## MANAGEMENT PLAN

BETUNG KERIHUN NATIONAL PARK, WEST KALIMANTAN 2000 - 2024

# EXECUTIVE SUMMARY









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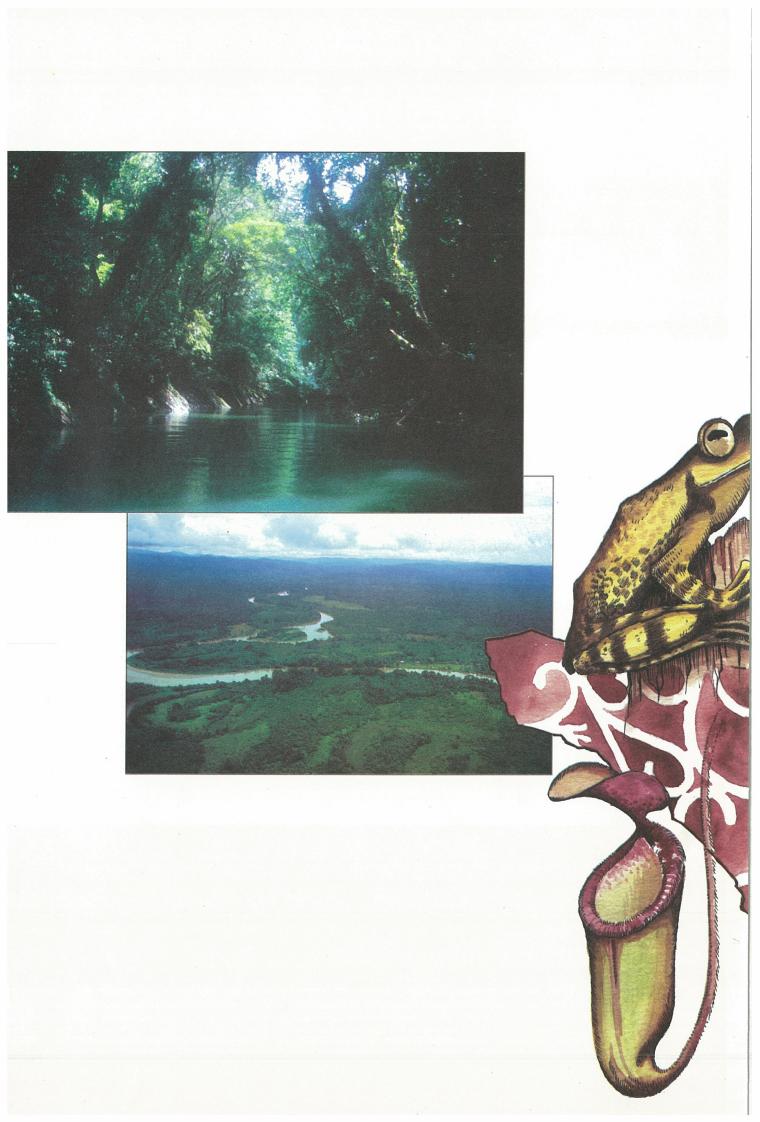
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## CHAPTER I. INTRODUCTION

#### BACKGROUND

The natural living resources of Indonesia are important assets and provide basic capital for national development. Therefore, the rich diversity of nature and culture has to be preserved in order to encourage this development. One of the richest areas for natural resources and culture is Betung Kerihun National Park, which is situated on the border of west Kalimantan and Sarawak. Together with the Nature Reserve of Lanjak Entimau in Sarawak, Betung Kerihun National Park was the first transboundary conservation area to be established in Asia.

Betung Kerihun National Park is located at the head of the Kapuas river, where the economic development of the area is being intensively implemented. The Park has an important function through its role in maintaining the local hydrology. It has a prominent field research station for developing the study of tropical forest biodiversity, and is an ideal area for the development of nature tourism, to increase the prosperity of the local communities.

In order to give a clearer identity to the area, it has been proposed that the name "Bentuang Karimun" should be changed to "Betung Kerihun" with the same abbreviation, *TNBK*. This proposal was based on information provided by the communities, as Mt. Betung is located on the west side, and Mt. Kerihun lies on the eastern side, and both mountains are situated inside the Park. This idea was also the result of the workshop in Pontianak on 1 May 1998.

## B. PURPOSES AND OBJECTIVES OF THE MANAGEMENT PLAN

The Management Plan for Betung Kerihun National Park 2000 - 2024 was developed to provide guidelines, framework and terms of reference for the management implementation, time frame, amounts of funding, and manpower needed. The Management Plan is also a communication tool in order to encourage the development of partnerships understanding, and support from the communities, as well as from the relevant Government agencies.

#### **OBJECTIVES**

The purpose of the Management Plan is to develop a work directive and guidelines to ensure that the management of the Park is implemented in an orderly fashion during the next 25 year period, and directed and determined according to its functions:

kerihun area has at least 179 peak

- Develop a Management Plan strategy with a clear concept and vision for the next 25 years.
- Provide appropriate policy support to control the utilization of resources in the Park.
- Help to synchronize various related competitive interests.
- Identify and prioritize activities and resource management.
- Help the local communities to understand their roles in planning and managing the National Park.
- Provide a base for planning future activities.
- Provide guidelines in the decision making process from time to time.

BETUNG KERIHUN NATIONAL PARK

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## CHAPTER II. GENERAL CONDITIONS

#### PHYSICAL CONDITION

Betung Kerihun National Park is located at E  $112\infty 15\phi - 114\infty 10\phi$  and N  $0\infty 40\phi - 1\infty 35\phi$ , and covers a total area of 800,000 ha, or approximately 5,5 % of the total area of West Kalimantan (14,807,700 ha).

The Park is easily accessible, and can be reached via travel to Pontianak, Putussibau, and Tanjung Lokang. Overland, travel is via the northern route; by river it is via the 5 main rivers, Embaloh, Sibau, Mendalam, Kapuas (Koheng) and Bungan, which flow inside the Park.

The topography is mainly hilly and mountainous, with altitudes ranging from 150 to 2000 meters above sea level. The mountainous areas comprise the Kapuas Hulu on the north side near Sarawak and the Muller Mountainous on the eastern side, adjacent to the province of East Kalimantan.

The Betung Kerihun area has at least 179 peaks consisting of 65 peaks in the Embaloh watershed, 36 in the Sibau-Menjakan watershed, 26 in the Mendalam watershed, and 52 in the Hulu Kapuas/Koheng/Bungan watershed. Prominent peaks in the Embaloh watershed are Mt. Betung (1,150 m) and Mt. Condong (1,240 m); in the Sibau watershed, Mt. Lawit (1,770m); peaks in the Kapuas (Koheng) are Mt. Jemuki (1,375 m) and Mt. Cemaru (1,180 m); in the Bungan watershed peaks include Mt. Kerihun (1,790 m) and Mt. Dayang (1,645m).

The Geological age of Betung Kerihun National park is between Paleozoic (Carbon Trias, Perm-

Trias), Mesozoic (end of Trias- beginning of Juralimestone, beginning of limestone, end of Trias - end of limestones - beginning of Tertiary), Tertiary (mid Eocene, end of Eocene, end of Eocene - beginning of Oligocene, beginning of Oligocene, end of Oligocene - mid Miocene), and Quartenary.

The Geology in Betung Kerihun National Park areas consists of the Embaloh group, Kapuas complex, Sintang intrusive rocks, and Selangkai group and Volcanic lapung. Geological formations dominating the Betung Kerihun National Park are the Embaloh group (85%) and the Kapuas group, Sintang intrusive rocks, Selangkai and volcanic lapung group. The interesting geological history is in the eastern part of the Bungan watershed. The geological history of Bungan is more complex, being a combination of vulcanic rocks of Nyaan (Ten), Kapuas complex (JKlk), volcanic lapung rocks (Tml), and Sintang intrusive rocks (Toms). The lithology consists of batusabak, batupasir malih, batulanau malih, filit, serpih, argilite and turbidite.

Soils in the National Park are organosol and decomposed Glei, which are dispersed in the Embaloh upriver district (kecamatan); Alluvial soils occur in the Mendalam river areas, Sibau and Embaloh rivers; Podsolic soils yellow red and complex soils Podsolic yellow red and Latosol, which dominates the Park areas. These types of soils are found in Putussibau and in the upriver Embaloh district.

In general the climate in the Park exhibits very high rainfall, being typical of wet inland Kalimantan. The actual rainfall is around 2,863-5,517 mm per year, and the number of days with rain is 120 - 309 per year. According to Schmidt and Ferguson (?) this condition is the ever -wet climate type A, with value Q=2,6%.

- populación contactada

The hydrology system in the Park is unique with hundreds of streams and big rivers which form part of the Kapuas watersheds. The Kapuas watersheds cover a 9,874,910 ha or around 67% of western Kalimantan (14,680,700 ha).

#### **B. BIOLOGY**

#### Flora

The Park has a high diversity of ecosystems, and the forest vegetation is relatively intact and good. There are 8 types of forest ecosystem in the Park. They include lowland Dipterocarp forest, old secondary forest, hill Dipterocarp forest, Limestone forest, Sub-montane forest, and montane forest.

The Park has a rich species diversity of trees, and some are new species. 1,216 species have so far been identified, including 418 genera and 110 families. 75 species are endemic to Borneo and 14 species are newly listed. 13 species of palm are newly listed for western Kalimantan.

#### Fauna

There are 48 species of mammals in the Park. Besides the larger mammals 18, species of Chiroptera (bats) and 17 species of rodents were also found.

There are 7species of primates; orangutan (Pongo pygmaeus), kelampiau (Hylobates mulleri), hout (Presbytis frontata), kelasi (Presbytis rubicunda), beruk (Macaca nemestrina), kera (Macaca fascicularis) and tarsius (Tarsius bancanus); there are 301 species of avifauna (birds) from 151 genera and 36 families. 15 species are migrants; 63 species are protected and 24 species are endemic to Borneo; Species diversity of herpetofauna (reptilia and amphibia) is high in the Park. 1500 specimens were collected, 103 species were identified consisting of 51 species of amphibia, 26 species of lizards, 2 species of crocodiles, 3 species of freshwater turtles and 21 species of snakes; 4000 fish specimens were collected from 12 stations in 36 big rivers and streams. There are 112 species of fish consisting of 41 genera and 12 families. 14 species are endemic to Borneo; The diversity of insects is high; at least 170 species were identified.

#### C. TOURISM POTENTIAL

There are good prospects for tourism development in the Bentuang Karimun National Park because it has many interesting sights and unique cultures, and a strategic location which can be developed for nature tourism.

In the Park : Unique scenery and climbing routes Rafting Fishing locations Fresh water springs Karts mountain and caves

#### Outside the Park:

There are also several potential tourism sites outside the Park. One prominent feature is the unique diversity of cultures which are still maintained in the Kapuas Hulu Kabupaten, particularly the ethnic Dayak culture. An interesting cultural item is the traditional Dayak long house, which is called Betang in central

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Kalimantan or Umak in eastern Kalimantan. Other traditional or cultural items which may attract tourists are handicrafts, food and drinks, dances, traditional ceremonies, community knowledge about nature, agriculture, and traditional medicines. The beautiful and unique landscape in places such as Sentarum lake, Lanjak hill, the village scenery in Ukit-ukit, forest protection in Sungai Ulu Palin village, and the winding roads on northern routes can all be developed to promote Nature tourism. Most of the northern routes from Penggal Nanga Badau to Mataso bridge in Banua Martinus are asphalt and hot mix paved roads.

#### TOURISM DEVELOPMENT STRATEGY

Based on the potential utilization of the area, and the accessibility of communities around the Park, the Park can be divided into three tourism development areas : Embaloh, Sibau and Bungan. The development strategy should be directed at promoting the characteristics of each of these areas.

## D. SOCIO-ECONOMIC CONDITIONS OF THE COMMUNITIES

The native people around the Park consist of the following ethnic groups:Dayak Iban, Tamambaloh, Taman Sibau, Kantu Kayan Mendalam, Bukat Mendalam, Bukat Metelunai and Punan Hovongan.

Considering their community structure and way of life, these ethnic Dayaks represent three of the four Dayak groups living in Kalimantan or Borneo. There are two villages located inside the Park

(based on the decree of the establishment of the

Park). These are Nanga Bungan and Tanjung Lokang.

The density and growth rates of the population around the Park are far below the mean density and growth rates of the population nationally. The level of the local community's education is generally low, but their health is relatively good. The communities rely on paramedic staff and local community health clinics.

#### **E. PROBLEMS**

The large size of the Park and the limited resources, both in terms of manpower and facilities, have constrained the management of the Park.

The Socio-economic conditions of communities living around the Park are very basic, and their economic level is relatively low. These communities, especially in Embaloh Hulu, Batang Lupar and Badau, generally still depend on the direct utilization of natural resources. In some places there are small scale traditional gold mines, and some of these are illegal.

In the forestry sector, if the understanding about the need to maintain the functions of forest (particularly for protection forests) and conservation areas (National Park) is low, then the direct exploitation of natural resource products has a negative impact. Negative impacts can be seen inside the Park, and include logging, gaharu collection, illegal gold mines, collection of swiftlet nests, wildlife poaching, collection of rattans, farming, and fishing. The presence of outsiders, who manipulate the local communities, causes further impacts on the resources, and there are indications that this is occuring. The awareness of the communities living around the Park towards conservation issues and the existence of the Park, is still low. Most of the communities do not know about the Park. The exploitation of resources from inside the Park, such as forest products, wildlife hunting and fish, is carried out both by communities living around the Park, and by visitors from other areas.

Specific management issues of Betung Kerihun National Park include the exploitation of gaharu, gold and swiftlet nests. Gaharu is probably not collected inside the Park anymore, because it is getting rare, so the collectors have to look for Gaharu in Malaysia, using river transportation along the Sibau river and Embaloh.

Another problem in the Park is the overexploitation of fish. Because of the accessibility of northern transportation between Putussibau and Nanga Badau, many fish traders from Sarawak enter the Park, or pay the local communities to steal fishes from inside the Park. This problem needs to be tackled carefully.

The Swiftlet nests problem is complicated and needs consistent and careful handling. The caves containing swiftlet nests are traditionally owned, and there are existing regulations concerning ownership and change of ownership. The ownership of swiftlet nest caves already existed before Betung Kerihun was declared as a National Park.

## F. HISTORY OF THE ESTABLISHMENT OF THE AREA

Betung Kerihun National Park was declared as a conservation area with the status of Nature Reserve by a Ministry of Agriculture decree on 12 October 1982, for a total area of 600,000 ha. On 11 February 1992 this conservation area was enlarged to 800,000 ha with Forestry decree No. 118/Kpts-II/1992 without changing its status. On September 5, 1995 the status was changed to that of National park with Forestry decree No. 467/Kpts-II/1995.



Kenhua National Park during the next 25 years





BETUNG KERIHUN NATIONAL PARK

## CHAPTER III. OBJECTIVES AND TARGETS

#### A. OBJECTIVES

The objectives of the National Park according to the UU No. 5 year 1990, section 5, are (a) protection of life support systems : (b) preservation of diversity of flora, fauna and ecosystems; and (c) sustainable utilization of the natural resources and ecosystems. The substance of the concept and the long-term vision of the management of the National Park are to synchronize the development of biodiversity conservation and ecosystems by increasing the economy of the communities.

The objectives of the management of Betung Kerihun National Park during the next 25 years are as follows :

- 1. Conservation of the natural living resources and ecosystems of the Betung Kerihun National Park in order to fulfil its function and to ensure the sustainable and efficient protection of life support systems, in order to support the implementation of sustainable development, and increase the prosperity of the people.
- Preservation of species diversity and the genetic diversity of plants and animals and their ecosystems by maintaining, protecting and conserving the intactness and purity of the area, so that the plant and animal populations can breed according to the natural processes in their habitats, and
  Utilization in a sustainable manner of the gene pool, plants and animal species, and the environment, for the prosperity of the people through research, technology,

education, tourism and recreation, and cultural support.

#### **B. TARGETS**

In consideration of the objectives of the management as mentioned above, the management targets of the Betung Kerihun National Park in the next 25 years are :

- Consolidation of the legal status of the National Park by finalizing and reconstructing the boundaries and declaring them in law.
- 2. Construction and establishment of the zonation inside the Park, in accordance with development and ecological dynamics, so that the management for protection, conservation and sustainable utilization of its natural resources can be ensured.
- 3. Management of the natural resources and the diversity of ecosystems in the Park, so the intactness and purity of the area are ensured, and so that the ecological processes, habitat balance, plant and animal populations are maintained, and protected from disturbances and problems which could lead to their extinction.
- 4. Sustainable utilization of the natural living resources, ecosystems and environmental condition of the area, for research activities which support the management of the Park and the development of technology and science.
- 5. Sustainable utilization of the natural living resources, ecosystems and environmental condition of the area as facilities and places for education, training, interpretation, nature

CHAPTER IV. SELECTIVE ALTERNATIVES AND HIGH PRIORITY ACTIVITIES

appreciation, nature conservation, and environmental awareness.

- 6. Sustainable utilization of the natural living resources, ecosystems and the environmental beauty and cultural uniqueness of the Park, for tourism and recreation.
- Sustainable utilization of the biodiversity and ecosystems to support the development of forest cultivation, plantations, agriculture, fisheries; industry, pharmacy, and health for the prosperity of the people.
- 8. Organizational consolidation of the management of Betung Kerihun National Park which includes planning, implementation, institutions, security and human resources, in order to be more efficient and effective.

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# CHAPTER IV. SELECTIVE ALTERNATIVES AND HIGH PRIORITY ACTIVITIES

The management objective of Betung Kerihun National park is to conserve nature and its natural ecosystems inside the area, which will be utilized for purposes such as education, science, research, cultivation, tourism, and recreation (section 1 point 14 UU No. 5, 1990). This objective can only be achieved with the dynamic, in stages and consistent process. The activities which have been planned need to be prioritized. The process of identifying the priority activities has to be rational and based on information about the conditions of the area, socio-economics of the communities, regional development planning, and other topics which are being discussed.

In order to achieve this objective, the priority activities are as follows :

#### A. AREA CONCOLIDATION

This activity is aimed at establishing the status of the area, and to clarify the boundaries of the area, both for the outside boundaries and the zonation boundaries. Considering that the boundaries are based on the Betung Kerihun National Park map according to the decree No. 467/Kpts-II/1995, 5 September 1995 which ignore the natural boundaries, it is difficult to identify the boundaries in the field. Based on the existing condition of the boundaries, and the availability of natural boundaries, it is possible to enlarge the area of the Betung Kerihun National Park. The southern border which is situated in the Kapuas Hulu district (Kabupaten) needs to be restructured, so that the total area of the Park will become 995,600 ha.

The functional boundary of the Park is the boundary of the zonation which includes a sanctuary zone, wilderness zone/other zones, and a utilization zone. The proposed area of the zonation is 497,400 ha for the sanctuary zone (50%), 449,380 ha for the wilderness zone (45%) and 48,820 ha (5%) for the utilization zone. The establishment of this zonation is urgently needed in order to anticipate and accommodate the various interests that wish to utilize the area, particularly for the communities who live inside and around the Park. Considering the size of the area, the establishment of the zonation can be done for each management area inside the Park. The priority areas are the conservation areas of Embaloh, Kapuas Koheng-Bungan and Sibau-Mendalam.

#### **B. DIVISION OF WORKING AREAS**

In order to make the work of the Betung Kerihun National Park Unit easier, this conservation area is divided into 3 working areas, which will become the western, southern and eastern conservation area subsections. The boundaries which divide these 3 working areas follow natural boundaries such as rivers or the ridges of hills. Details of the working areas are as follows :

#### Western-central boundary of the Park

Starting from the head of the Keranji river, which is a branch of the Menjakan river, continue to follow the Mejang Kerdip river, a branch of the Palin river on the hill with an altitude of 620 m. Follow the ridge of the hill until the head of the Palin river at the hill with an altitude of 653 m. The next boundary follows the ridge of the hill until the head of the Palin river at the hill with an altitude of 653 m. The next boundary follows the ridge of the hill of the Kelampai river which is a branch of the Teliyai river, continuing to the hill at 1,087 m, following the hill with an altitude of 1,140 m toward the head of the Menajam river. The last boundary on the westerncentral side follows Lawit mountain toward the head of the Teliyai river.

**Central-eastern boundary of the Park** The proposed boundary starts from the Baluyu hill with an altitude of 1,100 m, at the head of the Mendalam river. Follow the ridge of the hill Unjuk Balui at an altitude of 1,670m and the ridge of the Balui hill at 1,564 m which is mountainous. Follow the ridge of the hill at 1,365 m, then down the hill at the head of the Gurung river, which is a branch of the Kapuas river, continuing to the hill at 1,600 m and down toward the head of the Mendalam river and Siyai river, which is a branch of the Kapuas river.

#### C. INSTITUTIONAL ESTABLISHMENT

The basic pattern for the management of Betung Kerihun National Park is in the decree of the Directorate General of Forest Protection and Nature Conservation (PKA, formerly PHPA)No. 129/Kpts/DJ-VI/1996 and its organization is based on the Ministry of Forestry decree No. 185/Kpts-II/1997 where the Betung Kerihun National Park is a Unit in echelon IV. This type of Unit has become a constraint, considering that the Park is a trans-boundary reserve, which has to be dealt with in the international fora. That is why the status has been proposed to be up-graded to echelon III, so the form of the management is at the level of *Balai* National Park. This is important because the management of Betung Kerihun National Park needs a good quality of organization and human resources, and must be able to handle globalization.

es have to developed, and for

Betung Kerihun National Park, as a pioneer project in the field of transboundary conservation areas, needs to recruit new staff members. The recruitment process has to be selective, considering that the qualifications of new staff must be very specific and must include a biologist, ecologist, forestry specialist, veterinarian, agriculturalist, and tourism specialist. In total, Betung Kerihmun National Park needs a minimum of 247 staff. 3 staff need Masters degrees for the positions of the Park Head, Head of the Conservation section, and Head of the Functional section/education and cultivation specialist (Bundayati Uncak Kapuas). 29 staff with a first degree, 36 staff with D3 qualifications and 179 staff with High School Certificate. In the next five-year plan (RKL) it is expected that there will be capacity building for the existing staff, and up-grading to include 3 staff with PhD degrees, 10 staff with Masters degree, 45 staff with first degree, 10 staff with D3 and 179 with high school certificate.

#### D. ECO-TOURISM DEVELOPMENT

This activity is aimed at providing an alternative source of income for the local communities, and to increase the local income for Kapuas Hulu district (Kabupaten). The roles and involvement of the local communities are very important in activities such as becoming field guides, providing transportation services and accommodation, food sellers making and selling handicrafts. There is a need to conduct training in the tourism business for the local communities living inside and around the Park. The management of the handicraft industry, and the diversification of the various types of handicraft are issues that should be considered.

The tourism routes have to developed, and for the first phase they will be concentrated in areas with easy access, and in areas which are already known by the general public. The river routes which can be developed are Embaloh river, Sibau river - Menjakan and Mendalam river, and also the Kapuas-Bungan river. The land transportation will be directed at the road between Putussibau - Banua martinus - Lanjak - Nanga badau - Lubuk Antu. Facilities such as visitor lodges have to be developed along these routes. The land transportation is also important because of the Batang Ai' National Park in Antu Sarawak (BANP).

A relationship with the tourism industry in Kuching, Sarawak also needs to be explored. Betung Kerihun National Park is more unique and pristine than BANP and the traditional culture of the Dayak people can still be seen there.

### E. MANAGEMENT ENHANCEMENT

This activity is aimed at increasing the professional capacity of the management of the Park. From the human resource point of view, an increase in the number of personnel with higher qualifications is a priority, and includes the need for more specialist staff with PhD's and Masters degrees, technicians with first degree (S1) and D3, and park rangers with a high school certificate, or other experienced staff. The local communities will have first preference during the recruitment of park rangers and motorists. The follow-up training for the existing park rangers to become PPNS (Penyidik Pegawai Negeri Sipil) needs to be continued.

A Head Quarters office for the Betung Kerihun National Park needs to be built in Putussibau, and the facilities such as guard posts in the field, transportation such as 4- wheel drive vehicles, motorbikes, longboats, and radio communications using solar panels, need to be made available. The longboats and radio communications are the minimal equipment needed in every guard post. Considering the size and geographical condition of the Park, for some places there is a need to build helipads.

A cross-visit to LEWS and BANP in Sarawak should be considered, in order to exchange experiences and enhance the knowledge of the staff. This visit is also important as part of the monitoring and surveillance of the transboundary conservation area.

#### F. PROTECTION AND SECURITY

The priority activities needed for protection and security are an increase in the frequency of patrolling or functional operation, and the control of permits. With more frequent patrols and a shorter interval between each patrol, a reduction of number of violations is expected. The presence of the park rangers will have a physiological affect on the violators. Routine patrols are more effective in preventing violations, rather than operations which are only conducted in emergency situations or when violations are already suspected to have occured.

The control permits are aimed at limiting and directing the utilization of natural resources. In principle the utilization of products from the conservation area by the local communities is not prohibited, as long as it is in accordance with the regulations, both for the areas where they collect the products, and the methods by which they are collected. Utilization activities need to be controlled because there are cases where the local communities and outsiders have collected products such as swiftlet nests, tengkawang seeds, fishes, gaharu and gold without following the existing regulations.

## G. ENHANCEMENT AND DEVELOPMENT OF RESEARCH

Primary data from basic research, and continuation of applied research are needed for the management and development of Betung Kerihun National Park. The accuracy of the data on biodiversity and ecological processes of the area is very important in order to give assurance to the local communities that the area needs protection, and has to be established as a National Park. However, these basic data have to be reviewed and developed in detail, in order to give benefits to the community.

As a strategic step, the research target this time is to prioritize the review of the potential resources of the Park which have economic value, and which in the short term can give benefits to the local communities. Considering that the utilization of the Park should also support cultivation, research will be prioritized on flora and fauna which have a potential to be cultivated. The site which has been considered for cultivation is the Bundayati Uncak Kapuas area.

One subject for an in-situ and ex-situ research review, is Gaharu cultivation. The area of Sub DAS Sibau Hulu used to be a habitat of Gaharu, and therefore can be designated as a rehabilitation zone. This zone will be selected as a place for research and development of Gaharu. This research is expected to be long-term, and covers phenology, rehabilitation, silviculture, fungus infection experiments, interactions between wood, fungus, and ants, and sustainable harvesting methods. With an holistic approach to the research activities, all aspects of cultivation of Gaharu will be covered. The ex-situ experiments can be implemented in the Bundayati Uncak Kapuas area on the Ulu' Palin river. Indonesia has experts in Gaharu, and partnerships with other scientists will be explored.

The long-term research will be directed toward basic information gathering and the monitoring of changes. The implementation of the research needs to be participated in by the staff of Bentuang Karimun National Park and the local communities, as well as Indonesian and international scientists. The communities can support the research activities and provide their traditional knowledge, which can add extra income for them. At a certain stage, the local communities have to be trained in non-traditional science, so they can play a role as research assistants in the field, and be able to communicate with the scientists.

Bentuang Karimun National Park should have a permanent research station in the field, in order to support the existence of the park itself. A research station can function as part of a global research station network which deals with tropical rainforest dynamics. These research stations should be built in every area of the conservation section; Derian station in Sub DAS Embaloh, Menjakan station in Sub DAS Sibau-Mendalam, and Data Opet station in Sub DAS Kapuas Koheng-Bungan, as each area has its own distinct characteristics of hydrology, geology and ecology.

### H. INCREASING THE PARTICIPATION OF LOCAL COMMUNITIES

Besides enhancing the awareness and perception of the communities toward the existence and function of the Park, this activity is also meant to provide alternative sources of business, and add extra income for the local communities. Various types of activities include home industry training, and the development of cultivation and captive breeding of various flora and fauna from inside the Park. This activity is part of the development of the buffer zone policy.

Another participation activity is to train young people from the area to enable them to be employed as helpers of field staff. The number of the young people involved can be considerable, considering the wide distribution of human populations in the whole Betung Kerihun National Park area. Incentives and specific identities are given to them by the Park Staff, so that they will feel a sense of ownership of the area.

## I. INCREASED COOPERATION AND PARTNERSHIPS

This activity is aimed at ensuring the success of the management of Betung Kerihun National Park through cooperation and coordination of various related agencies and stakeholders. Crosssectoral agencies include Agriculture, Tourism, Education and Local Government and Security, cross-sectoral research institutions and universities, as well as the private sector and Non Governmental Organizations. This cooperation and coordination needs to be formed in the communication forum whose role is to support the management in problem solving, data and information gathering, and give input and criticism. The form of this forum can be a team, consortium or partnership.

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This specific cooperation needs to be formed between Bentuang Karimun National Park and LEWS and BANP. This cooperation is part of the agreement of the formation of the "Lanjak Entimau-Betung Kerihun Biodiversity Conservation Area".



Pinanga bifidovariegata Mogea



# CHAPTER V. THE IMPORTANT THEME OF THE BETUNG KERIHUN NATIONAL PARK

Based on the data analysis and collected information and considering the geographical position, condition and importance of the area, the uniqueness of the Betung Kerihun National park can be projected as a key area for west Kalimantan and Indonesia. The Park is suitable to be developed as a conservation area which functions as a life support system through its roles in maintaining the hydrology, having an important field research station for the review and development of tropical forest biodiversity research, and as a place to increase ecotourism for the prosperity of the local communities living around it. The details are as follows :

#### 1. HYDROLOGY AND LIFE SUPPORT

The Park covers 800,000 ha, from altitudes of 100 - 2000 m above sea level, with a steeply sloping topography, and is the main water catchment for downstream areas. In total, Betung Kerihun National Park contributes as much as 8,1% of the total main DAS of Kapuas, which has a total water catchment area covering 9,874,910 ha. No less than 60 % of water catchment in the area is the springs for lakes and rivers. This water level contributes water for Sentarum lake which supports the communities living arround it. Also the water absorbed in the catchment area flows as soil water, which forms springs in the hilly and mountainous areas. Areas with productive soil water are the headwaters of the five main rivers, which have their sources inside the Park. They are the Embaloh, Sibau, Mendalam, Bungan and Kapuas Koheng rivers Water debit in the mountains is a reserve which provides a continuous water flow throughout the

year. This is possible because of the high annual rainfall in the Park.

Therefore the Betung Kerihun National Park is appropriate for development as a system of conservation areas which function to conserve the hydrological balance in order to support life in the area. This hydrology function will be the first characteristic of the development of Betung Kerihun National Park.

## 2. EDUCATION AND RESEARCH INTO TROPICAL NATURAL RESOURCES

Betung Kerihun National Park has an important role in educating people about natural resources. As a unique area, with representatives of lowland and highland ecosystems, and with communities living around it, who are culturally close to nature, the Park is an ideal tool for natural resource education. The high diversity of flora, fauna and ecosystems in the Park provide potential education materials for students and communities to learn more about biodiversity.

There is a need to conduct long-term observations on forest dynamics. Species inventories need to be carried out regularly in order to observe the changes in the whole potential of the Park. The dynamics of function and status of the forest need to be monitored and reviewed continously in order to observe the responses toward natural phenomena. Reviews of the structure and composition of the forest, function, status, changes, and species diversity, and also captive breeding and uses of biodiversity need to be explored, particularly to optimize sustainable utilization.

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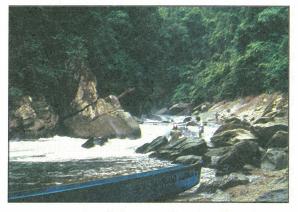
#### **3. NATURE TOURISM**

Betung Kerihun National Park has high potential for the development of tropical ecotourism. Tourism potential is varied, unique and close to the tourism markets of Malaysia and Brunai Darussalam. This area is projected to be developed as a new tourist destination.

In accordance with the administrative management, the Park can be divided into 3 tourism developments. They are Embaloh, Sibau, and Bungan. The major development will be oriented towards educational tours to look at biodiversity, forest ecology and lakes, agro-tourism and geological history. The development of tourism in the Sibau area will be oriented towards eco-community based tourism, with Indonesian nationals as the target market. The Bungan in the eastern part will be developed for Adventure tourism, to follow the historical routes crossing the equator, and past expeditions (Nieuwenhuis, Muller, etc).

Tourism is the third function of the Betung Kerihun National Park. The Park is projected as an area for ecotourism based on its beauty, uniqueness, and natural purity, as well as its culture. This will provide prosperity for the communities living around the Park.

ise carried out regularly in order to observe the changes in the whole potential of the Park. The dynamics of function and starts of the forest need to be monitored and reviewed continously in order to observe the responses toward natural phenomena. Reviews of the structure and composition of the forest function, starts, changes, and species diversity, and also captive breeding and uses of biodiversity need to be explored, particularly to optimize sustainable utilization. Bosett on the data analysis and collected information and considering the geographical position, condition and importance of the area. the uniqueness of the Betung Kerihan National



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BETUNG KERIHUN NATIONAL PARK

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This executive Summary is a summary of main products (no. 1-6) from Project PD 26/93 (Rev. 1) Development of Bentuang Karimun Nature Reserve as a National Park, Phase I. The complete list of products from the project are:

- Management Plan of Bentuang Karimun National park 2000-2024, Book I : Rencana Pengelolaan (258 pages, in Bahasa Indonesia).
- Management Plan of Bentuang Karimun National Park 2000-2024, Book II : Data, Proyeksi dan Analisis (473 pages, in Bahasa Indonesia).
- Management Plan of Bentuang Karimun National Park 2000-2024, Book III : Rencana Tapak (59 pages, in Bahasa Indonesia).
- Book : List of Flora and Fauna of Bentuang Karimun National Park (98 pages, in Bahasa Indonesia).
- Book : Proceeding of Bentuang Karimun National Park Workshop (500 pages, in Bahasa Indonesia).
- Joint Proposal between Bentuang Karimun National Park and Lanjak Entimau Wildlife Sanctuary.
- Leaflets of Bentuang Karimun National Park (3 versions in English, @ 1000 exemplar).
- Poster of Bentuang Karimun National Park (in Bahasa Indonesia, 1000 exemplar).
- 9. Book : "ITTO Borneo Biodiversity Expedition 1997", popular version, hard cover, 95 pages in English.
- Book : "ITTO Borneo Biodiversity Expedition 1997", scientific version, 200 pages in English.
- 11. Landsat imagery No. WRS D 119-059/235 dated 31 July 1994.
- 12. 957 sheets of aerial photos scale 1:25.000 dated 1995.

- 13. Various maps in different scale of Bentuang Karimun National Park and its surrounding areas.
- Data base of flora and fauna of Bentuang Karimun National Park.
- 15. Data of GIS of Bentuang Karimun National Park and its surrounding areas.
- 16. Governor of West Kalimantan's Trophy for Children Drawing Contest to be recontested annualy.
- 17. Rector of Tanjungpura University's Trophy for Junior Writing Contest to be recontested annualy.
- Head of Education and Cuture Regional Office of West Kalimantan's Trophy for Senior Writing Contest to be recontested annualy.





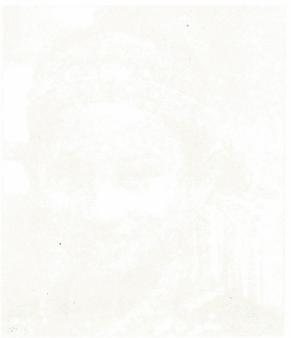
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