The Coastal Forests of Tanzania

A national synthesis report for the preparation of WWF—EACFE Programme

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1. Introduction

Coastal forests are considered to be remnants of a former extensive cover belonging to the Zanzibar-Inhambane section of the Guinea-Congolian phytogeographical region (White, 1983). The biodiversity value of these forests lies in the fact that they contain about 190 forest species, of which 92 are endemic. This is besides many other species of animals and plants found in these forests, many of which are also endemic.

The East African Coastal Forests extend from Somalia to Mozambique and west to the Malawi hills. They are predominantly located on the coastal plain and are commonly found on hills and plateaus. Coastal Forests are characterized by a mosaic of habitats including closed canopy forests, savannah woodlands, thickets and bush lands which together form a complex mixture of land cover types. They are found from sea level to a maximum of 1100 m altitude depending on ecological conditions but do not include mangroves. In Tanzania, Coastal Forests extend from east of the islands of Pemba, Unguja and Mafia to the base of the Eastern Arc Mountains.

Most Coastal Forests in Tanzania are in Forest Reserves gazetted during the colonial period although a number of sites are currently unreserved; some have been degazetted in the past and others have never been officially gazetted. These forests support many endemic genera and species of plants and animals. They include bird species of global conservation significance, rare mammals, reptiles, amphibians and invertebrates.

Besides being of biological importance, coastal forests are subjected to many and varied uses. They are used by people to collect medicinal plants, fuelwood, building materials, and food. However some of the forest uses are non sustainable, causing threats to such forests. Some of the direct threats include charcoal production, logging, grazing and expansion of agricultural land. Poverty is a root cause behind many of these pressures. Despite forest conservation and management efforts over time (Burgess and Mbwana in Burgess and Clarke 2000, p.263-279), conflicts between local people who wish to exploit forest resources, commercial companies that wish to exploit the forest for profit and forest departments who attempt to police the forest from such exploitation continue to upset the management of forests coastal forests in Tanzania. The situation has been exacerbated by dwindling allocations of funding and other crucial resources to institutions charged with management of forests in Tanzania.

Therefore to date the coastal forests of Eastern Africa show all problems confronted by conservation planners and protected area managers, that is coastal forests are (Burgess and Clarke, 2000):

- Small, and highly fragmented, consisting of many (over 250) separate forest patches, most of which are less than 500ha in size.
- Surrounded by relatively impoverished rural communities with a high and growing demand for, and dependence on natural resources.
- Individually distinctive, with a high level of local forest endemism, and a great array of different communities, making prioritisation difficult.
- Without the national level pragmatic resource values such as timber or water catchment, which interest national and district governments. The presence of these resources would have allowed biodiversity values to piggy back on their continuation.
- Relatively little protected by the Government agencies.

It is therefore pertinent that the World Wide Fund for Nature (WWF) in Eastern Africa is developing a coastal forest programme to enhance the conservation and better management of those resources for the benefit of local communities and global values that these forests hold.

2. Description of coastal forests

2.1 Data on coastal forests

Tanzania has about 33.5 million hectares of forests and woodlands. Out of this total area, almost two thirds consists of woodlands on general lands which lack proper management. About 13 million hectares of this total forest area have been gazetted as Forest Reserves. Over 80,000 ha of the gazetted area is under plantation forestry and about 1.6 million hectares are under water catchment management (FBD 1998). The area covered by coastal forests is about 70,000 ha only. Coastal Forests are usually rich in endemic tree species, but only scattered remnants are left of the original forests. Examples include the evergreen tree cover type of *Newtonia buchananii, Allanblakia stuhmannii and Parinari excelsa,* occurring in Kwamkoro area, East Usambara Mountains, Tanga; Kimboza on the foot slopes of Uluguru Mountains and the lower slopes of the Udzungwa escarpment, in Morogoro region.

Generally coastal forests in Tanzania occur in 83 biological sites with Tanga region having 25, Lindi 19, Coast 14, Morogoro 9, Pemba 6, Zanzibar 2, Mtwara 6 and Dar es salaam 2. Details are presented in appendix I.

Two years ago (2002) the Tanzania National Coastal Forest Task force systematically evaluated and ranked coastal forest sites for their global biological importance in terms of threats and identified eight national hotspots requiring critical attention in the coming decade. These are:

Priority site	Area (ha)	Status	level of threats
Lowland East Usambara	7,056	FR, 0	high high
Rondo/Litipo/Noto platoau	3,900	FR	Very high
Pande/Pugu/Ruvu	4300	FR	Very high
Matumbi/Kichi Hills	2,000+	0	Very high
Kiono/Zaraninge	1780	0	Very high
E.Uluguru mts(Kimboza)	400	FR	High
Jozani	5000	National Park	High
Ngezi	1476	Nature Reserve	High
Kiwengwa	3000	Forest reserve	High
Mlola (Mafia Island	300	NP	High

2.2 Description of Main blocks

Ngezi Forest

Ngezi Forest Reserve (1,476ha) is situated on the north-west of Pemba and it is the last remnants of a tropical moist forest that once covered Pemba. About 65% of the reserve is occupied by tropical high trees, 15% occupied by philippia heathm, 14% covered by thicket and 6% by swamp forest. The species composition of Ngezi is unique in a global sense and several are endemic. These include endemic palm Dypsis pembanus and rare species of Odyendea zimmermannii. Less systematic inventory have been done on fauna, however species like Pemba Flying Fax (Pteropus voetzokowi) has been recorded in the IUCN red list as endangered species. Currently Ngezi forest harbours about 2,500 of Pemba flying Fax. Other birds found and classified by IUCN as globally near threatened species are scope owl (Otus pembaensis), violet-breasted sunbirds (Netarinia pembae), pemba white eye (Zesterops vanghani), Pemba green pigeon (Treronpembaensis).

Main threat:

Major threats toward Ngezi forest are coming from multinational international companies that are trying to acquire virgin forest areas to build hotels along the beaches. The outcome of low agricultural production and lack of other alternative sources of livelihood is not only deterioration of Ngezi-Vumawimbi biodiversity through encroachment by the community, but has created a vicious cycle of poverty manifested by unhealthy human labour practices, child malnutrition, poor school attendance and rural-urban migration. The spread of *Misopsis eminii* as an envasive species to Ngezi proposed nature forest reserve broght a lot of concern and threat that would minimise the indegenous species diversity. Attempts have been done without major success. Similaly, invesive wild dogs are threatening the existence of endermic subspecies of Pemba Blue duiker's throgh hunting.

Jozani forest

Jozani Forest (5,000ha) is one of the most important ecological sites of globally significance. The forest contains typical coastal habitats that include swamp forest, coral rag forest, mangrove forest, salt water mash and sea grass bed. The peculiar feature of the groundwater forest is exceptionally high water table on top of the coral pan underneath. Twenty-six endemic and near endemic tree and shrub species grow in this habitat. Jozani harbours a variety of faunal species having both national, as well as international significance. About one third of the total 2,400 endemic red colobus monkeys (*Piliocolobus kirkii*) of Zanzibar are found in Jozani. IUCN places red colobus monkey in endangered status. In addition the area is recognised as an important bird area by Bird Life International. The overall species diversity is about 97 and 50, for flora and fauna respectively. The area is a considerable tourism potential with growing number of visitors every year.

Main threat:
Threats to Jozani biodiversity are mainly due to habitat alteration as a result of inherent indiscriminate tree cutting in villages around the national park. This is done primarily due to lack of alternative liveli hood source of income.

Kiwengwa Forest
Kiwengwa forest (about 3,000ha) is the only remaining natural catchment forest in the northern east of Unguja that is found on the coral soil. Assessment of the forest indicates that there are several important species such as red colobus monkeys, ader's duiker, antelope and variety of birds. The communities around depend on the forest for their livelihoods and the forest is under threat from encroachment due to the expansion of tourism along the coast that makes the local communities to leave their tradition fishing villages after being pushed out by the expansion of hotels.

Main threats

There is now few unhavested remnants of Kiwengwa forest with the Zanzibar leopard that once existed being likely to be extinct, and the pattern of population decline has been experienced. Other factor contribute to loss of Biodiversity value include unplanned tourism industry, stone mining, lime preparation, encroachment and seasonal fire that is associated with cultivation and hunting.

Matumbi and Kichi Hills
This site lies in Rufiji District of the Coast Region. The area encompasses more than 26,000 ha of coastal closed canopy forest with more than 12,000 hectares with currently gazetted or proposed reserves.
Matumbi and Kichi hills comprise a series of forested patches of coastal forests covering the south eastern Utete. Matumbi hill forests are comprised of Kiwengoma Territorial Forest Reserve (3561ha), Namakutwa - Nyamuete Forest Reserve (4705ha). Nambunju proposed Village Forest Reserve (19961ha), Tawi proposed Village Forest Reserve (2775ha) and Mbwara proposed Village forest Reserve (600ha). All these forests occur in one contiguous area/landscape with similar ecological, cultural and socio-economic characteristics. Previous biodiversity surveys have revealed that the forests have high

species richness, diversity and endemism. They are important for catchment and local communities adjacent to them depend on these forests for various forest products and services. Some examples of endemic species of flora and fauna identified in the Matumbi and Kichi forest mosaic include the following: *Aristogeitonia monophylla, Asteranthe lutea, Baphia puguensis, Cruibiabrevicaudata, Burrtdavya nyassica Ophrypetalum odoratum, Tessmannia densiflora, Xylopia mwansmbii, Phyllastarephus fischeri, Lygodactylus viscants, Cnemaspis uzungwae, Saintpaulia ionantha* and *Isoberlinia schefflevi, Rhynchocyon petersipetersi,* and *Mops brachypterus/Tadarida brachyptera.*

Main threats:
Logging, pit sawing, shifting cultivation, forest fires, poaching, hunting and other cultural uses. Infrastructure development especially road excavation to Selous Game Reserve has recently been reported to wipe a lot of natural resources in the area.

Rondo/Litipo/Noto/Chitoa Plateau

The forest reserve of Rondo/Litipo/Noto/Chitoa Plateau is well known to be a centre of endemism. Rondo forest contains a far greater number of endemic plant species than any other Coastal forest. The vegetation of Rondo is extremely variable ranging from dry evergreen forests and woodlands, with a number of endemic and near endemic plants and animals. Situated in Lindi District, Rondo/Litipo/Noto/chitoa Plateau includes over 15,000 ha within gazetted forests of which 3000 ha is natural closed canopy forest. Rondo forest reserve comprises an area of 14,060 ha of both plantation and natural forests, located at the part of Rondo (Mwera plateau) with a maximum elevation of 880 m.a.s.l.
Noto Plateau and Chitoa forest reserves lie approximately six kilometers north of Litipo forest reserve (Lindi district, Lindi region). Chitoa forest reserve is a relatively small forest covering an area about 865 ha. Despite its small size, the reserve contains a surprisingly high diversity of floral and faunal species. The adjoining Noto plateau is an extensive forested landscape, but smaller in area than Chitoa. Up to the 1990s, it was less disturbed than Chitoa but, since then; illegal harvesting of timber trees has increased. Elephant damage is substantial in the reserves as they (elephants) use the forest at night for shelter. Noto Plateau and Chitoa care characterized as dry evergreen forests, with a well-developed canopy at 12 metres and emergence to 20 metres. The dominant species is *Scorophleus fisherii.* Other trees include, *Bombax.*

Current threats
Historically, during colonial times, intensive logging and shifting cultivation and development of plantations affected much of the natural forests. At present there is no agricultural encroachment into the reserve but rather on adjacent buffer forests which were de-gazzetted in 1970s, although shifting cultivation is reaching the eastern boundary at a high speed.

Currently, the Rondo forests are highly threatened by frequent wild fires, which are partly arsornic, or occasionally from neighboring field crops in between July and November each year. The forests have been subjected to human disturbances especially on its buffer

zones and adjacent forest on the slopes of the plateau. Pole cutting and charcoal burning is done by the local people sometime on illegal grounds.

Gendagenda and Msubugwe Forest Reserves

The area is a very important mosaic of coastal forests with high value of biodiversity.
The Gendagenda is located in Handeni while the Msubugwe is in Pangani District. These coastal forests contain a larger number of biodiversity including specific endemism such as Gendagenda *Saintpaulia tongwensis*, *Cynometra brachyrrchis*, and possible Gendagenda shrew Crocidura spp. The forests provide very important catchment values and they are sources of River Pangani that serves electricity and water for thousand of people.

Current threats

The two forests are very much threatened with logging and pole cutting with the ready market in Tanga and Dar es Salaam regions, encroachment through agriculture and internal migration. Wild fires are also frequently observed in the area caused by uncontrolled agricultural lands. In addition hunting of wild animals and demand for bush meat is ever increasing.

Kimboza Forest Reserve

Kimboza FR of 404 ha of lowland swamp forest in Morogoro district has extraordinarily high endemism of plants. Despite its status as a FR there has been little conservation or management input. Timber values have been over exploited leading to gaps and invasions of exotics.
Kimboza is on the main road to Selous Game Reserve, and readily accessible from Morogoro. The potential for ecotourism is high.

Pande Game Reserve

Pande Game Reserve is 1226 ha patch of Coastal forest on a low sandstone ridge 16 km from the Indian Ocean, 20 km north of Dar es Salaam Region.
There was heavy exploitation of resources over the years and by 1980, 50% of the forest was almost cleared. These pressures were exacerbated by the pressure of people in Dar and also by the army, which made the reserve their main charcoal manufacturing industry.
The vegetation of Pande is well studied having four distinct tree species assemblages with some grassland areas and secondary scrub. Clarke and Dickson (1995).

Current threats:

Pande Game Reserve has been under threat from immediately before and after its gazettement as a Forest Reserve in 1952. To start with there was exploitation of timber and non-timber products at unsustainable levels.
This was a result of the population increase in the areas surrounding the reserve. Animals have been hunted albeit illegally for household consumption. This has reduced the animal population particularly large mammals to almost nil.

With the increase in the urban population around Pande, pressure on the reserve has increased due to the fact that the amount of household land holding is decreasing. As if this is not enough there is a serious land speculation around Pande. Many well to do people in the city are buying up junks of land from the villages and subsequently rendering the very people land less and therefore pushing down the household subsistence.
Bush fires are also a big threat to the reserve. These have created open areas, which are dominated by grass. From the description above it is clear that there is persistence loss of flora and fauna.

Pugu and Kazimzumbwi FRs
Pugu and Kazimzumbwi forest reserves are small remnants of one of the oldest forests in the world. They belong to the unique East African Coastal forests, which once covered the entire Tanzanian Coast. These Forests have an exceptional high variety of plants and animals. The Pugu and Kazimzumbwi Forests are extremely small in size: 2410 ha and 4887 ha respectively.
Pugu and Kazimzumbwi Forest were gazetted as forest reserves during the English colonial time, in 1954. The main purpose was to have a fuel and timber supply for the growing city nearby - Dar es Salaam.
The two FRs face many threats as high human population density and the closeness to the ever ceasing market for forest products (charcoal, timber and construction poles) in Dar es Salaam. Within the reserves there is a Kaolin mine and also Minaki Secondary School.

Lowland East Usambara Forests
The East Usambaras have 62 vertebrate species which are either strictly endemic or endemic to the Eastern Arc and / or Coastal Forests. Of these several are primarily found in the Eastern African Coastal / afromontane transitional forests including the recently discovered snake *Prosymna semifasciata* which is only found in the lowland East Usambaras.

The East Usambara landscape is a combination of lowland and submontane forest interspersed with agricultural land including sisal and orange plantations and subsistence farming of maize, beans etc. From a landscape perspective the African coastal / afromontane transitional forests play a critical role as habitat for a number of restricted range species; as buffer zones for the submontane forests and as corridors between the coast and the mountain forests.

Current threats:
Pressure on land is high in the East Usambaras from growing populations in the adjacent agriculturally dependent communities. Clearance of forest up to the boundaries of the forest reserves has meant that the reserves are frequently affected by fire from the burning of adjacent fields. Fire is the single biggest threat to these forests. Clearance of forest on general and village land has also meant that communities are forced to collect wood products from within the Catchment Forest Reserves causing further degradation of the forest. Hunting for duiker, bush pigs and hyraxes is also common and is sometimes

the source of forest fires when hunters use fire to smoke out the animals. Although there have been some efforts to involve communities in forest management this has been restricted to a few reserves. Given a lack of resources in the government for day to day forest management there is a need to involve the communities more closely in the management of the reserves particularly those in the lowlands where pressure is highest.

2.3 Main socio-economic/political/policy related issues

Since the mid-1980's, Tanzania has implemented various reforms in the political system, economic management and government administration. In 1992, a multiparty democracy system was introduced and successful multiparty elections were first held in 1995. The economic reform programmes that commenced in 1986 have converted the command-based economy into a market-oriented economy. Trade, exchange rates and interest rates are now fully liberalised. Public service reform has included the privatisation of most parastatals and local governments have been strengthened through the Local Government Reform Programme (URT, 2000). As a result, the country's GDP has been increasing for the last decade, reaching 6.2% in 2002, and inflation has declined from 30% in early 1990s to 4.3% in May 2003. However, despite its high potential and progress in recent years, Tanzania continues to be ranked amongst the poorest countries in the world, with currently over 11.4 million people living below the basic needs poverty line (URT, 2002b; VPO, 1998). Nonetheless, Tanzania has a wealth of natural resources including minerals, wildlife, fisheries, forestry and beekeeping that are not yet wisely utilised for poverty eradication (URT, 2000).

At national level, the forestry sector contributes an estimated 3.0-3.4% of total gross domestic product of which the Coastal Forests play a major part but data on their specific quantitative contributions are not available. The forestry sector employs about three percent of paid labour and over three million people in the informal sector, selling charcoal, firewood, timber, honey and other non-woody products (excluding wildlife products) (MNRT, 2001). Fuel wood remains the most important use of wood and accounts for at least 92% of the country's energy use and around 95% of the total wood products consumed in the country. Per capita consumption of wood fuel is estimated at 1 m^3 per year (MNRT, 1998a).

Products provided by coastal forests that contributes to community livelihood and poverty reduction include timber and non-timber products such as: wood energy, building poles and sawn timber, herbal medicines, edible fruits, mushrooms, plant-derived oils, leaves and beverages, bamboo, gums, fodder, fibre, honey, candles, dyes, ornamental plants, household utensils and handicrafts. Various studies have confirmed that the value of non-marketed forest products by communities is immense (IUCN, 2001; MNRT, 2001a; Mogaka *et. al.,* 2001). Non-woody products from coastal forests that are traded by local communities and contributing to improvement of their livelihoods include: bee products, food, fruits, nuts, medicinal plants, gums, resins, barks, thatch grasses, natural dyes, aromatics and fibres. Due to their low cost and wide availability, plant-based traditional medicines are more popular than western alternatives in many areas of the coast regions and it is estimated that about 70% of Tanzanians use medicinal plants for curing illnesses (Marshall, 1998; MNRT, 2001a). A total of around 1,000 species are used in traditional medicine, with 98 traded in urban centres (Mariki *et al*., 2003).

The forestry sector accounts for around 10% of foreign exchange earnings, derived from exports of timber (sawn wood, softwood pulp, paper and round wood), timber products, honey, beeswax, mushrooms and other non-wood forest products. Average annual export earning from forest products is around USD 14 million (MNRT, 1998a). In 1999/2000, a total of 7,965 m^3 sawn wood (worth USD 0.99 million) and 1,337 m^3 round wood (USD 0.38 million) was exported. Major markets include Japan, Singapore, Hong Kong, India and Taiwan. Honey and beeswax exports average 4,860 tonnes and 324 tonnes per year respectively (MNRT, 2001a).

2.4 1mportance of coastal forests

Generally the East Africa Coastal Forests comprise one of the 25 Global biodiversity hotspots characterized by an exceptionally high level of endemism of plants and vertebrates. This coastal forest mosaic ranks first among the Global hotspots in terms of the number of endemic plant and vertebrate species per unit area and eighth in terms of conservation priority based on the combination of endemism and threat. Of the estimated 136,000 hectares of coastal forests occurring in Kenya and Tanzania, about 70,000 ha are in Tanzania. Equally important, over 90% of the globally threatened species in the East Africa Coast Forest hotspot also occur in Tanzania.

At community level coastal forests are important for a variety of uses. The most frequently reported uses of these forests are firewood, charcoal, poles for the construction of houses, pit sawing, to produce timber for house construction and furniture making. The opening of Mkapa Bridge in Rufiji is likely going to accelerate commercial logging of coastal forests in Lindi and Mtwara regions. Other uses of the coastal forests include collection of edible plants and honey, religious (spiritual) activities and ceremonies, gathering of medicinal plants and clearing of forests to grow agricultural crops.

2.5Main environmental issues

Coastal Forests loss leads to destruction of habitats of endemic species described above. It is also one of the main contributing factors to climate change due desiccation etc. Sustainability of water sources is one of the key prerequisites for local and national development. Population pressure and inefficient forest management contribute to the deterioration of the catchment forest areas causing water shortages. Inappropriate logging methods further reduce the quantity and quality of water as well as create sedimentation and peak floods. Cultivation of river banks outside forest reserves causes soil erosion.

3. Main stakeholders

Main stakeholders include those dealing with policy and legal framework, advocacy on sustainable conservation and trade in flora and fauna. Stakeholders responsible for policy and institutional legal framework related to EACFE include:

The Vice President's Office that is responsible for overall policy-making, co-ordination and planning with respect to the environment.

The National Environment Management Council (NEMC), which is a national advisory body to the Vice President's Office on environmental issues. NEMC was established under the National Environment Management Council Act No. 19 (1983),

National protected areas board of Zanzibar (NPAB). NPAB is responsible for coordinating terrestrial and marine protected area,

The Ministry of Natural Resources and Tourism that contains four divisions namely: Wildlife, Fisheries, Forestry and Beekeeping, and Tourism.

The Ministry of Agriculture, Natural Resources, Environment and Cooperatives - Zanzibar that involves Department responsible for Natural resources management in Zanzibar namely: forestry sector, Fisheries and environment.

Ministry of Regional Administration and Local Government that is responsible for Local Government Reforms in the District Councils of Tanzania Mainland.

Various educational institutions, parastatals and NGOs are advocating on sustainable conservation of the Coastal Forests of Tanzania. Those which are active include:

- Sokoine University of Agriculture Sciences - Faculty of Forestry and Nature Conservation.
- Kizimbani Agricultural research institute – Zanzibar.
- Parastatals under the Ministry of Natural Resources and Tourism namely: Tanzania National Parks (TANAPA), Tanzania Wildlife Research Institute (TAWIRI), Tanzania Wildlife Corporation (TAWICO) and Tanzania Forestry Research Institute (TAFORI).
- Some of the NGOs dealing with advocacy on sustainable conservation of Coastal forests include: WWF, TRAFFIC, LEAT, CARE-Tanzania, TFCG, WCST, TCMP and TASONABI.

Stakeholders dealing with trade on flora and fauna in the coastal forests include:

- Ministry of Natural Resources and Tourism and the Ministry of Regional Administration and Local Governments.
- District Councils falling within the Coastal Forest Ecoregion
- Village Governments falling within the Coastal Forest Ecoregion
- Traders ranging from individuals, groups to medium scale timber dealers that either own sawmills or with export companies.

Investment level

Literature review showed that there is little formal investment levels for processing and trade on forest products. Some of the reported operating sawmills within the coastal forests include:

- Badr E.A Enterprise Ltd - at Ikwiriri Coast Region
- Portfolio Investment Company Ltd – at Ikwiriri Coast Region
- Mahmood International Ltd – at Ikwiriri Coast Region
- Sikh Sawmills/MASCO - in Tanga District.

However, statistics on the volume of investment levels by the above sawmills as a whole were not available.

There is a substantial informal investment by traders on carvings, logs, planks and charcoal at local level through purchase of working tools like: saws, axes, bicycles etc., and construction of selling points. For example some traders on carvings have established a carving selling village at Mwenge Dar es Salaam by constructing carving shops and sheds. The impact of informal trade in the coastal forests is high, but data on its volume and investment levels are missing (Salmi and Mongela 2000).

4. Main challenges and threats

Over exploitation of resources

Commercial logging of coastal forests is reported to occur mainly in Lindi, Coast and Tanga regions. *Swartzia madagascarensis* is the commonest valuable tree species being harvested and exported as round logs from Kilwa and Rufiji districts. Although some of this logging is undertaken using licenses obtained from the relevant authorities the majority is believed to be illegal. Coastal forests on general lands where there is no proper management suffer more in terms of illegal logging than Forest Reserves. Field patrolling as a protection measure is almost ineffective because of staff shortage and transport problems. In Tanga region illegal exploitation of *Brachylaena hutchinsii* dominates the timber business. This species has a thriving market in neighbouring Kenya where it is used for wood curving. Tree logs are chopped into billets and transported across the border by using bicycles. The main reason for the over exploitation of forest resources is lack of *or outdated* management plans for most natural forests in the country. Both forestry and immigration staff have joined hands to fight this illegal business. All in all logging of the valuable trees is often the first major disturbance to forests which then degenerates to allow other land uses. Charcoal production is a major cause of habitat loss in areas close to large cities and alongside main roads. Increasing demand of charcoal in urban areas has increased deforestation in rural areas with serious environmental degradation. A recent study in the Coast region has shown that in the past charcoal producers practiced selective felling but, currently due to low intensity of trees per unit area, some charcoal producers are practicing clear felling (Kaale et.al., 2001).

Most of the natural vegetation of Kazimzumbwi forest reserve in the outskirts of Dar es salaam has been cleared for charcoal production to meet the ever growing demand of woodfuel in the city.

The Wildlife Conservation Society of Tanzania (WCST) attempted sustainable conservation initiatives with government and villages on the edge of both Pugu and Kazimzumbwi FRs. WCST began the project in 1991 in cooperation with WWF. The two NGOs held monthly management planning meetings with FBD. Concern grew over continued illegal encroachment for cultivation in Kazimzumbwi FR by people from a local village. Charcoal production escalated from the illegal clearing and elsewhere in the forest (Burgess and Clarke, 2000). FBD continues to take other remedial measures as regular patrols and periodic eviction operations. People in Dar es salaam and elsewhere in the country will continue to rely on wood fuel for their fuel needs because alternative energy sources like kerosene are much more expensive. This calls for the need for the ministry of energy and minerals and the ministry of natural resources and tourism to chart out a joint national strategy to address the problem of uncontrolled charcoal production.

Hunting of wildlife and demand for bush meat is ever increasing in coastal forest communities. Gendagenda forest reserve in Handeni district and Noto/Chitoa Plateau

forests in Lindi region are famous for illegal hunting of game. In Pande game reserve near Dar es salaam animals have been hunted for household consumption years ago. Their population particularly of larger animals has been reduced to almost zero.

Encroachment

Several coastal forest reserves are threatened by encroachment for agriculture and settlements. There is a mounting pressure, for example, to use South Ruvu forest reserve in the coast region for farming activities. The pressure comes from retired personnel and the business community in Dar es salaam. Encroachment through agriculture is also widespread in Msubugwe and Gendagenda FRs in Tanga region. Like wise Vikindu FR near Dar es salaam is seen as a potential land for the construction industry and for horticulture uses. The FBD is using its limited financial resources to drive away encroachers in these threatened coastal forest reserves. One such operations has been conducted for South Ruvu FR followed up by frequent field patrols and surveillances.

Population Pressure

One of the main threats to the Coastal Forests is population increase and the associated expansion of subsistence agriculture which permanently converts natural habitats to farmland. The population of Tanzania is estimated to be 34 million to date with an annual growth rate of 2.8 per cent. Urban growth rates are considerably higher. The populations in the coast part of Tanzania have been of different dynamics where studies indicate rapid growth for Bagamoyo and slow growth for Rufiji. The population of Bagamoyo increased from 136,000 in 1978 to 174,000 in 1988 an annual growth rate of 2.4 percent; similarly, the population of Rufiji District grew from 135,000 in 1978 to 152,000 in 1988, an annual growth rate of 1.3 percent (URT, 1997a) immigration and natural increase is likely to cause population increase in coast areas. The increase in population in some areas has a major impact on forest and woodland resources, particularly in terms of fuel for household use. Fuel wood projections in the country estimate some 22 million cubic metre at the household level, compared to a sustainable yield of 13 million cubic metre. This demand is likely to reach 52 million cubic metre by the year 2020. Much of this will come from the clearing of forest and woodland (Burgess and Clarke, 2000). As most people in Rural Tanzania are cultivators the demand for land and natural resources increases also with the increasing population.

Agriculture

Coastal agriculture is inefficient. Much is short term shifting cultivation concentrating on food crops like cassava, maize and rice leading to declining yields. Declining yields leads to increased pressure on forest areas. Some of the main ecological problems for agriculture include inadequate land, inadequate fertility, diseases, vermin, and pests. Agriculture is also affected by natural processes. For example, the Rufiji River changed course some years ago, resulting in changed patterns of erosion, deposition, and salt penetration into different parts of the delta. Some farmers reacted to these changes by clearing mangroves and introducing rice into areas that now experience less salinity.

Shifting cultivation is a major agricultural system in coastal areas where yields are initially high in a newly opened rice fields in the mangroves but decline after the third

year and the field is abandoned due to weed invasion by the seventh year. This practice led to clearing of coastal forests every time a new field is opened.

Uncontrolled fires

Fire is an important source of energy for cooking in homes and hotels. Fire is also used for preparing agricultural plots and for controlled/prescribed burning but fire destroys forests and national parks also killing wildlife and other living organisms. Forestry and beekeeping records show that a total of 10,110 ha were destroyed by fire at Sao Hill forest project between 1979 and 1999. Fire incidence record from natural forests is not reliable because of lack of monitoring and control. However uncontrolled fires are another long term threat to the coastal forests. The long dry seasons experienced over recent years in the country have caused the coastal forests to dry up and make them prone to forest fires. The threat is particularly intense during the period prior to cultivation, when fires are set to burn trash and clear agricultural fields. The lowland East Usambara forests are frequently affected by fire from the burning of adjacent fields. Similarly Rondo forests are highly threatened by frequent wild fires. These fires destroy large areas of natural habitat.

Destructive mining practices

Exploitation of limestone is well spread along the coastal areas of Wazo hill in Dar es salaam and Amboni in Tanga. Mining of rubies has been going on for some years now in the lowland of Uluguru mountains near Kimboza FR. In the lowland of East Usambara forests fresh gold deposits have recently been discovered. Artisan miners have moved in the area in large numbers clearing forests rich in species endemism for the precious stones. The Songo Songo gas project—*Songas* is operating along the coastal belt of Tanzania extending from Lindi to Dar es salaam. It has not been established how much damage the project causes to coastal forests.

National Policies

At national level, the major challenges and threats to biodiversity loss has been the lack of integrating environmental concerns into economic policies. Economic policies have aimed at achieving economic growth largely without regard to implications for the environment. Often, this has resulted in over exploitation of coast forests and loss of biodiversity. Conflicting objectives and interests in the use of coastal forests among government ministries and departments, be it land for salt making or tourism, forestry or fisheries have contributed to the biodiversity loss in the coast areas and continue to pose threats. Lack of co-ordination among various institutions has led to undesirable outcomes for the environment in the coastal areas. The objective of the national investment promotion policy of 1992 is to promote maximum mobilization and use of domestic capacity. The achievement of such a goal poses significant threats to biodiversity in a situation where co-ordination of activities is lacking among those sharing common resources to achieve their specific goals.

Legal Issues and Enforcement

Tanzania has many legal provisions for the coastal forests management and several institutions responsible for the implementation and enforcement of rules. However, the main issues have been lack of effective enforcement of laws and rules, low penalties for

offenders, and a long and cumbersome procedure to enact and pass by-laws relevant at village level. Currently, some of the penalties are low compared to the cost of the damage to the environment and magistrates use their discretionary powers to reduce sentences further.

Land Tenure

The issue of land tenure is another policy issue that relate to biodiversity loss. There exists a debate that, lack of tenure security discourages long term investment in land. The issue of land tenure system has resulted into acute land problems and conflicts. However, the new land policy 1995, contains conservation issues as it states that, 'a mechanism for protecting sensitive areas will be created. Sensitive areas include water catchment areas, small islands, border areas, beaches, mountains, forests, national parks, rivers, river basins and banks, seasonal migration routes of wildlife, national heritage, and areas of biodiversity.

4. Main strategies/Interventions adapted at national level

Over the past decade, Tanzania has initiated a formulation and revision of national policies and strategies with the aim of realising a 50% reduction in abject poverty by 2010 and total eradication by 2025. National strategies reviewed with impact to EACFE include the National Development Vision 2025 (URT, 1999b), Vision 2020 (MoFEA 2002a), National Poverty Eradication Strategy (VPO 1998), Poverty Reduction Strategic Paper (VPO, 2000), Poverty Reduction Plan (MoFEA 2002b), Rural Development Strategy (RDS) and Tanzania Assistance Strategy (TAS) (URT, 2000). In recognition of the Rio Declaration on Environment and Development, Tanzania has also committed to implementing Agenda 21 through the review and development of appropriate policies, agendas and strategies. At the sectoral level, several national policies with impact to trade on flora and fauna have been revised namely: National Science and Technology Policy (MSTHE, 1996), National Environmental Policy (VPO, 1997a), Zanzibar National Forest Policy (1995), Zanzibar Environmental Policy (1996), Zanzibar Agricultural Policy (2000), National Fisheries Sector Policy (MNRT, 1997), Land Policy (MLHSD, 1997), Agriculture and Livestock Policy (Ministry of Agriculture and Livestock 1997), Mineral Policy (MEM, 1997), National Forest Policy (MNRT, 1998a), National Beekeeping Policy (MNRT, 1998b), Wildlife Policy of Tanzania (MNRT, 1998c), Tourism Policy (MNRT, 1999), National Policy on Women Development and Gender (Ministry of Community Development Women Affairs and Children, 2000), NGO Policy (VPO 2001a), Energy Policy (MEM 2001) and Water Policy (MWLD 2002). Furthermore, Tanzania established two biodiversity planning tools within the provisions of the Convention of Biological Diversity namely: the National Biodiversity Country Study (VPO, 1997b), National Biodiversity Strategy and Action Plan (VPO, 1999) that has some implications on the trade of coastal forests flora and fauna.

At policy level, it is acknowledged that, the majority of Tanzanian livelihoods depend on natural resources (MNRT, 1998a; URT, 2000). However, proven experience has shown that the quality and quantity of Tanzania natural resources, in particular coastal forests, is dwindling due to unwise utilisation consequently threatening living standards.

To support sector policy revisions, Tanzania has also revised various legislations regarding land acquisition, ownership and utilization of forest and wildlife resources. *The*

Land Act No 4 of 1999 defines land tenure structure in Tanzania (MLHSD, 1999a). Part III, subsection 7 gives declaration to hazardous land that provides opportunities for biodiversity conservation and control of the trade of flora and fauna. *The Village Land Act No. 5 of 1999* is complimentary to the *Land Act No. 4 of 1999*. The *Village Land Act* empowers the Village Council to manage all village lands in accordance with the principles of a trustee with the villagers being the beneficiaries (MLHSD, 1999b). The *Village Land Act* is very important to the sustainable management of coastal forests since the majority of the forests are surrounded by villagers that could contribute to their sustainable management through Participatory Forest Management Scheme like Joint Forest Management or Community Based Forest Management (MNRT, 2001b).The *Forest Act No. 14 of 2002* provides regulations on the trade of flora and fauna. *Part VI* provides details on permits and licenses. *Part VII* provides details on Trade in Forest Products while *Part XI* provides details on offences and penalties. The *Forest Act No. 14 of 2002* has replaced the *Forest Ordinance Cap. 389 of 1957* and the *Export of Timber Ordinance of 1953. The Wildlife Conservation Act No. 12 of 1974* and the recent *Wildlife Conservation (Wildlife Management Areas) Regulations, of 2002* govern legal aspects on fauna and flora trade. The *Local Government Act 1982* and *Local Government Finance Act, 1982* empower Local Councils to enact by-laws to levy taxes from forest produce in their area of jurisdiction. *The Local Government Acts* also empower Local Authorities to collect taxes from all forested areas within their areas of authority whether in a district, township, municipality or city, regardless of the type of forest reserve (central, local or public land). However, the *Forest Act* allows the revenue collection by local authorities only from the Local Authority Forest Reserves. The *Plant Protection Act No. 13 of 1997* provides for regulation of plants and plant protection substances and the protection of natural environment against plant protection substances.

Licenses and permits govern the legal harvest, transport, sale and export of timber and timber products in Tanzania. Licenses for harvesting and transporting forest products are normally issued by authorized forest officers stationed in the districts. Licenses are valid for 30 days. Traders in forest products are also required to pay annual registration fees to the ministry of Natural Resources and Tourism in addition to business license to local authorities. Forest Product Royalty Rates are set by the Forest and Beekeeping Division of the Ministry of Natural Resources and Tourism. The rates are updated regularly depending on market forces.

To control legal trade on flora and fauna, checkpoints are normally established at strategic administrative boundaries for monitoring timber trade and collecting revenue. Check point workers are supposed to ensure that the transported products match the accompanying license(s), and ensuring fees are paid for any excesses. However illegal trade on forest products is a critical problem within the coastal forests of Tanzania as mentioned earlier mainly due to acute shortage of manpower for managing the forests and in some cases due to corrupt government workers. Empowerment of villagers to manage the coastal forests through participatory forest management principles is advocated as a way of reducing illegal trade (Iddi, 2002, DANIDA, 2002, DANIDA, 2000, MNRT 2001b). However, district councils are experiencing acute shortage of skilled forest workers to implement the empowerment process of enabling villagers to manage forest resources surrounding them. Main products traded illegally from the coastal forests in priority list are: charcoal, sawn wood, logs, poles, carvings, firewood

and thatch grasses (Kaale et al., 2002).Profit margins have been identified by various researchers as a driving force for illegal timber trade.

A crucial feature of local forest management roles in Tanzania is that community based operations are underway in both forests held under the ultimate jurisdiction of government forest reserves and those within village lands known as unreserved lands. In both cases Participatory Forest Management is an approach to forest conservation and management that locates forest local communities as primary management actors and in the process refines the role of government foresters, NGOs, institutions and the private sector to be one of facilitation and technical support. Communities, either as a whole villages or groups of diverse types, generally manage the forest automatically (Community Based Forest Management) or where the operational presence of government foresters is required, in partnership with the government through Joint Forest Agreement. In either case the community takes on significant decision making as well as operational management functions.

6. **Main on going programmes and projects relevant to EACFE**

National Forest Programme—NFP

The National Forest Programme was developed in order to address the challenging responsibilities in the near future and to increase the sector's contribution to the national economy and more so in poverty reduction. The Programme was launched in 2001 and will come to an end in 2010. Its implementation is expected to draw resources from various sources under different stakeholders including the private sector, public sector and external assistance. So far the programme is funded by the Governments of Finland and Tanzania.

Tanzania Forest Conservation and Management Project—TFCMP

The project has a Participatory Forest Management Component covering Morogoro, Iringa, Mbeya and Lindi regions. Most of the forests covered by the project in Lindi region are coastal forests. The PFM component is supported by DANIDA. The project period is five years beginning 2003. The overall budget frame is 60 million DKK.

Lowland East Usambara and Forest Landscape Restoration projects

They are coastal forest projects run by the Tanzania Forest Conservation Group—TFCG in partnership with WWF. The projects are funded by FINNNIDA for the period 2004 to 2006. The overall budget frame is euro 300,000. The Lowland East Usambara project is managing Kambai FR focusing on conservation aspects while the other one is concentrating on land scaping the area.

Misitu Yetu Project

The Misitu Yetu project is a partnership between TFCG and CARE International, and works in close cooperation with the relevant departments of the Government of Tanzania, Tanzanian communities and other local and national NGOs. The Project operates at three levels, firstly directly with communities at several sites, secondly by information sharing, training and networking between communities managing forests. Thirdly, by the capacity building of a national NGO (TFCG) that provides the services to support and advise

community groups over the long term. The project period is five years with its corresponding budget of $ 1,750,000.

South Ruvu

Forests in South Ruvu are under heavy pressure. Through Joint Forest Management, TFCG seeks to conserve theses threatened patches of coastal forest through the Misitu Yetu project mentioned above.

Rufiji Environment Management project—REMP

The objectives of REMP are to:

- Promote the integration of environmental conservation and sustainable development through environmental planning within the Rufiji delta and flood plain
- Promote sustainable use of natural resources
- Promote awareness of the values of forests, woodlands and wetlands.

East Africa Marine Ecoregion—EAME

The East African Marine Ecoregion stretches along the Eastern Africa coastline from Somalia, through Kenya, Tanzania and Mozambique right down to South Africa. The programme brings together a wide cross section of stakeholders from the region to identify biodiversity priority areas in the ecoregion, and further seeks to understand the forces that put pressure on these areas and the ecoregion as a whole. Their conservation strategy is based on systematic analysis of the biodiversity and its threats, including their root causes.

*Goal:*A healthy marine and coastal environment that provides sustainable benefits for present and future generations of both local and international communities who also understand and actively care for and maintain its biodiversity and ecological integrity.
Objectives:

- Protect key sites, processes and wildlife populations in the coastal and marine habitats of the ecoregion
- Promote implementation of policies and practices that support protection and wise use of marine resources
- Strengthen capacity of local, national and regional institutions to effectively participate in the conservation and wise use of marine resources.

Miombo Ecoregion

Activities of the Miombo Ecoregion started in the year 2001 through WWF—Southern Africa Regional Programme (SARPO). The budget frame is $ 100,000 funded by the USA. The main activities are:

1. To identify five miombo land scapes of biological significance at
    - Western Tanzania Miombo
    - Selous—Kilombero
    - Rukwa
    - Itigi thickets

- Ruvuma—Niassa

2. Aerial census survey
   To ascertain viability of the eastern migration corridor of selous—Niassa game reserve followed by ground truthing.

3. Develop a project proposal.
   The project proposal has been developed recently. It goes by the name of 'Selous—Ruvuma Miombo Conservation Programme covering for the period 2004—2009. The budget frame is $ 2.5m.

Project Concepts on Coastal Forests

Four Coastal Forest project proposals have been developed by WWF for funding by Conservation International—CI under the Critical Ecosystem Partnership Funds. Each project is earmarked to receive $ 200,000. The four project proposals cover the following areas:

- Genda genda and Msubugwe FRs
- Matumbi and Kichi hills
- Lowland East Usambara
- Rondo, Noto and Chitoa plateaus

6.1 Potential niche for action

Institutional issues

Institutional conflicts need to be harmonized especially in respect to revenue collection/ benefit sharing and licensing of forest extraction. Law enforcers in the forest sector need to give law enforcement a priority and set enforcement targets that should ensure sustainability of the resources. EACFE programme should strive to facilitate the availability of copies of laws and legal skills needed for law enforcement. Other capacity building measures may include the provision of inputs and recommendations to the government to increase funding for forest management and additional resources (material and human) for ensuring effective forest management. Forest information need to be made more accessible and EACFE may contribute to ensuring that this objective is realized. Decentralization of forest management is critical. But the process needs to gain the desired speed and it should not only decentralize forest management functions but also the resources to do so.

Legal issues

Legislation need to be harmonized so as decisions that are made on forests or forest land should not be conflicting. All arms of state that are involved in law enforcement should also give priority to the enforcement of forest laws. Provisions that require self-regulation should be included in the forest laws so as to reduce the cost and manpower needed to police the forest estate. Laws that impinge on transboundary coastal forests need to be implemented on the ground.

Socio economic issues

Energy policies should take cognizance of need to take measures to conserve and sustain the forest estate. Electricity and other alternative energies should be made available at

affordable prices so as to reduce dependence and pressure on biomass. Structural Adjustment programmes should be implemented with caution so as to ensure that the required number forest staff is maintained to manage forest resources. Targets set for revenue collection from the forest estate should be based on quantitative and qualitative studies that show the state of the resources before licensing commences. Value from forest resources should be reflected in the national and local accounting and planning systems. Issues of livelihood emanating from forest resources need to be addressed meaningfully. Land tenure is critical to effective forest management. Tenure security especially of rural populations needs to be assured both under the law and practice. Community participation is now guaranteed under the law.

Management planning

Observations and reports show that due to a shortage of skilled manpower, almost all coastal forest reserves in Tanzania have no management plans. Maps of the reserves are not readily available in district forest offices, also physical boundaries of the reserves are not properly demarcated in the field. There is also lack of forest management programmes, such as forest surveys, inventories and species harvest quotas. Due to lack of periodic inventory data, growth and regeneration characteristics in the Forest Reserves are poorly understood; hence district officials are unable to provide data on sustainable harvesting and management of the forests. Management planning ought to be treated as priority activity for all forest reserves.

However, the main coastal forests of Zanzibar, Ngezi and Jozani have adopted very comprehensive management plans developed from the participatory process that included all stakeholders. The managements of other forests of Kiwengwa and wider area of Jozani are based on resource use management agreements between the respective villages and Forest Administrator.

To enhance Sustainable Forest Management (SFM) the FBD has initiated development of Tanzania Criteria and Indicators (C&I) for managing forest resources through a participatory approach inline with the International Timber Trade Organization (ITTO) initiatives and guidelines on developing C&I for SFM. However, by March 2004, the C&I development initiatives in Tanzania mainland were still at planning phase but an initial draft had been produced for comments (MNRT 2001d). Zanzibar needs to establish the same in order to harmonise the situation.

Free accessibility to forest reserves and public land forests

Most of the coastal forests in Tanzania are gazetted forest reserves however, in terms of field accessibility there is little difference between harvest practices in gazetted Forest Reserves and public land Forest Reserves. Currently, illegal traders are collecting forest products freely in all forested areas irrespective of their legal status. As a result most of the central and district authority coastal forest reserves are overexploited and encroached. Pitsawing is widespread in the coastal forest area and has flourished due to the favourable economic returns, low investment costs, low chances of apprehending illegal pitsawyers,

poor patrolling and low penalties. The pit sawyers are threatening sustainable management of coastal forests through indiscriminate cutting of trees, construction of dwelling huts, setting bush fires and littering. Some control measures ought to be initiated on this regard.

7. Enabling environment

Tanzania National forest policies set forth directives for sustainable use of forest biodiversity, the most important element of the Forest Policies of 1995 & 1998 is that they encourage participatory forest management and set up an institutional framework for forest management in Tanzania. This is done through setting up a framework for joint forest management within forest reserves and for community-based forest management outside the reserves. By doing this, the policies attempt to incorporate environmental and biodiversity values of forests into forest management and utilisation. The Policies also promise that benefit sharing mechanisms will be established to enable communities to benefit from revenue accruing from forest products and services. This is based upon recognition that collaboration with local populations will promote conservation of areas with unique environmental values. The policies adopt several key strategies in tackling biodiversity conservation and management. These include, establishing special category of forest reserves, (such as nature reserves) in areas of high biodiversity value, incorporation of biodiversity conservation and management in management plans of all protection forests, strengthening of biodiversity research and information dissemination, incorporation of biodiversity conservation in the management regimes of natural production forests and plantations and minimization of the replacement of natural forest cover with exotic species, soil water as a driving engine for agriculture development in the coastal area.

The National Land Policies (1995, 1997) entail considerable changes to the manner of acquisition, holding and transfer of land. A distinction is made between land held upon the authority of central government and land under the authority of village governments. Adjudication and registration of village land (including forestlands) are vested in Village Councils who are the sole managers in their respective areas. The Land Policies advocate for conservation of sensitive lands and areas of ecological importance.

Despite the promulgation of the policy, the tenor of land ownership and tenure remained the same. The radical title to land is still vested into the President with the citizens entitled to tenures of a limited period. Customary tenures have also remained to be susceptible to acquisitions without adequate or no compensation at all. Such factors discourage investments in tree planting and forest conservation in general.

The National Environmental Policies (1996, 1997) specifically recognize the need for taking actions or measures that will promote sustainable use of biological resources for the benefit of both the present and future generations. The policies identify loss of forest cover as one the critical environmental problems facing the country. They emphasize on the collection and generation of information on biodiversity, and implementation of programmes that will forestall biodiversity loss. In recognition of the crosscutting nature of biodiversity issues, the policy documents stipulate, “policies, strategies and programmes for the conservation of biological diversity and sustainable use of biological

and genetic resources shall be integrated into relevant sectoral/cross-sectoral policies, strategies and programmes." However, Tanzania mainland does not have an environmental law while in Zanzibar the environmental policy has been implemented through Environment Act No. 2 of 1996. Such umbrella laws are indispensable as there are critical for the coordination of crosscutting environmental mandates.

The Environment Division in the Vice President's Office has developed the National Biodiversity Strategy and Action Plan (NBSAP). Providing a coordinating framework for sectoral policy, this strategy and action plan is a response to the requirement under the Article 6 of Convention on Biological Diversity. Briefly, Article 6 requires Contracting Parties to develop appropriate national strategies, action plans and programmes for the conservation and sustainable utilization of its biological resources. The Article also includes a requirement for the integration of these strategies, plans and programmes into relevant sectoral or cross-sectoral plans, programmes and policies.
Articulated as a component of the Tanzania Development Vision 2025, the NBSAP sets to build a society that values all 'biodiversity richness.' This must be done through applying ten guiding principles, which include the principle that 'the protection of biological diversity is the responsibility of each and every Tanzanian,' and that 'all life forms have intrinsic value and their use should be sustainable.' A number of cross-sectoral objectives are enumerated as well. These include the need to develop and strengthen sectoral and cross-sectoral institutional coordination for harmonization and mainstreaming of biodiversity concerns in planning and management. One of the strategic choices the NBSAP makes is providing cross-sectoral co-ordination between sectors responsible for biodiversity management and administrations at all levels.
The NBSAP is especially important in integrating biodiversity in development planning because mainstreaming is the 'follow-on' challenge arising from the NBSAP itself. However, despite that the NBSAP seems to be well articulated, the challenge seems to be how the document's objectives will be realized. Mainstreaming of biodiversity concerns will definitely be a gradual process and will also depend on a number of factors including presence or absence of the political will on the part of the leadership at the local and national levels.

The Governments of Tanzania have adopted a multi-sectoral approach addressing poverty issues in the Development Visions, 2020and 2025. The main target of these visions are to reduce the widespread poverty in the Tanzanian society by improving socio-economic opportunities, good governance, transparency, and improved and redefined public sector performance. An appropriate balance between private and public institutions is emphasized. Although it seems that the gist of the Vision is economic imperatives, it also includes social challenges ranging from health, education, and the environment. It clearly envisages the need to attain a sustainable level of development of the people. However, the Vision is not explicitly articulate strategies that will ensure implementation of different roles for conservation and sustainable use of biodiversity so as to achieve the intended vision of having sustainable development by the year 2025. Given the importance of biodiversity to the income and consumption patterns of the people of Tanzania, it is expected that such strategies should have been incorporated in the blueprint of such mega-policy.

The Poverty Reduction Strategy Paper (PRSP, 2000), prepared as a part of the Heavy Indebted Poor countries (HIPC) initiative, is a concretization of Vision 2025. Although acknowledging that poverty is largely a rural phenomenon concentrated in the 'subsistence farming,' this paper does not specifically address biodiversity issues.
Poverty in coastal areas is also major source of forest destruction. This is because the more poor people are, the more they are dependent on woodland and natural resources and environmental resources for consumption. This concept is subtly discussed in Poverty Reduction Strategy Paper (PRSP) that, the poor in Tanzania are heavily dependent on environmental resources for income generation. However, the PRSP creates a course for promotion and facilitation of a partnership between the Government, the private sector and the civil society for purposes of poverty reduction. Arguably, any gains in poverty reduction might lead to a corresponding decrease in pressure on biological diversity, especially because most Tanzanians directly depend upon biodiversity for income generation and consumption. As it was noted by UNDP " …for growth to be sustainable and equitable, issues of access to land resources and their management, water and solid conservation and other environmental factors are of crucial importance."
Apart from the feeble treatment of environment and biodiversity objectives in the PRSP, strategies to attain those objectives have not yet been articulated. However, it is hoped that a revised PRSP will address this shortcoming, and a new strategy to link environment and biodiversity to the PRSP process will be developed by the Vice President's Office. PRSP should entail actions that will be taken to ensure that forests resources are sustainably utilized to enhance the livelihoods of rural populations in Tanzania.

The National Integrated Coastal Environment Management Strategy, 2003 provides useful linkages between environment and poverty and the coastal resources. It strongly advocates for integrated and participatory approach to coastal zone management. The strategy admits, "the only remnants of the once extensive ancient forests of East Africa remain in Tanzania, occurring as isolated patches on hilltops and offshore islands. Extensive mangrove stands still remain, occupying about 115,000 ha of the coast. Apart from their biodiversity richness, they are important and valuable resources to local communities by providing food, fuel and building materials both for home use and sale, as well as playing a vital environmental role in the rich coastal ecosystem." The strategy proposed to be adopted to arrest the rapid deterioration of coastal ecosystems include:

- Supporting environmental planning and integrated management of coastal resources and activities at the local level and provide mechanisms to harmonize national interests with local needs- including the adoption of district coastal management action plans.
- Promoting integrated, sustainable and environmentally friendly approached to the development of major economic uses of the coastal resources to optimize benefits

The Forest Policy was followed up with the enactment of the Forest Act in April 2002 as an instrument for its implementation. The Act was enacted to fulfill various objectives including; promoting, enhancing the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of natural resources for

the benefit of the present and future generations. In addition, the Act is aimed at encouraging and facilitating the active participation of the citizens in the sustainable planning, management, use and conservation of forest resources and ensuring ecosystem stability through conservation of forest biodiversity, water catchments and soil fertility. To do this, the law creates a scheme of rights and responsibilities to use and manage resources. Local communities are empowered under the law to declare their areas as forest reserves, which could be village, group or private forest reserves. Thus, the vision for Community-Based Forest Management anticipates three categories of reserves: (i) Village Land Forest Reserve (VLFR) managed by the entire community; (ii) Community Forest Reserves (CFR) managed by a particular designated group in the community; and (iii) Private Forests (PF) managed by individual designated households. Additionally, the Act envisages the possibility of villages, groups or individuals securing tracts of forests or taking on management functions in public reserves within the framework of Joint Forest Management (JFM) Agreements with the Government. However, despite the law having enacted provisions for registration and other procedures in this respect, no regulations for implementing the relevant provisions of the Act have been published. As a matter of fact, the success (or failure) of this policy and legislative innovation will depend on how the general public responds to these management arrangements and whether they will actually alleviate some of the problems like deforestation or unsustainable harvesting of forests. This Act was enacted for purposes of providing for the Management of forests, to repeal certain laws relating to forests and for related matters. The Act was also enacted to fulfill various objectives including; promoting, enhancing the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of natural resources for the benefit of the present and future generations. Furthermore, the Act is aimed at encouraging and facilitating the active participation of the citizens in the sustainable planning, management, use and conservation of forest resources and ensuring ecosystem stability through conservation of forest, biodiversity, water catchments and soil fertility. The Act divides forest in four types. The first type is national forest reserve which consists of; forest reserves and nature forest reserves. The second type is the local authority which consist of; local authority forest reserves, forests on general land, the third type consists of village forests which consist of village land forest reserves, community forest reserves created out of village forests and forests which are not reserved which are on village land and of which the management is vested in the village council. The fourth type is private forests which are; forests on village land held by one or more individuals under a customary right of occupancy and forests on general or village land of which the rights of occupancy or a lease has been granted to a person or persons or partnership or a corporate body or a Non-governmental Organisation for the purpose of managing the forest which is required to be carried out in accordance with the Act.

The National Forest Programme (NFP) 2001 was formulated as another instrument of implementing the National Forest Policy. The objectives of the NFP are;

i. Sustainable supply of forest and bee and services ensured to meet the needs at the local and national levels.
ii. Enhanced national capacity to manage and develop the forest and beekeeping sector in a collaborative manner.

iii. Enabling legal and regulatory framework for the sectors in place.
iv. Increased economic contribution, employment and foreign exchange earnings through sustainable forest and beekeeping based industry development and trade of forest and bee products.

The programme has four sub progammes namely;

- *Forest Resource Conservation and management* which aims at promoting gender balanced stake holders participation in the management of natural and plantation forests giving priority to ecosystems conservation, catchment areas and sustainable utilization of forest resources.
- *Institutions and Human Resources Development* aiming at strengthening institutional set up, coordination of forest management, establishing sustainable forest sector funding and improvement in research, extension services and capacity building through strengthening human resources.
- *Legal and Regulatory Framework* which focuses on the development of regulatory issues including the Forest Act, rules, regulations and guidelines to facilitate operations of the private sector and participatory management.
- *Forest Based Industries and Sustainable Livelihoods* which is intended to enhance forest industry development by promoting private sector investment, improving productivity and efficiency and to tap the income generation opportunities provided by non wood forest products.

Following the National Land Policy, two pieces of legislation were enacted in 1999. These are the Land Act and the Village Land Act. The Land Act establishes three categories of land: general land, reserved land and village land. The Land Act was enacted to make provisions with regard to management of reserved land and general land in line with conservation laws in which those reserved lands are established while the village land act make provisions for the management of village lands. One feature of these Acts and related regulations made thereunder is the fact they recognize customary rights in land and allow for their registration. This innovation has the potential to directly affect the position of millions of hectares of unreserved or "general" forestlands. More relevant to biodiversity concerns, the new land laws have broadened the definition of "customary rights" to include the right of household owners, groups, or communities to hold commons (such as forests) as registered common property. Most of the land in Tanzania is village land and given the breadth of village lands that traverses throughout the country, it is certain that some of the important biodiversity ecosystems are mainly found within village lands. However, it is unlikely that ordinary villagers or village groups will be able to obtain certificates. So far, there are no indications that the nagging problem of titling is near being fully tackled. Thus, it remains to be seen if the new land laws could have any considerable impact on management and use of biological resources. So far experience has shown that even under the new laws, customary land rights remain to be fluid and tenuous as evidenced in the massive evictions that carried out by the Government to create way for conservation or direct foreign investments. Before enactment of Land Act 1999 and The Village Land Act, 1999, Tanzania's land tenure was regulated by Land Ordinance, 1923. The Land Act establishes three categories of

land; general land, reserved land and village land. The Land Act was enacted to make provisions with regards to management of reserved land and general land in line with conservation laws in which those reserved lands are established while the Village Land Act make provisions for the management of village lands.

The Zanzibar Forest Resources Management and Conservation Act No. 10 of 1996 aims to promote the protection, conservation and development of forest resources for the social, economic and environmental benefit of present and future generations of the people of Zanzibar. With this, the act is objected to encourage and facilitate the active involvement of local people in the sustainable planning, management, use and conservation of forest resources; preserve and enhance the environmental functions of forest resources; and meet Zanzibar's demands for forest produce within the framework of sustainable forest management.

The Local Government (District) Authorities Act, 1982 governments at the district ward and village level. The Act contains extensive provisions relating to the establishment, composition, basic functions and legislative powers of district, township councils and village authorities. Section 22 of the Act provides for the functions and mandates of a village council, which is a body corporate capable of suing and being sued. Those functions include; planning and coordinating the activities and rendering assistance and advice to the residents of the village engaged in aquaculture, fishery, agriculture, horticultural forestry or other activity or industry of any kind; and to encourage the residents of the village to undertake and participate in communal enterprises. Village councils may also propose by-laws to be adopted by village assembly before being approved by the district council. Legislative powers of the the district councils are provided for under section 150 of the Act. Section 192(1) of the same Act provides that by-laws may be made to impose special conditions and give enforcement powers to village authorities. Local governments are also responsible for revenue collection and proposing biodiversity conservation areas for gazettement as protected areas. In addition, they are in charge of managing village and/or local government forest reserves. The Act is relevant to conservation of coastal forests, which are within the jurisdiction of local authorities. Section 118 (1) and (2) provides that, district councils must take all necessary measures to control soil erosion and desertification, regulate use of poisonous and noxious plant/drugs or poison, control and regulate livestock i.e. grazing, modes of husbandry, maintenance of forests, etc. These functions are further amplified in the schedule of the Act.

Tanzania is a member of both the Southern Africa Development Community (SADC) and the East African Community (EAC), and is part of The New Partnership for Africa's Development (NEPAD). All the regional agreements are advocating sustainable trade in flora and fauna as a component of poverty reduction and improvement of community livelihoods. However, discussions with most stakeholders in flora and fauna trade in the coastal forests revealed they were not aware of the regional agreements, policies and structures. Stakeholders at regional and lower levels indicated that the regional agreements exist at policy level but their practical application at community level is non-existing due to lack of awareness.

Tanzania is a signatory to various international and regional conventions related to forestry, biodiversity and environmental conservation. Implementation of these conventions has necessitated revision of policies including those used for the forestry sector. The UN Conference on Environment and Development (UNCED) in 1992 adopted globally authoritative Forest Principles and cross-sectoral recommendations on forest conservation (Chapter 11 of Agenda 21) encompassing holistic and cross-sectoral approach and stressing the sovereign right of individual countries towards sustainable forest management.

Relevant international conventions and agreements of which Tanzania is a member include the Convention on Biodiversity (CBD), Convention of International Trade in Endangered Species of Flora and Fauna (CITES), Convention to Combat Desertification (CCD), Convention Concerning the Protection of the World Cultural and Natural Heritage, Convention of Migratory Species of Wild Animals (Bonn Convention), Convention on Wetlands of International Importance (Ramsar Convention), United Nations Forum on Forests (UNFF), United Nations Framework Convention on Climate Change (UNFCCC and the Kyoto protocol).

8. Appendices

Appendix I, Appendix II

9. References

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