EASTERN AFRICA REGIONAL PROGRAMME OFFICE

EASTERN AFRICA COASTAL FORESTS ECOREGION PROGRAMME

THE COSTAL FOREST of MOZAMBIQUE

By

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I. INTRODUCTION

Mozambique is situated between latitudes 10 20 S and 26 59 S and is a large country with a total area of approximately 800000Km 2, with a coastline of more than 2 700 Km length.

The country presents a big range of natural resources with a special importance due to environmental, social, cultural and economical dimension. Owning a significant variety of ecosystems, both marine and terrestrial, and a relatively high population density characterize the Mozambican Coastal Zone.

The country consists of a central plateau which steps down to extensive coastal plains representing 44% of the country, with the remainder made up of plateau (43 %), and mountain regions (13 %) (Barnett -1996). It is considered that 62 million hectares, about 80% of the national territory are covered, by certain type of natural vegetation, among forests of different heights and densities, savannas, bushes and praiaries

According to Mastri (1995) the coastal population in the east developed as discrete centers linked primarily to trade, port and fishing activities apart from the political hubs situated in the interior. Some of 25 million people are estimated to live in the coastal zone between Somalia and Mozambique. This represents roughly 20% of the combined population of the riparian nations on 12% of the landmass. Although in Mozambique, almost two third of the population (estimated on a total of 18 millions inhabitants) lives near the coast in the 42 costal districts (world bank 1996), with dramatic growth rate in Maputo of 7.2%, the overall density in this coastal corridor is not so high. Most of this population depend primarily on the outstanding natural resources which harvest for they daily subsistence.

The continuous use of the Coastal Forest resources for economic purposes, such as fuel wood and timber extraction, grazing, tourism development, urban expansion, clearing for agriculture and fire have caused extensive changes in the original vegetation structure. The ongoing environmental destruction that results from the economic dependence of the community on the production of charcoal, building materials and carvings for income fishing can only be reduced by developing alternative sources of income for the community

There is a big international interest on costal forest of Mozambique because of is high biodiversity and his conservation statement. In this concern WWF EARPO, develop a programmed for the ecoregion which was initiated in 2002 when the stakeholder representatives of the countries (Mozambique, Tanzania, Kenya and Somalia) had been together in Nairobi and was formed the National task forces in Mozambique, Tanzania and Kenya and was drafted the planning document with identification of priority sites and threats and the programme of the next then years for the EACFE.

This document was updated in the National Task Force held in Maputo in July 2002 and also with consultation to produce a funding proposal document to submit to WWF-UK

II. DESCRIPTION OF COSTAL FOREST
Data of Coastal Forest

The total area of Coastal Forests in Mozambique is estimated to be 4.778 Km^2 with 55 of forests blocks (WWF-EARPO, 2002). This area is considered though indicative, as more survey work is needed for its confirmation. The vegetation is a mixture of several floristic elements and communities, including tropical (particular in the north and along the coastal), afromontana (at relatively low altitude owing to the compensating effect of increasing latitude on temperatures

Physiography / form canopy structure, dominant species, etc. of main blocks / forests

Conventional, in phytogeografic terms (Massinga & Hatton 1994-5 citing White, 1983) the Coastal Zone traverses two phytogeographical regions:

- The Zanzibar- Inhambane regional mosaic extending from the mouth of the Limpopo River (latitude 25^0S) to the Rovuma River (and northwards).
- The Tongaland- Pondoland regional mosaic (TPRM) extending southwards from the Limpopo River.
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These two phytochoria differ floristically, but both comprise a complex matrix of forests (Sand Forests (Miombo woodlands, Evergreen forests, Riverine forests, Dune forests, Wooded grassland, Secondary grassland, seasonally flooded Edaphic grasslands, and Mangroves communities)(Massinga & Hatton, 1996; Saket, 1994; B. J. van Rensburg *et al* 2000). In northern Mozambique, the width of the coastal belt mosaic varies considerably, as it penetrates further inland along broad river valleys (FIG 1).

Mangrove forests are floristically well developed in the northern and central sectors of the coast and less so long the southern part (Massinga & Hatton 1996). They are seldom very extensive between their landward and seaward faces (except at the Zambezi River delta) and are semi-continuous along the coast. The mangrove forests are classified separately from other natural wood vegetation. In fact they are distinctive by their location along the coast in the river mouths. Being evergreen are composed of *Avicenia marina, Ceriops tagal, Sonneratia alba, Rhizophara mucronata, Bruguiera gymnorrhiza, Bruguiera cylindrica, Heritiera litoralis, Xylocarpus grannatum, Pemphis acidule* and *Lumnitzera racemosa.* They have a physiognomy between the low woody vegetation to stand of more than 10 m high. Mangroves occur most of the time in small units.

Dune vegetation is the most fragile forest type of Coastal Forest system. Species: *Mimusops caffra*, *Diospyros rotundifolia*, *Sideroxylon inerme*, *Euclea natalensis*, *Eugenia capensis*, *Olax spp*, *Bridellia catharrtica* and *Brexia madagascariensis* among others. Due to the long history of anthropogenic land use along the coast, much of this landscape today comprises a mosaic of agricultural fields, with grassy follow and the orchards of exotic trees species, such as coconut (*Coco nucifera*), cashew nut (*Anacardium occidentale*) and mango (Mangifera *indica*). In general, a more or less continuous cover of dune forest occurs between Ponta do Ouro in the south and Bazaruto in the north. Following the dune forest there are, grasslands, wooded grassland, swamp forests (in the South), and woodland. The parabolic Coastal dune a stretch from Bazaruto to Ponta de

Ouro and beyond to Natal, at Mlalazi River (28^0 57'S)(850 km long) characterized by high parabolic dunes and north –oriented capes and barrier lakes. These dunes systems attain heights of 120 m and are considered to be the highest vegetal dunes in the world(Massinga & Hatton, 1996).

According to Saket (1995) evergreen forest occur, also along the coast, principally over the Chiringoma hills where *Erythrophloeum suaveolens* (Missanda), *Millettia stuhlmannii* (Panga-panga), *Pterocarpus angolensis* (Umbila), etc. are very frequent, and in some restricted locations, in Gaza and Inhambane provinces, where it is composed of *Androstschys johnsonii* (Mecrusse) also known as Cimbiri. Most of this forest type falls in the class of High Forest (Productive Forest).

Miombo Woodlands are geographically located in the northern of Limpopo River Coastal area. The Miombo woodlands are composed mainly of deciduous woody vegetation where *Brachystagia spp* and *Strichnos spinosa* are the dominant species in some locations. Sometimes they appear in the pure stands. *Brachystagia* is commonly associated with *Julbernadia globiflora*, *Pterocarpus angolensis* (Umbila), *Burkea africana*, *Bridelia micrantha*, *Cynometra* sp., *Dalbergia melanoxylon*, *Swartizia madagascariensis*, *Millettia stuhlmannii* (Panga-panga, etc. while *Strichnos* is usually associated with *Combretum spp*, *Terminalia spp, Pteleopsis myrtilifolia* etc. These formations occur in broad extent in the northern Provinces (Cabo Delgado, Niassa, Nampula and Zambezia) and confined in smaller scattered areas in the Southern Provinces and in the centre of the country where the association of *Trichilia emetica* and *Sclerocary birrea* becomes sometimes dominant (Saket, 1995). The dry deciduous tropical forests that are part of the extensive Miombo woodland vegetation located in Nangade and Mueda districts of Cabo Delgado are composed by *Pterocarpus angolensis* (Umbila), *Bombax rhodognaphalon*, *Sterculia africana*, *Dalbergia melanoxylon*, *Sterculia quinqueloba*, *Millettia stuhlmannii* (Panga-panga, *Julbernadia globiflora, Afzelia quanzensis, Brachystagia spp* and *Syzygium guineense* among others.

Sand Forests has a poorly developed understorey, and is characterized by the presence of the following tree species: *Dialium schlechteri*, *Afzelia quanzensis*, *Balamites maughamii* (precious), *Newtonia hilldebranddtii*, *Pteleopsis myrtifolia*, *Drypetes arguta*, *Hyperacanthus microphyllu*, and *Erythrophleum lasianthum* (Van Rensburg *et al* 2000; Pereira, *et al*., 2001). These forests have a distinctive boundary (1-2 m) of almost bare soil protecting it from the effects of annual fires. The Sand Forest rarely burns and fires usually stop at the border, creating a unique environment for itself (Matthews, 2001). The more open, mixed woodland forest is characterized by common, woody savanna species such as *Acacia burkei, Albizia veriscolor*, *Afzelia quanzensis*, and *Albizia adianthifolia*. In addition, it has a well-developed grass understorey represented by *Aristida*, *Ponarthria* and *Perotis* species *(ibid*). The soils are homogeneous, gray siliceous, aeolian sands, which are highly leached (dystrophic) and relatively acidic (water pH c. 6.1) (B. J. van Rensburg *et al* 2000). Matutuine district vegetation has the unique and rare forest types known as Sand Forests or Licuati forest (Chaposa, 2001).

Mangrove vegetation

The total area in 1972 was 408 080 ha, but according to Saket (1994) in 1990 this size dropped to 396 080 ha. The mangrove forests decreased of 14 570 ha but at same an increase was recorded in some areas which was estimated at 2 570 ha. The rate of deforestation of this forest type over 18 years is therefore equal to 2.9 % or 0.16 % per

year of the area.

TABLE 1. Mangrove cover area in 1972 and in 1990 and the size of deforestation in Mozambique

PROVINCES	MAGROVE AREA(HA) 1972	MAGROVE AREA(HA) 1990	DEGRADED AREA (HA)	NEW MANGROVE AREA (HA)	CHANGE (%)
Maputo	14 605	12 599	2 217	211	15.2
Gaza	387	387	0	0	0
Inhambane	20 094	19 848	246	0	1.2
Sofala	129 997	125 317	6 334	1 654	4.9
Zambezia	159 417	155 757	3 766	106	2.4
Nampula	55 849	54 336	2 006	493	3.6
Cabo Delgado	27 739	27 836	0	106	0
Total	408 079	396 080	14 569	2 570	3.9

Source: Saket (1994); World Bank (1996)

Importance of costal forest

Coastal forests values

Local community level

Despite that the population is not evenly distributed in the country, coastal areas are much more crowded as compared to anywhere inland. The average population density in the country has increased from 15.2 hab/km^2 in 1980 to 23.2 hab/km^2 in 1997. The overall increase in population density has also affected the coastal area where the population density changed from 23.2 inhab/km^2 (1980) to about 51.7 inhab/km^2 (1997). That is about 19% (154.004 km^2 out of ….km^2) of the total country surface area inhabits almost half (43%) of the total population. The high density of coastal areas can be explained by historical and socio-economic reasons.

Most of the urban areas are found along coastal areas. The urban areas are those, which since the colonial period provided most of better living opportunities such as employment and schools. Most of the people moved from rural areas to look for better opportunities in the cities, creating thus "*rural exodus*".
Another reason has to do with the fact that coastal areas were seen as safer during the struggle in Mozambique.

The people in Mozambique are poor. The level of poverty in the country is reflected in the coastal areas (table 1).
The major economic activities are subsistence agriculture, fisheries and procurement of forestry products.

Table 1. Population and poverty level in selected coastal districts of Mozambique

District	Population	Men (%)	Women (%)	Average Size of the household	Poverty level (%)
Mocimboa da Praia	75,001	48.3	51.7	4.1	59
Palma	42,182	50.3	49.7	3.9	58
Macomia	69,973	47.3	52.7	3.9	51
Mueda	98,654	47.5	52.5	4.4	80
Nangade	50,483	47.8	52.2	4.1	45
Mecufi	35,644	47.1	52.9	3.9	53
Memba	188,992	48.8	51.2	3.7	84
Moma	238,655	49.6	50.4	3.7	55
Mossuril	89,457	49.4	50.6	3.8	62
Chinde	129,115	47.9	52.1	3.8	51
Namacurra	160,879	47.4	52.6	3.7	74
Mopeia	71,535	48.8	51.2	4.2	57
Maganja da Costa	229,230	46.8	53.2	3.7	61
Inhassunge	87,396	47.0	53.0	3.8	79
Pebane	135,275	48.8	51.2	3.7	60
Sussundenga	92,622	47.0	53.0	4.8	69
Buzi	143,152	47.2	52.8	4.8	89
Marromeu	69,895	48.6	51.4	4.3	84
Chemba	49,634	45.9	54.1	4.2	98
Caia	86,001	47.1	52.9	4.8	91
Machanga	44,784	45.3	54.7	4.6	94
Vilanculos	113,045	44.1	55.9	4.3	82
Massinga	186,650	42.8	57.2	4.3	82
Inharrime	76,518	44.0	56.0	4.6	82
Mabote	39,661	40.3	59.7	4.8	89
Bilene	133,173	42.6	57.4	4.5	60
Manhiça	130,351	44.3	55.7	4.3	71
Matutuine	35,161	49.2	50.8	3.9	64

Due to the level of poverty and low agricultural potential of coastal areas there is a great dependence on natural resources for the subsistence of local communities. Local people in coastal areas collect various products for subsistence from the forest. These products include timber and non-timber forest products

Timber products

The timber products collected from coastal forests include:

Fuel wood and charcoal

More than 80% of the energy requirements in rural areas in Mozambique are met on fuel wood (Pereira et al.19.). The high level of wood biomass requirement in both rural and urban areas means that there is a great pressure on the forest resources to provide the energy needs firewood,

Construction material

Most of the houses in the rural areas and peri-urban areas are of traditional nature made up of poles and laths for the frame, and grass for roofing. The species *Diasporas rotund folia, Catunaregam spinosa, Apodytes dimitiata* are among the most valuable for poles in southern Mozambique due to their resistance to insects and high durability. All these species are found in coastal forests.

Wood for carving

The carving industry can be divided into two parts. First, the commercial carving and the production of household (which involves selected species such as *Dalbergia melanoxylon* and *Spirostachys Africana* Trichilia emetica, olaxdissitiflora, Apodites dimitiata)

Non timber products

Coastal forests are a source of non-timber products such as

Food plants

Eatable fruits Wild fruits from coastal forests such as *Strychnos spinosa*, *S. madagascarienses*, *Trichilia emetica*, *Vangueria infausta*, and *Mimusops caffra* are highly valued by local people

Tubers The tubers supplement carbohydrates, vitamins and minerals to rural communities. Species of *Dioscorea* sp. are the most readily available food reported to be eaten by local communities around the coastal forests in northern Mozambique during the famine periods. Women are known to be the ones who collect eatable tubers for the household consumption)

Mushrooms, medicinal plants, gums, resins, game and others.

Medicinal plants

About 80% of the people in Mozambique use traditional medicine to treat or cure various ailments. Despite the existence of specialized people involved in the collection and administration of traditional medicine, knowledge about the use of medicinal remedies is widespread. Nowadays, some plant species found in the coastal areas of Matutuine District are being protected due to their perceived scarcity. *Cladestemon kirkii, cardiogyne africana, and acridocarpus natalensis* are the most sought after species due to their perceived value.

Game

Bush meat or game is a source of protein for rural communities. Although hunting of animals for commercial purposes is illegal, the practice is widespread through out the country. However, hunting of some species for household consumption is granted by the Decree 12/2002 (DNFFB 2002). These species are found in the coastal forests.

Other products and services

Beekeeping

The beekeeping activity has been used to improve the livelihood of the community. In most parts of the country honey is collected from two both underground and the beehives. Same communities use traditional hives made with the bark of the trees and in other with same financial support they were provided with some improved hives and explained the need to conserve the forest for the production of honey.

Honey has been used for both food and medicinal purposes. The production of honey depends on the availability of flowering plants. The flowers provide the substances (e.g. nectar) for production of the honey.

Sacred values

They are several cultural assets along the Coastal Forests. The Chirindezene and Licuati sacred forests in the south are some of the well-protected sacred groves by local custom and used for ceremonies and cerebrations. In Catuane a forest inventory for a local community identified 4 cultural areas in the forest, normally used for meeting (Banjas) and other community activities. These local cultural assets are equally important compared with sacred groves. Many local cemeteries are also found in the Coastal Forests and communities treat them as cultural and spiritual values.

There are at least two types of sacred coastal forests in southern Mozambique: the "gwendzelo" and "phahlelo". The Gwendzelo is made on places on sites where the graves of the ancestors ("régulo") are located. The local communities use these forests for sacrifice ceremonies.

The "phahlelo" are the ceremonies made at the household level for the well being of a restricted family. The family headmen or a traditional medicine practitioner performs the ceremonies. The phahlelo can also be undertaken under a sacred tree. The most common sacred trees in the coastal areas pf southern Mozambique include *Sclerocarya birrea*, *Garcinia livingstonei* and *Manilkara discolor*. In northern Mozambique, local communities use baobab (*Adansonia digitata*) tree for the ceremonies.

Tourism

The utilization of forests for tourism purposes is taking shape in Mozambique. Communities are establishing an ecotouristic center in Madjadjane area as a livelihood strategy. This initiative is based on the conservation of coastal forest for enhancing better life for the local communities. The initiative is being funded by IUCN.

Similar initiative is emerging in the Quirimbas National Park. The overall idea is to use the conservation of coastal forests as the means to earn income for improvement of standards of living of the local communities. WWF-Mozambique and other counter-parties are funding the idea.

Biodiversity

The area of costal forest of eastern Africa can be considered as an area of global importance for their bio-diversity and endemism.

The area is floristically very diverse and complex but we can consider two clear foci of high endemism on the region. The Maputaland Center (MC) were occur about 1 100 species of vascular plants and 168 species pf them and four genera are endemic/ near endemic to the center and the Pondoland Center (Wyk-1994)

It has also an interesting and rich fauna with more than 472 subspecies of birds and 47 subspecies are endemic

WATER

Coastal Forests are the main font and storage of fresh water in the coastline zone. Important and international rivers eco-systems are integrant part of the coastal forests zone. Hence water provides an input into economic production in sector such as agriculture and domestic consumption. The conservation of catchments has direst effect in water productivity and flow.

III. MAIN STAKEHOLDERS INVOLVED IN COASTAL FOREST CONSERVATION MANAGEMENT

GOVERNMENT INSTITUTIONS

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

Agriculture and renewable resources account for 35% of GDP employ about 70% of the labor force and contribute 80% to foreign exchange earnings. Agriculture production is carried out mainly by household subsistence families who account for 95% of land under cultivation. Few smallholders use modern inputs.

In Mozambique the Ministry of Agriculture and Rural Development (MADER) govern the forest sub-sector witch define tree specific objectives-the social objective to strengthen the role of forest and wildlife resource in the poverty alleviation – Increasing the participation of local communities in natural resource management, the ecological objective to promote the protection of soils, water and other environmental resources and the economic objective, promotion of economic development-source of national income

At the national level DNFFB have four specialist technical departments: the Forest Department, the Wildlife Department, the Department of Economics and Planning, and the Forestry Research Center and the Community Management Unit

The Provincial Forest and Wildlife Services (SPFFB), overseen by the Provincial Directorates of Agriculture and Rural Development (DPADER), are responsible for forest-related activities at the provincial level. At the district level the District Directorates of Agriculture and Rural Development are charged with carrying out the activities on the ground (DNFFB 1997).

The Center for Forestry Research (CEF) is the research branch for DNFFB and was established in 1985. The Center has five operating units: Silviculture, forest management, wood technology, Environmental Sociology, and Economics and Developments. Like all other Government research stations, CEF has limitations on qualified personnel and financial resources. The CEF is an agency, which can be actively involved in the research on coastal forests.

The National Institute of Agronomic Research (INIA)
The National Institute of Agronomy (INIA) is under MADER has responsibility for the National Herbarium (LMA). The herbarium houses one of the best plant collections in Southern Africa. There are more than 5,000 collections on file. It is this unique collection with its supportive ecological documentation that has been the primary information base for the coastal forests studies on floristic aspects of the ecosystem.

Agriculture Documentation Center (CDA**)**
It is the center were are concentrated the information with relation to agriculture

Ministry of Coordination of Environmental AFFAIRS

The Ministry for Coordination of Environmental Affairs (MICOA) was established in 1995. In Mozambique it is the mandate of the Ministry for the Coordination of Environmental Affairs (MICOA) to direct the implementation of environmental

policies; and to coordinate, control and initiate environmentally sustainable planning and use of the natural resources in the country.

At the provincial level, the Ministry is represented by Provincial Directorates for the Co-ordination of Environmental Affairs (DPCAs), which is subordinated to MICOA on the national level, and to the Govern at the provincial level. The Ministry is not represented at the district level.

MINISTRY OF TOURISM

The Ministry of Tourism was created in 2002 as a means to better explore the opportunity offered by the natural environment and facilities in Mozambique for tourism activities. The Ministry of Tourism is responsible for most of the conservation areas. The policy identifies different zones and the priority for their development for Tourist destination. Most of these areas are the coastal areas where the terrestrial and the sea environment meet.The policy emphasizes the need to explore ecotourism opportunities offered by the infrastructures in a rationale manner. The management of natural resources and creation of jobs for the local people are the fore most aims of the Ministry.

Recently the Ministry of Tourism has passed a new decree (27 de /2003 of 17 June), which opens up an opportunity for a collaborative management of the conservation areas. This is recognition that the Government alone will hardly achieve the conservation objectives and the involvement of other sectors is needed for the conservation and development of the areas due to lack of human and financial resources adequate for that task.

Ministry of Culture (ARPAC)

The National Archive for the socio-cultural issues [ARPAC] within the Ministry of culture is involved in research on socio-cultural issues in Mozambique. The institution has several interests including the use of traditional knowledge in the management of natural resources. ARPAC has been seriously involved with the conservation of the Chirindzene sacred coastal forest in Gaza Province.

Eduardo Mondlane University (UEM)

The Eduardo Mondlane University is the oldest high education institution in Mozambique. Within the University, the Department of Forestry (DEF) in the Faculty of Agronomy and Forestry Engineering (FAEF) is the first high-level institution to undertake research on coastal forests in Mozambique. The ecological, socio-economic aspects and policy issues related to coastal forest ecoregion are part of the research programs in the Department.

Several initiatives are underway including the mapping of the Coastal forests in southern Mozambique. This research is done with funding provided by UNESCO. The program of coastal forests involves lecturers from different disciplines (such as plant and animal ecology, community forestry, forestry modeling, soil science, economics and legal aspects). Several students have been directly involved during practical and research themes are available in different disciplines for BSc students thesis. The goal is to be the information-base source for the coastal forests in Mozambique.

Non-Governmental Organizations (NGOs)
There are many organizations actively working for the conservation of coastal forests in Mozambique. These NGOs include WWF, IUCN, EWT, UNESCO, GECORENA, Forum Florestas, Oram

The involvement of NGOs has been instrumental to disseminate information to local communities in remote rural areas related to the new legislation framework (Land, Forestry and Wildlife, Environmental). Through the involvement of NGOs many awareness campaigns were carried out at the local community level about the rights and obligations of the local people over the natural resources.

The IUCN Maputo office is developing a sensibilization campaign in Matutuine District for the management of natural resources. The project includes the identification and implementation Natural resources based enterprises as the means to reduce poverty and enhance the conservation of natural resources.

The WWF Mozambique has embarked on an initiative with local NGOs in Cabo Delgado and through their assistance they have the Quirimbas National Park gazetted.

Also can be mentioned the interest of WWF in the Mozambican costal forest which started with the meeting in Nairobi in 2002 were was defined the priorities and main treats of the conservation of costal forest and the assistance to enriched this document on the National Task Force in Maputo and the continue assistance on the production of a National document of costal forest.

The Endangered Wildlife Trust (EWT) has developed a project with local communities in Catuane, Matutuíne District aiming at conservation of the natural resources. Despite all the effort, there is a need to reach many more communities. Most of the initiatives are concentrated to specific geographic area. There is a need for coordination for the dissemination of the information all over.

Forum "Florestas"
The forum "Florestas" is a consultative forum were different groups interested on forest resources are involved. The forum includes researchers, decision makers, forestry operators, policy makers, politicians and many more.

ORAM
Oram is a non government organization that work with the communities helping them solve problems of land ownership

Regional organizations
Mozambique is a member for the SADC forestry and Wildlife forum within the region and NEPAD at the African level. Despite the recognition of Coastal forests to some African countries there is no mention in none of these fora about the commitment of the Governments and Political powers of respective countries on Coastal forests. In fact, the forum seems appropriate for discussion of transboundary issues such as Coastal forests.

Private individuals or companies

Tourism and wood industry operators are major local level stakeholders for the conservation of the coastal forests. They play a role in the management of the ecosystem, as they are the ones, which they activitities can produce larger negative impacts as compared to local people. On the other hand they rely on the ecosystem for the prosperity of their business.

Macro / National Value of coastal forests

The Coastal Forests and its associated ecosystems are rich in:
Mineral gas, which contributes to national development. Among national values:
Commercial timber,
Medicinal plants that Mozambique export
Mangroves services (birds sucturies) they contribute to the fish productivity for whole economy and environmental control and cleaning.
Wood and building material production.
Plantations(timber, environment and fuel energy). They were established to attend national economy needs in order to relief pressure on native forests that are meant to produce timber for export.

Tourism

Coastal forests are one of the components responsible for the success of ecotourism activities along the coast. The Government of Mozambique has defined the development of tourism as one of the key strategies for the poverty reduction schemes (GoMoz, 2001) In view to achieve poverty reduction, there are several initiatives with emphasis on the utilization of the natural resources for the development of ecotourism opportunities. One of such initiatives is the Beach
And Bush corridor that aims at linking Great Limpopo Transfrontier Park into the Beach in the coast. The corridor includes patches of coastal forests in Bilene and Vilanculos Districts. Along the corridor several tourism opportunities exist ranging from forest walks, scenery attractions (including birds, butterflies and mammals) to marine resources. The implementation of this corridor will benefit the conservation of coastal forests included in it.

Mining

The mining sector has a great contribution to national economies. Mineral resources are found in the Chibuto District (Gaza province), Moebasa (Zambézia province) and Moma (Nampula province). The mining operation in Moma is being carried out closed to a coastal forest where a new species

For science has recently been described. The *Incuria dunengesis* is a tree only known from that forest - endemic. Measures need to be undertaken to ensure that the mining activity to not jeopardize the continued existence of the species.

Woodcarving

The wood carving industry in Mozambique is old, however, there is no data about its real market value. It is only known that shops selling crafts products are widespread in the country. The presence of the shops can be taken to infer the relative importance of the market. One of the species used for carving is *Dalbergia melanoxylon* (African blackwood) a species that grows in the coastal forest. Until recently, there were some speculations regarding the species conservation status.

Genetic resources
Due the high number of species of flora in the costal forest, it represent a big source of genetic material

Regional and International trade
Coastal forests are a source of various products traded at the regional and international level. For example, some medicinal plants from the Matutuine districts are being sold across borders. Species such as *Securidaca longepedunculata, Hypoxis hemerocallidea* and *Warburgia salutaris* are the most sought after. The high demand for *H. hemerocallidea* in both South Africa and Swaziland are due to the fact that the tuber is believed to alleviate the opportunistic diseases associated with HIV/AIDS. South Africa is one of the countries highly affected by the pandemics.

Biodiversity
All together the coastal forests of eastern Africa contain 554 species of plants and 53 of animals that are known to be endemic to the forests. The surrounding non-forested vegetation of the coastal strip of eastern Africa is also important containing at least 812 strictly endemic plants and 47 endemic vertebrates. Despite the high level of endemism in non-forested land as compared to forested land the endemism ratio (endemic/100 km^2) is higher in forested land as compared to non-forested land. Therefore, there is a need to conserve the forest.

Two species of elephant shrew have been identified from coastal forests in southern Mozambique. These species are said to be endemic to the ecosystem and have been also identified in similar ecosystems in East Africa (Macandza, pers. Comm. 2004). This finding shows the contribution of the coastal forests in southern Mozambique to the ecoregion.

Global Economy and environment

Biodiversity value
The coastal forests of Mozambique were once continuous, however, due to human influence they are now divided in small patches. The patches are seen as refuge to some endemic species, therefore, the global recognition of the forests as places of high levels of endemism. Despite that the real value of coastal forests in Mozambique are yet to be disclosed. It is acknowledged that they function as habitat for a variety of bird and plant species. The recent identification of *Incuria dunengesis* (new to science), in northern Mozambique and 10 species (of which one new species (*Barleria* sp.? Nov.)) In forests of Niassa Reserve adjacent to the Quirimbas National Park is an indication that there could be much more to discover in coastal forests. The southern Part of Mozambique has been recognized by its value in biodiversity. The Sand forest in Matutuine District is one of the ecosystems not found anywhere else in the world and it is the place where many tropical species reach the southernmost limits of their range (van Wyk 1994). The ecosystem is included in the Maputaland Center of endemism that accounts for 1100 species of vascular plants. Of these 168 species/infraespecific tax and 4 genera are endemic /near–endemic to the center. The endemic genera include *Brachychloa, Epippicarpa, Helichrysopsis* and *Inhambanella*. Of the 472 species of birds in the Maputaland Center 47 subspecies are endemic /near endemic to the center.

One of the key species found in coastal areas in Mozambique is the elephant (*Loxodonta africana*). Elephants are present in both Maputo Especial Reserve and Quirimbas National Park. The presence of the species in MER has enabled the reserve to gain recognition and research support. One of the studies undertaken in the reserve dealt with habitat selection by elephants. This study concluded that elephants have a preference to forests rather than any other habitat present in the reserve (Ntumi, pers. comm. 2004). This highlights the importance of coastal forests for the conservation of a CITIES listed species and the need to conserve coastal forests for their biodiversity value.

Tourism

Due to their recognized biodiversity value, the coastal area has turned to be also highly valued for tourism based on attraction of the natural environment. This type of tourism has been seen as a major money generator in the region. Several tourism investments are being implemented along the coastal area. The current tourism endeavour emphasizes the utilization of environment as the main menu for their activities.

Carbon sequestration

In Mozambique there is no data on the contribution of coastal forests to carbon sequestration activity. However, as any other forests coastal forests act as carbon sinks.

IV. MAIN CHALLENGES AND THREATS TO CONSERVATION AND SUSTAINABLE MANAGEMENT OF EACFE

Mozambique are overgrazing, forest harvesting (commercial timber and charcoal), tourism and urbanization have been pointed as the major threats to Maputoland Center (Pereira, *et al*., 2001 Deforestation and land degradation are two principal symptoms of unsustainable land use (Ravaoli and Ekins, 1995). These are caused by population pressure, land use changes, overgrazing, unsustainable harvest (e.g. hardwoods) and unsustainable agriculture. Climatic change is one of the negative externalities resulting from deforestation and annual wildfires. Other negative actions and threats remain as:

Clearing of forest for establishment of agricultural projects for export of agricultural crops (coconuts,sisal, cotton, tobacco) without environmental impact assessment, shifting cultivation caused by poor productivity of the land available for the peasants and bad land, utilisation policy resulting from the lack of land evaluation and land use planning, Weakness of the forest institutions, Inadequate and inefficient forest exploitation techniques& destructive harvesting methods, Forest and wildlife destruction caused by uncontrolled fires and harvest and poaching Breakdown in traditional system of forest management, leading to pressure on resources due to lack of local respect control mechanisms, conflicts over control and use of local forest resources, population increases in the forests and communal areas, placing heavy pressures on forest resources, Exclusion- people disposed of their customary land when forests were gazetted, general rural poverty – hence high dependence on natural resources base high cost of forest conservation to forest adjacent communities, unsustainable harvesting rates, regeneration and recruitment, particular of harvest species impaired, high frequency of large forest fires, loss of species diversity, migrations to the costal areas, occupation of spaces defined by the local people for same specific purpose by the fisherman and vendors, wildlife damage, maintenance of sacred forests infrastructure development on coastal Forests can be a potential source of wealth and employment. However, the establishment of the harbor at Ponta Dobela, in southern Mozambique has had controversial arguments among different interested groups, mining industry.

Table 2 Major threads to specific Mozambican forests

Forest	Threats
Bilene/Matutuíne	Urbanization Agriculture Procurement of forest products/resources (medicinal plants, firewood, charcoal, hunting, etc..) Uncontrolled Fires Encroachment Grazing
Mossuril	Agriculture Uncontrolled Fires Procurement of forest products/resources (medicinal plants, firewood, charcoal, hunting, etc..) Encroachment
Mecufi /Memba Complex	Agriculture Timber harvesting Uncontrolled Fires

	Procurement of forest products/resources (medicinal plants, firewood, charcoal, hunting, weaving material, etc..)
Cheringoma complex	Timber harvesting Agriculture Illegal logging Uncontrolled fires Grazing
Macomia/Palma complex	Timber harvesting Agriculture Uncontrolled fires Procurement of forest products/resources (medicinal plants, firewood, charcoal, hunting, weaving material, etc..)

Main issues/constraints to conservation and sustainable Management of national coastal Forests

Policy issues- The rights and use of natural resources by various stakeholders are clearly indicate in the Forestry and wildlife law, however there is insufficient clarity regarding the ownership. Some local people may not see any motivation on their involvement in the management of trees because the ownership of the resources is not yet clear,

The issue of devolution vs. decentralization

Most of the legal framework regarding the management of natural resources indicates clearly that there is a need for the involvement of local people in the decision making process as means to guarantee that the management objectives are met and local people get benefits from the resources. Furthermore, the framework acknowledges the creation of local committees for the management of natural resources (COGEP), however this is much of decentralization of the decision-making and do not really address the devolution of power to the local level.

Under valued resources

The Mozambican legislation focuses on productive and extensive areas of forests in contrary of “less productive” small patches. Despite of the social and biological values of these small patches, there is no idea about their economic value.

Cross border issues

Lack of harmonized policies and laws in the South African region has played a role in forest degradation. For instance some medicinal plant species such as *Warburgia salutaris* and *Securidaca longepedunculata* are being traded across the boarders with the neigbouring countries. So, this species are illegally harvested in Mozambique and traded illegally in the neighbouring countries in the region.

Lack of alternatives to forest products and economic activities

Most of the rural people in Mozambique are poor and they see the natural resources as the main means for subsistence.

Weak Inter-institutional coordination

The coastal forests fall under the Ministry of coordination of Environmental affairs and DNFFB. The coordination between these two ministries needs to be improved.

Inadequate institutional and financial capacity

At the Government Level and local level there are insufficient qualified human resources and financial capacity the lack of both human and financial capacity has restrained the Directorate to enforce the rules and regulations.

At the local community level

The local communities are the most direct beneficiaries of the sustainable management of the natural resources. On the other hand, however, they are the ones whose activities have a major impact to coastal forests. Therefore they involvement in the management of those resources is crucial. The legal framework on Forestry and wildlife as well as other natural resources sectors acknowledge the relevance of active involvement of local people in the management of coastal forests. However, this objective has yet to be met in most coastal forests. Despite the recognition of the legal framework, its implementation on the ground is still to be effective. This fact is mainly enhanced by lack of legal awareness about the rights and obligations of local people, as far as the legal framework is concerned.

Moreover, there is a weak (inadequate) legitimate organizational structure that can be instrumental for the application of the existing legal framework. Therefore, the work being developed by some NGOs on advocacy and awareness campaigns about the new legal framework need to be strengthened and supported.

Law enforcement

Due to weak/inadequate organizational structure at the local level and the weak institutional capacity of the agencies implementing the legislation, there is weak law enforcement.

Diverging viewpoints regarding conservation of Coastal forests

The viewpoints about the value of coastal forests to various stakeholders are not identical. Each stakeholder may perceive differently about the coastal forest resources values. The forest sector may perceive the resources as the source of employment and of conservation, and the local community may perceive the coastal forests as the place for agriculture and firewood.

Poverty

Poverty is major thread to the conservation of coastal forests. The current people leaving in coastal areas show high level of poverty and they see on the coastal resources the source of food, income, construction material and many more.

The management of the coastal forest requires that poverty is adequately addressed and the mechanisms for their reduction implemented. The government of Mozambique is highly aware about the need to address the issue of poverty across all sectors. The Government has approved a strategy for poverty reduction and its means for implementation.

Iliteracy

The illiteracy level for Mozambique is about 56.7% being the women the most illiterate (with 71.2%). The most illiterate people live in the rural areas where most of the coastal forests are located.

The high illiteracy level has been seen as an issue for example in the implementation of revised legislation in the forestry sector. Under normal circumstances, literate

people are much more ready to changes than illiterate ones. The illiterate people need much more time to comply with the changes. For example the legislation in Mozambique is all written in the official language (Portuguese). However, most of the people who live in rural areas can not write or read in Portuguese. This makes the implementation of the new legislation very slow. As the time for the implementation of the law expands more degraded the resources become.

HIV/AIDS

V. MAIN ON-GOING PROGRAMMES AND PROJECTS RELEVANT TO EACFE

REGIONAL PROGRAMMES
Investment levels - main on-going programmes and projects relevant to wildlife trade/use

Investment in agricultural sector in Mozambique is mainly implemented through the Agricultural Programme (POAGRI). PROAGRI is a five-year Sectoral Program implemented by Mozambique's Ministry of Agriculture and Rural Development (MADER), which receives financial support from some twenty donors. The first phase of the Program started in 1999. A second phase has just been developed and is currently being analysed for further implementation.

The objective of the first phase of PROAGRI was to protect, conserve and utilise agriculture, forestry and wildlife resources in a sustainable way. The overall goal of the Program included to achieve environmentally sustainable and equitable growth in rural areas so that poverty is reduced and food security improved.

The successful materialisation of these objectives is the first step in ensuring economical, ecological and social benefits of both present and future generations. The Sector Policy and Development Strategy state that local communities should use forest resources considering biological diversity and economic self-sufficiency.

Integrated Coastal Zone Management in Mozambique

Integrated Coastal Zone Management (ICZM) is an ongoing process, since it involves not only planning, but also attention to implementation of the planass and monitoring of their outcome (MICOA, 1996).

Mecufi Coastal Zone Management

The Coastal Zone area of the Mecufi district lies between 13^0 26'S in the south (the mouth of the Megaruma River) and 13^0 26'S in the north. In phytogeographic terms, the Mecufi district is located within a coastal belt of varying width (the Zanzibar-Inhambane regional mosaic that extends along much of the Mozambique coast to Tanzania, Kenya and southern Somalia (MICOA, 1996 citing Hatton & Massinga, 1994).

The Mecufi Coastal Zone Management project was conceived as a " support project " for

the government and NGOs active in the project area. The objectives of the Mecufi Coastal Zone Management Project is to reduce pressure on the natural resources base of the Coastal Zone, by encouraging improved management and conservation practices. The goal is to contribute to the conservation of the natural resources in the overall district and general improvement of the living conditions of the rural population. This goal should be achieved through environmental education, direct community participation and inter-sectoral coordination. Duration: 3 years + 9 months. Headquarter at the Mecufi district (Cabo Delgado Province).

The expected results were: Secured coordination among the institutions and organisations working in the field of resources conservation in the Mecufi district, Strengthened ability of the rural population to practice self-help in connection with measures to conserve natural resources, improved of the socio-economic situation for women, introduction or establishment of village management nuclei, establishing a training mechanism to raise awareness among the villagers, school teachers, official administration and extension workerse,stablishing a strategy for Coastal Zone management in Cabo Delgado.

The project executing agency is the Ministry for the Coordination of Environmental Affairs (MICOA)

MIOMBO PROJECT (Mozambique, Zimbababwe, Malawi, Zambia, e Tanzania)
Management of Miombo Woodlands
(Project B7-6201/97-09/VIII/FOR)

Mozambique: Implemented Sub-project: Impact of Sectoral , extra-sectoral and macroeconomic policies on miombo woodland management.

- Budget:
- Donor Agency: UE
- Implementing Agency: CIFOR
- Duration: 5 years
- Main area of focus:
- Year of beginning:

ECOMARINE
Quirimbas – Conservation of Coastal Forest

V. ANABLING ENVIRONMENT

The Government of Mozambique adopted several sectoral policies and laws and have regional and international agreements of conventions with assumption that environmental issues should be integrated in decision making process, ensuring that issues of environmental impact assessment and public participation are also integrated in licensing and authorization for implementation of development activities.

There are no policies directly related to costal forest but most of them are related to environment, forest and wildlife and can be applied to specific case on the EACFE Programme

Policies

National Council for Sustainable Development-CONDES-it is an advisory body of Council of Ministers created with the **Law n. 20\97**, October 1 for auscultation of civil society opinion on environmental issues and make sure that there is an effective and correct coordination and integration of environmental principles in the development process of the country which have the responsibilities of express on sectoral policies related to natural resources management, to express one's opinion on complementary legislation proposals to the Law n. 20/97, October 1, including creative proposals and sectoral reviews of legislation related to natural resource management, express on proposals of ratifying international conventions related to environment, elaborate proposals for creation of financial incentives or to stimulate the economic sector to adopt environmentally sound procedures in the use of natural resources, to formulate recommendations to Ministers of different areas of natural resources management.

Environmental Co-ordination Policy

As Sustainable Development is a stated Government policy principle, the responsibility for environmental management has to be shared by all ministries and sector policies must integrate environmental dimensions. The coordination and integration of these sectoral policies is one of the major responsibilities of Ministry of Environmental Affairs (MICOA). In this role, one of the tasks of the Ministry was to co-ordinate the formulation of a **National Environmental Management Plan** (NEMP), which is the master plan for the environment in Mozambique.

Two of the three areas of concern defined were: coastal forests and rural areas and communities. For rural areas agriculture and forestry issues are highlighted. On coastal areas mangrove degradation, coastal pollution and erosion are the main issues to be addressed.

For fulfilling the obligation of the Government of Mozambique with regards to the Convention of Biodiversity has been established the **Biodiversity Unit**, which comprises permanent and *ad hoc* members representing relevant government agencies (to ensure cross-sectoral integration) and civil society.

Agriculture, Forestry and Wildlife Policy

The Ministry of Agriculture and Rural Development (MADER) has formulated an **Agricultural Policy** which promotes the sustainability use of natural resources enhancing biodiversity conservation and participation of communities and local authorities in management of natural resources and the guarantee of social equity

The Agrarian Policy is aimed of recovery the agrarian production to ensure food security and promoting the increase of marketing opportunities of export products. The implementation strategy of the policy was designed the National Programme for Agrarian Development (ProAgri). ProAgri is a program of public investments in agrarian sector in coordination with other activities, such as, transport and communication infrastructure and strategies for national food security.

To reinforce the MADER's vision and capacity, the main priority of ProAgri will be development of tools and guidelines for management and sustainable use of natural resources in order to achieve the following general goal "To guaranty a sustainable natural resource management, which produce economic, social and environmental results, based on appropriate conservation and management plans, education, information and monitoring systems, involving community interests, public and private sector."

In relation to sustainable use of natural resources, strategies are spelled out in relation to three principal components, namely: conservation of soils and bio-diversity, involvement of local authorities and communities in activities of conservation, control and production and participation of the agrarian sector in the management of water resources.

The Forestry and Wildlife Strategy
The National Directorate of Forestry and Wildlife (DNFFB), has the responsibility for managing forestry and wildlife resources in Mozambique. The Forestry and Wildlife Strategy **-** Resolution n. 8/97, April 1st - takes its lead from the Agricultural Policy and has its overall objective: *"To conserve, utilize and develop forest and wildlife resources for the social, ecological and economic benefit of the present and future generations of the Mozambique people".*

The policy defines four main objectives: **economic, social, ecological and institutional**. The Forestry and Wildlife Policy seeks to promote Community-based Natural Resources Management Projects in areas adjacent to gazetted protected areas and in the multiple use forests.

Tourism Policy
The Government of Mozambique has adopted a set of guidelines for the development of the tourism industry as formulated in two documents: **the National Policy for Tourism and the Strategy for Tourism** Development in Mozambique. A guiding principle of the Tourism Policy is: *"The promotion of initiatives which assure the maintenance of ecological integrity, preservation of the environment and the sustainable use of the natural resource so as to improve the quality of life of local people".*

The National Tourism Policy will inform national, provincial and district level planning and strategy development. It provides a platform for tourism interaction with conservation, environment, agriculture and other related sectors at all levels.

Fisheries Policy
In 1996 the Government of Mozambique has adopted a new **Fisheries Policy** – Resolution n. 11/96, of 28th May - and Implementation Strategy, which seeks to

maximize economic benefits whilst ensuring the sustainability of the resources. This police have also in view to contribute for food security and reduction of the employment taxes.

Energy Policy

The biomasses energy constitutes one of the main factors of economic development and poverty technologies alleviation. The availability of energetic resources (hydrologic, natural gas and mineral coal) gives to the country better conditions to satisfy not only national demand but also the energy needs to all austral region. The biomass energy (firewood and charcoal) represents about 80% of total annual energy consume. Actually, only 5% of populations have access to electric energy, it made up that in 129 districts about 48 has. The wood-based fuels, as main source of energy, for the majority of rural population and for a significant part of urban population, mainly, to the population with low income. Firewood and charcoal feed also a considerable part of industry such as bakers´, textiles, tea and tobacco, contributing for deforestation in specific zones in the country.

Thus, the Government of Mozambique approved in 1998 the Energy Policy that establishes as principal objectives the following: promotion of reforestation in way to increase the availability of firewood and charcoal, to improve efficiency in use of energetic resources, promotion of development of energy conversion and use of sound technologies (solar, wind energy and biomass).

The Energy Policy in its sub-sectoral strategy of renewable energy and wood-biomass ensure its sustainability highlighting the following: implementation of community-based natural resources management programmes, reforestation projects through fast-growing species appropriate to local conditions, dissemination of approachable and improved technologies for efficient use of wood-biomass for population and industry.

Nevertheless regulatory functions, supervision, forestry management and control of production activities and biomass supply, namely firewood and charcoal, constitutes part of DNFFB rights.

Water Policy

Water Policy has the aim to ensure a better utilization of available water resources through planning and sustainable use, in order to satisfy the peoples needs and economic development. The general policy related to water management and conservation establishes, to define in relation to inlands water, the general legal regime of protection and conservation activities in catchments areas.
The river basins and deltas management such as of the Zambeze, Pungué, Save, and many others rivers are covered in this policy. Although, the catchments areas, edges of lakes and rivers fall in regimes of protection zones defined by the Land Law and Regulation.

3. Legal Framework / Legislation

In Mozambique, the coastline has about 2.770 km length characterized by high habitat diversity, including dunes, estuaries, bays, islands, corals, mangroves and different policies and laws are applied to in their protection, conservation and management. Only part of the coastline falls under protected areas such as the

Maputo Special Reserve, Bobole and Pomene Forest Reserve, Bazaruto and Quirimba National Parks. Although parts of the coastal forests out side protected areas are constituted by high biodiversity and endemic species.

Thus, depending on its potential, location and form of use and considering the Act n. 10, 7th July 1999, the coastal forests can be found in conservation and multiple use forests and classified in different protection categories.

- National Parks – demarcated areas of total protection, meant for propagation, protection, conservation and management of wild vegetation and animals, as well as protection of sites, landscapes or geological formations of special scientific, cultural or aesthetic importance for public interest and recreation, which are representative of the national heritage.
- National Reserves - areas of total protection meant for the protection of certain species of rare, endemic, endangered and evidently diminishing flora and fauna and fragile ecosystems such as wetlands, dunes, mangroves and corals, as well as the conservation of the flora and fauna found in those ecosystems.
- Areas of use and with cultural and historic importance - areas meant for the protection of forests of religious interest and other sites of historical importance and of cultural use, in conformity to the customary norms and practices of the respective local communities.

The main constraints for implementation of enforcement policy are as follows:

- The extension of the coastal line, lack of capacity and human resources, logistical and financial resources. The lack of decentralization and decision taking by local managers can be the importance for the EACFE program, which can improve the process of changes and adequate implementation mechanisms.

Forest act[1]

This Act establishes basic principles and norms on the protection, conservation and sustainable use of forest and fauna resources, within the framework of integrated management, for the socio-economic development of the country. The Act define forest as the vegetation coverage that can supply timber or plant products, host fauna and impact direct or indirectly on the soil, climate or on the water regime.
Although, the Act does not refers directly on coastal forests, provides in connection with the Land Law definitions and creating conservation areas and in Article 6 and others of the Land Law and, Article 10 of this Act enclosed the limitations on the use and occupancy of land in protection areas.
Referring to the people living in the protection areas, they do not have any right, although does not exist any article of the act, which, impose that they have to live out those areas. Considering that most of the protected areas in the country have communities.
Is to emphasize that this legislative gap empty all spirit of the law, because it does not fulfil the objective of conservation of biodiversity and fragile ecosystems or of animal or plant species, as well encourage conflicts between people and animals.

In Chapter 3 of this Act refers to regimes of sustainable exploration of forest resources, which observe the following:

- Exploration by a simple licence
- Exploration by a forest concession contract

The terms and condition for the exploration of the forest resources in the regimes foreseen in the previous paragraph are established by a decree of the Council of Ministers

In Chapter 5, Article 27, the Act refers to restocking of forest and fauna resources and stats that:

- The State shall promote the repair of degraded areas through forest plantation, preferably in dunes, river basin and fragile ecosystems.
- When deforestation, fire or any other voluntary act causes degradation, the offender is obliged to repair under the terms and conditions to be defined by specific regulation.
- The transformation of the degraded areas into other forms of use in the protection areas is not allowed, and they must be restored to their original condition.

In Chapter 6, Article 31, refers to management of forest and fauna resources and participatory management and stats the following:

- The representatives of the local communities shall constitute local resource management council, the private sector, association and local State authorities with the aim of protecting; conserving and the promotion of sustainable use of forest and fauna resources are hereby created.

With this set of regulatory use and management of forests and forest resources of the current forest act, it is still be possible to achieve the objectives of the EACFE programme. There are, in the coastal forest possibilities to expand or creation of new-gazetted protected areas and promotion of community participation, and joint-management of the forests.
The Act may be weak on community participation and benefit sharing mechanisms as well on empowering procedures at local level, however, the Government of Mozambique through the Ministry of Administration is carrying out a decentralization policy, which establish in Decree 15/2000, 20th July, articulation forms of State local authorities with local communities.
The current Act present some weaknesses e.g. lack of concrete regulation of bushfire and use of non-wood forest products (NWFP), which lead to several implementation problems such as:

- Lack of responsibilities and conflicting competencies between different institutions what shows weak institutional coordination;
- Lack of incentives to promote an adequate management, reforestation and natural regeneration;
- Weak enforcement by serving officers and political interference and lack of clear regime of incentives for the serving officers.

But, it is necessary to highlight the low human capacity, incoherent research, which leads to weak knowledge of national biologic diversity and lack of specific action plans of degraded areas and or of coastal forests. Poor management and increased degradation of natural forest resources due the:

- No detailed forest survey or management plan exists;
- No boundary demarcated or retrenchment surveys required for forest concessions purposes;
- Inefficient use of commercially valuable forest resources;
- Rural communities are not involved in the licence process for forest exploitation or conservation of forest reserves;
- The growing demand for firewood;
- The expansion of agriculture and inadequate agriculture practices;
- Forest burn due to the shifting cultivation, hunting and honey gathering.

3.2 Land Act

The Mozambican Land Law and the various legislative instruments, those regulate the acquisition and use of natural resources such as mineral resources, water, forestry and wildlife.

The Land Use Regulation, which emphasized that, the land belongs to the State and hence to the farmers and urban dwellers. It was prohibited to sell or lease the land. Nevertheless, the economic situation and political environment led to the need for change on the legislation to accommodate all the stakeholders and reduce the conflicts that seemed to rise particularly in the last years. This law brings a significant change in terms of the treatment of the customary land laws and the involvement of stakeholders in decision-making on land use.

However, there is a step forward with the recognition of the customary land ownership as well as the methods and principles of traditional land management. Furthermore, it is recognized that different regions have different customary land laws, which means that the policy and legislation have to be flexible enough to accommodate these differences.

Furthermore, while recognising local community customary rights to forestry, wildlife and other natural resources for subsistence purposes, the respective legislative instruments generally require a license for development and exploitation of such resources. For example under the Forestry and Wildlife Law, while members of local communities have access to licences for hunting and lumbering, this Law provides that exploitation for commercial purposes is subject to licence or concession.

3.3 Environment Act

The Government of Mozambique approved the Environment Act in July 1997. The objective of this act is to provide a legal framework for use and correct management of environment and their components, in way to ensure sustainable development in the country.

The EACFE program has to consider the environmental constraints in coastal zone such as, erosion, salt intrusion in rivers and dune destruction, which are caused by inadequate land use practices, mangrove forest clearing, deforestation and inadequate tourism practices. Also, it is to be noted the incipient institutional coordination mechanisms.

3.4 Water Act

The Water Act based on National Water Policy foresee the availability of water, through integrated management of hydrologic resources, optimizing the benefits for the communities, taking into account different interests, either current or future beneficiaries. Must also the environmental impacts be taken into account.

This Act aimed to define the public domain of hydrologic resources and the general management policy, which establish in sub-heading b) number 1 of Article 2, define in relation to inlands-water, the general juridical regime activities of protection and conservation, survey, use, control and enforcement of hydrologic resources.

3.5 Marine Act

The Act 4/97, 4th July, define the rights over the marine zone along the Mozambican coastal line. The Act creates an Exclusive Economic Zone and confers States´ sovereignty to explore, use, conserve and manage the natural resources living in seawater and adjacent zones and in underground, as well to all economic activities. Taking into consideration the environmental conservation of specific areas or preservation and protection of marine species, the act rules that can be established the following:

Marine National Parks, Marine Natural Reserves, Marine Protected Areas
Thus, this Act rules part or entirely proclaimed national parks, such as Bazaruto and Quirimbas whose forests fall in coastal forest definition. The EACFE program can help in designing appropriate coordination structures and surveying biological diversity, designing and funding implementation of master management plans.

3.6 Mining Act

The act define that mining activities should be carried out observing management principles, in accordance with laws and regulations related to use of mineral resources, as well as for environmental preservation and protection, including social, economical and cultural aspects.

Community involvement and benefit sharing mechanisms
It is estimated that about 80% of population live in rural areas, depending entirely of natural resources for their survival.

Consequently, those communities are warders of biological diversity and forest resources. Therefore is of capital importance for conservation and sustainable use of natural resources particularly the coastal forests that those communities should be involved in all decision-making process related to land use and, that incentives and

clear benefit-sharing mechanisms for local communities should be defined for their performance in resource management.

In Mozambique, nowadays, the regulations recognize the role of traditional customs in natural resource management in way to their sustainable use. For example, the Land Act establish in Article 24, that local communities should participate in management of natural resources, and in conflict resolution using norms and customary practices.

In Municipality Act 2/97, 18th February, although stated as consultative, establish in Article 28 recognize the role and necessity of involvement local community authorities in social, economical and political issues of the municipality. Besides, this act confers power to low-level government entities.

Also, the Decree 15/2000, 20th July, which establishes the articulation forms of local government entities with community authorities, generally confers to community authorities an active role in those activities that drives to a local development.

The FFB Law, in its Article 31 create a Council of local management of flora and fauna constituted by local communities, local government authorities and private sector, aiming the protection, conservation and, promotion of sustainable use of natural resources. The article 35 of this Act with the Article 102 of Forestry and Wildlife Regulation establishes 20% of any forest tax as benefit to the community.

They are several articles, which confers opportunities for Community Based Natural Resource Management[2], approved by Forestry and Wildlife

National, Regional and International Agreements

Mozambique has signed and ratified the four multilateral environmental agreements (MEA´s).

The main multilateral environmental agreements ratified by Mozambique

Name of the MEA	Established	Ratified by Mozambique	Coordinating Agency
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	1973	1981	DNFFB
Convention on Biological Diversity (CBD)	1992	1996	MICOA
Convention to Combat Desertification (CCD)	1994	1996	MICOA
Framework Convention on Climate Change (FCCC)[3]	1992	1994	MICOA

Source: Office of the UN Resident Coordinator 2000

[2] Nhantumbo, I. and D. Mocqueen; Direitos das Comunidades – Realidade ou retórica. DNFFB, DFID, iied. Eliografica, Maputo, Outubro 2002

[3] Resolution nº1/94, 24th August, Assembly of Republic in MICOA, 2003; Estaratégia Ambiental para o Desenvolvimento Sustentável de Moçambique. República de moçambique, Maputo, Março 2003.

In addition to the above conventions, Mozambique has signed the following multilateral environmental agreements:

The Convention concerning the Protection of the World Cultural and Natural Heritage (ratified in 1982), the Vienna Convention for the Protection of Ozone Layer (1993), through Resolution nº 8/93, 8th December, the African Convention on the Conservation of Nature and Natural Resources (1981), the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment in the Eastern Africa Region (1996), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1997), the Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (1997), the Protocol on Shared Watercourses Systems in the SADC Region (signed in 1995), the Zambezi River Basin Multilateral Agreement (1987), and ratification of the Cartagena Protocol on Biosafety and the Kyoto Protocol are presently in process.

The foremost problem in the implementation of the Convention in Mozambique is lack of sufficient inventory data about biological diversity in general, and especially about the species listed, for example, by CITES. In this case, the management authority, which is also responsible for issuing the permits and certificates, is DNFFB.

Poverty Reduction Strategy Initiative
PARPA and NEPAD

The Action Plan for Poverty Reduction (PARPA) and the New Partnership for Africa Development (NEPAD) are complementary in several aspects (see Table 3). While, one outlines strategies and concrete action plans at national level against absolute poverty, the second defines ways to alleviate Africa for severe levels of economic poverty. The great dilemma reside in fact that, although the continent is rich in natural resources is still dependent on external help.

Table 3: Development of priorities of PARPA and NEPAD

Priority	PARPA	NEPAD
Education	X	X
Health	X	X
Agriculture and Rural Development	X	X
Infrastructure	X	X
Governance	X	X
Macro-economic and financial management	X	X
Energy	X	X
Access to the market		X
Environment	X	X

Source: Strategy and Action Plan for biological Diversity in Mozambique, 2003.

The efforts of Government of Mozambique in way to implement the Cairo 94 Agenda, in relation of public policies elaborated the National Population Policy (PNP), which is strength related with PARPA, and specify and prioritize actions to be undertaken by different sectors in way to reduce the actual level of poverty of 70% to 60% by year 2004. The PARPA incorporates several components of PNP, Food Security Strategy, Strategic Plan against HIV/AIDS, Action Plan Pos-Beijing. PARPA as a dynamic programming instrument, guide the preparation of the State's medium-term and annual budgets, programmes and policies. This will enable the EACFE programme to

incorporate new elements arising from changes in society, economy and the environment through implementation actions of the programme.

Spatial Development Initiatives

The Spatial Development Initiatives (SDI) constitutes priority areas with great potential to enhance investments in productive sector. The main corridors are Nacala, Zambeze Valley, Beira, Limpopo, Maputo and Libombo. All of them have great influence in the coastline and covering richest zones of natural resources for commercial exploitation and conservation purpose, such as the productive forest areas of northern Sofala, which includes vast conservation areas of Gorongosa, Marromeu and Gazetted Hunting areas, the pristine forest dunes in Xai-Xai, and the well known center of endemism of Maputaland in the south.

Those development opportunities are intended to provide jobs in way to alleviate the pressure on natural resources and to improve social and economic conditions of the population. Parts of population living in those corridors are peasants developing shifting cultivation, exploitation of forestry resources, fishing, hunting, and collection of non-wood forest products (honey, fruits, and medicinal plants) using traditional techniques. But, because of the lack of local capacity, the objective could not be achieved that means; the communities would not be capable to take the advantages of the perceived investments.

VI. CONCLUSIONS

1.Mozambique has the longest coast and the most diversified types of coastal forests in Eastern Africa Coastal Forest Ecoregion.

2.The coastal forests in Mozambique are in large mosaics and some of them are believed to be of high biodiversity value.

3.Most of the development foci such as development corridors, cities and tourism infrastructures in Mozambique are located along the coast where about half of the total population in the country live. Most of these people depend on coastal forests for subsistence.

4.Despite of high biodiversity, social and economic values coastal forest is still undervalued and therefore unaccounted for in the national budget.

5.The non certified products on the international market cause an undervalued value of them

6.The coastal areas concentrate stakeholders with various interests e.g. biodiversity conservation vs. development.

7.The coastal forests in the northern and central Mozambique are under productive forest type (to be included in the concession system) and most of them could be home for endemic species.

8.Inefficient inter-institutional collaboration and coordination among agencies (Government and Non Governmental) dealing with coastal areas that result in the duplication of efforts and resources.

9.There is a very good enabling environment however enforcement of the existing policies and legislation is still a long way. This is caused by corruption, poverty and limited financial, technical and institutional capacity.

10.There is high level of absolute poverty indexes among the people in coastal areas in Mozambique.

11.Most of the coastal forests are under communal management where the rights and access to the resources are defined based on traditional systems.

12.There is a declining respect to traditional norms and rules at the local level that has enhanced degradation of coastal forests.

13.The coastal forests of Mozambique are rich in terms of wildlife habitats/ ecosystems some of which are unique in the region such as Maputaland center of endemism and Marromeu wetland complex.

VII. RECOMMENDATIONS

1. There is a need to allocate financial, technical and institutional capacity at all levels to manage coastal forests in Mozambique. Priority for conservation should be given to the forest areas of high risk.
2. There is a need to survey and map the coastal forests of Mozambique.
3. There is a need to enhance coordination and collaboration among the management institutions related to coastal areas.
4. There is a need for capacity building and institutional strengthening at all levels of those involved in the management of coastal forests in Mozambique for law enforcement.
5. The planning and zoning of coastal region should be done in a holistic way.
6. Strengthen local organizations through capacity building of local authorities.
7. Efforts need to be undertaken to ensure that the concessions under coastal forest are given priority in terms of monitoring.
8. Make sure that the exploitation of the forest is under the criteria and indicators of sustainable management

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