

MAPUTO SPECIAL RESERVE

Reasons for the establishment

The Maputo Reserve for Elephant Protection was firstly created by the legislative diploma n° 343 in 23 of April 1932, covering all area in the east of Maputo River and the north of South African boundary. The main objective was to protect elephant population existing in the area.

The limits of Coutada in the other side of Maputo River, were fixed In 1932, covering the area between the River and the boundary with South Africa and the north of Swaziland up to Estatuane; From this point lineally up to Port Henrique and from this point up to Bela Vista. In the end of 1932, this Coutada was proclaimed Reserve, giving all the South part of Mozambique the statute of Reserve, but, in 1940, the east part was took out.

In 1954, was stabilised the Futi forestry Reserve, coinciding with the boundary of Maputo elephant Reserve.

In 1960, the limits were changed by the Legislative Diploma n°1994 of 23 of June 1960, reducing drastically the area. Then, the limits were extended from the coast's line of 26°33' S up to Zitundo-Salamanga road, crossing Piti and Xingute lagoons in the north of actual boundary. From this point, the limits were a long the road up to Futi River Ponte and a long Futi up to Canguecane and From here to Maputo River. Then, a long the river and coastal line up to point 32°53'E, 26°18' in the ending of the estuary in Southwest of Machangulo Peninsula; from this point cut the peninsula in South-east direction up to Tane in the coast. Finally was a long the coast to the south up to the first point.

In 1964, a commission to study the Reserve boundaries was nominated; verifying that these limits don't coinciding with the existence limits, then was proposed a change to let out the coast of the Reserve.

In 1969, the name of the Reserve was changed to Maputo Special Reserve (Legislative Diploma n° 2903 of 9 of August). The word elephant was taken out in order to include new introduced species and the pourposes of the Reserve had been changed. Special Reserves are areas nominated to protect more than specie of animals or plants where it is not permitted hunting (Legislative Diploma n° 2496, of 1964).

The objective of the Reserve have been enlarged since the decade 1990, as a result of reconaissance of the high importance of biodiversity and actually is defined to contribute for protected areas in Mozambique, maintaining the exceptional biodiversity of the coastal area which is part of the biogeographic region of Tongoland-Pondoland and combines coastal and interior components.

Localisation and the Actual Boundaries

The Maputo Special Reserve is located the Matutine District, in the South of Maputo Province.

The actual boundaries were established in 1969, by the Legal Diploma n° 22314 of 9 August 1969. The South boundary was moved to south in order to include Xinguti Lake; Was excluded an adjacent area to road Salamanga-Zitundo which actually is part of a exotic forest and were included land portions in the west of Futi River. The limits are the following (Map 1):

North: The north coast, from the Estuary of Maputo River, up to the arm of sea which forms Machangulo Peninsula and after the parallel which cross the south extreme of the refereed arm to east coast.

East: The oriental coast, from the anteriorly defined point (parallel 26°18') up to the Matonde mark.

South: The actual antihunting barrier which, beginning close to the refereed mark, extend to west, crossing the south part of Piti lake, south of Chingute lake, Mechingane mark, then following to Norwest and following the road Salamanga-Ponta do Ouro, in the distance of about 2 km, up to Nunes's canteen, after that follows perpendicularly the refereed road and a long this up to Futi River.

West: The left margin of Futi River, in the distance varying between 50 and 100 meters, accordingly with the actual barrier, following then to noroeast, from the guard post, until to find the mark Viana; from this point the barrier follows again in the southnorth direction, in an extension of about 8 Km, finally following to Norwest up to meet the Maputo River right margin, then the water course up to the mouth of River.

Within these limits, the Reserve has approximately an area of **80.000 ha**.

Importance

Early in 70 years, Tello (1973), considered the Reserve as of vital importance for conservation of wildlife sanctuary, not only for nature protection in general, but specially for conservation of natural system of Maputo region. He also recognised the Reserve potential for tourism.

The Reserve forms an excellent example of cost plains of the South part of Mozambique. The soils are mainly sandiness and argillaceous which support different types of vegetation.

About 456 species of plants were identified and probably many another have to be identified. 30 species of amphibian and more than 40 species of reptile, including 2 species of marine turtles were listed. The Reserve also comports about 340 species of mammals

including Hippo, Elephant, and White Rhino, already extinct. It is believed that Cheetah disappeared around years 70.

Topographically the region is undulated varying from the middle level of sea up to 104 meters, the highest point of the Reserve.

The Maputo and Futi rivers as well as Chinguti and Piti lakes are the major water sources to the Reserve.

- 1. Forestry biodiversity centre of Maputaland:** The Reserve is located within this endemism centre of world importance. The Reserve has strategic position as is located in the south extreme of tropics, where many species are in the more septentrional of their distribution, and also contains many species with characteristics of temperate climate in South. It is unknown the numbers of viable populations of endemic plants in the Reserve, but it is believed to be high. The Reserve has many types of habitats, a high value of biodiversity, is linked to Maputaland Biodiversity Centre, which has high diversity of species and endemism in all classes.
- 2. Diversity of Plants community:** The Reserve has an impressionate variety and combination of land plants communities and the ecosystems, some not protected at any part of Region Austral, this include floodplains, mangrove, flood forest, open forest, wooded grassland in sandiness soils, dry plains and higrophics plains (salted and unsalted water). It is possible that associated with this variety are high richness of species that wasn't identified and counted.
- 3. Wetlands communities of international importance:** The Reserve and the neighbouring areas have high variety and an extent system of wetlands communities, including riverine and stuarine vegetation and others. In fact the Reserve should be qualified within the RAMSAR convention as a zone with international important wetlands in case decision of signing the convention by the Country.
- 4. Fishing Resources:** The Reserve has 3 recognised endemic species of the Maputaland Centre.
- 5. Reptile populations:** The marine coast is an important local of nidification (nesting) for two turtle species. The loggerhead turtle (*Caretta caretta*) and leatherback (*Dermochelys coriacea*), which can be more easierly protected whithin the Reserve than in another part of the Mozambican coast. Also contains a big population of crocodile. These species are part of CITES appendix 1.
- 6. Birds:** The Reserve has an ample variety of birds through his high variety of habitats, including many species mentioned in the CITES list.
- 7. Tourism and recreational potential:** Even having high tourist potential, the Reserve was never developed for tourism. The tourism attractions include:

- ❑ The Indian Ocean coast, with her extraordinary scenery, limpid water and excellent conditions for diverse activities of beach and sea.
 - ❑ Interior zones with high value of places and a good potential for wildlife viewing, walking and another related activities.
 - ❑ The Maputo River and Maputo Bay with conditions for boat driving and wildlife viewing.
 - ❑ High species variety of birds and plants.
 - ❑ Cultural attractions including archaeological sites and local community tradition.
- 8. Economic potential:** The localisation of the Reserve near Maputo and South Africa and Swaziland boundaries, become the Reserve accessible for large national and regional markets, with possibility of inclusion in tourist circuits.

Identified markets include:

- ❑ **Mozambique:** Mozambicans with medium and high incomes, particularly from Maputo, foreigners living in Maputo and their visiting families or friends, another tourists in the country (for example business tourists for a pause).
- ❑ **South Africa and Swaziland :** Low, medium and high incomes
- ❑ **International:** Medium and high incomes.

The national tourism policy classifies this area as destined for markets of medium and high markets.

- 9. Education:** This area forms a good opportunities for educational purposes as is near Maputo and students from different schools can be allowed to visit as well as Students from Universities and another researchers to conduct studies within the Reserve.

The Reserve already has protected status under Mozambican law. However, international recognition of its outstanding biodiversity and ecological values could give this greater weight.

Threatened Species, Fragile and Critical Areas

1. Threatened Species

Threatened species known to occur in the Reserve are listed below. It is certain that there are many more plant species than those listed, and it is also likely that there are more animals, especially invertebrates which have hitherto not been investigated fully. Hatton's (1995) review of the Transfrontier Conservation Area (Reserve and Futi Corridor) gives an

indication of the very high species diversity and occurrence of endemic in the area, which makes up part of the Maputaland Centre for plant diversity. If the Reserve is extended to include part of the Indian Ocean it is likely that more fish and coral species will be added to the list.

1.1 Mammals

❑ **Elephant**

Threatened nationally and internationally; listed on appendix 1 of CITES.

❑ **Leopard**

Rare locally and threatened internationally, listed on appendix 1 of CITES.

❑ **Suni**

A small population of local stock occurs; regionally they are rare.

❑ **Red Squirrel**

Rare

❑ **Pangolin**

Current status unknown; considered very rare in 1973

❑ **Four-toed elephant shrew**

Current status unknown

❑ **Dolphins**

Two species of dolphins occur off the coast of the Reserve: *Sousa chinensis* and *Tursiops truncatus*.

❑ **Whales**

Whales occur offshore.

1.2 Reptiles

❑ **Leartherback and loggerhead turtles**

Threatened nationally and internationally; listed on appendix 1 of CITES.

Along the southern Mozambique coast there are nesting concentrations between Ponta Madjedjane and Ponta Techobanine, and between Matonde and Dobela. The latter lies inside the reserve. It seems that there may be a correlation between inland freshwater lakes and nesting frequency. In November -December of the last year were recorded a total of 158 nests between Ponta Dobela and Ponta Chemucane.

❑ **Nile Crocodile**

Locally abundant; threatened internationally; listed on appendix 1 of CITES

□ **Python**

Current status unknown

1.3 Birds

The bird species are listed in the following table have been recorded in the Reserve; they are all listed in CITES appendices. The list is likely to be incomplete.

Scientific name	English name	CITES-appendix	Status in Maputo Special Reserve
<i>Phoenicopterus minor</i>	Lesser Flamingo	II	Occurs at certain times of year on lake Xingute
<i>Phoenicopterus ruber</i>	Greater Flamingo	II	Occurs at certain times of year on lake Xingute
<i>Sarkidiornis melanotos</i>	Knob-billed Duck	II	Recorded in 1973
<i>Acipiter tachiro</i>	African Goshawk	II	Recorded in 1973
<i>Aquila pomarina</i>	Lesser Spotted Eagle	II	Recorded in 1973
<i>Aquila wahlbergi</i>	Wahlberg's Eagle	II	Recorded in 1973
<i>Avicela cuculoides</i>	African Cuckoo-falcon	II	Recorded in 1973
<i>Buteo buteo</i>	Common Buzzard	II	Recorded in 1973
<i>Circaetus cinereus</i>	Brown Snake-Eagle	II	Recorded in 1973
<i>Circaetus fasciolatus</i>	Southern Banded Snake-Eagle	II	Recorded in 1973
<i>Circus macromourus</i>	Pallid Harrier	II	Recorded in 1973
<i>Circus ranivorus</i>	African Marsh Harrier	II	Recorded in 1973
<i>Elanus caeruleus</i>	Black-shouldered Kite	II	Recorded in 1973
<i>Gypohierax angolensis</i>	Palm-nut Vulture	II	Recorded in 1973
<i>Gyps africanus</i>	White-backed Vulture	II	Recorded in 1973
<i>Haliaeetus vocifer</i>	African Fish-Eagle	II	Recorded in 1973
<i>Kaupifalco monogrammicus</i>	Lizzard Buzzard	II	Recorded in 1973
<i>Lophaetus occipitalis</i>	Long-crested Eagle	II	Recorded in 1973
<i>Machaerhamphus alcinus</i>	Bat Hawk	II	Recorded in 1973
<i>Milvus migrans</i>	Yellow-billed Kite	II	Recorded in 1973
<i>Pernis apivorus</i>	European Honey buzzard	II	Recorded in 1973
<i>Polemaetus</i>	Martial Eagle	II	Recorded in 1973

<i>bellicosus</i>			
<i>Polyboroides typus</i>	African Gymnogene	II	Recorded in 1973
<i>Terathopius ecaudatus</i>	Bataleur Eagle	II	Recorded in 1973
<i>Torgus tracheliotus</i>	Lappet-faced Vulture	II	Recorded in 1973
<i>Trionoceph occipitalis</i>	White-headed Vulture	II	Recorded in 1973
<i>Sagittarius serpentarius</i>	Secretary-bird	II	Recorded in 1973
<i>Falcon amurensis</i>	Eastern Red-footed Falcon	II	Recorded in 1973
<i>Falcon subbuteo</i>	Northern Hobby	II	Recorded in 1973
<i>Eupodotis melangaster</i>	Black-bellied Korhaan	II	Recorded in 1973
<i>Neotis denhami</i>	Denham's Bustard	II	Recorded in 1973
<i>Poicephalus cryptoxanthus</i>	Brown-headed Parrot	II	Recorded in 1973
<i>Musophaga porphyreolopha</i>	Purple-crested Turaco	II	Recorded in 1973
<i>Tauraco corythaix</i>	Knysna Turaco	II	Recorded in 1973
<i>Tyto alba</i>	Barn Owl	II	Recorded in 1973
<i>Tyto capensis</i>	African Grass Owl	II	Recorded in 1973
<i>Asio capensis</i>	African Marsh Owl	II	Recorded in 1973
<i>Bubo africanus</i>	Spotted Eagle Owl	II	Recorded in 1973
<i>Glaucidium capense</i>	African Barred Owlet	II	Recorded in 1973
<i>Glaucidium perlatum</i>	Pearl-spotted Owlet	II	Recorded in 1973
<i>Scotopelia peli</i>	Pel's Fishing Owl	II	Recorded in 1973
<i>Ciccaba woodfordii</i>	African Wood-Owl	II	Recorded in 1973

1.4 Fish

❑ *Croilia mossambica*

Rare and near endemic to Maputaland Centre.

❑ *Serranochromis meridianus*

Rare and near endemic to Maputaland Centre.

❑ *Aplocheilichtys myaposae*

Endemic to Maputaland Centre

All species are important nationally and internationally. Their status in the Reserve is unknown.

1.5 Invertebrates

Little information is available

1.6 Plants

91 species are known as endemic or near endemic to the Maputaland Centre of plant diversity and which occur in Mozambique. Of these some are known to occur in the Reserve. The numbers are likely to be gross under-estimates due to the paucity of botanical studies undertaken.

❑ ***Parinari capensis***

A dwarf shrub found on the coastal grassland, endemic to Maputaland Centre of plant diversity. It has national and international significance, though not CITES listed.

❑ **Euphorbias**

Euphorbia ingens*, *E. triangularis* and *E. knuthii

Are all listed on appendix II. There may be other succulent euphorbias in the Reserve.

❑ **Orchids**

Species known from the Reserve are the following: ***Satyrium sphaerocarpus*, *Lissochilus speciosus*, *Eulophia petersii* and *Listrostachys arcuata*.**

It is likely that others exist. All orchidaceae species are listed on appendix II, apart from a few (not recorded in the Reserve) which are recorded on appendix I.

❑ **Aloes**

Aloe bainesii* and *Aloe marlothii are recorded from the Reserve; others may occur. They are both listed on appendix II.

❑ **Liliaceae**

Gloriosa superba is collected for medical use in the Reserve; its status and threats are unknown. It is not listed by CITES.

2. Fragile areas

2.1 Soils

Maputo Special reserve has very fragile soils, which are very prone to erosion if the protective vegetation is damaged. Particularly vulnerable areas are:

- ❑ The slopes of dunes in the savannah and coastal grasslands where the sand is large grained, single sized and loose, and basal cover of the vegetation is low.

- The ecotone between seasonally wet grassland and dry forest in the white sand areas.
- The fore-dunes above the beach and the large coastal dune especially on the seaward side (strand vegetation and coastal forest).

In the wetter areas by the rivers and lakes repeated cultivation exposes the organic peat layer which oxidises, resulting in eventual loss of soil fertility, likelihood of erosion, and greatly reduced capacity to retain water and therefore maintain dry season water table levels locally.

2.2 Futi valley

The futi channel is an important resource both for wildlife and the neighbouring human population. Its value lies primarily in the fact that it remains permanently moist, providing water for animals to drink and green forage for animals well into the dry season. Herein lies the threat since extensive clearing of the dense phragmites and cyperus vegetation cover will cause its desiccation. Exposure of the peat layer will result in its eventual desiccation, with loss of its water retention effect. One theory to explain the drying up of the futi (which apparently happened before the average annual rainfall declined) is that the peat layer in the valley somewhere upstream of the Reserve caught fire and burned away, so interrupting the sponge effect of the futi. It is recorded that the whole Futi valley (probably within the Reserve) was burnt in 1963 to 1969.

In addition, the cultivation of the banks of the channel will over time cause slumping and transport of sediment into the channel with the resulting silting in its burial. Under conditions of uncontrolled cultivation and burning of the channel and its banks, it is predicted that the availability of surface moisture will decline, and its usefulness to both man and beast will lessen.

The Futi eucalyptus plantation may also have had an impact on the futi inside the Reserve, since it was planted very close to the river. Rehabilitation of that plantation near to the river, or further afforestation of the catchment of the futi channel near to drainage lines or areas with high water table would also reduce water runoff and flow in the futi.

2.3 Coastal Forest

The coastal forest is very susceptible to clearing even of small areas (several patches of dead vegetation including tall shade trees in old campsites adjacent to the beach at Milibangalala and one at Chemucane bear testimony to this). The coastal forest is very narrow in places and a break in the strip could have implications for free movement of genetic material of less mobile species (e.g. plant species with seeds which do not disperse far, and species of small animals which cannot cross gaps in the forest). It is very important that the coastal forest is maintained intact and that no clearing occurs.

2.4 Mangroves

Mangroves play an extremely important role in coastal geomorphologic processes by stabilising sediments, clear-felling of mangroves can have serious effects on coastal geomorphology. Mangroves are also very important as fish and prawn breeding and feeding grounds.

Little information exists on the status of the Reserve's mangroves. Some areas have died back, apparently naturally, probably because of the recent years of drought. This is particularly noticeable at the southern end of the Bembe River, where all mangroves on higher ground have died. There are signs of old clear-felling in the mangroves along the east bank of the Maputo River, apparently to supply Maputo it is known that the mangroves of the bay are being harvested for poles, but the impacts and sustainability are unknown.

3. Critical areas

Critical areas are defined as areas whose conservation merits particular attention because they are under threat, or vulnerable, or have a particular rarity value. They may be classified as critical areas because of:

- ❑ Ecological functions they perform
- ❑ Threatened species they harbour
- ❑ Their cultural or historical value
- ❑ Pressure they could come under from the tourism.

The following areas have been identified as critical areas:

- ❑ Coastal dune forest (soil protection and high plant species diversity/endemic forest species).
- ❑ Beach above high tide mark and foredunes (turtle hatching area and soil/forest protection).
- ❑ Swamp forest (rare habitat type)
- ❑ Futi valley (maintain health of the northern floodplains)
- ❑ Mangrove (important breeding grounds for fish and prawns; stabilises sediments in the Bay).
- ❑ Major Lakes (important wetlands; tourist attractions).
- ❑ Archaeological sites (Known Early Iron Ages sites near Milibangalala and doabela).
- ❑ Sacred forests (very important in local culture; some known to reserve management)

- Coral reefs if Reserve boundary is extended (some of the most southerly corals in the Indian Ocean; important though as yet not well known fish communities).

Development of the Reserve

Until 1961, the Reserve didn't have proper staff, depending on hunting guards based in Matola. From 1961 the first guards destacated opened roads and built the fence. The occidental and south limits were changed with this fence.

In 1963, the Futi camp was built and in 1964 (Portaria n. 17704, of 18 April) was stabilised the payment of entrances. In 1965, the Reserve was officially opened to the public. The Portaria n. 161/71 of March 4, 1971, re-established new prices for entrance and spending night. These prices were consecutively actualised in diverse occasions. The numbers of visitors decreased after the independence. In 1980, only 14 visitors spent the night there.

In 1967, were reintroduced the first white rhinos and another animals in subsequent years. A system of guard posts for patrolling was created e control of problematic animals.

In 1980 the Reserve had 29 permanent guards, an administrator and 12 unpermanent workers. The first management plan was drawn in 1980 (Matias & Carter), inciding in aspects of conservation, education and tourist development. The major question was related with the impact of humans and cattle within the Reserve.

Also in 1980 was created a wildlife school, which a year later stated teaching basic courses for train people in wildlife. The programme was closed in 1985 (war period).

In 1987 the administrator left the Reserve as the result of insecurity of war.

After the period of war, the DNFFB reoccupied the Reserve with the help of FNP. The managers mainly tried to open roads, rebuilt infrastructures and patrolling of the area. More persons were admitted and were used the funds of FNP for their payment. The hunting activities decreased as well as the relations with local communities as the guards didn't consider hunting for subsistence.

The changing of administrators, few funds, the lack of management lines as well as the unexistence of management plan was responsible for the unsucess of the Reserve rehabilitation. In 1995, was drawn an emergency plan as part of preparation of Transfronteir project. In 1996, the management plan was elaborated, but, it wasn't approved, as in 1997, the Government approved a project for the area.

In 1997, for the tourist use, the Government concessioned a big area including the Reserve to Blanchard Mozambique Enterprises to create tourist infrastructures and a Reserve in Machangulo. This project had many financial problems, what lead a government to cancel the concession in 1999.

With this concession, the Maputo transfrontier component lost about USD 2.6 millions. The Reserve still has financial problems.

Actually, the Government is revising (updating) the management plan and it is hoped that within a year will be approved as well as the implementation.

The main activity of the Reserve administration is related with patrol activities, resources monitoring, including turtle nesting monitoring along the beach. This activity is done from Chemucane to Dobela.

Conflicts between humans and wildlife

In early 1970's years the wildlife population was drastically reduced in number and distribution as a result of pressure of some natural resources by living population. The map 2 shows the wildlife distribution, population and cattle in that period.

The elephant area reduced. The villagers were visited at night. In the end of 1970, about 7% of elephants got damages in feet and mouth.

The animals also caused problems for local communities. Elephants, hippos and bushpig damaged machambas, within and outside the Reserve.

In 1980, was decided to remove human population from the Reserve to another places, to solve conflicts between humans and wildlife. In 1984, the local administration forced people to leave the Reserve. The floodplains occurred in the end of the decade, caused the death of some persons near Maputo River. As the result, people went again to the Reserve.

MANAGEMENT ISSUES

In 1995-1996 a management plan was elaborated and the respective implementation from 1997-2002. The implementation of the plan didn't start in 1997 as it were expected as the result of concession of the area to Blanchard. Actually the management plan is under revision. The main objectives of the plan are:

1. Legal aspects:

- ❑ To extend the limits in order to include adjacent marine and fluvial systems, which contain high conservation value and guarantee ecological inter-linkage.
- ❑ To harmonise the development and the management of the Reserve with the development of Futi corridor and to provide effective help to the corridor.

1.1 Management programme

Coastal borders

Question:

The actual official boundary of the Reserve, doesn't include coastal water, neither coral recifes. The conservation statute of intertidal area, is not well defined, include mangrove (important for fish and prawn reproduction) and the beaches where turtles nest. These areas has high tourist potential.

Strategy: It is proposed to enlarge the Reserve with the following suggestions:

- ❑ A zone with 3 nautic miles to east of the coast up to Indic Ocean.
- ❑ A nautic mile to Maputo Bay, from the Reserve boundaries.
- ❑ The part of Maputo river in the north of Bela Vista.

The limits extension to Northeast cover a major part of continental platform up to a profundity of 50 m, including coral and rock recifes, the baixo of São João and adjacent areas, in order to protect turtles in nesting phase, coral recifes and associated marine wildlife. It will also facilitate the adequate tourist development in these areas.

As the last possibility and through the many developments proposed to the coastal zone, may be it will be possible to link this extension of the Reserve with marine protected areas of South Africa, through the creation of another area of marine conservation in the South of the Reserve, which will contribute to promote the conservation of common marine resources and would facilitate the international help to manage the area.

The new limits proposed are shown in Map 4.

2. Vegetation:

- ❑ To maintain the richness of plants species and his diversity.
- ❑ To guarantee the conservation of endemic plants species, rare and endangered as well as rare and threatened types of vegetation.
- ❑ To provide adequate protection for important plants communities for critic hydrologic process maintenance.
- ❑ To provide necessary vegetation, in adequate quality and quantity for maintenance of large herbivores populations.
- ❑ To eliminate the presence of exotic plants in the Reserve, excluding useful to communities.

- ❑ To reexam the future of Futi eucalyptus plantation.

3. Wildlife

- ❑ To re-establish and maintain the indigena animal community of genetically viable populations.
- ❑ To guarantee the conservation of rare, endemic and in extinction animals species.
- ❑ To reintroduce or estimulate through the management, ecological processes not more operational.
- ❑ To reduce (attenuate) conflicts between humans and elephants.

4. Another aquatic and land resources

- ❑ To conserve the Reserve soils and to take preventive and correctives necessaries measures against the rapid erosion.
- ❑ To control the hydrologic situation of the Reserve and to take necessaries appropriates measures.
- ❑ To develop the management of the part of Maputo River situated within the Reserve.

5. Marine systems

- ❑ In case of extension of the Reserve boundaries, to begin and develop the conservation and the management of adjacent marine systems.

6. Local communities

- ❑ To promote the participation of local communities in the Reserve management.
- ❑ To promote the sustainable utilisation of natural resources by local communities
- ❑ To reduce the actual conflicts through the integration of local development in the management of the Reserve.

7. Archeologic, Cultural and Historic aspects

- ❑ To document and preserve locals of cultural, historic and archeologic value.
- ❑ To acquire a major understanding of cultural traditional practices and to allow their continuity.

8. Tourism

- ❑ To create diverse opportunities for Mozambicans as well as others, in order to appreciate the Reserve's natural values, as a form of sensibilization and recreation.
- ❑ To produce funds to be used for Reserve management and to create benefits for local communities within the Reserve and surrounding areas.
- ❑ To guarantee that the tourism development takes place in a planned and controlled way in order to prevent social, socio-economic and environmental impacts.

9. Education and Information

- ❑ To promote understanding and the public sensibilization about the Reserve, its and communities problems and the future possible solutions.

10. Regional Influences

- ❑ To participate actively in local and regional planning of activities that can probably affect communities biodiversity and to guarantee that those developments be appropriate and compatible with the Reserve and the Corridor.

11. Institutional capacity

- ❑ To promote the creation of institution capacity appropriate to conduct and to take care of Reserve management, involving the main stakeholders.

12. Research and Control

- ❑ To promote research to give better Reserve biodiversity understanding, its ecology, socio-economic situation and the natural resources sustainable use; To define basis to control and elaborate recommendations to management, conflict resolution as well as appropriate development.
- ❑ To control and evaluate biodiversity, tourism, development and communities aspects tendencies and effectiveness of management intervention and to canalise the acquired information to the Reserve administration.

Existing Policies, their status, formulation, strengths and weaknesses

The **policy's objective of DNFFB** is the following:

To Protect, conserve, use and develop forestry and wildlife resources for social, ecological, economic benefit for the present and future generation of Mozambicans.

The strategic objectives in the medium term related to protected areas include protection, management and utilisation of these areas to promote sustainable development of local and national levels, the correct use of the land and the biodiversity conservation. Specific strategic in protected areas include the rehabilitation and management of forests and wildlife to conserve their biologic diversity, mangrove conservation and another fragile ecosystems, dune protection, corals, etc.

This strategic aims that the Government, local communities, private sector, donors as well as NGO's have active role in the development of the sector.

The new **Wildlife legislation** was approved in July, 1999 and defines Reserve as a conservation area managed by the government, to protect representatives ecological areas of the nature environment and preservation of scientific, educative and recreative important species and habitats.

The base of strategic and policy of DNFFB is the following **Agrarian Policy**: To develop the agricultural activity with the objective of reaching the food security, through diversity production based in sustainable use of natural resources and guarantee of social equity.

The **land policy** is the following: To guarantee the land and another resources to Mozambican's while promoting the investment and sustainable and equitable use of resources.

The **environment policy** is the following: To guarantee the country sustainable development, considering specific conditions, through acceptable and realistic compromise between the socio-economic progress and the environment protection.

The **tourism policy** is the following: To obtain maximal socials and economics benefits through tourist resources in a sustainable basis.

The **water policy**, in relation of resources management, promotes an integral management of water resources. Aims to optimise community's benefits. Recognises that the implementation of the policy needs an integration and co-ordination with policies of another sectors such as health, agriculture, tourism and industry.

Accordingly with **Marine legislation**, the government is responsible for control and administration of activities linked to the sea use, including: scientific research, utilisation of all marine resources, protection and preservation of marine environment, protection of archeologic objects in the sea, marine recreational activities and the general management of territorial water.

The fishing legislation recognises the need of management and planning of fishing resources, adoption of measures for resources conservation. Accordingly with this legislation, the fishing resources belong to the public and the government is responsible for produce conditions of the use of these resources. The development of fishing sector has to be promoted to rich the better and rational use of fishing resources.

As can be seen, all policies are open to promote the correct utilisation of natural resources, through the conservation and sustainable use. All the stakeholders are allowed to use resources in sustainable ways.

In case of changing the policies the government, local communities and the private sector are likely to lose.

All policies are linked, the main gap of these policies is related with the lack of stakeholders's knowledge as these policies are poorly disseminated even among the Departments.

The existing laws are not completely applied as a result of lack or knowledge of local communities and among the Departments. To correct this problem, it will be necessary to improve co-operation between Government's Departments and to promote camping of dissemination to local level, including to local communities.

ZONATION

The following classification was used for proposed zonation:

□ Protection zone

To protect important or vulnerable locals, where it isn't permitted extractive use and in case of unextractive use, will be carefully controlled.

□ Wildlife zone

Zone without infrastructures or car access (except possible car access by the administration). It is permitted ecotourism, research and educational activities. To the local communities is permitted the occasional extraction of few products. It will be permitted to local communities to cross the areas in determined locals.

□ Extensive use zone

Within another, it is permitted contemplative tourism by car and natural resources sustainable use by locals, without changing vegetation.

□ Community use zone

Include areas with villages and machambas, with natural resources large use (sustainable).

□ Intensive use zone

Administration and tourist camps as well as guard posts.

RESERVE DONATION

The proposed Reserve donation is shown in the Map 3.

Protection zone:

- ❑ Include all land and marine coastal vegetation - Extremely vulnerable for disturbances, important protector function and biodiversity value of coastal forest.
- ❑ All flood forests - Throughout rare and valuable biodiversity.
- ❑ All sagrade locals - Throughout religion, cultural and social importance.
- ❑ Archeologic locals- Throughout cultural importance.
- ❑ All beach a long coastal line, except 2 km for both sides of dobela and Milibangalala.
- ❑ The portion north-south, in the middle of the Reserve, in the west part of community zone and in the east of extensive use, which include the Nhame/Sinde lagoon and the road through the hue and Futi forests, and in the South and east of community zone of Liundo-Wingane.

Extensive use zone:

- ❑ Piti lagoon- used by locals and outcoming licensed persons to fish.
- ❑ Mangrove and annexed lakes: Used to collect construction materials and fishing.
- ❑ 2 kms of beach, in both sides of Dobela and Milibangalala, for beach activities.
- ❑ A land between coastal forest and community zone in the west part of Milibangalala and Dobela, without people living there.
- ❑ Roads linking the main camp-Nhame lagoon-Libane-Futi valley-Maputo River-Occidental boundary: Will be the main area for car contemplative tourism.
- ❑ The Southeast area of the main camp, which will be used for walking.

Community use zone

- ❑ The Wingane and Liundo areas used by locals for housing and machambas.
- ❑ The portion of land from the north to South, in the coastal interior part, from Cholimbane up to Muvukuza and Gala, comprising the areas used by those communities for villages and machambas.

- ❑ The Northeast part of Bitukulo forest, which include villager's area and intensive community use.
- ❑ The central portion North-South of Canguela forest, which include villager's area and intensive community use.

Intensive use zone

- ❑ The main camp area
- ❑ The tourist camps of Milibangalala and Dobela, later Membene and Chemucane camps and probable Maputo River and Cholumbane camps.

Control and evaluation

Essential data will be collected and will be introduced monitoring systems to control priorities aspects of vegetation, hydrology, fire, wildlife, demography, natural resources use, tourism and management interventions. Will be evaluated the tendencies and given information to modify the management interventions when necessary.

Compiled by Felismina Longamane Langa

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