the same time, there may also be a preference for inappropriate or unsustainable development of the island's natural resources to provide additional, short-term recreational opportunities.

2.6.4 Summary of strengths, weaknesses, opportunities & threats (SWOT)

Strengths: CDNP has relatively undisturbed marine and terrestrial ecosystems, and the park staff is motivated to conserve the environmental biodiversity. In addition, the district and province have expressed their support and commitment for community-based ecotourism on Con Dao.

Weaknesses: There are no visitor facilities within the park, nor is information (particularly in English) readily available regarding the park's cultural and natural resources. CDNP also currently lacks any formal ecotourism activities or interpretative center. In addition, there is very little interaction or participation among representatives of the governmental agencies involved in natural resource management and tourism development. Perhaps most important, although the district has expressed its support for ecotourism in the park, they have not fully committed to this approach for all of Con Dao. As a result, the park is faced with the challenge of developing and marketing itself as an ecotourism destination while much larger – and potentially conflicting – tourism facilities and activities may be permitted in the district. At this point, the potential for conflict between these approaches has not been fully analyzed (though it is hoped that the district will consider the possible impacts by requiring an EIA for any development outside the park).

Opportunities: CDNP is a designated "demonstration project" funded by the Asian Development Bank. The park staff has also received technical and financial assistance, including equipment, from WWF-Indochina and DANIDA for resource conservation and protection.

Threats: Typhoon Linda destroyed significant portions of the coral reef system in 1997, and over fishing and coral bleaching presents serious threats to the remaining reefs. In addition, an ADB-financed port development project poses a serious threat to the coral and mangrove systems of Ben Dam. The district's proposal to extend the road around the western side of Con Dao also represents a serious threat, as do proposals to extend the airport runway into Vinh Dong Bac and to construct the 200-room hotel in town.

These challenges will require cooperation between government agencies, and a better appreciation of the environmental benefits that the marine and terrestrial resources of CDNP provide to the district. Such benefits include the important role played by the park's ecosystems as a source of freshwater for Con Dao, and an important source of food and employment for residents.

3. OBJECTIVES OF CDNP MANAGEMENT PROPOSAL

Recognizing that conservation and management of the park's natural and historic resources cannot be considered apart from the desires and development plans of Con Dao District, the goals of this ecotourism management proposal are to:

- conserve the biodiversity of Con Dao National Park,
- educate both visitors and local people about the value of the national park and its marine, terrestrial, and cultural environments,
- develop appropriate recreational opportunities for both residents and tourists,
- provide economic benefits to the residents of Con Dao District.

This proposal is also intended to assist FIPI to 1) provide advice to the park on tourism development, 2) build capacity through staff training in ecotourism, and 3) support requests by CDNP to the National Government, tourism enterprises, and international donors for funding for environmental awareness and guide training, as well as capital investments for ecotourism-related facilities identified in CDNP's Five-Year Plan. The proposal further identifies future challenges and potential ecotourism activities for consideration by Con Dao District and Ba Ria-Vung Tau Province in their respective development plans.

4. ECOTOURISM MANAGEMENT ACTIVITIES & GUIDELINES

To support the park's efforts to encourage biodiversity conservation and environmental conservation, and the District's efforts to develop alternative sources of income and employment for local residents, the following activities and guidelines are suggested for inclusion in the ecotourism plan prepared by FIPI (**refer to Section 8 for a discussion of the Environmental Impact Assessments required for any activity proposed in this section**).

4.1 Development of a Visitor Interpretation / Environmental Education Center

A vacant building located immediately in front of the Museum and Pier 914 has been identified as a suitable site for an ecotourism interpretation and environmental education center. In cooperation with the park, district planning office, Museum staff and tour operators, the center would include educational material and displays of Con Dao's natural and historic resources, as well as tourist maps of the historic district in Vietnamese and English.

The building could ideally function as a reservation center as well, providing material on facilities and services available in CDNP and the district, park rules, and maps of bicycle route, trails, and historic walking tours. Visitors would also arrange travel to the outer islands, reserve accommodations at the bungalows on Hon Cau and Hon Bay Canh, and hire guides and transportation.

If the building is privately owned and unavailable for use by CDNP, then the park might contact the owners to see if they are willing to provide such services on a fee-basis. The possibility that a small restaurant or café may be opened in the building as well would provide a convenient, social gathering place for both residents and ecotourists from the nearby hotels.

Since Pier 914 is historically significant, there exists a possibility that it could also be partially restored in the future. If so, this would increase the attractiveness of this location as an ideal site for the proposed interpretation and education center since it is convenient to tourists staying at the hotels nearby, and could serve as the primary departure point for tourism access to the outer islands or activities around Con Dao.

4.2 Nature Activities

To educate visitors and to allow them to directly experience the natural environments of CDNP, the following sites and activities could be developed and promoted as day trips:

4.2.1 Day trips

- Bai Dam Trau (swimming, sunset views)
- Bai Dat Doc (hiking, swimming, scenic views)
- Bai Dong Bac (hiking)
- Bai Nhat (swimming, snorkeling, scenic views)
- Bai Nho (swimming, snorkeling, short hike through *Casuarina* forests to "pocket beach" and waterfall)
- Bai Ong Dung (hiking, swimming, snorkeling, sunset views)
- Hon Cau (swimming, snorkeling, scenic views, turtle viewing)
- Hon Bai Canh (snorkeling, swimming, fishing, turtle viewing)
- Hon Tre Lon (diving, snorkeling, turtle viewing)
- Hon Tre Nho (diving, snorkeling)
- Mui Chim Chim (scenic view)
- Nui Thanh Gia (hiking, scenic views)
- Vinh Dam Tre (bird watching, snorkeling, fishing)

4.2.2 Interpretative trails

Interpretative trails should be constructed to the following sites with signs posted in Vietnamese and English identifying selected natural and cultural features. All trails will remain natural and unpaved, except for the paved road that currently exists to Nui Thanh Gia:

- Bai Dong Bac (lowland forests to Vinh Dam Tre)
- Bai Ong Dung (diverse forests, wildlife viewing, and historic artifacts along the road to Cau Ma Thien Lanh)
- Hon Bai Canh (mangroves)
- Hon Cau (ruins of French prison building)
- Nui Thanh Gia (diverse forests to the highest point on the island)

4.2.3 Overnight accommodations

Three (3) bungalows may be constructed on Hon Cau and two (2) on Hon Bay Canh for visitors interested in overnight camping. The lower number on Hon Bay Canh reflects the lack of fresh water. Each bungalow will hold a maximum of 6 people.

The bungalows will be designed to fit into the natural environment and to eliminate the cutting of trees or other vegetation. A landscape architect will be consulted to make sure that each bungalow is simply constructed (preferably of traditional design and elevated on stilts). Solar panels or other renewable energy sources will be used, and each building will be placed so that it does not disrupt wildlife nests or ecologically sensitive areas

Water catchments basins will be provided (similar to those already in use by the ranger stations) and self-composting toilets or latrines will be constructed for waste disposal. Campers will be required to remove all trash and solid waste when they depart the island.

Camping facilities on each island could be constructed and operated by private concessions selected by the park manager. Capital for materials and construction would be provided by the concessionaire and all specifications must be approved a park-designated architect. Although the bungalows will be privately-funded, ownership would remain with the park.

In exchange for providing the capital to construct the bungalows, the concessionaires would be granted an exclusive, long-term lease (not to exceed 10 years) to use the buildings for ecotourism-related accommodations only. The concessionaires would also be entitled to 90% of the gross revenue (10% of the gross revenue would be contributed to the Conservation Fund described in Section 4.5.2 below).

Upon satisfactory completion of the initial lease period, concessionaires should be required to submit a competitive bid to renew their leases but may – at the discretion of the park director – receive preference in the selection process.

All construction and tourism activities should be supervised by park rangers. This will ensure that they do not negatively affect the vegetation, water quality, or turtle nesting areas on each island.

4.2.4 Bicycling

A map should be prepared for ecotourists interested in bicycling along the 27-km road between Co Ong Airport and Ben Dam port. The map would show selected scenic, cultural, and recreational attractions easily accessible from town and the road. Sites would be identified for snorkeling, swimming, wildlife and scenery viewing, picnicking, and short hikes to areas of cultural significance.

4.2.5 Nature conservation activities

Opportunities for ecotourists to assist park rangers in protection of sea turtles and mangroves should be developed on Hon Cau and Hon Bay Canh, so that they may directly participate in marine conservation efforts.

4.2.6 Agricultural activities

A 20 ha site at about 300 m elevation west of So Tay on Con Dao, which was a fruit tree plantation during the French administration, has been suggested for restoration as an agricultural plantation for both residents and ecotourists. At present, this activity would be intended only for day use by visitors to see examples of fruits and vegetables grown in Vietnam.

NOTE: This site was not visited, and none of the local planning team appears to know where it is. If this project is included in the final ecotourism plan, there must be more details, including the type of structures to be constructed or repaired, the agricultural activities to be provided, the capacity of the site for day (and overnight) use, the amount of physical construction or alteration required to restore the plantation, and whether or not a road or a trail would have to be constructed or reopened.

4.3 Historical Attractions

In cooperation with the district, the stone road to Cau Ma Thien Lanh should be retained for use as a footpath for ecotourists interested in day hikes to Bai Ong Dung and the ruins of the historic bridge. Vehicle access beyond Cau Ma Thien Lanh should be restricted to park use only.

Interpretative signs placed along the path should be revised to provide information in both Vietnamese and English regarding the history of the bridge, road, and stone wall alongside. In addition, a self-guided brochure with numbered stops could be provided in several appropriate languages for hikers.

4.4 Ecotourism Management Zones, Regulations & Visitor Limits

In the zoning plan now under consideration, the park will be designating specific buffer and restricted-use zones for marine conservation and scientific research to protect the coral reefs, sea grasses, and mangrove forests (including the 44 endangered plant and animal species listed in the Vietnam Red Book for CDNP).

As part of that zoning plan activity, 7 functional areas for managing the marine and terrestrial areas according to use have also been proposed:

- strict protection, scientific research, and limited ecotourism
- turtle nesting beaches
- dugong / sea grasses
- rehabilitation of the natural environment
- marine ecotourism areas
- limited natural marine resource development
- port / harbor development

The park also intends, as part of its zoning activity, to refine and locate precisely these functional areas, with detailed plans and regulations for specific functional use. A Zoning Group has been formed to collect relevant scientific and biological information to determine the specific functions and site locations of the designated zones.

Until such information has been obtained and approved, maximum daily limits should be imposed for the following sites:

Bai Ong Dung	12 visitors
Hon Bay Canh	20 visitors (including a maximum of 12 overnight campers)
Hon Cau	30 visitors (including a maximum of 18 overnight campers)
Hon Tre Lon	20 visitors
Hon Tre Nho	20 visitors
Nui Thanh Gia	6 hikers (subject to district & military approval)

These numbers are intended to assure a quality "experience" for ecotourists seeking to enjoy nature, as well as to minimize disturbances to wildlife and marine life. They also reflect the park's limited ability to manage tourists and to perform their conservation and enforcement duties.

4.5 Fees

Because it is difficult to distinguish between visitors who come to Con Dao as ecotourists and those who come for other purposes, a single entrance fee should be collected from all visitors, excluding residents of Con Dao and students under age 15 (regardless of place of residence). Vietnamese nationals would pay a lower entrance fee than foreign visitors. The fee should be collected at desks jointly manned by staff of CDNP and the Border Army at Co Ong Airport and Ben Dam port from cruise passengers.

4.5.1 Conservation Fund

All money collected from visitors will go into a Con Dao Conservation Fund, and information will be given to visitors stating that the fees are used solely for conservation and community development projects on Con Dao. Graphs, charts, and information on specific projects funded by this fund would be posted in appropriate locations for the visitors to better understand where their fees are being used. In this manner, both domestic and international visitors will know that they are contributing to the protection of Con Dao's natural and historic resources.

The Conservation Fund would be jointly administered by representatives of CDNP and the District, and the Director of CDNP has suggested that the earnings be divided as follows:

- * Con Dao National Park -- 40%
- * Con Dao District -- 60%

This single fee would replace the separate admission fee charged by the Museum, as well as entrance fees to the national park. However, use fees would be charged for any activity within the park that requires a park ranger or guide where the guide provides a service beyond his/her normal duties (such as interpreting natural and cultural features, guiding along an unmarked trail, leading a group of snorkelers). Other recreational programs offered by CDNP or private businesses may also require the payment of additional user fees, including boat trips to the outer islands, overnight accommodations, bicycle rentals, snorkeling, and diving.

4.5.2 Concession fees

A concession fee will be charged the private operators selected to manage the bungalows proposed for overnight camping on Hon Cau and Hon Bay Canh. This fee would be used solely for conservation activities within the park and district.

4.5.3 Conservation development charge

In addition, it is recommended that Con Dao district assess a one-time Conservation Development Charge (CDC) for all new construction on district land outside the park boundaries. This money would be deposited in the Conservation Fund described in Section 4.5.1 and used to fund conservation and environmental education programs throughout Con Dao.

New construction inside the park (such as the bungalows proposed for Hon Cau and Hon Bay Canh) should not be assessed a CDC since the operators of such facilities will pay the concession fee described in Section 4.5.2 above instead.

The CDC will help assure that the costs associated with new developments outside CDNP are fair for local residents and that new businesses contribute their fair share to conservation programs and a quality environment for the people of Con Dao.

4.5.4 Student transportation fares

The Provincial Government is encouraged to consider reduced student fares (perhaps 40% of regular fares) for currently enrolled students from the mainland for boat and air transportation to/from Con Dao. This would enable more student groups to visit Con Dao and encourage them to participate in park and district activities.

4.5.5 Fee table

Entrance fees for visitors (per visit)

Local residents of Con Dao and VN students < age 15 yearsno fee
Students registered full-time > 15 years	VND 20,000
Domestic Vietnamese tourists	VND 50,000
Domestic foreign tourists	VND 140,000 / US\$ 10
Foreign tourists	VND 280,000 / US\$ 20

Concession fees

Operators of services and businesses within CDNP should be charged 10% of gross revenue to support the Con Dao Conservation Fund. It is important to note that operators / concessionaires should not be allowed to base their fees on net revenue since it is too easy to manipulate net revenue by inflating costs, thereby reducing the required payments to the Conservation Fund.

Conservation development charge

Locally-owned residences & businesses	VND 700,000
Vietnamese-owned residences & businesses	VND 1,400,000
Foreign & joint venture-owned residences & businesses	VND 7,000,000 / US\$ 500

The Director of CDNP and district leaders should recognize the importance of periodically reviewing these fees and making appropriate adjustments if necessary. Therefore, the plan prepared by FIPI should specify how these changes might be made without revising the entire fee structure.

The park and the district might also wish to consider a different fee structure – for example, it may be better to charge a daily entrance fee (instead of a fee per visit) if this would be more useful as a management tool to limit the number of visitors.

The one-time Conservation Development Charge described in Section 4.5.3 could also be implemented as an annual tax charged each year against every residence and business on Con Dao. This would assure that everyone on Con Dao contributes to the conservation of their environment.

4.6 Maintenance & Revenue Sharing

All tourism-related revenue, including the visitor entrance fees, concession fees, and Conservation Development Charges discussed above, should be deposited into the Con Dao Conservation Fund.

This money would be used only for the construction, maintenance, and operation of facilities related to ecotourism, biodiversity conservation, and environmental education. Such activities may include:

- opening a park interpretation and environmental education center,
- exhibits and operation of the Museum,
- training of guides for CDNP and the historic district,
- purchase of environmentally-sensitive natural areas, which may be privately owned
- preservation of historical buildings, and
- the design and preparation of educational activities and displays for local schools.

The Conservation Fund is not intended for general operating expenses or to pay normal salaries or bonuses above salary.

4.7 Future Management Challenges & Considerations

Among the challenges that may confront CDNP and the district in the near future are issues related to:

- 1) over development and pollution,
- 2) a preference for "high-end" tourism rather than small-scale facilities, attractions, and activities,

- 3) a focus on foreign visitors, rather than domestic tourists (especially student groups),
- 4) an emphasis on the economic benefits of development, rather than the social and environmental impacts on local residents and environmentally-sensitive areas in CDNP and the district,
- 5) a lack of appreciation of the value of environmental conservation and education programs,
- 6) a lack of cooperation among the various stakeholders (government, private businesses, park managers, educational institutions, local residents, and tourists),
- 7) little opportunity for local businesses and people to participate in – and benefit from – ecotourism activities on Con Dao,
- 8) limited information or interpretative material for international ecotourists.

5. ENVIRONMENTAL EDUCATION ACTIVITIES

Recognizing that conservation of the park's resources depends upon the cooperation and support of local governments and residents, the following projects should be considered (**refer to Section 8 for a discussion of the Environmental Impact Assessments required for any activity proposed in this section**).

With the assistance of the district, province, and tour operators, CDNP should prepare an environmental education curriculum and interpretation program for use in the local schools and aboard the cruise ships.

Schoolteachers should also be encouraged to have their classes participate directly in conservation activities, so that students may acquire knowledge of the park's biodiversity and the challenges that face park managers in Vietnam and Asia.

The Faculty of Tourism at an off-island institution, such as Van Lang University in Ho Chi Minh City, should be contacted for their assistance in developing internship opportunities for university students interested in gaining practical experience in tourism and natural resource management.

The park and district should co-sponsor the development of a Youth Conservation Group in the form of a local non-governmental organization, whose objectives would include increasing environmental awareness in that target group, as well as providing them with specific conservation-related projects that would be of benefit to the park and the district.

6. OTHER ECOTOURISM-RELATED TRAINING NEEDS

A training program should be jointly developed by CDNP and the Provincial Tourism Department, with the cooperation of the Border Army, to license local boat operators to ferry ecotourists to islands for camping, wildlife viewing, swimming, and snorkeling. This will provide economic benefits for local residents and encourage them to support conservation efforts in CDNP.

A guide training program should be developed for local residents, including park staff who are interested in serving as ecotourism guides. The training should include information on the history and natural environment of Con Dao. Training should also include English-language lessons and other foreign languages considered necessary for ecotourism on Con Dao.

7. FACILITIES / INVESTMENT COSTS FOR ECOTOURISM & ENVIRONMENTAL EDUCATION (* additional equipment needed, exact costs, and specifications to be determined by FIPI)

7.1 Visitor Interpretation / Environmental Education Center

CDNP map (ideally a 3-D of Con Dao similar to the Museum display of the prison complex)

educational posters showing park examples of vegetation, wildlife and marine life (aquariums, etc.)

information desk(s)

telephone / fax / email

7.2 Bungalows (total of 5)

batteries and converters (6)

composting toilets (3)

construction materials, including roofing (preferably recycled and long-lasting)

cots (30) - or - bunk beds (15)

emergency First-Aid kits (2)

fluorescent lights (5)

picnic tables (5)

radio communication systems (2)

solar panels (5)

trash bins (3)

water collection basins / cisterns (3-5)

7.3 Education Material

design & printing of historic district maps and walking tour brochures

design & printing of trail / bicycle maps and self-guided tour brochures

environmental posters suitable for primary & secondary grades

7.4 Construction of New Hiking Trails

design & printing of self-guided walking tours in Vietnamese, English and other foreign languages as needed

sign cards for interpretative trails in Vietnamese and English (# to be decided by FIPI)

8. ENVIRONMENTAL CONSIDERATIONS OF PROPOSED ACTIVITIES & DEVELOPMENT

8.1 Summary of Proposed Activities, Programs, and Development

The following proposed activities and developments are directly related to the ecotourism plan of Con Dao National Park. They do not include developments of the Con Dao Master Plan 1993-2010, which will be the subject of environmental analysis in a Con Dao Environmental Management Plan scheduled for completion in early 2000.

However, tourism activities in the national park are in many ways related to the Master Plan, and it will be important to include them in this future environmental analysis. This will be an appropriate time to analyze the cumulative impacts of all developments – that is, what is the impact of the full set of activities, developments and programs proposed in the Master Plan, the zoning and tourism plans of the national park, and other changes which may be coming from outside the islands.

Physical developments that require environmental consideration (buildings, roads, trails)

- 1) bungalows on Hon Bai Canh (2) and Hon Cau (3)
- 2) developing a 20 ha plantation and ecotourism site on Con Dao
- 3) improving the road to Bai Ong Dung for administrative use
- 4) opening walking trails to new areas on Con Dao and smaller islands
- 5) developing an interpretation / environmental education center

Activities that require environmental considerations

- 1) day and night use activities on Con Dao and other islands
- 2) snorkeling and scuba diving, including boat anchoring
- 3) visitor participation in research activities

Programs that require environmental consideration

- 1) Conservation Fund and revenue sharing
- 2) depending on District for most accommodations and services
- 3) environmental education activities

8.2 Impacts on the Natural Environment

The construction of bungalows for camping has the potential for causing negative impacts on sea turtles that may use either Hon Bay Canh or Hon Cau beaches. This could include direct reduction of nesting by physically preventing turtles from reaching areas used for nesting. Indirect reduction of nesting could be caused by bright lights and noise during nights when female turtles are attempting to nest, which is known to frighten sea turtles and cause them to abandon their nesting attempt. The bungalows themselves, depending on exactly where located, would disturb a certain amount of soil and native vegetation during construction, and the future activities of campers would prevent some of this vegetation from returning. There would be noise and some disturbance of surrounding vegetation during the construction process itself, and the possibility of introducing toxic chemicals like oils, fuels and paints used in the construction process. Using septic systems for sewage treatment means the initial disturbance of soil and vegetation to construct the septic tank.

It also means that there is potential for pollution by both bacteria and nutrients in the area surrounding the tanks. These tanks may need to be periodically cleaned or pumped out, meaning there needs to be a proper place for transporting and disposing of the waste back on Con Dao.

Overnight camping use of these bungalows include the problems of lights and noise on turtles and wildlife noted above, as well as impacts of visitors walking in the forest and mangrove areas next to the developments. Visitors may bring in trash and possibly toxic materials (fuel for camping stoves, batteries) that they do not remove from the island. Visitors also may attempt to collect souvenirs from the beach like dead coral and shells, and in some cases request turtle eggs or baby turtles. In these cases there could be impacts to the environment that need to be controlled by park managers or they will be negative.

Visitor participation in research activities has the potential for improving the park's understanding of endangered species issues or other topics, but it also brings expanded risk of disturbance to the species being studied. Unless proper supervision and education is provided, visitors accompanying researchers could add to the noise, lights and other factors causing sea turtles to abandon their nesting attempts, or more frequent dugong patrols associated with visitor participation could mean additional disturbance to these small populations.

Snorkeling and scuba diving, including boat anchoring. Visitors during the day as well as overnight will swim and snorkel over the corals reefs along the shore of Con Dao and near the bungalow developments on the two islands. There is good evidence that visitors who have not been educated about breaking corals, standing on corals, or removing corals for souvenirs can have a serious negative impact on coral reefs that are visited frequently. Many visitors will also rent boats to get access to favorite coral reef areas. The most serious impact of this – already observed in many areas – is the damage that boat anchors do to delicate coral reefs. Repeated visits to the same reef over time can easily destroy the biological diversity of the reef as well as seriously decrease its value for tourism. This is probably the single most significant impact associated with the development of tourism in coral reef areas. There are also impacts associated with visitor boats spilling small amounts of fuel and leaving trash in the reef areas. Visitor boats, especially high speed ones, could also have negative impacts on dugong. This could be by hitting and injuring or killing the animal, which is quite common in other areas where recreational boating has developed in shallow sea grass areas. It could also come indirectly from simply scaring the animals away from favorite feeding areas and forcing them to less productive sea grass beds, This problem could be especially important in Con Dao where there are very few areas considered best suited to dugong.

The development of a 20 ha plantation and ecotourism site on Con Dao cannot be properly evaluated without further information about location and details of what would be done. If physical construction is necessary, including replanting or cutting of trees, or the reopening of a trail, these all would create some impacts on vegetation and soil. If there is intention to provide access by vehicle to this site, and this required any new road construction, there would be very significant impacts on the forest. Future use by visitors, or by park staff living in the site to manage the plantation, would all have impacts such as from sewage disposal, noise and lights affecting wildlife, and an increased risk of forest fires.

Improving the road to Bai Ong Dung would have different impacts depending on the details of the changes. This report recommends that the road be opened only for administrative purposes. If approved, this means that it would not be widened and that it should be used only by vehicles like a jeep. It is primarily intended to be a walking trail, and for this purpose it does not need to have the tree canopy cut. Approximately 500 m of the current old road is impassable due to fallen trees, many of them still alive. These need to be removed in order for the road to be used either by jeep or by foot. Several hundred small trees will have to be cut or removed. This is in a relatively large area of similar forest and is not expected to have serious effects on the amount of habitat for wildlife in the area. The most important concern is to provide proper drainage for rain water along the road. If water is allowed to run along the road or on top of the road there is a chance for serious erosion of soil. Water channels and diversions are necessary in any reconstruction that is proposed in order to avoid this.

Opening walking trails to any new destination, either on Con Dao or on the offshore islands, would require cutting trails or clearing old trails. The amount and impacts of this cannot be evaluated until detailed plans for each trail are known. In general, the clearing of the trail itself removes vegetation and trees, but will not remove a very significant amount of habitat. What is of much greater concern is that these trails may then allow human use of areas that now only have little or no use. This can have impacts on wildlife that might use these areas for breeding (for example a turtle nesting beach or bird nesting area), and can increase the risk of fire, and the frequency of domestic animals like dogs. It will also increase the problems associated with illegal harvest of forest materials (timber or firewood) or seafood's like limpets and lobsters for sale in tourism restaurants.

Developing an interpretation/environmental education center, if done in an existing building, as proposed, would have no impacts on the natural environment. If this proposal is implemented in another location, especially inside the park, then a number of impacts need to be considered. If a road open to the public is required then the impacts of this road must be considered; if a parking area at the center is required then this would involve disturbing soil and cutting vegetation, and have impacts on the drainage of storm water. The facility itself would require an area to be cleared. If the facility was designed to serve groups of visitors and students then it would need to have its own sewage facilities, water and electricity. If any live exhibits such as aquarium tanks are maintained, these require a constant source of electricity and frequent changes of sea water, and frequent inspection by staff. If a caretaker or staff person is to be involved it has to be determined where such a person would live, with or without a family, and all the requirements (water, sewage, electricity) of a staff house. These impacts would have to be added to impacts of any other proposed development in the area such as a guard post.

Conservation Fund and revenue sharing could have significant positive impacts on the natural environment by increasing the national park's ability to meet its conservation objectives. This depends on what activities are supported by the fund. For example, if the fund purchases additional patrol boats or radio equipment, there should be an increase in the park's effectiveness in stopping illegal fishing or other illegal activities in specially protected zones. If the fund purchases equipment to install anchor buoys at favorite tourism areas on the coral reefs, these reefs will be much better protected. Similarly, if the fund is used to purchase or otherwise protect environmentally sensitive areas within the district, this would have a positive impact on wildlife habitat and biological diversity in general. Another option is to use the fund to support cleaning up

the swimming beaches in the District. However, if for some reason the fund is used to support activities not directly related to conservation, this opportunity to protect or even restore natural habitats and species would be lost.

Depending on District for most accommodations and services would have an indirect but positive impact on the natural environment. This is because if the park depends on the hotels and services in the District, it does not have to build them in the park itself. This saves new areas from destruction of vegetation and all construction impacts, and also reduces the impact of visitors because visitors only use the areas during the day.

Environmental education activities would have negative direct impacts on the natural environment in the case where large groups of students or visitors went to certain natural areas of the park for activities and were not properly supervised or managed. There could be disturbance to wildlife and vegetation, increased trash, noise and the possibility of fire. This is a very common problem in environmental education in national parks, especially with large student groups who come without previously informing the park or without asking for assistance from park staff. However there is a large potential for future positive impacts through increased awareness of visitors and students about the importance of conserving natural resources. The behavior of the student or visitor can be changed to be more sensitive toward enjoying the park without altering its ecological balance or removing items for souvenirs, or leaving trash or marking on natural features.

8.3 Impacts on the Historic Resources

The bungalows on Hon Cau have the potential to negatively impact the historic prison building in the same general area. This would depend on how close the bungalows are, what materials were chosen, and how the site plan has been developed. A site plan that places the bungalows away from the prison building, and did not locate facilities such as kitchens or septic tanks nearby, would have less negative impacts.

Improving the road to Bai Ong Dung has potential for negatively impacting this historic road. If the road is used for administrative use only by the park as proposed, and not for visitors in vehicles, then the roadbed does not have to be altered much. Where the road has eroded, smooth, dark rocks collected from the local area can be used for repair. There would be no need to disturb existing historic stonewalls along the roadside. The historic character of the road would be maintained. However, if the road is to be used on a daily basis, especially by groups of students or visitors traveling by van or minibus, a higher standard of road structure and safety has to be maintained. A large amount of new stone would have to be brought in. This would be least expensive if it were the bright colored, broken stone currently available for the road construction to Ben Dam and Co Ong. It might also be necessary to widen the road in some locations to allow two vehicles to pass each other. All of this would alter the historic character of the road unless a high price were paid for careful restoration in the original style.

Developing an interpretation/environmental education center in the existing historic building as proposed, would result in restoration and protection of this currently abandoned structure. Since this structure is one of the most obvious ones along the coastal road in Con Son, its restoration would have a relatively high impact on the experience of residents and visitors who concentrate along this coast road. Its restoration could set standards and guidelines for the restoration and

possible use of other buildings in the historic areas of the District. If this building is not used for this purpose it may eventually be opened and used for some other purpose such as a restaurant or bar, which would provide some benefits for a private owner but miss the opportunity to have an impact on visitors and students.

Developing a 20 ha plantation and ecotourism site on Con Dao could return this area to a historic scene and thereby, preserve several historic structures in the plantation area. Having a functioning plantation would also recreate the historic pattern of growing fruit in the forest area to supply residents of the island below. However, if the restoration were not done according to historic information, it would result in the permanent loss of historic values in both the structures and the plantation itself.

Conservation Fund and revenue sharing could have very significant positive effects on historic resources. These would be greatest if the fund were used to restore or manage historic buildings, or to improve the operation of the history museum, or to provide further information for visitors or even research workers on the human and architectural history of Con Dao. However, if the fund were not directed towards these and other historic preservation objectives, many structures would continue to deteriorate (to be damaged or fall apart) because there are not enough financial resources of the District or Provincial or National government in other budgets to do this activity.

Environmental education activities could have direct negative impacts on historical resources if visitors and students were not properly supervised and educated about not removing souvenirs from historic structures, or making marks on them, or carelessly damaging them by walking or climbing on them. However, there is good potential for future positive effects if the visitor or student can be educated to become more aware of the value of these structures, and the importance of preserving them. For example, student groups might be formed specifically to assist the District or park to clean the vegetation off old structures, or to clean up trash or to plant appropriate trees and flowers around these areas. As these students become older and more influential in Con Dao society, they may provide community support in enforcing zoning regulations to preserve the historic district. Visitors who are better educated about these structures will have a better understanding of their value to the national heritage, and also become supporters of programs to preserve them here in Con Dao or in their own hometowns.

8.4 Impacts on Social & Economic Conditions

Bungalows on Hon Bay Canh (2) and Hon Cau (3) and Developing a 20 ha plantation and ecotourism site on Con Dao could have negative or positive impacts on social or economic conditions. This would depend on how these facilities were developed and managed. If they are developed as joint ventures with a local Con Dao investor, who hires construction labor and future staff locally, the economic benefits are more likely to stay within the Con Dao system and not be exported to Ho Chi Minh City or to a foreign country. If the park chooses to develop and manage them by itself, the economic benefits are concentrated in the park and not shared with the community. These refer to direct benefits i.e. the economic benefit to laborers during construction, and later the fees paid to the bungalow operator by visitors and which then are paid out in salaries to staff. There are indirect economic benefits (spin-offs) when the operator buys goods and services from local sellers, or pays for boat transportation to a private owner. These benefits are decreased if the goods provided are imported from the mainland.

Improving the road to Bai On Dung for administrative use and as a trail would probably increase the attractiveness of this area for use by local residents. There are few areas in the park that can be reached easily by foot in a short time. This area is not a convenient swimming beach, since it is rocky, but it is already used to some extent by groups of local residents as a picnic area and social gathering spot. If the road were opened to general use by the public on motorbikes or in cars or minibuses, it would likely become a popular spot. If the people using this area were also using the facilities of an environmental education facility, then the same positive benefits would be expected as noted above for Environmental Education Activities. Frequent use of the area by student groups, especially for social gatherings like singing and picnicking, would likely decrease its value as a destination for some off island visitors, particularly Western ecotourists.

Snorkeling and scuba diving, as well as sightseeing, will involve renting boats as well as bicycles and motorbikes or jeeps. This would provide significant opportunities for local residents to participate in small businesses like converting a small local fishing boat to tourist use, or renting out bicycles, motorbikes or jeeps. Although it requires more specific training and an investment in equipment, operating scuba diving tours and renting equipment is another opportunity for local businesses. If District policies give priority to local residents in operating and managing these businesses, then the local benefits will be greatest. If little or no control or guidance is given, it is more likely that off-island investors and operators will move to Con Dao to take advantage of these opportunities.

Conservation Fund and revenue sharing, if effectively implemented can have a direct effect by capturing a significant and consistent source of revenue from all visitors to Con Dao. The direct effect on the natural and historic resources has been noted already. But what may be of even greater importance is that the conservation of these resources, if consistently supported by the conservation fund, will have the indirect effect of maintaining the attractiveness of Con Dao to visitors for the indefinite future i.e. contribute to the sustainable economic development through tourism. And the quality of life for local residents, with well preserved historical sites and coral reefs and mangroves in good condition will be improved. Clean beaches for recreational swimming or playing football are other examples of improved quality of life.

Depending on District for most accommodations and services means that there will be less competition between the District and the park to provide these revenue-generating activities. On the whole this should mean an advantage to the businesses in the District like hotels and restaurants. This should be good for existing operators as well as stimulate the opening of additional small businesses. It does mean that the park will not itself be benefiting directly as if they were the owners and operators of these services. However, the basic reason for having the conservation fund and shared revenue is to provide a way that the park can benefit from tourism without having to give up important areas in the park in order to generate its own revenue.

8.5 Mitigations

If decision-makers choose to go forward with the developments, activities and programs suggested in this report, there are certain measures that can be taken to minimize the negative impacts identified in the sections above.

Bungalows on Hon Bay Canh (2) and Hon Cau (3). A detailed site plan that considers alternative development sites and designs of the buildings should be prepared by the investor and reviewed by the park. The best alternative will be one that minimizes the wildlife and water quality impacts mentioned above, while still providing a pleasant and safe experience for the camping visitors. Locating the bungalows away from turtle nesting sites is to be stressed. The use of building materials native to Con Dao (like wood and stone and thatch) would be preferred, and buildings could be elevated on stilts to provide better circulation. The need for air conditioning should be avoided by proper building location and physical design. The need for fresh water should be minimized by educating visitors to use less and by incorporating simple techniques like providing only small amounts of water for washing and using special composting toilets (not using water).

Developing a 20 ha plantation and ecotourism site on Con Dao. A detailed site plan discussing alternative choices is also indicated for this development. Choice of building materials should be the same as well. An alternative that does not require road access either for construction or later use would be preferred.

Improving the road to Bai Ong Dung for administrative use. The impacts noted earlier would be minimized if the road were opened without clearing of the tree canopy above, if dark local uncut stone was used in simple repairs, and proper drainage ditches and cross drains were provided. Original roadside walls of broken stone should not be disturbed, and in some cases reconstructed. Some simple research needs to be done to determine the history of the road and its construction so that in general it can be put back into its earlier condition. Coordination is necessary with the District to be sure that any District plans for Cau Ma Thien Lanh (the historic bridge) are not in conflict with the park's plan to open the road on to Bai Ong Dung to administrative traffic.

Opening walking trails to new areas. The mitigation for clearing along old trails or new trail construction include: paying attention to drainage so that the new trails do not erode quickly; relocating old trails and designing new ones so that they avoid the park's especially sensitive habitats; careful training of park staff in clearing and trail building techniques (proper width and height measurements to accommodate westerners as well as Asian visitors, recognizing and leaving unusual or rare plants and vines, avoiding steep trail sections, providing directional signs and bridges if needed).

Developing an interpretation/environmental education center would be most successful in meeting its objectives if a careful analysis and understanding of the function of the building is done first, including a definition of the types of visitors or students to be "targeted," and there is a realistic understanding of the costs, values, and limitations of installing exhibits and aquariums and maps. Once this analysis is completed, it should be possible to select the preferred site (if not the one proposed) which seems best suited to the functions and target types of visitors or students, has the least impact on the parks resources and still gives benefits to the islands as a whole.

Day and overnight use activities on Con Dao and other islands can best be managed and controlled by seriously applying the visitor capacity limits suggested in Section 4.4, by providing information and education to visitors on how they can respect and not damage resources in the areas, and by supplying appropriate supervision. If any or all these are ignored there can be serious problems related to overuse or careless use. A special case exists about possible boat trips near or around Hon Trung (Bird Island). If the trips are too frequent, or perhaps allowed in times of heaviest

nesting activity, or boats approach very close, there is a high probability of permanently disturbing the nesting success of birds there. Guidelines for visitor use need to be developed before allowing frequent visits to this little island. For example, some limitation on the minimum distance which boats could approach the island should be set, and no visitors should be allowed to actually land on the island.

Visitor participation in research activities should be carefully planned and supervised, and not treated simply as a recreational activity for revenue generation. There are several successful sea turtle research programs that allow visitor participation in protected areas outside Viet Nam, and these could be studied before designing a Con Dao program. Similarly there are dugong public involvement programs that could be investigated before starting this activity here.

Snorkeling and scuba diving, including boat anchoring can also be managed by applying carrying capacity limitations. But in addition, education on how to properly snorkel near coral reefs should show significant results in minimizing coral damage by human snorkels and divers. Installation and proper supervision of use of anchor buoys in favored snorkel and scuba areas should minimize the extent of coral damage.

Conservation fund and revenue sharing has the greatest chance of success if the revenues are collected from a wide variety of users, as suggested in this proposal. When all users including visitors, local businesses and others developing new construction for tourism related business are paying a fair share into the joint fund, then each will have an interest in seeing that the fund actually accomplishes its objectives. The fund will need honest, transparent operations overseen by a Conservation Fund Advisory Group, and full publication and promotion of the activities for which funds are spent.

Depending on District for most accommodations and services will have greatest benefit to the park if it is strictly applied, i.e. the park is not tempted to build overnight facilities inside the park except on a few outer islands.

Environmental Education Activities. For controlling negative impacts the primary issue will be in managing the larger groups of students and visitors who may eventually come here. This means encouraging prior notification of the park, supervision during the visit, and developing meaningful ecotourism and wildlife messages suited to the distinctive target audiences who might be coming.