



DỰ ÁN TĂNG CƯỜNG CÔNG TÁC QUẢN LÝ HỆ THỐNG KHU BẢO TỒN THIÊN NHIÊN TẠI VIỆT NAM
STRENGTHENING PROTECTED AREA MANAGEMENT IN VIET NAM-SPAM PROJECT



ASSESSMENT OF THE SPECIAL-USE FOREST SYSTEM AND ITS MANAGEMENT IN BA RIA-VUNG TAU PROVINCE

**Original written in Vietnamese by
the Ba Ria-Vung Tau Provincial Working Group**

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The report only focuses on the management aspect, therefore, there could be shortcomings. We would like to receive comments and advice from interested stakeholders.

On behalf of the Ba Ria-Vung Tau Provincial Working Group

Ky Huu Minh
Chairperson

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CHAPTER 1

BACKGROUND – OBJECTIVES – SCOPE – METHODOLOGY

BACKGROUND

Ba Ria-Vung Tau province, located in the South-east of Viet Nam, is one of the four cities in the focus economic zone in South of Viet Nam. The province is also a dynamic economic development area itself. With total land area of 197,514 hectares, Ba Ria-Vung Tau province sited in a important geographical position with coast line of 156 kilometers and the sea area over 100.000 square kilometers, the province as well is a important gateway for international trade. Ba Ria – Vung Tau province also has abundant natural resources, especially crude oil as well as natural beauty landscapes attracting tourists. The province 's population is 810,000 residing in administrative territory of 7 districts and a city; average population density is 461 people per square kilometer. With the geographic, economical and demographic conditions and natural resources, the province possesses good settings for fast and comprehensive development in both real production and service industries such as industry, agriculture, service and tourism. The province has annual economic growth of 14.2 per cent and GDP per capita of 512 USD in the year 1995 and 821 USD in the year 2000 and average income of farmer household is VND 5.5 million/capita/year. The number of poor households in the province is only 7.1 per cent. With the high speed of economic development and urbanization, forestry ecosystems and landscapes have been threatened. Under that situation, the Provincial and District People 's Committees in the province and

local authorities have made efforts to protect forest resources and environment. Since 1993, the province has established conservation areas including Con Dao National Park and Binh Chau-Phuoc Buu Nature Reserve. Con Dao National Park located at Con Dao district with the total land size of 19,998 hectares, which consists of forest reserves of 5,998 hectares and sea reserves of 14,000 hectares. Binh Chau-Phuoc Buu Nature Reserve has the total land size of 11,392 hectares. Meanwhile, the province has established administrative bodies to manage conservation areas in the territory.

Though local authorities of all levels, the Forestry Control and other related branches in the province have made efforts to protect natural resources, the effectiveness of resource protection activities in the protected areas and the national park have not met requirements. The threats on conserved species, the decline of forest resources and destruction of natural habitats in protected areas of the province is still high.

Therefore, the analytical assessment of management activities on reservation system of the province is essential in order to clarify strong and weak points, opportunities for development and threats on resources of reservation areas; based on that, suggestion for capacity enhancement solutions for Binh Chau-Phuoc Buu National Reserves and Con Dao National Park is highlighted.

MISSION – OBJECTIVES – SCOPE OF STUDY

1. Mission

In order to solve the above-mentioned questions, National Office of SPAM Project has requested the Provincial Working Group to conduct a study of “Analytical assessment on management activities in Protected areas in Ba Ria – Vung Tau ”. The study was conducted from May to October 2001.

2. Objective

Overall objective:

Objective of the study is to develop the basic principles for management activities on biodiversity conservation in the nature protected areas of the province. At the same time, detailed action plans and financial assistance for these activities are proposed.

Detailed objectives

- To assess the outcomes, strengths and weaknesses, development opportunities and threats on organization system, management model and relationship on special-use forests of the province.
- To develop and propose solutions for management capacity enhancement of Con Dao National Park, Binh Chau-Phuoc Buu Nature Reserve, Department of Agriculture and Rural Development, Forest Control Branch Office and People’s Committee of district and commune levels.
- To build up and increase awareness on the role of local communities and participation of these communities in preservation activities.

- To propose the investment projects for detailed preservation activities.

3. Framework

Analytical framework consisted of following activities:

- 3.1. To analyze the organization system, management activities of Con Dao National Park and Binh Chau-Phuoc Buu Nature Reserve. Strong and weak points, opportunities and constraints of these activities included.
- 3.2. To analyze the forest protection policies of the local authorities, management models and relationships in management system from provincial level down to districts and communes levels; coordination relationship between the management branches related to special-used forests and between management branches and resources preservation activities of Con Dao National Park and Binh Chau-Phuoc Buu Nature Reserve.
- 3.3. To analyze and assess the socio-economic impacts of the conservation and development activities by the local communities in surrounding areas of National Park and protected areas.
- 3.4. To assess the effectiveness of the investment programs in protection zones and buffer zones and the outcomes of forest control and protection activities in the National Park and protected areas.

METHODOLOGY

1. The implementation process under the above framework used an expert consultation approach in combination with multi-sector working groups to collect documents, research results, analytical assessment on strong and weak points, opportunities and constraints of management activities in

conservation areas and buffer zones in the province.

During two months from May 20th to July 30th, 2001, the provincial working group formed two survey groups from the Provincial Working Group members and collaborators who are the experts of branches in the provinces and Protected

area. Besides, the consultant experts have also participated to interview households, communities, leaders of branches in the province and districts for information collection.

2. Collection of information, reports and documents available at provincial and district levels, including Directive, Decision by Provincial and District People's Committees on forest protection policies; reports, documents of branches such as: Department of Agriculture and Rural Development (DARD), Provincial Forest Protection Department (Sub-FPD), Sub-general office of Statistics (sub-GSO), Department of Labor, Invalid and Social Affairs (DOLISA), Land Administration Agency, Con Dao National Park, Binh Chau-Phuoc Buu Nature Reserve on organization structure and forest control and management activities, socio-economic conditions of communities and resource of conservation areas. Besides, additional information was collected from government and ministerial documents providing regulations on forest protection.
3. Interviews and surveys were conducted on social and economic information from households and village communities surrounding conservation areas. The total number of interviewed households was 305 household and 16 communes, which were selected incidentally in Con Dao National Park and Binh Chau-Phuoc Buu Nature Reserve and classified into rich, medium and poor groups and in accordance with living locations of these households in their community. If the community was a village or an autonomous group with less than 100 households, the sample size was 10%; sample size was 7 % where have from 100 to 200 households and sample size of 5% if the community was larger than 200 households. Questions for interview mainly related to demographic, labor, education, healthcare, cultivation conditions, forest

products and products from forest usage, income source and comment from the community about the conservation area.

4. Collection of information from the province and district levels for further learning on directions, development policies of the conservation area in the province through interviews with the Chairman of Provincial People's Committee, of Con Dao District, Xuyen Moc District and 13 functional branches of the province with questions (List of Departments is referred in the Annex).
5. In order to check the information and collect further responses from the community and local authorities about socio-economic context and management activities of reservation areas, the working group conducted meetings with 5 communes with participation of local households, representatives from the Farmers' Association, Women's Union, local authorities of villages and communes. At the same time, 2 seminars were held in Con Dao and Xuyen Moc districts with participation of the leaders of the districts, district branches, Mothers' Front, Women's Union, District Farmers' Association and Chairman of the People's Committee of forestry communes.
6. In order to sum up and conduct the analytical assessment, the Provincial Working Group joined with consultants to use the statistical average indexes to sum up, compare and analyze strong points and weak points, to identify opportunities and threats on the organization system, management of protection zones and buffer zones. Proposals on collaboration mechanisms between branches and levels, participation of communities in conservation management, action plans for enhancing management capacity and financial resources are highlighted.

CHAPTER 2

OUTCOMES

I. ANALYTICAL ASSESSMENT OF STRONG AND WEAK POINTS, OPPORTUNITIES AND CONSTRAINTS IN MANAGEMENT SYSTEM ON PROTECTED AREAS AND BUFFER ZONES

This analytical assessment on organization structure and activities of protected areas (PAs), on the management model and management relationship between PAs and local People's Committees at various

levels and local agencies is aimed at the final target of developing and increasing forest resources and biodiversity conservation in PAs.

Table 1. Special-use forests in Ba Ria-Vung Tau province.

Unit: hectare

No.	Type of land	Total		Con Dao National Park		BChau - Phuoc Buu Nature Reserve	
		2001	2010	2001	2010	2001	2010
	Natural area	17,390	17,390	5,998	5,998	11,392	11,392
1.	Forestry land	12,416	16,089	4,905	5,432	7,511	10,657
a.	Natural forest	11,666	15,029	4,905	5,432	6,671	9,597
b.	Planted forest	750	1,060			750	1,060
2.	Bare land	3,921	248	667	140	3,254	108
3.	Other land	1,053	1,053	426	426	627	627
4.	Marine	14,000	14,000	14,000	14,000	0	??

1. Natural Resources conditions – Biodiversity of protected areas in the province

In the period of 2001-2010 the Special-use Forest system of Ba Ria-Vung Tau province is planned to total an area of 17,390 hectares, occupying 45.3 % of forestry land area and 8,5% of total province 's natural land area. Con Dao National Park with 5,998 hectares land area (island area) and conservation area, Binh Chau-Phuoc Buu Nature Reserve with 11,392 hectares of land area.

1.1. Binh Chau-Phuoc Buu Nature Reserve (NR):

- Binh Chau-Phuoc Buu Nature Reserve is the only natural forest left in the coastal area of the southern area of the country, located in the administrative territory of Xuyen Moc, Bong Trang, Bung Rieng, Binh Chau, Phuoc Buu communes and Phuoc Buu town in Xuyen Moc District of Vung Tau-Ba Ria province. The Reserve established in 1978 under the Decision number 634/UB dated May 6th, 1978 of People's Committee of Dong Nai province, was previously known as Binh Chau-Phuoc Buu prohibited forest. In 1993, People's Committee of Ba Ria-Vung Tau province approved the feasibility study of Binh

- Chau-Phuoc Buu Protected Area, and in 1996 the name of the area was changed to Binh Chau-Phuoc Buu Nature Reserve. The total managed land area is 14,320 hectares, of which the core zone is 11,392 hectare and buffer zone is 2,988 hectares. It is estimated that during 2002-2006, the sea area of Binh Chau-Phuoc Buu NR will be defined for conservation to protect the ecosystem and coastal aquatic species.
- In terms of flora, according to the outcomes of a survey for developing a list of specimens of forest flora in the Reserve conducted by Forest Inventory and Planning Sub-Institute Number II in 2000, the zone has typical characteristics of tropical wet closed canopy forest. There are floral species that are related to Malaysia, Indonesia and India-Myanmar floral system. There has been recorded more than 750 species of 132 different families. In these families, the *Fabaceae* family supports 68 species, the largest number. Recorded are also rare and valuable species of *Dialium cochinchinensis*, *Afzelia xylocarpa*, *Sindora siamesis*, and *Dalbergia bariensi*. Among 123 plant families in the Dipterocarpus, 13 species are recorded in Binh Chau-Phuoc Buu Nature Reserve. Most of them are big lumber trees. Of those the outstanding one is *Dipterocarpus costatus* - the endemic species for this Nature Reserve. In addition, in the NR there are another 13 plant species listed in Viet Nam Red Book.
- In terms of faunal resources, in the latest inventory there have been recorded 205 species, amongst which are species of reptiles, amphibians, birds and mammals. In these there are 106 species of bird, 5 of them are listed in the Viet Nam Red Data Book, including wild pheasant (*Lophura nycthemera anammensis*), purple pheasant (*Lophura diardi*), brown pigeon (*Columan pucicea*), forest owl (*Phodius baclius*), mountain swallow (*Collocalia brevirostris*). In the mammals, there are

39 species of 21 families of 9 sub-families, 96% of which are from primate, carnivore and rodent sub-families.

The role of the Nature Reserve (NR) in economic development:

Binh Chau-Phuoc Buu NR is the only natural forest left in coastal area of Southern Viet Nam, from Son Tra peninsula southward. The nature reserve has several habitats from the low hilly mountain to plateau and mangrove swamp, natural fresh clear water streams and reservoir pools which create diversity in ecosystems and the flora and fauna. The nature reserve is located in the coastal area and creates a screen preventing natural disasters such as typhoons, moving sand, sea waves, protecting the pure water layer and protecting the living environment of people in the area. The nature reserve is distant from Vung Tau, Bien Hoa and Ho Chi Minh Cities with an average radius of 100 kilometers. It also has convenient road and waterway transportation and beautiful landscapes, which are convenient conditions for development of ecological tourism activities in the conservation area. Therefore, the investment in development of BC-PC Nature Reserve is necessary in order to protect the nature reserve, the only remaining Dipterocarpaceae tropical habitat in southern Viet Nam. This also would protect coastal environments and create a resort, tourist and science research area for communities in the area.

1.2. Con Dao National Park (NP):

- The park includes 14 small islands located in East Sea (South China Sea) of Viet Nam belonging to Con Dao District, Ba Ria-Vung Tau Province. The park was established in 1984, previously known as Con Dao Prohibited Forest and changed to Con Dao National Park in 1993 in accordance with Decision No. 396/QD-UBT dated 28 May 1993 of the Ba Ria-Vung Tau Provincial People's Committee (PPC) with total area of 15,043 hectares, including 6,043 hectares of island area and 9,000 hectares of sea area. In 1998, the

investment and development plan for Con Dao NP during 1998 - 2002 was approved by Ba Ria-Vung Tau PPC in Decision No. 1165/QD-UB. In that plan, the total area of the Park is 19,998 hectares, including 5,998 hectares of island area and 14,000 hectares of sea area. At the same time, the Park was assigned to manage the buffer sea area of 20,500 hectares.

- Forestry Inventory and Planning Sub-Institute II has defined the forestry ecosystem in Con Dao in 1997 as island tropical forest. There are 828 flora species of 161 different families. The composition of Con Dao flora system has a relationship with the floral system in inland areas such as the south-eastern region, Mekong Delta and native northern floral system areas. Typical trees for the above flora system include

Dipterocarpaceae, Lythraceae, Ebenaceae, Sapotaceae. The rare and valuable plants present include *Chukrasia tabularis*, *Manilkara hexandra*, *Alangium salvinium*.

- Faunal resources in the surveyed area counted up to 114 species belonging to 4 classes: mammal, bird, reptile and amphibian, in which there are 69 species of birds, 39 species of reptile and 28 species of mammal. Fauna and flora in Con Dao forest is poor in number of species, there are no big predators. There are some typical island bird species present, such as: White pigeon, micobar pigeon, blue-headed sea eagles, which are only found in Con Dao island. Especially, there has been found a specimen of black squirrel (*Callosciliurus* sp.) - one of the newly found species in Viet Nam.

Table 2. Statistics of flora species in conservation area

Class	Con Dao National Park			BC-PB Nature Reserve		
	Order	Family	Species	Order	Family	Species
Mammal	9	16	18	9	21	49
Bird	14	27	79			106
Reptile	3	14	39	3	14	38
Amphibian	1	4	8	1	4	12
Total			144			105

- Marine resource: Coral reefs are the most important ecosystem in the shallow water surrounding the islands of Con Dao archipelago with 219 species scattered in most places of Con Dao. In addition, Con Dao sea is also highly diverse in sea-grasses, nine species have been identified located mainly in Con Son Bay in an area of 200 ha. The park is a sheltering place for thousands of different marine fauna, in which 25 species of fauna listed in Viet Nam Red Book are found here. A number of large mammals still exist such as grey whales, dolphins, especially dugong (*Dugong dugong*) located in 1995. The biodiversity of the coral reef ecosystem is not less diversified than the forest ecosystem in the inland tropical rain

forest, including the diversification of the species of fauna living in the coral reef of Con Dao archipelago.

The role of Con Dao National Park to environment economics:

Sea and forest resources of the park is diversified and plentiful, there are several sources of valuable and rare species and there are absolutely also many sources of undiscovered species. Furthermore, the park is an ideal location for scientist and for researching ecosystem of tropical forest and marine resources.

The Con Dao forest vegetation linking with geological terrain factors and combined with historical and culture places has made

the national park an interesting, unique place attracting people for sightseeing, relaxing and tourism. On the other hand, with the coverage of flora vegetation of 92 per cent of land area, the most important value of the vegetation is to protect the environment, protect pure water source providing for the communities in the islands. Therefore, the conservation of biodiversity in the island and sea has important meanings in sustainable socio-economic development of Con Dao.

2. Organization system and operation of Con Dao National Park and Binh Chau-Phuoc Buu Nature Reserve.

2.1. Con Dao National Park

Con Dao Natural Park is established under the Decision No. 396/QD-UBT of May 28th, 1993 of People Committee of Ba Ria – Vung Tau province, previously the Vung Tau – Con Dao Special Zone (1984).

2.1.1. Functions:

- Con Dao National Park is a non-productive area under the management and direct supervision of the Provincial People's Committee, at the same time the park is under the instruction of Ministry of Agriculture and Rural Development in term of professional knowledge.
- The aim of the National Park is to recover and conserve ecosystems and valuable and rare fauna and flora species of the island and the marine conservation area.
- The park also aims at improving, conserving the forest linking with the landscape and historic and cultural places of the islands.
- The park is to conduct the services in scientific research, education and tourism.

2.1.2. Mission and administrative responsibility:

The mission and administrative responsibility are as follows:

- Implementation of information and education on forest protection for people, implement the State's regulation on forest protection and development of the national park.
- Development and management of plans and its implementation in the light of forest protection and developed forest resources in the National Park approved by the Provincial People's Committee.
- Organization and implementation of action plans for protection of biodiversity resources, scientific research, environment protection education, tourism.
- In combination with People's Committee of Con Dao district, provincial functional bodies to conduct management plans on forest protection in the National Park approved by provincial People's Committee.
- The Park's objectives are aimed at recovering and conserving ecosystems, including marine ecosystem protection. However, the basic remaining issue now is there have been no regulations on marine protected areas.

2.1.3. Organization structure and operation

- Con Dao National Park has 50 staff and the Park's salary fund is decided by Provincial People's Committee. Professional ranking standard and titles are in accordance with general provision of the country, in which 12 officials are university graduates and other 19 officials graduated from colleges and high schools.
- Organizational structure: Con Dao National Park is managed by a Director, who is supported by Deputy Directors.
- Organization of the Park includes a Forest Control Agency and three functional departments, Personnel and Administrative Department, Planning and Financial Department and Science Department.

* *Personnel and Administrative Department:*

The department is responsible to the Director of the park on the personnel, administrative management, management of equipment and facilities, documentation and archive, and implementation of internal regulation; information and education; explore the potential of ecological tourism, review and report periodically these activities.

* *Planning and Financial Department:*

The department is responsible to the Director of the park for developing plans, proposing measures to implement annual plans, manage capital and asset and financing.

* *Science Department*

The department is responsible to the Director of the park on implementation

of experiment and research on protection and development of biodiversity of the park; information and education on environment; manage scientific research projects; prepare proposals on plans and measures to recover and manage the ecosystem.

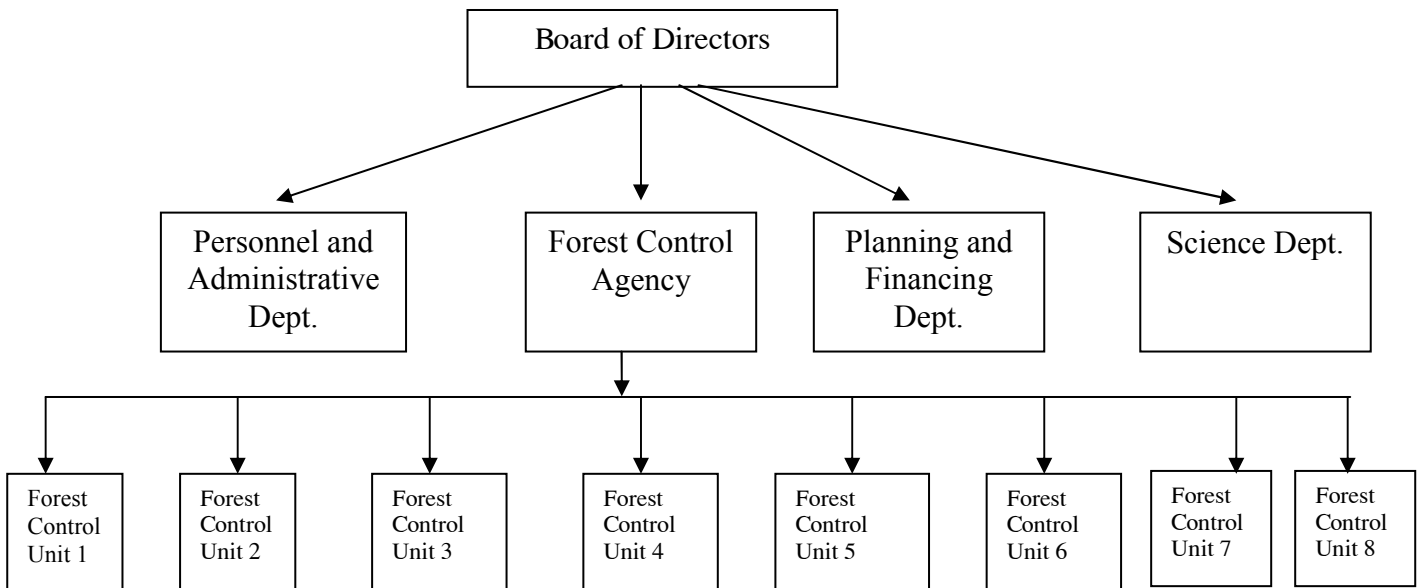
* *Forest Protection Division*

The agency is responsible to the Director of the park for managing and protecting the forest and forestry products in the National Park according to the master plan. Also, the Division is in charge of patrolling and monitoring and protecting resources in the marine conservation area. At the same time, it is a law enforcement unit in forest protection and development in the whole district.

Table 3. Personnel quality of Con Dao National Park.

Professional field	Professional level			
	Total	University Graduate	College and High school Graduate	Primary school completion
Forestry biology	15	7	7	1
Agriculture economics	2	2		
Banking Accounting	1	1		
Statistical Accounting	2		2	
Administration	1	1		
Secretarial clerks	1			1
Training College	1		1	
Electrical Technician	1			1
Forest Control	30			30
Others	5			5
Total:	59	11	10	38

Organizational chart of Con Dao National Park



2.2. Binh Chau-Phuoc Buu Nature Reserve

The Binh Chau-Phuoc Buu Nature Reserve was established under the Decision No. 464/QD.UBT of August 16th, 1996 of the People Committee of Ba Ria-Vung Tau province, previously was the Binh Chau-Phuoc Buu Prohibited Forest (1984).

2.2.1. Function

Binh Chau-Phuoc Buu Nature Reserve is a non-productive area under the full management of the Department of Agriculture and Rural Development.

The objectives of the Nature Reserve are managing and recovering the forestry fauna and flora resources in the core and buffer zones; protecting genetic sources improve the environment landscape, historical interests; science research, environment education and providing a tourism service.

2.2.2. Mission

To implement the information and education programs on environment, forest

management and protection and mobilizing the communities to protect and develop forest resources in conservation and buffer zones; conducting policies and regulation of the Government on forest protection and development.

To develop plans and measures to manage forest protection and develop forestry resources of Nature Reserve approved by the Provincial People’s Committee and Department of Agriculture and Rural Development.

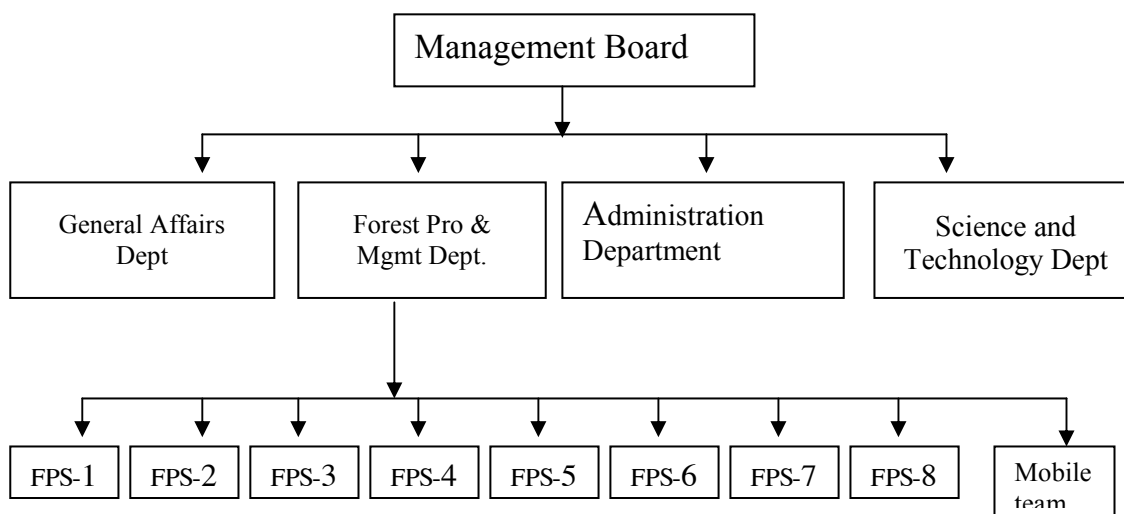
To organize the implementation of action plans on scientific research; to conserve genetic resources, environment education and conduct tourism services in the nature reserve.

To coordinate with the People’s Committee of Xuyen Moc District and Forest Control Agency and other functional bodies in the district to implement the plans on forest management and development in the Nature Reserve in accordance with the approved plans.

2.2.3. Organizational Structure and Activities.

- Staffing of BC-PB Nature Reserve consists of 60 people, 4 (four) of whom are officers with university degrees, 12 another are of college and intermediate levels.
- Organizational structure: the BC-PB NR is run by a Manager; Deputy Managers are appointed to assist him. The NR has 4 (four) professional departments including General Affairs Department, Administrative Department, Science and Technology Department and Forest Protection and Management Department.

Binh Chau-Phuoc Buu Nature Reserve's Organizational Chart



* *Forest Protection and Management Section:* with establishment of 46 persons being divided into 8 forest protection & management stations, a mobile team and a professional section giving assistance to the Manager in implementing scheduling tasks, measures and arrangement to proceed with forestry natural resources protection and management. Succession monitoring of forestry natural resources, violation cases; making documents and forwarding these to responsible bodies for solution (Xuyen Moc Sub Forest Protection Division). Patrolling to protect the forest, preventing activities from violating forestry natural resources. Providing guidance to, checking households for their contracted works on forest protection and development in cooperation with communal people's committees; meanwhile organizing the precautionary measures against forestry

fire in the nature reserves and contiguous areas.

* *Science and Technology Section:* responsible for advising the Manager of the BC-PB NR regarding programs planning, and proceeding with study of applying science to serve protection activities and development of forestry natural resources at the BC-PB NR. Publicizing education about environment and arranging eco-tours at the NR.

* *Administration Department:* responsible for giving advice to the Manager in organizing personnel, equipment management, transportation, organization's properties, filing and acting upon regulations.

- *General Affairs Department:* advising the Manager in implementing its planning and carrying out annually action plans, controlling finance and properties.

3. Organizational Structure of the Department of Agriculture & Rural Development and Provincial Forest Protection

3.1. Department of Agriculture & Rural Development (DARD)

founded by the Provincial People's Committee in 1991 is an administrative body providing direct management for the Province. Likewise, working with Ministry of Agriculture and Rural Development for receiving professional guidance, with responsibility to advise the PPC in executing national administration of agriculture, forest, irrigation and rural development. Presently, there are 24 persons in the department structure. The department has the following professional sections: Agriculture, Forest, Irrigation, Agriculture & Rural Policy, Finance Investment Planning, Administration and Inspection. There is no forest development

division in the Department. Therefore, forest department is responsible for assisting the Director of the department in managing the sericulture following management of responsible areas. At the moment, establishment of the section is two persons.

3.2. Ba Ria-Vung Tau Provincial Forest Protection Department

founded in accordance with a Decision of the Provincial People's Committee in early 1991, is a division under direct management of the PPC, and professional guidance from the FPD. PFPD is assigned to advise the PPC in implementing national administrative functions of forest protection at communes, meanwhile, carrying out judicial regulations on protection and development of forest in the given areas.

Number of staff in the PFPD is 96 people. 5 (five) sub-FPDs belong directly to the PFP located in areas of communes, district, city and the PFPD's office, including a Mobile Team.

Organizational Structure, Quality of Staffing as follows:

Table 4. Statistics of Structure and Staffing Quality of the PFPD.

Name	Total	Education level			
		Post-graduate	Graduate	College & Intermediate	Primary
PFPD's office	13	1	5	3	4
FPD Mobile Team	5		1	1	3
Vung Tau Sub-FPD	15		2	2	11
Chau Duc Sub-FPD	14		1	2	11
Tan Thanh Sub-FPD	16		3	4	9
Xuyen Moc Sub-FPD	18		1		17
Long Dat Sub-FPD	15		2	4	9
Total	96	1	15	16	64

4. Methods and Management Relations for Provincial Protected Areas

4.1. Management relations between Con Dao National Park, BC-PB Nature Reserve Protection and District People's Committee, branches of province and districts.

Special-use Forest positioned in the Province is divided into two areas. They are Con Dao National Park and BC-PB NRP.

Con Dao NP, originally Con Dao Prohibited Forest, founded in accordance with the Decision 85/CT dated on 1/3/1984 by Ministerial Assembly approved by the Prime Minister following review of the feasibility plan of the Con Dao National Park of 1993 and hence approved to officially set up by BR-VT PPC on 28/5/1993. It is under direct management of the PPC.

BC-PB NR was founded in accordance with Decision 464/QD-UBT dated on 16/08/1996 by BR-VT PPC, previously named PC-PB Prohibited Forest. It is a state run unit, directly responsible to the Provincial DARD.

Buffer zones: For Con Dao NP and PC-PB NR are to be approved for establishment matching with the feasibility plan of the NR with a view to reducing or preventing violations.

Buffer zone in PC-PB NR: Construction investment and development project, executed by the Project Management Unit, which was set up in 1993 by the Provincial PC at the time of establishment of the PC-PB NR and with the same Manager. It is financed annually to build and develop the buffer zone. However, it has only 25% of the area of the PC-PB NR and has a short border section with the NR. It is, therefore, limited in its functions.

The buffer zone of Con Dao NP is a contiguous ocean strip of 20,500 ha, founded in 1998 by the Provincial PC, managed by the Manager of the National Park. Since this is an ocean buffer zone, the PPC has not anticipated any project for

its investment and development. No construction and development activities are therefore carried out. As well, regulations on ocean protection, ocean buffer zone management have not been addressed by related governmental bodies.

The system of Special-use Forests is under management of the PPC. So, Con Dao NP is the PPC's managerial responsibilities. The PPC assigned management to the Department of Agriculture and Rural Development.

Managers of Special-use Forest management units are to allocate forest and forest lands, and are responsible to the PPC, for forest nature resources protection and development in accordance with the approved feasibility plan and judicial regulations.

Management Boards of Con Dao NP and BC-PB NR have responsibilities to develop an annual forest development, management and protection schedule, proposed to the Provincial DARD for review and summation, submitted to the PPC for approval. The Manager of National Park and Nature Reserve has duties to organize staffing for executing the approved forest management and protection schedule; also to co-operate with forest protection forces and other related bodies to preserve forest nature in the protected and buffer zones such as: Military, Police, Fishery Resources Protection, Market Management Teams. The Manager also undertakes planning and advises the Con Dao and Xuyen Moc District People's Committees in giving directions to carry out forest protection & management plans.

4.2. Co-ordination among state branches, District & Commune People's Committees in managerial activities in protected areas.

4.2.1. Managerial duties of District and Commune People's Committees

Duties are to implement laws on forest development and protection and Decision No. 245 of the Government regarding execution of forest and forest land administration at all levels.

Chairpersons of district, commune and city people's committees were given responsibilities by the PPC regarding protection and use of forests and Special-use Forest in the indicated area. Based on that, people's committees at district level have handed over forest resource protection to chairpersons of forest commune people's committees.

4.2.2. Responsibilities of provincial governmental bodies:

Provincial Department of Agriculture & Rural Development (DARD): responsible for assisting the PPC in carrying out national administration of forest management, use and development in the province's area. DARD's main assignments are as follows: proceeding with investigation, statistics of forest nature resources, helping the PPC develop a plan and schedule to use forests and lands, check and submit to the PPC for giving approval to forest establishment. Mapping out and forwarding to the PPC for issuing competence documents with a view to guiding, managing district, commune people's committees, organizations, households the provincial area to follow the Government's regulations on forest development and usage management.

Provincial Forest Protection Department (PFPD): Has duties to assist the PPC to execute its national administration functions of forest protection and management in the region. Meanwhile, it is a law performance authority in forest development, protection and management. Its main duties are to monitor, prevent, and investigate law-breaking activities of forest development and protection and assist the PPC in forest management. The PFPD drafts outlines of forest protection for District PCs, checking progress of approved plans, enhancing co-ordination with functional authorities to pursue and protect forest nature resources such as the military, police, Market Management Teams and Forest Management Units.

District Agriculture and Rural Development Department: responsible for giving assistance to District PCs in carrying out national administration of forest usage and

development in the region. Making forest and land usage development plans, issuing competence documents concerning its guidance to execute Government's regulations on forest usage and management, forest and land development in the district's regions. Guiding commune PCs to prepare plans regarding forest development and management, forest and land usage.

District Forest Protection Department (DFPDs): Under and belong to the Provincial Forest Protection Department. It performs Government's regulations on forest protection, management and development. Also, helping District PCs to execute forest protection works in the region.

4.3. Forest protection and management policy of local authorities.

Based on plans for forest protection and development, the PPC is to appoint assignments to forest district, commune PCs, provincial FP, Special-use Forest management units and other related authorities of the province to carry out these plans in accordance with the Government's regulations on Special-use Forest management. There are a lot of documents and guidance relating to local forest protection and management policies, of which important landmarks are as follows:

From 1992 to the present, BR-VT PC have issued instructions prohibiting natural forest exploitation, activities of taking wood and forest products, of grazing domestic livestock and of exploiting wildlife resources in Special-use Forests of the region.

Instruction on forest protection and precautions against fire was issued in 1994 by the PPC showing specific regulations regarding responsibilities of PCs of all levels, of branches and forest holders in pushing forward actions against forest fire, and funding for this activity. It is further specified that if fire occurs at any locations these are subject to the responsibilities of forest holders; and meanwhile, Chairperson of District PC, PFP, District

A&RDD are to be responsible to the PPC for damages.

In the other hand, to strengthen coordination on precautions and protection against forest fire among branches and authorities of all levels, the PPC has established fire and deforestation control management units spread from province to communes. Managerial structure is arranged as: chairpersons of PCs specializing in agriculture and forest play the role of Directors of these units, On duty Deputy Director appointed from Provincial FPD in the province, likewise, from Provincial Department of Agriculture and Rural Development (DARD) and Sub-FPDs in districts. Members of the unit come from police, border-guard force, military in the area, Planning Department and Finance Department.

To protect wildlife, a ban prohibiting activities of transport, purchasing, hunting, exploiting wild animals was issued in the provincial area.

In 1997, the PPC issued instructions to check and capture individuals and organizations destroying forest in the region.

Anticipating local people's participation in forest protection, under guidance given from the PPC, District PC and forest industry, people living in communes, hamlets have regulated themselves in written agreements, which were approved by People's Committees at all levels, to protect and develop forest.

Activities regarding applying scientific study to preserve and develop specific rare and valuable wildlife in the National Park and Protected Area have been strengthened by the PPC using the provincial budget to fund these activities. The PPC has also given assignments to the NP, PA to proceed with initiation and execution of annual science subjects following review by, for example, DARD or Science & Environmental Technology Department and then re-submitting to the PPC for approval and funding.

Con Dao NP and BC-PB actively co-operate with universities, Forest & Wildlife Resources Institutes and Sub-

Institutes, Institute of Oceanography, WWF - Indochina Program researching and preserving some of the rare and valuable species in the NP and PA such as turtles and purple pheasant.

Regarding eco-tours in the provincial Special-use Forest, Con Dao NP and BC-PC PA are allowed to operate tourism activities or to co-operate with tourism industry and other organizations to explore, provided that the project receives PPC approval. At the moment, Con Dao NP has an approved project, and now is seeking partners to carry out a joint-venture or cooperation. BC-PB PA's Tourism Project is under preparation.

In order to strengthen management of Special-use Forest, the PPC has requested A&RDD to proceed with forest inventory and making forest development plans, which include Special-use Forest for the years 2001 to 2010. Furthermore, they are mapping out investment and development projects of the BC-PB Protected and Contiguous Areas in the year 2001 to 2005, and of eco-tourism establishment and development. The PPC has also requested the PFPD, in collaboration with responsible authorities and District and Commune PCs, to locate forests on the map, together with setting out at site. Moreover, to facilitate management and to review development of forest nature resources, Special-use Forests in the province are divided into sub-regions having around 1,000 ha each; it is a basic unit to carry out forest management. This sub-region is then divided in to an area of 100 ha and is strictly guarded. In addition, the BC-PB PA has fencing installed around it, funded by the PPC, to serve as a border, as well to protect forest nature resources inside.

4.4. Finance Investment Status for Special Use Forest

Financial investment for regular activities, conservation activities and forest resources development of the Special-use Forests (SUFs) in the province is mainly from the following sources:

- Budget from central government through national programme of 327 on greening bare hills, coastal swamps. Now it is the national of 5 million ha reforestation programme.
- Annual budget from central government to the provincial authority, based on which the provincial people's committee (PPC) will allocate funding for the forest Management Board (MB) in accordance with the planned working schedule and development proposals approved in advance. In accordance to the plan approved by the PPC, the MBs of SUFs receive the funding from the provincial branch of the State Treasury and are responsible for management of the released funding. This is the main source for conservation and development activities of NRs.
- The annual budget from the PPC to Con Dao National Park (NP) and BC-PB NR can be allocated for various

activities of patrolling and protection, including:

- ❖ Wages and allowances for officers of NP and NR
- ❖ Purchase of equipment, working facilities, patrolling tools, infrastructure: housing, fencing, road construction.

This is the most critical and important budget for the SUF MBs to conduct and maintain the regular activities of forestry and marine resources protection.

From 1995 to the present, the World Wide Fund for Nature (WWF) – Indochina Programme has funded the Con Dao NP programme of biodiversity research of the marine protected area within the NP, mainly for the purpose of turtle conservation. The BC-PB NR received some funding from this organization for research of Edward's pheasants.

II. ANALYSIS OF SOCIO-ECONOMIC IMPACTS BY THE LOCAL PEOPLE COMMUNITIES LIVING AROUND THE PAS ON THE CONSERVATION AND ENVIRONMENTAL PROTECTION AND MANAGEMENT ACTIVITIES.

1. Population – Ethnicity – Human Resources

Table 5. Statistics on population and ethnicity.

Description	Population					Ethnicity	
	Total	Urban area	Rural area	Male	Female	Kinh	Minority
Whole province							
❖ 1996	719,003	271,549	447,454	250,708	368,295	√	?
❖ 1999	799,359	338,207	451,152	392,473	406,886	√	2,285
Xuyen Moc district							
❖ 1996	116,327	11,170	105,157	57,931	58,396	√	?
❖ 2000 (surveyed result)	119,550	12,030	107,520	58,998	60,552	√	1,345
Con Dao district							
❖ 1996	1,796		1,796	931	865	√	X
❖ 2000 (surveyed results)	3,066		3,066	1,517	1,549	√	X

1.1. Population and ethnicity

Based on the results of research conducted in the Xuyen Moc and Con Dao districts, with reference to the population statistic data, the population development of the communities living around the PAs is as shown (Table 5).

In Con Dao one can only find Kinh people, there are no other ethnic groups. In the

planned area for BC-PB NR in Xuyen Moc district, there are 229 households from ethnic minority groups, from Chau Ro, Tay, Nung, KhMe, Muong people, which migrated to the area from different corners of the country, while the Chau Ro is the indigenous community and accounts for 50% of ethnic minority people.

Table 6. Ethnic minorities in the BC-PB NR.

Commune	Ethnic minority		Chau Ro (Persons)
	No. of households	No. of people	
Phuoc Thuan	8	41	21
Bong Trang	52	225	16
Bung Rieng	56	231	54
Binh Chau	39	202	91
Phuoc Buu township	14	64	17
Xuyen Moc	130	582	506
Total	299	1,345	705

1.2. Labour forces

Through research results in 7 communes around BC-PB NR, 9 administrative groups in Con Dao NP and statistic data of

population at the end of 1999 shows that the labour forces are distributed as follows:

Table 7. Development progress of population and labour forces.

Description	Population	Labour forces	
		Total	Labour in agriculture
Whole province			
❖ 1996	719003	363672	150897
❖ 1999	799359	400097	173995
Xuyen Moc district			
❖ 1996	116327	52369	36332
❖ 2000 (survey results)	119550	60372	43324
Con Dao district			
❖ 1996	1796	1127	306
❖ 2000 (survey results)	3066	1483	325

Labour and population:

- At the beginning of 2000, in the whole area there were 799,359 people, of which 461,152 people were from rural areas, accounting for 58% population of the whole province. The labour force was 400,097 persons, of which 173,995 persons worked in agriculture. We can see that the labour forces here focus on the agriculture and fishery production, other off-farm jobs like services or handcrafting are not well developed.
- This is a common situation for both Xuyen Moc and Con Dao districts.
- The professional level of the labour force: 88.29% of the labour force in the province does not have a specialized or vocational certification, amongst those, this rate increases up to 95.69% in the rural area. The workers, that have a high school certification or university degree counts for 6% of the whole province on average, this rate only 2.44% in the rural areas.

Table 8. Professional levels of labour force.

Description	Total (People)	%	Rural area (people)	%
Without any professional level	272350	88.29	195101	95.69
Primary professional level	2861	0.92	870	0.42
Technical workers with a certification	8513	2.76	1565	0.77
Technical workers without a certification	6226	2.01	1393	0.68
Vocational high school	9854	3.19	3571	1.76
College – University	8649	2.8	1393	0.68
Postgraduate	90	0.03	-	-
Total	308543	100	203893	100

1.3. Population growth

The natural population growth in the locality of Xuyen Moc district is 2.15% and this number in Con Dao is 1.44%. The natural population growth is not high. However, the physical population growth in Con Dao

district is very high, in the 4 years from 1996 to 1999 the population in Con Dao district increased 180%. This growth will impact highly on the natural resources management in Con Dao NP in the future.

Table 9. Population growth.

Description	1996	1997	1998	1999
Average population (persons)				
Xuyen Moc district	116327	118830	120780	119550
Con Dao district	1796	2133	2441	3267
Population growth (%)				
Xuyen Moc district	2.67	2.6	2.49	2.15
Con Dao district	2.39	2.3	1.64	1.44

Table 10. Population classified in age groups.

Age group	Xuyen Moc District	Con Dao District
Total, of which	119550	3267
Men	61903	1767
From 0 – 15 years old	25476	386
From 16 – 55 years old	31143	1135
Above 55 years old	5284	236
Women	57647	1510
From 0 – 15 years old	21603	278
From 16 – 55 years old	30282	1071
Above 55 years old	5762	161

1.4. Population classified in age groups

The findings show that the age structure in Xuyen Moc and Con Dao districts in the general population and in labour forces as Table 10.

The above results show that in Xuyen Moc and Con Dao districts are mainly of young and middle age, the women's population is lower than men, people in working age in Xuyen Moc is 61,425 people rating at 51.38%, while this number in Con Dao district is 2,206 people and 67.52% respectively. The women workers accounts for nearly 50%, so the role they play and the part they take in conservation activities is very much important.

1.5. Education in the community

The finding show that the education level in the community living around the protected areas (PA) with a rather low level is the majority, mainly of primary and secondary schools. Especially, 7% of the population is illiterate and the number of children in the schooling age but do not go to school is more than 11%. This affects much to the absorbency of the people with new knowledge and especially in forest protection and natural resources management in the PAs. The high number of children that do not go to school impacts conservation in the future.

Table 11. Education level of local communities in the PAs.

Description	Whole province		Xuyen Moc District		Con Dao District	
	Persons	%	Persons	%	Persons	%
Illiterate		3.85		6.83		4.22
Primary school		26.22		43.58		23.94
Secondary school		34.82		33.3		39.43
High school		21.48		15.38		29.57
Vocational college and university		13.63		0.9		2.81
Total	799359	100	119550	100	3066	100

2. Production situation – sectoral structure – Income per capita

2.1. Production situation

The sedentarization of the local community in the PAs:

As mentioned earlier, the ethnic minorities reside only in BC-PB NR and the shifting

cultivation with stable residence or shifting residence and cultivation are still practiced.

So the community of minority ethnic groups living around the BC-PB NR is 221 households and 1,084 people still practice shifting cultivation, either they are using shifting residence or stable residence. This brings a big impact on the natural resources management in the NR and should be well considered when developing an investment project in the buffer zone.

Table 12. Fixed cultivation and sedentarization in BC-PB NR.

Commune	Shifting cultivation and nomadic life		Shifting cultivation and sedentarization	
	No. of households	Persons	No. of households	Persons
Xuyen Moc	43	182	40	189
Bung Rieng	10	41	29	120
Bong Trang	35	150	29	127
Binh Chau	9	46	18	93
Phuoc Buu	0	0	8	36
Total	97	419	124	565

Cultivation System

Agricultural land area is 105.945 ha, which covers roughly 53% of the total 197.225 ha natural area of the province. The forestry land area of Xuyen Moc district comprises 30.867 ha, which is equivalent to 49,2% of the district area in total. Therefore, the average area of agricultural land of communes surrounding Binh Chau – Phuoc Buu Nature Reserve still covers quite a large amount. In Con Dao, forestry land comprises over 80% the total area of the district, while agricultural land covers only a small area at a rate of 2,5%.

The agricultural land area per labourer of the province averaged at 0,6 ha/ person, while this indicator is 0,7 ha/person in Xuyen Moc and 0.5 ha/person in Con Dao. The average area of cultivation land to

each agricultural household is 1,7 ha. This is a high figure which compares to other provinces, and it also is an important condition for production development, household economic growth as well as community economic development.

In term of plantation structure, the survey results in the buffer zones and surrounding areas of Binh Chau-Phuoc Buu Nature Reserve and Con Dao National Park have pointed out that the area of fruit and industrial trees such as pepper, cashew nuts, coffee have increased a lot, comprising a rate up to 53% of total cultivation area. This is a favorable condition to stabilize and improve local community living around the protected areas.

Table 13. Cultivation system, plantation and husbandry.

Contents	Provincial area (ha)	Xuyen Moc district		Con Dao district	
		Area (ha)	Rate (%)	Area (ha)	Rate (%)
Agricultural land	105.945	30.876	100	186	100
1. Annual Trees	68.718	14172	45,5	86	46,5
1.1 Food Trees	47.675				
- Rice	25.604				
1.2 Vegetables	13.110				
1.3 Industrial trees	7.501				
2. Perennial Trees	53.475	16.306	54,5	90	43,5
2.1 Fruit Trees	7.961				
2.2 Industrial Trees	45.559				
Average area of cultivation land per labour (ha/person)		0,74		0,5	

2.2. Production Structure and Income

The recent survey has made it clear that agriculture and fishing are the main production of communities living around Binh Chau – Phuoc Buu Nature Reserve and Con Dao National Park.

In community living around Binh Chau – Phuoc Buu Nature Reserve, there is a high rate of local people who are working as hired laborers because they lack cultivation land, are poor, or lack production materials or other jobs. This impacts on natural resources management and protection of the nature reserve. Thus, implementing the process of protected area management and buffer zone development, it is necessary to develop a strategy of job creation with participation of the local community and in the mean time, to create opportunities for the community to actively participate in nature conservation.

Income sources of laborers of Con Dao community mostly come from fishing, commercial services and salary working for the state, and income of locals around Binh Chau – Phuoc Buu Nature Reserve is mainly from plantation and hired work.

The average income of laborers in Con Dao is estimated at VND 5 million/person/year, and roughly VND 2 million/person/year for local laborers around Binh Chau – Phuoc Buu.

From these facts mentioned above, it is reflected that household economies of communities around Binh Chau – Phuoc Buu Nature Reserve that are actually poor. This is leading to a part of local people there having to maintain their daily livelihood, or in dry season time, by illegal exploitation of natural resources from the nature reserve, and causing a high pressure on resources protection of the nature reserve.

Table 14. Production and occupation structure of communities

Occupation Patterns	Xuyen Moc (%)	Con Dao (%)
Agricultural production	35,9	22,53
Fishing	14,1	15,5
Small scale trading	6	8,45
State / Government office	0,43	14,08
Hired labour	27,8	4,23
Other occupation	15,8	35,2

3. Environmental Education and Awareness Raising for Communities around protected areas

About information and education:

In Binh Chau – Phuoc Buu Nature Reserve, nature conservation education and information focuses on the following activities:

- Dissemination of regulations and instructions of provincial and district People's Committees on forest resources protection through the broadcasting systems of district and communes.
- Cooperation with local schools in districts to carry out environmental education programmes, organization of student summer camp to integrate awareness raising activities about environment protection. These activities however have not been conducted widely and regularly.
- Collaboration with Bung Rieng Catholic priest to disseminate awareness raising about forest protection for the local Catholic population around the nature reserve.
- Cooperation with communal authorities to sign agreements with local households about forest protection and forest fire management.
- Placement and construction of boards and signs about anti-deforestation and no forest fires at the gates leading to forests.

Con Dao National Park usually promotes information activities and mobilizes the local population to participate in conserving forest and marine resources.

- Annually, the park conducts around 10 information sessions about natural resources protection for various target groups such as school children, army forces and different fishermen.
- Participation in Green Week Exhibition which held by the Scientific Associations' Union in Ho Chi Minh City
- Implementation of community communication and education about environmental protection through using materials such as boards, signs, posters, etc.
- Information about natural resources protection for 6.638 visitors / tourists
- Cooperation with WWF Indochina Programme to organise Environmental Communication training course for 15 park staff and other members of the district authority. Print and delivery of 3.000 leaflets about Introduction on Con Dao National Park's Natural Resources.
- Collaboration with Provincial Television Company to develop a film on sea turtles.

About community's awareness and attitudes towards protected areas

The results of household interview among communities at Binh Chau-Phuoc Buu Nature Reserve and Con Dao National Park have shown that 60% of the

population knows about the establishment of the nature reserve; 32% do not know about this event. There are about 54% population that are supportive of forest resources protection, 46% of the rest are either not supportive of the matter or did not give their ideas.

4. Community participation in forest plantation and protection

Previously the 327 programme and now 5 million ha reforestation programme of the Government focuses on reforestation of bare hills.

The Ba Ria Vung Tau province's authority has policies to encourage its households and individuals to contract forestry land for forest protection and plantation. Management Boards of protected areas in the province have attempted to promote local communities to actively participate in forest plantation, protection, regeneration and to benefit from those forest works.

4.1. Con Dao National Park

This park is located on an archipelago which is separated away from the mainland, with low population mostly including army forces and state officials and has a stable conditions about security, economy and society. Most islands are covered by natural forest, so this park does not have to plant new forests. With this view, this park is concentrating to mobilize island population to establish 19 public groups consisting of 393 people to secure forest and prevent forest fire.

4.2. Binh Chau - Phuoc Buu Nature Reserve

- From 1994 to 2001, this nature reserve has allocated forestry land to 245 contracted households, which are equivalent to 600 laborers and 4.987 ha of forest and forestry land in the buffer zone and the regeneration area. The nature reserve has promoted local communities to directly participate in

active protection and caring of forest. However, the investment norm for 1 ha forest is low - about VND 2.5 million/ha, so it has reduced effectiveness of attracting local participation, and quality of forest protection and development has not reached its requirements yet. This point mentioned is to reflect that the nature reserve itself has not taken the forest contracts, allocation and protection to community as well as villager's income improvement as a main part of its duties.

- Buffer zone community participated in forest plantation and caring.

The Xuyen Moc Forestry Enterprise which locates nearby the north of the nature reserve can be seen as buffer zone for Binh Chau-Phuoc Buu. This enterprise, with trading purposes functions as a forest plantation for paper industrial materials, of which Tram Bong Vang *Eucalyptus* sp. is mainly planted. With short business cycles (around 6-7 years), this enterprise annually harvests and re-plants nearly 1000 ha. Every year therefore this enterprise mobilizes about 2800 people among the community to participate in forestry production. In this way, the enterprise has created a considerable amount of jobs for local community, brought villagers into forest production and plantation, and contributed to reduce pressures on natural resources exploitation from the nature reserve.

By cooperation between Binh Chau - Phuoc Buu Nature Reserve and Xuyen Moc Forestry Enterprise, there were 3.400 laborers who participated in forest production, management and protection as well as forest caring. It helped to create jobs and income then improve living standards for a part of population living around the nature reserve. The number of agricultural laborers who have stable jobs and incomes from participation in forest plantation and protection in the nature reserve and buffer zone is estimated at roughly 8% in comparison with total forces of 43.324 agricultural laborers in Xuyen Moc district. The attempt of the nature reserve and forest owners in Xuyen Moc in

implementing the forest protection and development programme should be appreciated. It is a great result if we can compare it with the average rate 7,5% of the provincial labour force that now is jobless. However, it would be less meaningful if we compare this fact (8%) with the rate of 27,8% of hired labour in

Xuyen Moc because of a lack of cultivation land or seasonally jobless. This problem will impact on natural resources management and protection of the nature reserve, and it should be taken consideration in the future management plan of the nature reserve.

III. ASSESSMENT OF INVESTMENT PROGRAMMES AND FOREST MANAGEMENT AND PROTECTION IN PROTECTED AREAS

1. The Government's 327 Programme (or 5 Million hectare Reforestation Programme) in Ba Ria Vung Tau

1.1. Objectives

The programme aims at speeding up forest plantation, re-greening open lands and bare hills, actively protecting the existing forests and creating new plantations, fostering ecological functions of protection forest and environment, conserving biodiversity, increasing the forest cover up to 40% of the country area and supporting sustainable socio-economic development.

Another objective of the programme is to establish regions linked using advanced technologies of forestry processing, creating more jobs, increasing population's income, contributing to implementation of the famine alleviation and poverty reduction, developing production, stabilizing people's lives and securing defense and social safety.

1.2. Results

The following is the programme results that have been achieved since 1993 in Ba Ria Vung Tau province:

- 11.800 ha forest are newly planted in concentration; 29.100 ha forest are protected; 3.000 ha forest are taken care of every year; 3.900 ha forest are demarcated for protection and regeneration and quality of forest is increasing. In the year 2000, forest area covered 18,5% of natural area,

increased 4,2% in comparison with year 1993. If taking perennial trees into account, vegetation cover is up to 42%. With this situation the environmental protection and support to sustainable development of economy and society of the province functioned well.

- There are 15.554 ha of forest which have been allocated for protection to 1.996 households and 33 associations. The programme also created jobs for 166 households. In 1999 the average income per person in the rural area was VND 5,5 million per year. The speed of increasing income in the period 1996 – 2000 is at 14,6% on average.
- Total budget which is invested for the 327 programme (or 5 million ha programme so-called now) in Ba Ria Vung Tau is VND 42,5 billion up to the year 2000. Among this, there were VND 5,2 billion flowed down to Con Dao National Park and VND 5,5 billion to Binh Chau-Phuoc Buu Nature Reserve.

2. Scientific Research Programme and Environmental Education

2.1. Scientific Research Programme

The local budget granted for regular operation of these 2 protected areas such as forest management and protection and

property investment was VND 16,965 billion up to the year 2000. Among this amount, Con Dao National Park received VND 11,7 billion and VND 5,265 billion came to Binh Chau – Phuoc Buu Nature Reserve.

Beside activities of forest protection and regeneration, Binh Chau – Phuoc Buu Nature Reserve has started its scientific research programme by establishing a botanic garden of an area 50 ha in which budgeted over VND 2 billion for investment. In the meantime, this reserve has investigated to develop its biodiversity checklist and its fauna and flora specimens. Especially, the province has invested more than VND 12 billion to construct 37 km of fence line surrounding the reserve.

Binh Chau – Phuoc Buu is now preparing a Project on Investment and Development of the Nature Reserve and Buffer Zone for period 2001 – 2005 and other Project on Eco-tourism Development in the Nature Reserve.

While implementing forest protection activities, Con Dao National Park carried out a wide range of various scientific research such as Orchid Investigation and Classification, Seabird Survey, Experiment on Forest Recovery after Destruction by 1997 storm 'Linda', Survey on predator plants Distribution on Hon Ba Island, research on Distribution and Rescue of Cycad Trees in Ben Dam, Survey on Coral Coverage and Human Impact Assessment and Solutions for Coral Conservation, Investigation on Seaweed Cover and Dugong Population in Con Dao, Research on Distribution of Black Squirrel in Con Dao. The Park also collaborated with the Nha Trang Oceanography Sub-Institute to conduct biodiversity investigations in the marine Protected area of the park, and cooperated with WWF Indochina Programme to carry out the Sea Turtle Management and Rescue Projects.

2.2. Environmental Education and Awareness Raising for Communities

In order to raise awareness of local communities living near the forest, Con Dao National Park has promoted activities of environmental information through education and ecotourism programmes. The park every year organizes and conducts 3 courses about environmental education for school children, local communities and fishermen and develops awareness materials like posters, pictures at the same time. Binh Chau – Phuoc Buu Nature Reserve has promoted environmental education activities for buffer zone communities by information dissemination through local broadcasting systems as well as religious organizations like local churches or commune meetings.

3. The Hunger Eradication and Poverty Reduction Programme – Cultivation Resettlement programme – 135 Programme

The rural socio-economic development is a general issue that includes production development, infrastructure upgrading, increase of income and improvement of living standard for villagers which are all focal duties of all authorities at different levels. Practical experiences given have highlighted that forest resources of protected areas would be sustainably conserved when it has attention and active participation of local communities around protected areas. During period 1996 – 2000, the provincial authority has concentrated on basic investments for infrastructure system completion to create convenient conditions for development of agricultural production, to actively move in changing its agricultural economic structure, to push up a step of improving rural infrastructure, especially such as irrigation systems, freshwater, internal transportation system, cultural and trading centers, cultivation and resettlement programme and minority ethnic policy. These have contributed in improving the rural community living.

Total budget of the province which invested for agriculture, forestry, irrigation and rural development in the period 1996 – 2000 was VND 85.979 million. With limitation of local budgets, the irrigation system has been upgraded with 28 dams and 24 reservoirs that carry 83 million cubic meter (m³) in volume. This system is highly significant for intensive cultivation, expanding agricultural areas and changing crop structure and providing fresh water for domestic use. Regarding the freshwater supply programme for rural areas, since 1996 16 water supply stations and 1.300 wells have been constructed in all rural areas of the province. This has ensured nearly 70% of the rural population being supplied with freshwater for use and meet water demands for industrial development, services and production in the province.

The rural transportation system has remarkably developed and improved, particularly there are 1,026 km of inter-commune roads and communal crossing roads that have been constructed. The power network of middle and low voltage has reached to communal centers and population complex in rural and minority ethnic areas as well. Up to now 100% of communes are using the national power network, and about 85% of households in rural areas are using electricity. The growth of transportation and power system is an essential motivation to foster development of agricultural production and contribute to increase living standards for rural communities.

Medical stations and the school system are basically accomplished. There are two provincial hospitals that are upgrading and expanding; medical centers at districts are all newly constructed and the medical network has reached to all communes. School system of all levels is relatively

invested that helps to avoid 3-shifts learning. The provincial authority has paid much attention on investment for culture. All communes have cultural operation points, among them there are 20% of communes with established Communal Cultural Centers for the community.

4. Results from forest protection of the National Park and Nature Reserve

Recently, duties of forest protection, especially Special-use Forest and Protection Forest are paid much attention in Ba Ria-Vung Tau. The Provincial People's Committee has given out many instructions to stop destroying forest.

Many methods of forest protection have been adopted by DARD, provincial FPD and the Management Board of Special-use Forest, People's Committees of districts and communes. These methods include inventory of forest resources, identification and demarcation of Special-use Forest and buffer zone, placement of marks and boards for boundary demarcation, enhancement of managing population living around protected areas and resettlement control, improvement of ranger forces and forest owners, enhancement of forest patrolling and forest fire management and speeding up the 327 programme to allocate forestry land to households in the community to protect forests.

Despite much progress the work of forest resources management in Special-use Forest, especially in Binh Chau – Phuoc Buu Nature Reserve is facing lots of challenges and threats. The following table provides data on cases of forest law violations in the province and in the reserve:

Table 15. A synthesis of forest law violation in 2000.

Violation and Treatment	Unit	Total	Forest Protection Divisions					
			Vung Tau	T Thanh	C Duc	Long Dat	Xuyen Moc	Mobile Unit
Violation behaviors	case	699	50	55	27	40	502	25
Illegal deforestation	case	21	03	3			15	
Tree cutting, forest harvest	case	267	8	2	3	9	245	
Damaging forest and forestry land	case	62	21	15	4	6	16	
Violation on forest fire prevention	case	15	3				12	
Forestry products transportation and trading	case	270	15	31	8	25	166	25
Violation on wood processing	case	3					3	
Wildlife hunting	case	1		1				
Other violations	case	60		3	12		45	
Violator								
Individuals	case	694	49	55	27	40	498	25
Organizations	case	5	1				4	
Treatment of violations								
Administrative warning	case	42	11	1		5	25	
Fines	case	362	36	30	15	35	226	20
Confiscation of equipment and forestry products	case	374					371	3
Criminal trial	case	2					2	
Pass for police treatment	case	11		1			10	
Education in community	case	2		2				
Other treatments	case	21	2	19				
Forestry products and equipment confiscated								
Logs	m3	138,89	1,46	8,8	6,86	19,156	92,513	10,10
Sawn timber	m3	8,564	1,26		0,204	1,788	4,662	0,65
Fuel woods	ster	125,5	1,5	32,7	5	1,5	73,1	11,74
Charcoal	kg	20.807	430	985		5.930	3.310	10.115
Soil bracing timbers	piece	1.511					1.511	
Ox carts		2					2	
Transport bicycle		297	3		5		289	
Boat / junk		14		14				
Manual equipment		155	5	12			138	
Wild animals	Indl.	46	35					11
Forest animal products	kg	18,5	5,5		5	8		
Machinery		2				2		

Total number of violations is 669 cases which mainly happened in Xuyen Moc district. In particular there were 380 violation cases in Binh Chau – Phuoc Buu Nature Reserve in the year 2000. In Con Dao National Park, in the same time there were 36 cases. Among these were 20 cases of violations of forestry resources and 16 cases of violations of marine resources. In general, most of the violation cases is at small scale made by households and individuals.

Forestry products that are illegally exploited in the forest of protected areas are timber, fuel-woods, charcoals, rattan and wild animals such as geckos, pheasants (*Lophura*), wild rabbit and muntjak.

Before 1998 most of the forestry products illegally exploited were timbers / logs, but now charcoal and fuel-wood visually exceed these, especially at the end of the

year and dry season. These revealed that villagers in buffer zone usually face lots of difficulties at the end of year and there is no choice for their livelihoods except from exploitation of natural resources.

Basically, timber loggers are local villagers. They cut trees down for selling timber, building their houses and producing furniture. The force of illegal loggers mainly consists of teenagers and middle-aged people, and most of them are very poor and usually exploit forests in their free time. However, some of villagers or groups see timber exploitation as their main livelihood and a professional career.

Charcoal production

Charcoal is made mainly from burning forest by local women and children. Mostly they are very poor and hungry and they have to produce charcoal to earn more cash for daily expenditures.

CHAPTER 3

ANALYSIS - DISCUSSION -RECOMMENDATIONS

DISCUSSION

From the above results, some issues are discussed as follows:

1. Human organizational structure and operation of the protected areas

The Con Dao National Park and BC-PB Nature Reserve are set up for the main objectives of environmental protection and biodiversity conservation. Regards to the size, the National Park and the Nature Reserve have 5,998 ha and 11,392 ha of forest land respectively, therefore, ecosystems are easily affected and biodiversity in these forests is not high, especially in the Con Dao National Park, where the conservation focus is also on the contiguous marine area.

1.1. Organization and operation

- The Con Dao National Park and BC-PB Nature Reserve were approved and established by the PPC. However, the Con Dao National Park is subject to PPC and the BC-PB Nature Reserve is under control of the provincial DARD. Therefore, these two Special-use Forests have different management and control.
- In addition, national Special-use Forests include nature reserves and national parks. Most of national parks are subject to MARD while the nature reserves are subject to their PPC functional agencies, leading to differences in management system, rights of Special-use Forests establishment and approval of investment projects.

- Con Dao National Park: Total area is 19,998ha, among which 5,998 ha is for forest conservation and 14,000 ha is for marine conservation. The number of staff in the national park is 75, working in 3 specialized bureaus and 1 forest protection unit consisting 8 forest protection stations for forest and marine resources protection. The forest protection unit has right to stop, arrest and punish the forest development and protection law violators, according to the Government Decree on punishment in the field of forest protection and development.

- BC-PB Nature Reserve: Total area is 11,392ha. The number of staff is 60, working in 4 specialized bureaus and 8 stations for direct forest protection and management. Because there is no forest ranger force in the Nature Reserve, forest protection staff only have the right to stop and bring violators of the forest development and protection law and exhibits to the district forest protection unit for further action.

Therefore, though regarded as Special-use Forests, the Management Boards of the National Park and Nature Reserve have different jurisdiction.

1.2. Human resources

- The BC-PB Nature Reserve and Con Dao National Park have been set up for over 8 years, there still are unqualified staff with limited knowledge, shown in Table 16.

Table 16. Professional knowledge of staff in the protected areas.

Level	Con Dao National Park		BC-PB Nature Reserve	
	Number	%	Number	%
Post graduate	0	0	0	0
Graduate	11	20	04	6.7
College	10	15	12	20
High school	38	65	44	73.3
Total	59	100	60	100

This table shows qualified and well trained staff is limited and there has been no staff specialised in conservation, environment, forestry and tourism. So it is necessary to develop a training program to improve capacity of forest and marine development and management in the PAs in the future.

1.3. Facilities:

The forest protection stations in the PAs should be upgraded. The present telecommunication network in the national park is no longer effective, because some households can receive the radio transmissions of the forest protection force in action, leading to less effective and efficient forest protection.

The authorities do not have enough means for forest inspection. It is important to equip with more facilities like motorbikes, boats, etc. with good quality in order to have good inspection.

The materials for research and experiment are not available and the facilities for showing copies and pictures etc. of forest animals and plants do not exist in the nature reserve or national park.

In addition, the technical staff still face difficulties in accessing new information and technology developments.

2. Management method and relationships:

- Relation between the provincial Management Board of Special-use Forests with the State forest

management agencies at district and commune level:

Some years ago, there was confusion between the function of forest protection of the Management Board of Special-use Forests and function of State management of forest at district and commune level. Many CPCs show very little attention in the forest protection because it was thought to be assigned to the BC-PB Nature Reserve and Con Dao National Park.

The Government issued Decision 245/1998/QĐ-TTg dated on 21st December 1998 on defining the state management function on forest and forestry land for all levels. However, the function of PC at commune level has not been strictly implemented.

- The function and task on forest management of DARD and PFPD:

It was clearly defined according to the Decision 863/TCLĐ dated on 8th August 1994 by the former Ministry of Forestry on the function and relation between the State management agencies on forestry and forest protection units. Though clearly defined, there still exist some overlapping tasks, affecting the forest management, especially the Special-use Forest management.

To strictly carry out Decision 245 of the Prime Minister, MARD enacted Instructions that the PFPD also can be involved in the professional direction with the Management Board of Special-use Forests, in addition to its assigned tasks, thus causing the overlapping between DARD and PFPD.

- State management of forest at district and commune level:

At district level, district DARD is in charge of state management on forest for DPC. DARD has 1 staff specializing in forestry. Some districts which have forest do not have forestry staff.

At commune level, implementation of 8 tasks on forest and forestry land management should occur according to Decision 245 of the Prime Minister. However, at present, organization of commune staff still meet difficulties, not facilitating CPC in carrying out its defined tasks.

- Connection among departments in the protected areas management:

Many decisions, decrees and policies have been issued by the PPC on forest resources protection. It also decided to establish the Steering Committee of Forest Protection including members of provincial departments and district DPCs. This is a premise for a connection among departments at all levels in the forest resources protection, however, cooperation and responsibilities of each party have not been specifically defined.

The marine protected area in the Con Dao National Park was approved by the Government and established by PPC, which assigned protection and management tasks to the Park Management Board in 1993. Yet the regulation on marine area protection has not been agreed by the concerned authorities, hampering the operation of the national park.

Criteria of classifying Special-use Forests as National Park or Nature Reserve with national impact or local impact has not been set up clearly, just quantitatively, influencing the investment and management of Special-use Forests.

3. Regulations and policies on Special-use Forest management:

In recent years, regulations and policies on forest management have been changed

positively. Because there still remain some points that are not suitable with practices, Management Board of Special-use Forests, DARD, FPD and DPC have encountered some difficulties, affecting the forest management as follows:

Though defined according to Decision 245/1998/TTg by the Government, the state management task on forest has not been strictly carried out due to shortage of staff and lack of qualified staff at commune level.

The management and conservation of Special-use Forest always go with operations of other economic sectors. Therefore, in order to improve the forest management including the Special-use Forests, there is a need to set up inter-department connection in the process of forest resources development and protection.

Though the Government's regulations on SUFs have been issued recently, stipulations on forest planning, definition, establishment and development still have some unclear points. They do not consist of qualitative classification and categorisation criteria to allocate SUFs in each category - national parks or nature reserves and which SUFs is under national control by MARD or provincial control by PPC. Those lead to the ineffectiveness of management, investment and policies for Special-use Forests.

A standard system on size and dimension of buffer zones for protected areas has not been set up, as well as their organization, operation, investment and benefit policy for the community in the buffer zones. Hence it relies on the locality to implement the functions of the buffer zones, and the establishment and development of buffer zones is not effective.

Though approved by the national level and set up by the PPC, the marine protected area in the national park still has not had any management regulation issued by concerned authorities, affecting the marine resources protection.

4. Investment and management in protected areas

Nature reserves managed by PPC are provided funds from the provincial budget to pay for forest inspection and building facilities. Based on funds received by the State budget through the 327 program (5-million ha reforestation program), the province will pay for nature reserves according to annual plans and progress.

The provincial and state budget for the BC-PB Nature Reserve and Con Dao National Park is different, due to different management relations between the 2 Management Boards of Special-use Forests.

5. Population - Labour

Population

The population growth rate in Xuyen Moc district, which has the BC-PB Nature Reserve, and in Con Dao District with Con Dao National Park is around 2%. However, the immigration situation has seriously affected the resources protection in the protected areas. In the area in and around the BC-PB Nature Reserve, the immigration still remains, farmers often concentrate on the border areas of the zone. In Con Dao District, for 4 years, from 1996 to 1999, the population increased by 180%, badly influencing the marine and forest resources protection.

So the management of population and free immigration should be strictly implemented.

Labour

The number of underemployed and casual labour is large, accounting for over 20%, especially in the BC-PB Nature Reserve. Inevitable is some people go to forests for exploiting illegally.

Untrained laborers in the rural areas make up 96%. Besides the agricultural and

forestry production, they do not have a chance to work for other sectors to increase income. Also the need of land for production is a pressure. The research also shows that the community around the Nature Reserve have not had a suitable farming system and lack technical training, leading to low yield.

6. Land use right by ethnic communities

Ethnic communities

There are 229 ethnic households with total number of 1,345 people. They still live under the poverty line, frequently faced with the shortage of food year around. Many households do not have land for production, over half of households still live in bamboo houses and now about 200 shifting households still remain. Most of the ethnic farmers have low education and 11.4% are illiterate, leading to difficulties in learning about natural resources and forest protection.

Land use

Most residents in Con Dao district are military staff and civil servants. The number of agricultural cultivating households is small; therefore, it is not problematic to manage lands and control communities' impacts on natural forest resources as it is on the mainland.

Xuyen Moc District has a forestry land area of 31,000ha and over 40,000 agricultural producers. On average, each laborer has around 0.7ha of land for production. However, due to the land being occupied by immigrated households from other places, many households living around the protected areas do not have land or enough land for production. For example in Bong Trang Commune, nearly 70% of ethnic households lack land for production. This is paid attention in the process of the establishment and development of the protected areas and buffer zones.

On the other hand, soil around the protected areas is degraded, lacks nutrients, its ability for holding water and providing for human needs is low. So in order to grow perennial trees or fruit trees, it requires upgrade and investment. Most of the households have a shortage of money, lack experience and knowledge and it seems to be impossible to choose plants suitable to economic and ecological conditions.

It can be said that in a bid to have sustainable conservation, the Protected area should have investment projects to improve the farming system for households around it.

7. Community participation and awareness in conservation

The Information, Education and Communication program on environment and improvement of behavior and attitude of community on natural resources management have made efforts and achieved some good initial results. However, its contents and methods are not so apparent and suitable for the community, so the community is still not aware of forest resources protection. It can be determined because 32% of the population do not know about the establishment of the Protected area and 46% do not agree with the forest protection and no exploiting of Special-use Forest products in the zone.

The community has not actively participated in the conservation effort and only 245 households agree to do forest plantation, tending and protection. The main reason is that the land area of the buffer zone is only 25% of that of the core zone, and concentrated in Phuoc Thuan commune, while the Nature Reserve covers 6 communes. The buffer zone establishment and development project in recent time has contributed to generate income and employment for households in only Phuoc Thuan commune; and over 45,000 farmers and 1,300 ethnic farmers in other communes are out of work, encountering many difficulties in their lives,

affecting conservation. Therefore, it is necessary to re-estimate the size that can overcome the above-mentioned weaknesses to increase the role of the community in conservation.

In addition, farmers have not fully taken part in the activities because the beneficiary policy has not created any strong driving forces to make them closer with the forest.

8. Implementation of investment programs

The locality has such programs as 327, poverty reduction, settlement, 135.

The total budget for the 5-million ha Reafforestation program is 42 billion VND; 6,000 ha of forest has been planted but only 245 households have received forest land in the buffer zones and regeneration areas of the two PAs.

To reduce poverty and hunger and develop the rural area, in 5 years, province has invested 86 billion VND to build infrastructure including rural roads, electricity, irrigation, clean water supply, health care centers, schools, etc. in order to serve as a springboard for agricultural production and stabilization of lives.

The province also finances the settlement program and policy for ethnic communities with a total amount of 17.8 billion VND. However, a part of ethnic communities living in the Nature Reserve is under the poverty line.

Though a lot of State and provincial funds recently have been spent for investment for rural areas, the results are not so effective and efficient due to the lack of close cooperation among management boards of projects and programs in one locality. Therefore, an integrated management board for programs should be set up to reach more effectiveness, stabilize and increase living standard for community, as a basis for good natural resources protection.

II. RESULT ANALYSIS AND EVALUATION

Bases on results of the research and discussions on management of protected areas, the following SWOT is defined:

Subject	Strengths	Weaknesses	Opportunities	Threats
Human resources (DARD, FPD, protected areas)	<ul style="list-style-type: none"> - Enough staff according to tasks assigned - More than other protected areas in other provinces 	Few staff trained in forestry, environment, biodiversity	Make plan for human resources training and budget for this activity	
Organization and operation of protected areas	Consistently put staff in forest protection stations	Lack of environmental education office	Propose a concerned authority for reorganization	Based on the available staff
Facilities	Have the attention of PPC	Lack of materials (Libraries, botanical garden, animal rescue centre)	Make program for research and conservation and budget	Lack of staff qualified in conservation and budget management
Connectivity in conservation management	Have support and cooperation of departments, authorities and protected areas in the management work	<ul style="list-style-type: none"> - There is confusion between forest owners and function of state management - Overlapping of professional orders between DARD & FPD 	<ul style="list-style-type: none"> - National level is proposed to amend Decree 39 on the forestry organization - Implement the instructions on forest and forestry land management according to Decision 245 	<ul style="list-style-type: none"> - Lack of commune staff - Lack of staff in the forest Management Board
Regulations and policies on forest management	PPC have added more staff for Management Board of Special-use Forests, finance forest checking, planning and demarcating	<ul style="list-style-type: none"> - Lack of close coordination among departments in forest management - CPC does not strictly carry out its tasks on State management of forest 	<ul style="list-style-type: none"> - Propose to make a regulation of combining departments for forest management - Propose to assign responsibility of forest management for DPC and CPC 	<ul style="list-style-type: none"> - Overlap of jurisdiction of PPC and MARD Sub-departments - Lack staff for district DARD and CPC
Awareness and participation of community in conservation	<ul style="list-style-type: none"> - 68% of community know about the Nature Reserve and 54% agree with the forest protection - Nearly 1,200 households participate in forest plantation, tending and protection 	<ul style="list-style-type: none"> - IEC is not frequently implemented - the buffer zone is not suitably established and developed 	<ul style="list-style-type: none"> - make plan for environment education and budget - do replanning the buffer zones 	<ul style="list-style-type: none"> - budget - cooperation among local departments and PC on size and dimension of buffer zones
Biodiversity of protected areas	Forest resources have been well protected in recent years.	Forest quality and biodiversity reduced due to forest destruction in the past.	Make plan and budget for natural resources management	Pressures of community on forest resources still remain due to underemployment, poverty and high population growth rate

III. RECOMMENDATIONS

1. Make a plan for forest resource management program

Programmes and plans on forest resource management are top priority issues of PAs in the province. In order to achieve the above-mentioned objectives, the following actions need to be taken:

- Review the planning of the province's protected areas. For several years, the forest resource in the Special-use Forests have been exploited through various methods, leading to degraded forest quality, exhausted biodiversity resources. Therefore, there is a need to re-evaluate the biodiversity resources in the protected areas in a bid to clearly define the conservation objectives; to see which kind of animals, plants should be conserved and which size and dimension should be big enough for the conserved areas to develop. On that basis, the functional sub-zones and the size of the protected areas is planned and created suitable with the conservation objectives.
- Organize workshops and gather opinions to develop the participatory program of resources management in the protected areas from local communities and relevant agencies. At the same time, estimate the budget for this activity including the suitable organizational structure and human resources for management.
- Identify needed facilities for management - conservation activities like houses, basic furniture, telecommunications, services and infrastructure for conservation activities such as an animal rescue station, botanic garden and laboratory.
- Develop and implement environmental education campaigns to improve local knowledge and roles in conservation work, attract and encourage more community participation in resources management based on investment

projects helping the community increase production and incomes for stable lives.

The principles in making plans for forest resource protection and management in PAs are to have the participation of authorities of all levels, relevant agencies and be based on the communities' needs and desires. The forest resource management programme should be commenced in 2002.

2. Strengthen capacity for forest protection and management:

- Organizational structure and activities of provincial protected areas:

Position of the protected areas: Based on local situation and evaluation, it can be seen that the Special-use Forests managed by the province will have more advantages in the process of establishment and development if there is close cooperation and connection between local departments, people's committees and forest Management Boards in the management of protected areas.

Organizational structure: As well as the professional section with its tasks of advising the Director of the Con Dao National Park and BC-PB Nature Reserve in administration, financial and forest resources management, in order to improve the environmental education training and resources conservation, it is necessary to establish a Resources Conservation Section and an Environment Education Section. The specific task of the Resources Conservation Bureau is to help the Directors of the National Park and Nature Reserve to study the ecology and requirements of the conserved biodiversity and set up and implement the conservation program of prioritized species.

Capacity training: Management skills are very important for the policy makers and conservation workers in the protected areas. Therefore, it is essential that both quality and quantity of staff in protected

areas, provincial DARD and PFPD is increased for improving the conservation management skills.

The training program should be built up to meet the intermediate and long-term demand for the establishment and development of the protected areas as follows:

+ one or two staff with basic knowledge from above departments should be selected and sent for more than one-year's training so they will become qualified in conservation.

+ one-fourth of available staff should be provided training on forestry, biodiversity conservation, oceanography, tourism, law and state management for up to 6 months.

+ the rest of staff should be able to attend shorter training courses on such subjects as community forestry and skills to perform conservation activity implementation.

3. Policy on Special-use Forest management:

To fit with the local socio-economic development and to improve management skills, recommendations on Special-use Forest management are proposed as follows:

a. The responsibility of state management of forest and forestry land should be assigned to the district and commune.

In recent time, it has been recognized that the Commune People's Committee (CPC) plays an important role in the forest resources management.

Based on the forest checking, planning and result of field demarcating, it is proposed to assign District and Commune PCs the responsibility of state management of forest and forestry land. At the same time, attention should be paid to strengthening

the forest management skill for CPC and DPC. Specifically, the CPC and district DARD should be staffed by more workers who have forestry knowledge.

b. Inter-department relationships in the forest management should be established.

By analyzing and evaluating results of Special-use Forest and buffer zones management in the protected areas, it can be seen that the forest resources have not been protected effectively and forest management skills are not improved if only the forest sector is involved. In many cases, forest and marine resources management have been governed by other sectors. So, in a bid to improve conservation management, there should be close relations and connection between departments and their full participation in planning, policy making and resources conservation.

Therefore, in the process of establishment and development of local protected areas, it is a necessary requirement to make a regulation on cooperation between such sectors as agriculture, forestry, fishery, cadastral, tourism, etc. in the field of forest management.

c. Free immigration should be limited, population growth rate should be decreased and settlement should be done.

The research and evaluation pointed out that the population growth rate and free immigration to the planned and border areas of the protected areas have impoverished community life and placed forest resources protection under pressure. Consequently, DPC and CPC should be assigned more tasks of state management in order to limit free immigration and the family planning program should receive highest priority to reduce the population growth rate to stabilize people's lives around the protected areas.

d. Settlement program for ethnic communities should be done.

The slash-and-burn and shifting cultivation is the traditional practices of the ethnic communities and it is one of the activities seriously damaging the forest resources. In the BC-PB Nature Reserve, there are 299 ethnic and over 200 shifting households living below the poverty line. Hence, in the process of establishment and development of buffer zones and improvement of resources management, the ethnic communities should be encouraged to stay in the buffer zones, to set up a sustainable farming system and to stabilize their lives.

e. Buffer zones should be established and investment programs implemented.

A master plan for the buffer zones should be made so that the buffer zones are invested and developed suitably with the local economic situation. For the buffer zone of the BC-PB Nature Reserve, land area in the 6 surrounding communes should be increased. For the Con Dao National Park, the forest buffer zone should also be established.

To have effective investment programs in the buffer zones, an integrated steering committee or Management Board should be set up to control such programs as 661, poverty reduction, settlement, 135.

f. Increase awareness and participatory conservation

Successful or failed forest resources management is closely related to the local attitude and behavior to the forest. Therefore, the Information Education Communication (IEC) model should be promoted regularly to help farmers protect forest. Based on that, the environmental education program will be designed and budget for this activity will be provided. The communication should connect with the information and education sectors, especially with mass organizations like Women's Union, Farmers' Union, Youth

Union, etc. As well, it is beneficial to combine with the commune and village authorities to have a suitable approach to each target group.

Only when there have active participation of the community, especially those who live around the Protected area, can forest resources management be effective. The community may participate in the following issues:

- The community will have forest and land allocation for use according to each kind of forest. In regard to the Special-use Forest, forest and forest land is used for conservation and resources development. In regard to the buffer zone, it will focus on agro-forestry production, income and employment generation. The forest land allocation should be based on close coordination between departments, authorities and the community on agreement of use purposes, allocation norm for each households, forest resources management methods, farming system establishment including seedlings and breeding. This must be suitable with the condition of land, markets and ability of households together with support of the Protected area through investment programs.
- Households in the buffer zone should be assisted to get an improved and sustainable farming system like intensive cultivation and inter-cropping. This farming system should include plants which can improve soil condition, provide green manure, annual plants and perennial plants in good combination with animal husbandry and fishery... suitable with local land and market condition.

g. Propose an investment project and financial resource

Sustainable forest resources management and conservation needs to rely on community participation. So, the protected areas, local authorities and concerned departments have responsibilities for

helping household maintain production, create employment and stabilize their lives. At the same time, the management skills of the conservation agencies should be strengthened, the following projects and programs for protected areas are proposed:

- A buffer zone development project in the protected areas with objectives of involving about 2000 households in conservation, among which there are 1.700 in the BC-PB Nature Reserve and 300 in the Con Dao National Park.
- A human resources training project for protected areas, provincial DARD and the PFPD.

- A forest resources management program and provision of equipment and premises for protected areas.
- An environmental education program.
- A conservation and research program for some target species that need to be conserved in the protected areas.

Specific budget estimates are provided in Table 17.

Table 17. Projects, programs and budget

No.	Name of projects and programs	Estimated budget needs (VND million)		
		Total	BC-PB Nature Reserve	Con Dao National Park
1	Buffer zone development	7,472	5,472	2,000
2	Human resources training	2,500	1,500	1,000
3	Resources management, Premises:	3,340 8,216	1,840 4,216	1,500 4,000
4	Environmental education	3,335	1,835	1,500
5	Conservation and research	5,800	2,800	3,000
	Total	30,663	17,663	13,000

CONCLUSION

The protected areas in the province were established in 1993. After nearly 10 years of operations, important achievements have been made in nature protection and biodiversity conservation of forest ecosystems in the province. However, there have still been some obstacles in management as conservation objectives and species have not been clearly defined and relationships between nature conservation and development of the communities' lives around PAs have not been properly determined.

Life of residents in and around PAs still has many difficulties and hardships. Some of them cannot have any other means of living except relying on current forest resources.

In order to solve the above-mentioned problems and improve management capacity of PA system in the province in the future, the following priority programmes should be implemented:

- i. Establish and develop buffer zones for PAs to reduce and then stop negative impacts from local communities on natural resources of PAs. Create favorable conditions for local people to have lands for production.
- ii. Improve sustainable cultivation system by combining agriculture and forestry, forestry gardens or provide other living tools rather than relying on forest resources.
- iii. Develop and implement forest resource management programmes in PAs. One of those activities is to review biodiversity resources, clarify conservation objectives and species present.
- iv. Define PA areas and their functional zones to meet conservation goals.
- v. Develop and propose policies to increase the concern and participation of communities in conservation.
- vi. Strengthen relationships and responsibilities of agencies and People's Committees at all levels in forest and marine resource management. At the same time maintain relationships between conservation and development starting from project planning through to implementation.
- vii. Develop and implement research and conservation programmes with top priority being endemic and rare species listed in the Red Data Book.
- viii. Train human resources for improving professional skills in forestry, environment management, biodiversity monitoring, oceanography, tourism, administration, etc. to implement the above-mentioned programmes.

RECOMMENDATIONS FOR THE OBJECTIVES AND ACTIONS OF THE DRAFT NATIONAL STRATEGY

From the above-mentioned issues, these following suggestions are recommended for the objectives and actions of the draft national strategy:

- i. Make and issue regulations on inter-Department, inter-Ministerial relations at all management level in marine and forest protected areas.
 - ii. Set up and issue regulations on the management of marine protected areas that belong to the national parks or nature reserves.
 - iii. Develop buffer zone management regulations and buffer zone institutional management with
- specific rules, and criteria for defining the borders.
- iv. Make plans for improved Special-use Forest management, starting with a review of their planning and biodiversity resources and clearly defining the conservation objectives. On this basis, size and dimension of the Special-use Forests should be established, the structure should be reorganized and a budget for these Special-use Forests should be available.
 - v. Develop a policy on free immigration, so that the local authorities can lower pressure on the protected areas.

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ANNEXES

Annex 1. List of interviewed provincial departments.

1. Vice-chairman of Provincial People's Committee
2. Vice-chairman of DPC Xuyen Moc district
3. Vice-chairman of DPC Con Dao district
4. Vice-director of province forestry protection department
5. Director of Department of Environment and Scientific Technology
6. Head of Military Order Board Con Dao district
7. Vice-director of Saigon Tourism Company Con Dao district
8. Head of 488 Border Protection Station - Ho Coc - Xuyen Moc district
9. Vice-director of Binh Chau Tourism Company - Xuyen Moc district
10. Chairmen of CPC Bung Rieng, Bong Trang, Binh Chau, Xuyen Moc, Phuoc Thuan