REPUBLIC OF KENYA

Integrated Coastal Zone Management Policy

Draft 00

National Environment Management Authority

18th May 2007

1.0. INTRODUCTION

1.1. Background

This is the integrated coastal zone management policy paper provides for the development of a coastal zone policy in Kenya. The framework is intended to guide actions and policies related to the use and management of Kenya's coastal zone resources, including their protection and restoration.

Definition of the coastal zone Kenya (KMFRI)

The coastal zone includes closely connected terrestrial and marine environment. It consists of distinctively rich, diverse and productive ecosystems, habitats and resources. **For example:** coastal wetlands, coastal forests, mangrove swamps, coral reefs, tidal flats, beach/dunes, and fishery resources.

There are numerous definitions of what constitutes the coast, where it begins and ends and what physical features make up this area. During the development of the South African White Paper for Sustainable Coastal Development the following definition was used. 'The coast is a distinct, but limited spatial area that gets its character mainly from the direct interaction between land and sea (and associated air masses). The coast can be defined as an area with a landward and a seaward boundary that includes:

1. Coastal waters, which extend from the low water mark into the sea, up to the point where these waters are no longer influenced by land associated activities
2. The coastline or sea shore, which is the area between the low and high water marks
3. Coastlands, which are inland areas above the high water mark that influence or are influenced in some way by their proximity to coastal waters.'

In the development of 'The Sustainable Development Strategy for the Seas of East Asia' the coastal area was simply defined as the interface between the land and the sea which is characterised by high biological productivity and biodiversity and governed by complex physical, chemical and biological processes.

The coastal zone is essential for the well being of Kenyans. The zone has considerably contributed towards the economic and social benefits of Kenya. For instance many coastal economies rely directly on the use or harvest of renewable natural resources from the coastal zone environment including fish and timber. These resources are central to the traditional subsistence lifestyle of many coastal communities. Coastal zone environment support substantial tourism and recreational opportunities.

The coastal zone provides life support systems for wildlife population. They provide key habitat for migratory birds, fish and a great many invertebrates, reptiles, amphibians and plants. Some of the wildlife species have been identified as endangered, threatened or rare.

It is recognised that one of the main underlying causes of environmental degradation along the coast is due to institutional failures. It suggests that failures of the market system, for example pollution, over-extraction of resources, influential vested interests and inadequate property rights, together with inappropriate and

or/inconsistent application of government policies such as inappropriate economic growth policies, poverty, weak regulatory and enforcement systems are all contributing to increased pressure on the coastal environment - a consequence of this is the undermining of coastal livelihoods and unsustainable use patterns that we now see.

Include what is to be expected in the policy document:

The policy identifies issues and proposes management strategies for the conservation of critical habitats such as mangroves, coral reefs and deltas and estuaries. The policy also gives guidance on the protection of marine protected areas, species of special concern, water resources and shorelines. Further, it recommends strategies for land use and management access and benefit sharing, research and monitoring, and education and awareness.

Summary of typical Geographical features of the coast, pressures, to be included as background information:

The Kenya coast features a diverse marine environment including estuaries, mangroves, sea grass beds and intertidal reef platforms and coral reefs which are vital for the diversity and reproduction of marine organisms. These are some of Kenya's most valuable ecosystems and are protected by 6 marine national reserves and parks. A large number of Kenyans derive their livelihoods for the coastal region and it is also a large contributor to the GDP through earnings due to the thriving tourism industry. This important ecosystem faces various threats from the ever increasing human population pressure through tourism, industrial pollution, over fishing, destructive fishing, mangrove logging and other unsustainable use of marine resources.
The highly productive systems in the coastal area play a crucial role in the soci-economic development of the country. The coastal economy depends heavily on tourism and the tourism sector is dependent on Kenya's coastal and marine resources, but the visitors to the coast are not the only pressure on the Kenyan Coast. The coastal environment is also at risk from marine transportation activities at the port and shipping a long the coastline. It is estimated that at any given time, there are 50 ships on the, major shipping lanes off the Kenyan coast, approximately 9 are oil tankers with capacities ranging from 50000 to 250 000 tons. Most of this coastal tanker traffic passes 250 nautical miles off shore, however with Kenya serving as the major port for Kenya as well as Uganda, Rwanda, Burundi, Ethiopia, Southern Sudan, North Eastern Tanzania and Somalia making the threat for oil spill obvious. Oil pollution may result from normal activities such as ship to shore transfers and upland tank storage at the port.
(KENSEA)

1.2. OBJECTIVES OF INTEGRATED COASTAL ZONE POLICY

1.2.1. Vision

The vision of this policy is to ensure a clean and healthy marine and coastal environment that provides sustainable benefits for present and future generations.

1.2.2. Goal

"To guide the sustainable management and equitable use of coastal and marine resources in Kenya"

1.3. Specific Objectives

To ensure that ecological values of the coastal zone are fully integrated into coastal resource use planning and management.

1.3.1. Link the use and management of coastal zone into resource and land use policies and programmes, including those related to economic development.
1.3.2. Ensure that adequate information on coastal zone values is available to the local communities, general public, and other resource users.
1.3.3. Develop workable regulations and guidelines to minimize the impacts of development activities on coastal zone environment.
1.3.4. Develop and implement coastal zone resource use and management guidelines to be used in implementing coastal zone policy.
1.3.5. Improve coordination and communication within governments, between various levels of government and other stakeholders, particularly the community.
1.3.6. Review legal frameworks and legislations which are inconsistent with, or at cross-purpose to coastal zone objectives.
1.3.7. To conserve and manage critical coastal ecosystems, habitats and species.
1.3.8. Identify and preserve environmentally significant and sensitive areas.
1.3.9. domesticate relevant international agreements for coastal zone conservation and management.
1.3.10. Develop and implement integrated management plans for identified sensitive areas.
1.3.11. Promote and facilitate integrated marine and coastal zone management techniques.
1.3.12. To improve the knowledge base for sustainable coastal zone management
1.3.13. Carry out socio – economic evaluation and resource valuation
1.3.14. Better understanding of the relationships between coastal fisheries and people's livelihood
1.3.15. Monitoring mechanisms to establish trends in natural resource status
1.3.16. Promote value addition in the use of coastal resources while incorporating traditional values and knowledge systems
1.3.17. Promote alternative livelihood options to minimise pressures on resources
1.3.18. Better understanding of Global oceanic and atmospheric cycles and their impacts at the local level
1.3.19. Improve predictive capacity and early warning systems through better networking and information dissemination
1.3.20. Promote appropriate technologies for restoration and rehabilitation
1.3.21. Participatory approaches in resource management and use
1.3.22. \Enhance targeted research and development activities.
1.3.23. To develop and support Education and information programmes to promote coastal zone conservation, protection and management.
1.3.24. Facilitate better public awareness and concern for the coastal zone conservation
1.3.25. Put in place an environmental information system for the coastal zone

2 Critical Ecosystems and Habitats

2.1 Coral Reefs

Kenya's coral reefs are at the northern end of the East African Marine Ecoregion, decreasing in extent, size and diversity from south to north in three main sections: a) a near-continuous fringing reef system borders the southern coast from Shimoni to Malindi, b) negligible reef development between Malindi Kipini in the region affected by Kenya's two largest rivers, the Athi/Galana/Sabaki and Tana Rivers, and c) patch- and small fringing-reefs border the islands of the Lamu-Bajuni archipelago. Current estimates give a total reef area of 630 km^2, extending from the sea surface to about and 20-25 m depth. Kenyan reefs harbour over 235 species of scleractinian corals, More than 350 species of bony fish, and 12 sea grass species. Turtles and marine mammals that are associated with reefs are of high conservation and tourism value.

The reefs support a widespread artisan fishery and a growing commercial fishery, both made up of local and migrant fishers using a range of gears from traditional to modern. Coral reefs also support Kenya's coastal tourism industry protect shoreline development at the major towns and all major beach-front developments.

2.2 Problem Statement

Major threats to coral and coral reef ecosystems are from many factors ranging from sea level rise and rise in sea temperatures due to global warming and from acidification of seawater. These threats reduce reef health leading to increased reef erosion. For example when reef crest deepens; control of wave energy reduces resulting into higher waves reaching the shore and greater erosion of the shoreline. Coral reefs need clear water and rock surfaces free of algae and heavy microbial activity. Deforestation and desertification has resulted into increased surface flows increasing nutrient content of Coastal wasters and Siltation hence suppressing coral growth. Coral reefs have also been generally over-fished and suffer from destructive fishing practices.

2.3 Policy Issues

2.3.1 Global Climate Change: Emission of Green House gases, leading to global Kenya, and climate scientists predict conditions that will repeat this at increasing warming is causing a rise in sea temperature which causes coral bleaching. In April-May 1998 this resulted in 30-70% mortality of corals on almost all reefs in frequency and severity. Sea level rise and acidification of seawater will also affect coral reefs on time scales of 10-50 years. While scientific consensus is not yet reached it is possible that within 20-30 years coral reefs as, currently known will not persist along the East African coast

2.3.2 Fishing: Coral reefs have been generally over-fished and suffer from destructive fishing practices. As a Common Property Resource, fish stocks are exploited with little attention to sustainability, worsened by increasing numbers of fishers due to population growth, economic hardship and poor fishing technology and skills.

2.3.3 Water quality – pollution, sedimentation: Coral reefs need clear water and rock surfaces free of algae and heavy microbial activity. Deforestation and

desertification result in greater surface flows of water causing Siltation in and increased nutrient content of coastal waters, suppressing coral growth. These conditions also significantly suppress the recovery ability of reefs such that after degradation from another threat, such as warming seawater or destructive fishing, reefs cannot recover

2.3.4 Coastal erosion and accretion: Coastlines and coral reefs are dynamic geographic features, at the interface of land and sea. Reef erosion is increased when coral health is reduced from other threats, resulting in deepening of reef crests, higher waves reaching the shore and greater erosion of the shoreline. Rising sea levels due to climate change will exacerbate erosion, with a raised sea level of 30-80 cm predicted for the Indian Ocean over the next 100 years

2.3.5 Mining/seabed extraction: Coral reefs are vulnerable to degradation and destruction from mining and seabed extraction activities, resulting from physical/construction-related damage and water quality degradation from minerals and/or chemicals used in mining and shipping-related activities. Some species associated with reefs, such as fish, dolphins and others may be highly vulnerable to seismic exploration

2.3.6 Shipping/oil spills: Corals are vulnerable to damage from oil spills and spill-cleanup chemicals and activities. Due to tidal variation on the Kenya coast, reef crests, lagoons and shallow back-reefs are vulnerable to trapping of spills and chemicals during low tide.

2.3.7 Siltation: High sediment yield from land-bases sources has been , and continues to be one of the major causes **of coral reef degradation.**

2.4 Policy Statements

2.4.1 Adverse impacts of Climate Change managed by domestication of the United Nations Framework Convention on Climate Change (UNFCCC) and other related Multilateral Environmental Agreements (MEAs)

2.4.2 Fishing and tourism activities within coral reef ecosystems are regulated in order to protect the health of the reef.

2.4.3 Land use management and pollution control measures developed and enforced to manage Siltation and pollution of the coral reefs.

2.4.4 Shoreline erosion and accretion researched and strategies for appropriate management developed and implemented.

2.4.5 The health and integrity of coral reef preserved during mining and sea bed extraction and other related activities.

2.5 Management strategies to ensure sustainable use and management

2.5.1 Establish a multi-zone strategy for Integrated Coastal Zone Management that encompasses all waters within Kenya's Territorial Waters and the immediate coastal zone

2.5.2 Revise Protected Area legislation and regulations to strengthen management of Marine National Reserves and Parks through ecosystem-based management to maximize the resilience of Protected Areas

2.5.3 Revise Fisheries Management policies to adopt an ecosystem-based management approach to protect and sustain stocks of commercial species and limit habitat damage from fishing

2.5.4 Strengthen mechanisms for undertaking, reviewing and enforcing Environmental Impact Assessment and Environmental Management Plans

2.5.5 Enact comprehensive and best-practice guidelines and standards for seabed and undersea mining and extraction

2.5.6 Build capacity (human, material and knowledge) for sustainable management in line with the revised guidelines

2.5.7 Data generation/research and design of appropriate control structures and development of regulations and guidelines

2.5.8 Development and effective implementation of oil spill contingency plan

2.5.9 Pollution monitoring and enforcement mechanisms to minimise releases into the marine environment

2.5.10 Increasing the knowledge base through scientific research and monitoring of coral reef ecosystems.

2.5.11 Level of exploitation shall be linked to the best available indigenous knowledge and scientific information

3.0 Mangrove forest

Mangrove forests in Kenya occur along the coast between Kiunga at the Kenya Somali border to the north and Vanga at the Kenya-Tanzania border to the south, a distance of 574km long. The forest provides goods and services that are of economic, ecological and environmental values to the people. Moreover, being renewable resources, mangroves are capable of providing these services indefinitely, only if they are managed effectively to the end.

As a dynamic ecotone between the land and the sea, mangrove wetlands are controlled by several interacting factors such as tides, periodicity of freshwater and sediment influx, topography of the wetland, soil and water salinity, and sedimentation patterns. The area of mangroves in Kenya is estimated as 52,980 ha, spread over 18 forest formations along the coast.Lamu district with 34,000 ha has the largest area of mangroves, followed by; Kwale, Kilifi, Tana river and Mombasa districts

All the nine mangrove species recorded in the Western Indian Ocean region occur in Kenya. Two of the species, *Rhizophora* (Kiswahili, MKOKO) and *Ceriops* (MKANDAA) are dominant, and form 70% of the formation. The rare species are *Heritiera* (MSIKUNDAZI) and *Xylocarpus* (MKOMAFI).

3.1 Problem Statement

The major obstacles that have hitherto prevented rational use of mangroves in Kenya have been: the sectorial approach of mangrove resource management, lack of community inputs into management efforts; the poverty status of many indigenous coastal communities, lack of alternative livelihood; and a lack of awareness amongst decision makers and communities about the true values of mangroves. These management problems are compounded by, inadequate knowledge of; silviculture of species, of multiple-use potential of resources and, of the techniques and economics of natural regeneration, reforestation and sustainable management. There is no management plan.

3.2 Policy Issues

3.2.1 Lack of strong linkage among the lead agencies and stake holders in mangrove conservation leading to uncoordinated management efforts, conflicts and inadequate information exchange.

3.2.2 Undefined land tenure for mangrove areas which is not adequately addressed in the current legislative frameworks.

3.2.3 Conversion of mangrove areas into other uses such salt harvesting, mariculture and settlement leading to loss of mangrove habitat.

3.2.4 Lack of management plans for rehabilitation and sustainable harvesting of mangroves.

3.2.5 Pollution of mangrove ecosystems from land and sea based sources such as oil spills, sewerage and industrial effluents.

3.3 Policy Statements

3.3.1 Develop a harmonised legislative and institutional framework for sustained management of mangrove ecosystem.

3.3.2 The communities living around and deriving benefits from mangrove ecosystems shall be involved in the co- management.

3.3.3 Enhanced research for understanding of mangroves forest and Mangroves ecosystem.

3.3.4 Mangrove area within the entire Coastline shall be gazetted in order to enhance sustainable management.

3.4 Management Strategies

3.4.1 Review roles and responsibilities of different agencies and organization with regard to developing collaborating frameworks among stakeholders.

3.4.2 Socio-economic roles of mangroves as well as identify potential income generating activities aimed at improving the income of local communities while conserving the mangroves.

3.4.3 Take management inventory for planning monitoring, and effective regulating licensing, zoning, rehabilitation of degraded areas, and preparation of operational plans.

3.4.4 Develop and support appropriate mangrove training, education, and awareness programmes

3.4.5 Empowering and capacity building the community. for participatory forest management.

3.4.6 Identify areas of benefit sharing in mangrove co-management in particular to the community.

3.4.7 Develop guidelines for sustainable use of mangrove wetlands.

3.4.8 Identified traditional usage of mangroves and wetland management the extent of traditional mangrove wetlands usage and in cooperate in management systems.

3.4.9 Harmonise policies on: land, fisheries, forestry, agriculture and Environment for effective management of mangrove ecosystems.

3.4.10 Conflict and conflicting interests are an integral part of community-based management of natural resources- but there is need to Establish resources use conflict resolution mechanisms.

3.4.11 Improve the capacity of the regulator at the site or district level.

3.4.12 Gazette all mangrove areas as protected forest.

3.4.13 Development management plan at ecosystem and site level

4.0 Coastal Forests

Historically, the terrestrial coastal forests were part of extensive networks of forests extending across East Africa to the Congo basin. These coastal forests bear unique communities with high drought resilience, high levels of adaptation and endemicity. The reduction in forest area and subsequent fragmentation of forests into isolated remnant pockets has proceeded gradually due to climate change, and in recent years, more rapidly due to human factors. A number of the remaining forest patches have high levels of endemicity of birds, small mammals and other fauna and flora. The largest of these forest patches, Arabuko-Sokoke forest in Malindi and Kilifi districts, is home to six rare and endemic birds and is designated as a forest reserve. Other forest patches include Boni-Lungi, Dakacha woodlands and Dodori in the northern coast and Shimba Hills in the southern coast. Other small forests are found, which are traditionally considered sacred shrines by local communities, commonly known as Kayas.

4.2 Problem Statement

Major threats facing coastal forests include encroachment for settlement and farming, illegal logging, human wildlife conflict, deforestation and loss of biodiversity mainly attributed to a reduction of forest cover. These factors have contributed to the reduction in forest cover and subsequent fragmentation of forests into isolated remnant pockets accelerating loss of endemic species.

4.3 Policy Statements

4.3.1 Human wildlife conflict within coastal forest areas due to competition for resources within and outside the forests resulting into loss of life, property and irreversible destruction of forest ecosystem.

4.3.2 Overexploitation of certain preferred species of plants and animals by local communities and other stakeholders leading to disruption of species population dynamics and subsequent decline of species diversity and population.

4.3.3 Over reliance on wood based forest products due to lack of access to alternatives and inappropriate technologies and skills to tap such alternatives.

4.3.4 Uncontrolled harvesting from ungazetted forest areas. Due to lack of mandate by the protecting agencies over various ungazetted forest, there has been increasing pressure on such forested areas like the Dakacha woodlands in Malindi.

4.3.5 Inadequate enforcement of existing legislation due to low capacity. The enforcing agency is constrained by inadequate human and financial resources as well facilities. This has led to insufficient enforcement of existing legislation.

4.3.6 Insufficient collaborating frameworks among conservation agencies leading to uncoordinated management of forested areas.

4.3.7 Inadequate ethno botanical data and information on coastal forests. Research organisations are constrained due to unavailability of adequate resources and skilled personnel and also non-participatory approaches in forestry research.

4.4 Management Strategies

4.4.1 Effective management of wildlife population to minimise human wildlife conflicts and discourage encroachment of human population into forest boundaries for settlement and farming.

4.4.2 Improve access to alternative energy sources and construction materials in order to reduce over-reliance on wood products.

4.4.3 Promote farm forestry and agro- forestry to provide alternative sources of wood products thus reducing pressure on protected forest areas.

4.4.4 Promote non-wood based forest products e.g. bee-keeping, mushroom farming, eco-tourism in order to alternative livehoods and sources of income.

4.4.5 Promote forest management partnerships with the community, civil society and stakeholders. (Participatory forest management) in enhance forest conservation.

4.4.6 Strengthen conservation of critical forest habitats through various measures such as gazetting that forest presently not protected.

4.4.7 Enhance public awareness on forest values and function to promote conservation and elevate level of participation of communities.

4.4.8 All Kayas and sacred sites shall be preserved for posterity in order.

4.4.9 Document and enhance the application of indigenous knowledge in management of coastal forest.

4.5 Policy Statement

4.5.1 Significant Coastal forest patches including Kayas and sacred sites conserved and protected for prosperity and their endemism.

4.5.2 Systems and structures developed for local communities to derive maximum livelihood from coastal forest and participate in the sustainable management.

4.5.3 Develop a harmonised legislative and institutional framework for sustained management of mangrove ecosystem.

4.5.4 Enhanced status of Kayas and sacred forests as national monuments and some declared UNESCO heritage sites with the participation of neighbouring communities.

4.5.5 Developed opportunities for sources of livelihood from non-consumptive use of the forest like ecotourism to the communities.

4.5.6 Effective control of wildlife instituted to minimise human wildlife conflict.

5.0 Sea Grass beds

5.1 Background

The Kenyan coast is rich in sea grasses and marine algae. Seagrass grows mostly on sandy to sandy-muddy sediments from the inter-tidal zone down to a depth of 20 m or more below the water surface. Approximately 12 species of sea grasses have been reported in the Kenyan coast. Sea grasses are closely associated to coral reefs covering extensive areas of shallow and deeper reefs in Kenya. Sea grass beds are important habitats for many species of fish; they are also act as sediment traps ensuring good health of coral. They are also refuge for threatened species like the green turtle, hawks bill turtle and the dugongs

5.2 Problem Statement

Sea grass beds are threatened by human activities within the coastal zone. These include but are not limited to destructive fishing practices e.g. trawling, industrial development and poor farming practices, which lead to degradation of these ecosystems, aggravated by the lack of awareness and inadequate enforcement of legislation of sea grass beds through controlled fishing and improved monitoring

5.3 Policy Issues

Inadequate capacity for monitoring and surveillance of sea grass beds due to limited expertise, research equipment and funding.
Use of inappropriate fishing gear that degrades sea grass ecosystems. The traditional fishing communities lack resources for offshore fishing and are therefore concentrating fishing in the sea grass bed.
Pollution of sea grass ecosystem mainly from land based sources particularly areas with large municipalities and active agricultural areas.
Excessive sedimentation of shallow coastal waters resulting from erosion of agricultural lands and the shorelines.

5.5 Policy Statements

5.5.1 Develop and adopt strategies to mitigate adverse impact of climate change.
5.5.2 Fishing and tourism activities within sea grass beds are regulated in order to protect the health of the reef.
5.5.3 Land use management and pollution control measures developed and enforced to manage siltation and pollution of the sea grass.
5.5.4 Shoreline erosion and accretion researched and strategies for appropriate management developed and implemented.
5.5.5 The health and integrity of sea grass preserved during mining and sea bed extraction and other related activities.
5.5.6 Enhanced research, surveillance and monitoring of sea grass Ecosystems.

5.6 Management Strategies

5.6.1 Build and strengthen institutional and community capacity for monitoring and surveillance of sea grass beds
5.6.2 Regulate use of appropriate fishing gear.
5.6.3 Control pollution both from land and sea based sources.
5.6.4 Control soil erosion to reduce sedimentation into sea grass beds.

5.6.5 Enhanced community awareness on values and functions of sea grass beds.
5.6.6 Implement measures to control sea urchin blooms

6.0 Deltas and Estuaries

6.1 Background

The Kenyan coast has a number of estuaries which come about as a result of sea level rise (or land subsidence) during the recent geological times. These include the Sabaki river estuary and others such as Umba, Ramisi and Mwache These estuaries are the flooded lower courses of rivers that about 18,000 years ago flowed to a shoreline that may have stood about 160m lower than it does today, and thus several kilometres offshore. These estuaries are generally sheltered from high energy waves and receive fine grain sediments from inflowing stream. Their shores are colonized by mangrove trees and associated plants.

The Tana river delta is the largest delta ecosystem in Kenya and the country's only major ocean delta. The delta is characterised by diverse habitats including riverine forests, grasslands, woodlands and bush land, lakes mangroves, sand dunes and coastal waters. Traditional land use practices of small-scale agriculture, pastoralism and fishing have maintained the ecological balance of the delta for many years. However more recent human influence has been very strong. Most notably draining of land for agriculture and control of water flow for irrigation and hydro-power production.

6.2 Problem Statement

The major rivers including the Tana and Sabaki discharge into the ocean through deltas and estuaries. The rivers transport huge quantities of sediment, which are associated with serous degradation of various coastal and marine resources. River Tana deposits 3 million tons of sediment annually while the Sabaki deposits 2 million tons. These enormous sediment loads are associated with poor land use practices in the catchments.

There is also unsustainable harvesting and conversion of mangroves and other wetland resources through firewood, charcoal, building timber for canoes, poles, tannin and traditional medicines. Resource use and land tenure conflicts between pastoralists and agriculturalists occur regularly in the Tana delta. There is major destruction of riverine habitats through uncontrolled exploitation of natural resources.

6.3 Policy Issues

6.3.1 Large scale irrigation schemes leading to destruction of deltaic habitats.
6.3.2 Flood disrupting the ecosystems and economic activities.
6.3.3 Siltation of deltas and estuaries resulting into diversion of river courses.
6.3.4 Damming of the rivers upstream for hydro-power generation.
6.3.5 Diversion of rivers into brooks and seasonal water ponds e.g. Tana River.
6.3.6 Natural resource use conflicts and land tenure conflicts between agriculturalists and pastoralists.
6.3.7 Destruction of riverine habitats through uncontrolled exploitation of natural resources.
6.3.8 Marine water intrusion especially during the dry season.

6.4 Policy Statement

6.4.1 Develop long term tourism development plans and management to take cognizant of the fragility of deltas and Estuaries.

6.4.2 Develop legal framework for sustainable management and restoration of the Deltas and estuaries including their biodiversity.

6.4.3 Develop strategies for equitable distribution and utilization of water resources to minimize resource conflict.

6.4.4 Integration and coordination of research effort to provide relevant researched information and data essential for sustainable management.

6.5 Management Strategies

6.5.1 Declare deltas as conservation areas with zoning regimes.

6.5.2 Institute upstream flood control measures.

6.5.3 Institute proper land use management measures to control soil erosion.

6.5.4 Regulate diversion and damming of rivers to minimize negative impacts.

6.5.5 Enhance enforcement of EIA in river basin development.

6.5.6 Institute integrated river basin management.

6.5.7 Design and implement appropriate land use management plans to minimise resource use conflicts

7.0 POLICY ON MARINE PROTECTED AREAS

7.1 Background

The Marine Protected Areas (MPAs) are defined as 'Areas set aside by law to protect and conserve the marine and coastal biodiversity and the related ecotones for posterity by enhancing the regeneration and ecological integrity of the mangroves, coral reefs, sea grass beds, sand beaches and their associated resources which are vital for sustainable development through scientific research, education, recreation and other compatible resource utilisation.

7.2 Problem Statement

The major challenges facing MPAs is the degradation of habitats and ecosystems which may translate into the loss of biodiversity. This primarily caused by the high conflict between rate of utilisation and conservation, and the balance between sustainability and utilisation. The issue of poverty in most areas of MPAs leads to a lot of conflicts between MPA managers and local stakeholders such as fishermen and boat operators.

7.3 Policy Statements

Redefining management of marine and coastal resources/ecosystems.

Widening management plans to include 'landscapes and seascapes' as opposed to defined smaller areas.

Promoting ecosystem resilience for long-term sustainability, as complex and resilient systems are required to respond to future environmental changes and disturbances for continued provision the ecological goods and services needed.

Ensure public involvement in future developments and management strategies of MPAs to avoid conflict in natural resource use.

7.4 Issues Affecting MPA management

7.4.1 The mandate of MPAs does not extend to critical habitats outside the marine protected areas e.g. deltas, estuaries, and small islands. KWS is legally managing MPAs, but does not hold title deeds for the adjacent islands and beaches. An increase in beach development activities such as construction of seawalls has enhanced beach erosion. In some cases this has hindered access of the beach by the public and destruction of critical habitat.

7.4.2 Possible conflict between the mandates of Fisheries, Tourism and Kenya Wildlife Service and existing and potential conflicts among stakeholders including conflicts between stakeholders, between fishers and dive tour operators, between fishers and KWS, and occasional conflict among boat operators.

7.4.3 Illegal fishing and collection of shells, corals and ornamental fish in the MPA's and reserves.

7.4.4 Trawling, leading to high incidences of by-catch.

7.4.5 Uncontrolled mangrove cutting which takes place on the periphery of the Park and Reserves and reduces the breeding and nursery function of mangrove forest and eventually degrades the forests.

7.4.6 Over-crowding of popular diving and snorkelling sites, leading to unauthorised anchoring or overloading of mooring buoys. Snorkelling also leads to damage of corals.

7.4.7 Lack of license and liability insurance by small boat operators jeopardises reputation of MPA's.

7.4.8 KWS has insufficient funds to provide adequate 24 hours-a day patrolling.

7.4.9 Impacts of marine and land-based activities on the marine environment. These include agriculture, improper disposal of liquid and solid waste, waste disposal and pollution from ships, and potential development activities lead to increased siltation, floating debris, and environmental degradation.

7.4.10 Occurrences of natural disasters and hazards such as the El Nino have caused bleaching and mortality of reef corals. Storms increase turbidity of water leading to reduction in the growth rate of reef corals.

7.4.11 Conflicts between fishers and boat operators occur when divers cut open the fish baskets to release the fish. (Management strategy is organising the current boat management units & fishermen into cooperatives. (move to community issues)

7.5 Management Strategies:

7.5.1 Extend the mandate of MPAs to include critical habitats outside the marine protected areas. Acquisition of title deeds for beaches and islands adjacent to MPAs, to prevent encroachment. For any development to take place on the critical habitats like the islands, an EMP should be in place.

7.5.2 Strengthen the operationalization of the MOU between Fisheries Tourism and Kenya Wildlife Service and involve/enhance community participation in management of the marine environment. This can be done through identifying and diversifying means of livelihoods. For example promoting the use of ecotourism as a means of livelihood (good examples exist in Wasini Island) and encouraging rain harvesting for agricultural purposes.

7.5.3 Collaboration between FiD and KWS in development and enforcement of strict regulations on illegal fishing and collection of shells, corals and ornamental fish in the reserves. This can be done by empowering the local fishermen to exploit new fishing zones and fish stocks by diversify fishing grounds.

7.5.4 Monitoring of the trawling vessels and fostering ways of keeping them within the allocated quarters. Incorporate no fishing zones, closed fishing seasons and zoning of on- water activities.

7.5.5 Implement no cut zones for mangroves and allocation of quotas for harvesting coupled with restoration activities.

7.5.6 All boat operators should acquire licenses and liability insurance. KWS and tourism should collaborate on how to ensure compliance.

7.5.7 Fund raising and involvement of the local communities to assist in 24-hour patrolling.

7.5.8 Multi-sectoral approach in management of marine and land-based activities that affect on the marine environment. Detailed plans on integrated water shed management need to be developed.

7.5.9 Ensure that ecosystems such as corals, sea grass beds and mangroves are properly managed and monitored so as to reduce their vulnerability to natural disasters. This can be done through adopting proactive management practices based on sound scientific principles and developing active management programmes that incorporate sustainable use of resources.

8.0 POLICY ON SPECIES OF SPECIAL CONCERN

8.1 Background

(The topic needs to include species of special concern both flora and fauna which are endemic, rare, threatened, endangered migratory or protected).

The rich and diverse habitats of the coastal zone typified by both marine and terrestrial environments support various rare and valuable species. These include Sea mammals such as dugongs, dolphins and whales, sea turtles sea birds**,** invasive species such as Prosopis, sea urchins and the Indian house crows. Also included in the Lower Tana River Forest are the Tana River Mangabey and the Tana River Red Colobus (Procolobus rufomitratus). Endemism is an important aspect of coastal biodiversity and the area records many endemic species of plants and animals.

8.2 Problem Statement

Rich in biodiversity as it is, the Coast is also habitat to the majority of Kenya's threatened species. The largest threat to the species is as a result of habitat loss and fragmentation due to encroachment, pollution, excessive extraction and poor enforcement of legislation. The widespread accidental and deliberate mortality of species of special concern as a result of by-catch continues. Due to the complexity and extent of the problem a multi-faceted, integrated management approach is required over the long term in the following suggested areas.

8.3 Policy Statement

8.3.1 Multi-sectoral approach in the protection and conservation of species of special concern and their habitats, including both flora and fauna which are endemic, rare, threatened, endangered or protected.

8.3.2 International and regional cooperation in to ensure protection of species of special concern

8.3.3 Create Public awareness on the threat and issues affecting the endangered species.

8.3.4 Habitats of species of special concern to be protected.

8.3.5 Encourage recovery programmes to enhance the population stabilization and growth.

8.4 Issues affecting Species of Special Concern

8.4.1 Lack of sufficient information for management of resources.

8.4.2 Lack of proper land use/land policy has resulted in destruction of critical habitats such as breeding grounds, foraging sites and migratory corridors

8.4.3 Poaching of species of special concern for domestic and commercial purposes.

8.4.4 Incidental capture of species as by-catch.

8.4.5 Socio-economic issues such as increased population, poverty, cultural beliefs and lack of awareness has exerted pressure to various species threatening their population status.

8.4.6 Insufficient enforcement of conservation laws coupled with the high demand for natural products has enhanced over-exploitation of various species of special concern.

8.4.7 Improper disposal of liquid and solid waste from municipalities poses threats to various species in both terrestrial and marine ecosystems.

8.4.8 Migratory species of special concern.

8.5 Management Strategies

8.5.1 Carry out an inventory of species of special concern and develop guidelines for their management.

8.5.2 Develop proper land use/land policy to include conservation and protection of critical habitats. The habitats should then be mapped and gazetted.

8.5.3 Integrate the various conservation policies.

8.5.4 Law enforcement and effective marine resource management by authorities and providing incentives to local communities to eliminate domestic poaching. Stronger penalties should be prescribed and minimums determined. Officers and law enforcement agencies need to be aware of laws governing sea turtle conservation and enforcement procedures. These should include the police and judiciary

8.5.5 Ensure use of selective harvesting methods and appropriate technology and identify and map out marine habitats critical to the survival of the species.

8.5.6 Create employment, policies on population growth, promote positive and discourage negative cultural beliefs, promote awareness programmes.

8.5.7 Alternative products and livelihoods should be encouraged. The local communities capacity should be strengthened to patrol and monitor.

8.5.8 Improve the implementation of municipality by-laws on disposal of liquid and solid waste in relation to the solid waste regulations. Increased awareness of individuals on disposal of solid waste.

8.5.9 Support regional initiatives targeting migratory species and domesticate international conventions for their conservation.

9.0 POLICY ON FISHERIES

9.2 Background information

In Kenya, the marine fishery is predominantly small scale and artisanal. The marine catch is estimated to represent only 8.3% of the total fish catch of the country with the rest coming from inland lakes and rivers, predominantly Lake Victoria. Due to this apparently low importance the marine fishery has historically received much less interest from the point of view of research and governance.

It has been estimated that the fishery yields a paltry 7,000 metric tones of fish annually compared to an estimated potential of 150,000 metric tones.

However the importance of the fishery lies more in its importance to coastal food security than total tonnage, although there is a likelihood of underestimates. The United Nations Environmental Program (UNEP) estimates that Kenya's marine fishery supports between 35,000-60,000 people directly through dependency on fishing and employs between 5,000 to 12,000 fishermen depending on the season. The role of the fishery is important to Kenya's coastal economy and provides subsistence means to many coastal families.

The productivity of the Kenyan marine fishery is constrained by a number of bio-physical factors including the narrow continental shelf, low productivity waters and seasonality.

The Kenya government has taken an important initial step towards this direction by developing a national fisheries policy whose aspects in terms of marine and coastal fisheries feeds into the integrated coastal zone management (ICZM) policy

9.3 Problem Statement

There has been inadequate investment in the marine fisheries sector, which has resulted in the sector, though lucrative, being undeveloped in most aspects. Inadequate data collection, stock assessment and enforcement of fishing regulations has contributed greatly to unsustainable of Kenya marine fisheries resources.

9.4 Policy statements

9.4.1 Ensure sustainable fishing practices that do not degrade the coastal and marine ecosystem.

9.4.1 Protect traditional beach landing sites and ensure public beach access

9.5 Issues affecting Fisheries

9.5.1 Lack of adequate social, economic and scientific information that would facilitate the deployment of effective management strategies.

9.5.2 Lack of information on fish aggregation and spawning sites and on the migratory species.

9.5.3 Illegal collection and trade in shells and corals.
9.5.4 Destructive fishing practices in critical ecosystems such as use of illegal gear types including undersize nets, use of poison, beach seining and spear guns, in addition to destruction of habitats critical to the replenishment of the marine fishery.
9.5.5 Inshore trawling leading to destruction of habitats and high incidence of by-catch.
9.5.6 Low investment in the exploitation of fisheries resources in the Exclusive Economic Zone (EEZ).
9.5.7 Lack of capacity in monitoring and surveillance in the EEZ.
9.5.8 Conflict between various fishery resource users eg between sport fishermen and long liners and purse seiners.
9.5.9 Lack of diversification of livelihoods leading to over-exploitation of in-shore fisheries resources.
9.5.10 Improper disposal of liquid and solid waste from municipalities poses threats to various species in both terrestrial and marine ecosystems.
9.5.11 Occurrence of natural and human induced disasters e.g. oil spills
9.5.12 Poor infrastructure for investment.
9.5.13 Benefit to local communities from commercial and sport fisheries.

9.6 Management Strategies

9.6.1 A holistic approach to effective management of fisheries resources. This includes stock assessment and socio-economic factors.
9.6.2 Involving the local community in identification and mapping of fish aggregation and spawning sites and introducing closed areas/seasons as necessary.
9.6.3 Awareness, public education and stakeholder involvement on collection of shells and enforcement to control coral collection.
9.6.4 A participatory approach to enhance patrols, enforcement and monitoring of fishing within the creeks to curb illegal fishing and enhance healthy fisheries within the ecosystems. Encourage gear exchange program to eradicate use of destructive gears within the coral reef ecosystems. Community involvement and empowerment to harvest offshore fisheries resources.
9.6.5 Development and implementation of management plans for all fishery resource exploitation, to clearly demarcate zones for trawling activities.
9.6.6 Increase investment and create an enabling environment for local investors in the offshore fisheries.
9.6.7 Build capacity both human and institutional for monitoring and surveillance.
9.6.8 The development of area management units to encompass a number of beach management units and stake-holders to effectively manage selected areas.
9.6.9 Promote the development of ecotourism, sustainable aquaculture and recreational sites within the mangroves ecosystem as alternative/diversified source of livelihood.
9.6.10 Proper disposal of solid and liquid waste and mitigation for probable pollution sources through effective monitoring, control and response.
9.6.11 Develop disaster management plans with relevant stakeholders to ensure preparedness for human induce natural disasters.
9.6.12 Put in place the necessary infrastructures to support fisheries investment.
9.6.13 To develop a clear policy guideline on benefit sharing.

10.0 POLICY ON WATER RESOURCES

10.1 Background

The coastal zone is blessed with abundant water resources. The resources fall under two broad categories-surface and ground water. The surface water sources are springs, rivers, lakes, and ponds, the Indian Ocean. The two major rivers in the country, Tana and Athi Rivers empty their waters into the Indian Ocean. Ground water sources are mainly aquifers. The major aquifers in the coastal zone are Tiwi aquifer in Kwale district and Baricho aquifer in Malindi district.

Freshwater is a basic natural resource, which sustains life and provides for various social and economic needs. In its natural state, water is an integral part of the environment whose quantity and quality determine how it can be used. Safe drinking water and good sanitation practices are basic considerations for human health. The use of contaminated sources poses health risks to the population as evidenced by the incidences of water borne diseases such as diarrhoea and cholera. Despite its importance to our lives and development, water is unevenly distributed in time, space, quantity and with great variations in quality. Furthermore, water is a finite and a vulnerable resource.

Water scarcity is perceived at many places due to unreliable rainfall, multiplicity of competing uses, degradation of sources and catchments. Water scarcity threatens food security, energy production and environmental integrity and consequently there are water use conflicts between sectors of the economy. There are also increasing challenges of managing the multiple trans-boundary watercourses and strengthening water resources management policy and legal and institutional frameworks. Inadequate regulations to monitor groundwater resources development has led to underutilization of the resources and in some places over exploitation and interference in the existing water sources. Fragmented planning, implemented following sector, regional or district interests, aggravates this situation even further.

10.2 Problem Statement

Coastal zone water resources are threatened by over abstraction of ground and surface fresh water. This is caused by high demand especially in urban centres. Degradation of water catchments areas within and outside the coastal zone, particularly due to deforestation and unsustainable agricultural practices. The water is also threatened by pollution from industrial effluents, sewerage, domestic wastewater and surface runoff. Climatic variability in the country leads to floods and drought. There is inadequate data and information on the status of water resources. Availability of fresh water is also a major problem in most parts of the coastal zone which fall under the ASALs and this greatly impacts on socio-economic well-being of the coastal communities.

10.3 Policy Statement

Water resources management and supply is a significant sector for the development of the coastal zone. Ensure availability of sustainable and good quality water sources.

10.4 Issues on Water Resources

10.4.1 Pollution of watercourses, bodies and aquifers leading to poor quality and disposal of untreated waste water into the sea.

10.4.2 Inadequate enforcement of water abstraction regulations leading to over-abstraction of surface and ground water

10.4.3 Salination of ground and surface water resources mainly by salt manufacturing firms and over-abstraction.

10.4.4 Inadequate rainwater harvesting and harnessing of surface run-off due to inadequate human resource capacity.

10.4.5 Lack of resource management and inadequate financial resources to harness water resources.

10.4.6 Lack of appreciation and awareness of water as a social and economic good/asset (aimed at addressing poverty).

10.4.7 Lack of preservation, conservation and protection of available water sources

10.4.8 Unsustainable, inequitable and economical allocation of water resources

10.4.9 Inadequate water supply with acceptable standards for the various needs

10.4.10 Lack of adequate information to support management decisions and education and awareness purposes.

10.5 Management Strategies

10.5.1 Developing guidelines and regulations to manage and prevent pollution of fresh and sea water.

10.5.2 Strict enforcement of water abstraction regulations leading to over-abstraction of surface and ground water

10.5.3 Regulate the activities of salt manufacturing and over-abstraction.

10.5.4 Rainwater harvesting and harnessing of surface run-off. This will reduce water scarcity and contribute to ground water recharge.

10.5.5 Improving the resource and funding base for fresh water resources.

10.5.6 Treating water as a social and economic good/asset (aimed at addressing poverty) by developing programmes for community sensitization on sustainable water resource harnessing for economic well-being

10.5.7 Develop management guidelines to ensure preservation, conservation and protection water sources. Identifying areas to be designated as protected and groundwater conservation areas

10.5.8 Ensure equitable allocation of water resources.

10.5.9 Improve water quality and supply.

10.5.10 Data generation and information dissemination for management decisions and awareness for the users

11.0 POLICY ON SHORELINE CHANGES

11.1 Background

Shorelines have always changed in time due to complex interaction of various natural processes but the rate is in most cases accelerated by human influences. The cited natural causes are sea-level variability, storm wave regime, modification of sediment budget (both riverine and lagoonal) and natural setting of the shore (geology and geomorphology). The human factors include sand mining, damming of river systems, destruction of the coral reef complex, destruction of coastal vegetation, development along coastal beaches and inappropriate mitigation measures.

The Kenyan coast is subject to shoreline changes because of its geological character but human influences have accelerated this process. It has been observed that the closer people are to the shore, the more erosion is being experienced as a problem. A good example is the Watamu-Malindi-Ungwana Bay area, Nyali-Bamburi-Shanzu area and Diani-Shimoni-Vanga area which are most affected at the moment. These areas have been experiencing rapid expansion of coastal tourism development with a high concentration of tourist hotels and activities being found there.

There is extensive beach encroachment along the entire coast. Many facilities have been placed very close to the beach with various structures being constructed past the high water mark. The Survey Act Cap.299 Stipulates a 60 meter set back distance from the high water mark. The structures that have mostly encroached into the beach area range from low height seawalls to full-scale facilities such as swimming pools, restaurants, washrooms and diving clubhouses.

Problem Statement

Shoreline change, particularly coastal erosion, is one of the most prevalent environmental issues of concern. The whole stretch of the shoreline in Kenya especially at Malindi, Kilifi, Watamu, Mombasa and Diani show signs of intense erosion and many structures along the beach are already threatened.

11.2 Policy Statements

11.2.1 Shorelines are critical ecosystems that are sensitive to natural and human induced activities and its management should be institutionalised to facilitate its protection.

11.2.2 Inadequacies in the existing legal framework on shoreline development should be addressed to provide clear management guidelines.

11.3 Issues on Shoreline Changes

11.3.1 Lack of legal instruments and frameworks designed towards overall beach management. A clear setback distance from the high water mark should be set.

11.3.2 Lack of beach use guidelines indicating activities that can be undertaken at the beach and those that are prohibited.

11.3.3 Lack of Local authorities should provide public waste disposal facilities, walkways, changing rooms, clean water and sanitary facilities for the beach users (move to beaches)

11.3.4 Lack of a shoreline monitoring system

11.3.5 Unprocedural approval of development plans along the beach
11.3.6 Beach Accesses to be provided and access rights granted to the public.
11.3.7 Approval of physical developments on accreted land (gained from receding sea).
11.3.8 Lack of long term port development plans.

11.4 Management Strategies

11.4.1 Definition of clear setback distance from the high water mark. Constructions along the coast with a high economical value should be constructed a 'safe' setback distance from the shore that should reflect the susceptibility of the shore to change at that location. A stable coastline needs to be maintained by planting vegetation reduce erosion.
11.4.2 Location of activities on the increase beach erosion further inland away from the beaches.
11.4.3 Development of shoreline monitoring system with clear guidelines on collection, analysis and dissemination of data, and procedures and responsibilities for the various stakeholders should developed
11.4.4 Beach use guidelines to be formulated to conform to the relevant beach management principles. No marine debris or dominating structures on the beach. The design of the existing sea-walls to be improved to allow for a slope, toe & bottom protection and appropriate revetment.
11.4.5 Development and implementation of long term development plans needed to guide activities. All access roads both developed and undeveloped should be identified, gazetted and conspicuously marked with appropriate road signage.
11.4.6 Protecting public beaches in order to ensure public access to the beaches.
11.4.7 Accreted land should be reserved for conservation, recreation and sustainable public use.
11.4.8 Development of a long term development plans for port and harbour development.

12.0 COMMUNITY ISSUES

12.1 Background

The conservation and sustainable use of coastal and marine biodiversity is one of the important environmental issues. This is due to the high biodiversity and rich productivity, and the growing human population associated with these resources. The complex and diverse natural system of the coastal zone creates diverse opportunities as well as threats for people living along the coast. Despite the rich resources, coastal communities remain some of the poorest in the country. Overexploitation of marine resources, pollution, habitat destruction and degradation all have serious impacts on coastal and marine ecosystems which in turn affect livelihood strategies of coastal communities.

Integrated Coastal Zone Management (ICZM) aims at ensuring that the current and future generations of coastal stakeholders realise their basic needs and improve their quality of life whilst maintaining diverse, healthy and productive coastal ecosystems .

ICZM advocates for the sustainable use of marine and coastal resources. It recognises that these resources provide food and livelihoods to millions of people and if well-managed can offer increased potential for nutritional and social needs particularly for the poor while maintaining biological diversity.

12.2 Problem Statement

Despite the rich coastal resources, coastal communities remain impoverished due to:

Lack of legal provisions to ensure access to resources and other economic benefits.
Under exploitation of some natural resource
Inefficiency in resource exploitation due to lack of proper information.
Inadequate infrastructure
Limited capacity and competence in resource management among coastal communities leading to unsustainable utilization of the local resources.

12.2 Policy Issues

12.2.1 Population pressure Increase populations due to immigration and population growth along the coast are thought to be resulting in added pressure on limited and fragile coastal resources.

12.2.2 Over exploitation of some resources - Despite the existence of a number of laws and regulations that govern the use and extraction of marine and coastal resources, there is rampant over-exploitation of the resources due to inadequate enforcement of the rules. For example shell harvesting and beach seining is outlawed in Kenya due to the harm these practices cause to marine biodiversity. The reality however is that both practices remain key livelihood strategies of the coastal poor due to lack of enforcement of the legislation and lack of other opportunities.

12.2.3 Poverty- Levels of poverty are very high among the local communities of the coastal zone. This has led to communities exploiting resources unsustainably.

12.2.4 Erosion of traditional values - Some traditional practices were geared to conserve and protect resources in both marine and terrestrial environments.

12.3 Policy Statements

12.3.1 Increase the capacity and competence of the local coastal communities in resource management by promoting community access to information for sustainable management of resources.

12.3.2 Enact legislation to empower the local communities over the utilization of resources in order to achieve equitable benefit sharing.

12.4 Management Strategies

12.4.1 Provision of alternative income generating activities: Alternative livelihoods enable people to move away from the environmentally degrading activity that they are currently engaged in to other multiple sources.

12.4.2 Poverty Alleviation: ICZM process aims to alleviate poverty through encouraging alternative means of deriving incomes by promotion of proper utilization of land resources, create effective awareness, provide and extend credit to enhance resource exploitation.

12.4.3 Erosion of traditional values: Restoration of traditional values on sustainable management of natural resources and heritage.

12.4.4 Public participation and awareness: Enhance community awareness on technological information and strengthen community participation in resource management.

13.0 LAND USE AND MANAGEMENT

13.1 Background

Land management in the coastal zone is affected by ownership, distribution and poor planning. As a result, most of it is inadequately utilized.

13.2 Problem Statement

Land in the coastal zone is poorly managed and this has led to low productivity, haphazard developments and environmental degradation. The reasons for the poor land management include the existing land tenure systems, inadequate land use planning and implementation and lack of inter-agency information exchange and policy harmonization on status of land. Haphazard developments have been caused by the fact that orderly physical planning came much later than actual development. Political interference also makes enforcement of physical planning guidelines difficult or impossible. Historical facts, lack of harmony in applicable statutes and poor governance in local authorities also contribute to the existing land issues.

13.3 Policy Statement

13.3.1 To work in close cooperation with physical planning to create harmony in various land uses through spatial framework for development control and develop guidelines and standards in each zone.

13.3.2 To enhance environmental sustainability and improve land-use management

13.4 Policy Issues

13.4.1 Inappropriate land tenure systems have resulted in conflicting land use and marginalization/disenfranchisement of local communities. There are four tenure systems applicable in the coastal zone –public, private, trust and freehold systems.

13.4.2 Land is left idle and underutilized due to absentee landlords which leads to low productivity.

13.4.3 Tenants at will, is an informal agreement between landlords and tenants to make use of parcels of land without change of ownership. This arrangement results in informal settlements or slums and mixed uses with no control of the sizes of the land.

13.4.4 Many local people are squatters and do not own the land on which they live. This encourages unsustainable exploitation of land. Quarries, sand mining and other destructive uses are more prevalent in such land. Local property/land ownership would promote responsible use of the pieces of land.

13.4.5 Lack of sanitation, social amenities, insecurity, accessibility thus making the area vulnerable to disasters.

13.4.6 Encroachment into public access routes and beaches.

13.4.7 Erosion and accretion processes of the beaches.

13.4.8 Conflicting policies and statutes which complicates implementation.

13.4.9 Lack of regulations

13.4.10 Low enforcement os regulations for human settlements and development activities within their area of jurisdictions as mandated by the

13.4.11 Low capacity for planning.

13.4.12 Lack of regulations and guidelines in dethat occur environmentally fragile areas such as small islands. These are areas that pose to risk to human settlement. They also include sand dunes, cliffs, mangroves swamps, beaches, coastal wetlands. Some of them are pristine and need to be protected for their intrinsic value.

13.4.13: Issue: conservation of heritage sites, Allocation of monument sites, Historical and heritage sites and to private developers. Local communities rarely benefit from such sites as there is no trickle down.

13.4.14 Development activities occurring without proper guidance such as EIA which clearly spell out a risk-benefit analysis.

13.5 Management Strategies

13.5.1 Control measures such as Land Control Boards, Physical Planning Liaison Committee and ICZM policy should put in place and strengthened so as to improve their capacities/efficacies.

13.5.2 Develop of guidelines for development activities.

13.5.3 PDP for the ICZM?

13.5.4 Feasibility studies for waste management/disposal sites should be carried out

13.5.5 Feasibility for waste water treatment

13.5.6 Inventory and plans for cultural and historical sites

13.5.7 Harmony

13.5.8 Lamu Regional Development Plan currently underway by the Physical Planning Department

13.5.9 Kwale Regional Development Plan (READY – GET COPY)

14.0 ACCESS AND BENEFIT SHARING

14.1 Background

Access and benefit sharing of coastal resources and the fair and equitable sharing of the benefits arising from their utilization is an important issue. Efforts to advance the Access and Benefit-sharing agenda remain unsatisfactory. It is clear that the failure to address, or in some cases even consider, certain critical legal issues has been at the heart of the continuing inadequacy of access and benefit sharing implementation.

Guidelines need to be developed to ensure that the benefits derived for the natural environment are shared out equitably. This would go a long way in reducing poverty among communities. Poverty and lack of awareness on the activities that are destructive to the natural environment are some of the most serious threats to environmental conservation.

14.2 Policy Statements

14.2.1 To enhance local peoples access to sustainable utilisation of the regions resources

14.2.2 To increase benefits to local communities commensurate with income/revenues accrued from utilisation and natural resources and key economic activities (tourism)

14.3 Issues

14.3.1 Lack of participation in decision making processes

14.3.2 Lack of access to beaches by local people

14.3.3 Lack of awareness of their rights to the benefits derived from the coastal environment by local communities.

14.3.4 Lack of local people participation in economic activities

14.3.5 Over-exploitation of resources

14.3.6 Repatriation of revenues by investors and through exchequer

14.3.7 Conflicting legislation

14.3.8 Existing legislation/regulations do not recognize local people participation in utilization of natural resources

14.3.9 Lack of general and specific orders for development of an overall environment management plan for the coastal region

14.3.10 Inadequate enforcement to IPR to stem bio-piracy and improper outflow of research information on natural resources

14.3.11 Weak enforcement of existing legislation governing properly development along beaches

14.3.12 Lack of awareness

14.3.13 Low literacy levels

14.3.14 Cultural limitations

14.3.15 Poor governance

14.4 Management Strategies

14.4.1 Local people need to be represented in decision making committees.

14.4.2 Grassroots consultation, awareness raising and involvement in decisions and development planning.

14.4.3 All beaches are public and access should be guaranteed

14.4.4 Review legislation and policies.
14.4.5 Local authority should manage all area designated as beaches and provide management plans and standards for the same through partnerships.
14.4.6 At least 10% of all tourism fisheries and mining revenues should be ploughed back to the coastal region
14.4.7 Create equitable distribution of accrued revenue
14.4.8 Enhance budgetary allocation for development of marine fisheries

15.0 RESEARCH AND MONITORING

15.1 Background

The importance of research in the environmental management can never be over-emphasized. Research programs are important in assisting environmental managers make decisions that protect the coastal environment. The information is also important in raising public awareness and increasing the integration of efforts between the different sectors that are involved in environmental management. This information is also critical in the litigation process when determining the negative effects on the environment by the different types of development activities.

Research is important in the determination and promotion of best practices and in the development and adoption of cleaner technologies. Lack of information can lead to unwise use of resources, leading to unnecessary escalating conflicts between users which could have otherwise been avoided.

Research is also important in determining the status quo of the environment and monitoring any positive or negative changes that may be occurring. This information can then be used to support decisions of whether to put in place measures to improve the state of environment or ensure that whatever is being done right continues.

Research and Monitoring is therefore every important in decision making on the best way to exploit resources. It is also critical in reporting the negative and positive human induced influences to the environment.

15.2 Problem Statement

16.2.1 Research on the coastal environment is inadequate.
16.2.2 There is lack of dissemination of information and information sharing for use in decision making on the wise use of coastal resources.

15.3 Issues

15.3.1 Inadequate research and monitoring to give a basis for decision making.
15.3.2 Limited funds to support research initiatives.
15.3.3 Lack of continuous research along the coast.
15.3.4 Inadequate data to support decision making on coastal activities.
15.3.5 Lack of dissemination of available information for better management of coastal resources.
15.3.6 Lack of prioritization of research as a tool for ensuring the wise use of resources.
15.3.7 Lack of knowledge of institutional capacity required for optimal functioning.

15.4 Management Strategies

15.4.1 Encourage use of research information in environmental conservation and sustainable use of coastal resources.
15.4.2 Mobilize resources for research purposes.
15.4.3 Ensure continuous research and monitoring activities along the coast.
15.4.4 Establish databases on coastal resources and activities to support decision making e.g. determination of the carrying capacity of different habitats.

15.4.5 Enhance information dissemination through conferences, setting up databases, demonstration projects and others.
15.4.6 Identify priority areas of research and up-scale best management practices
15.4.7 Determine institutional capacity to respond to disasters.

16.0 **EDUCATION AND AWARENESS**

16.1 Background

16.2 Problem Statement

16.3 Policy Statement

To enhance education and awareness at all levels.

16.3 Issues

16.3.1 Low level of awareness on coastal environment issues.

16.3.2 Inadequate education on coastal environment issues at all level of education.

16.3.3 Low level of integration of environmental principles among Ministries and Government Agencies.

16.5 Management Strategies

16.5.1 Enhance education and awareness at all levels

16.5.2 Enhance integration of environmental principles into the activities of Ministries and government agencies.