

The
Eastern African Marine Ecoregion
Biodiversity Conservation Strategic Framework
2005 - 2025



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List of Acronyms

CI	Conservation International
CITES	Convention on International Trade of Endangered Species of Flora and Fauna
CMP	Conservation and Management Plan
CMS	Convention on Migratory Species
CORDIO	Coral Reef Degradation in the Indian Ocean
CRCP	Coral Reef Conservation Project
CZM	Coastal Zone Management
DNFFB	Direccao Nacional de Florestas e Fauna Bravia (National Directorate of Forestry & Wildlife)
EACC	East Africa Coastal Current
EAME	Eastern African Marine Ecoregion
EAMEP	Eastern African Marine Ecoregion Programme
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization
GIS	Geographical Information System
GSLWP	Greater St. Lucia Wetland Park
ICZM	Integrated Coastal Zone Management
IMP	Integrated Management Plan
IUCN	World Conservation Union
KESCOM	Kenya Sea Turtle Conservation Committee
MICOA	Ministerio para a Coordenacao de Accao Ambiental (Ministry for the Coordination of Environmental Affairs, Mozambique)
MPAs	Marine Protected Areas
NEMC	National Environmental Management Council
NEMA	National Environment Management Authority
NEPAD	New Partnership for Africa Development
NGOs	Non Governmental Organizations
ORI	Oceanographic Research Institute
PRSP	Poverty Reduction Strategy Paper
SEACAM	Secretariat for Eastern African Coastal Area Management
TAFIRI	Tanzania Fisheries Research Institute
TCMP	Tanzania Coastal Management Programme
TNC	The Nature Conservancy
TRAFFIC	Trade Records Analysis of Flora and Fauna in Commerce
UNCCC	United Nations Convention on Climate Change
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Program
WIO	Western Indian Ocean
WRI	World Resources Institute
WTO	World Trade Organization
WWF	World Wide Fund for Nature

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The Eastern African Marine Ecoregion:

A large-scale approach to the management of biodiversity

The Eastern African Marine Ecoregion is an area stretching from southern Somalia to the Natal shores of South Africa. This 4,600km coastline is host to an ever-growing population of 22 million, most of whom depend on the coastal seas for their sustenance, business and leisure. This coastal region is referred to as an 'ecoregion' because of the way the marine and coastal habitats are linked, both physically and ecologically. The main habitats present in the ecoregion are mangrove forests, seagrass beds, coral reefs and open waters, home of over 11,000 species of plants and animals. Typically, these habitats form a mosaic along the coast, supporting rich and complex populations of marine species that rely on this diversity for their productivity. In the last fifty years, human activities in the coastal zone have begun to alter and destroy this biodiversity, essential to the continued existence of humans on these shores. Though many pristine areas remain, the rate of human impact is expected to increase. In the pages that follow, the physical, human and biological features of this region are described, together with WWF's Ecoregion Conservation approach aimed at focusing even greater attention on the Eastern African Marine Ecoregion. By boosting the interests and commitment of individual governments and other stakeholders, as well as supporting regional and local initiatives, it is hoped that the conservation of marine biodiversity in this ecoregion will be achieved.

What is Marine Biodiversity?

Marine biodiversity includes coastal and marine plant and animal species, their genetic variety, the habitats and ecosystems they form part of, and the ecological processes that support all of these.

The earth is home to an estimated 10 million species. The largest of these are divided by biologists into three main kingdoms: fungi, plants and animals. The Animal Kingdom is then divided into 33 distinct groups (or phyla). Humans belong to the phylum called chordates, which includes all mammals, fishes, reptiles and birds. Other common phyla of the Animal Kingdom include the arthropods (insects and crustacea: crabs, shrimps and lobsters) and molluscs (snails, squid, octopus, cockles and mussels). There are 11 phyla existing in terrestrial environments and 28 phyla living in the sea, of which 15 are exclusively marine.

Examples of exclusively marine phyla include the echinoderms (starfish and their relatives), ctenophores (comb jellies), hemichordates (acorn worms) and the echiurans (trumpet worms). The marine environment therefore includes a far greater diversity of animal groups than the terrestrial environment, which is not surprising since living organisms first appeared in the seas several hundred millions years before life on land evolved.

Whether in the sea or on land, most plant and animal species are grouped into assemblages or communities characteristic of recognisable habitats. The eastern African coast, for example, includes mangrove, seagrass and coral reef habitats. Each of these requires specific environmental conditions for its development. In the case of the mangrove habitat, shelter from wave action and soft mud or sand are the basic conditions that allow the community to flourish. The combination of habitats forms the marine ecosystem. This ecosystem, the various habitats, communities and species they comprise, constitute the marine biodiversity of the eastern African region.

Furry pin-cushion starfish, a member of the echinoderms, one of 15 exclusively marine phyla





What about the Island states?

The Eastern African Marine Ecoregion does not include the Western Indian Ocean Islands (Madagascar, the Comores, Reunion, Mauritius and the Seychelles). These are considered part of a sister ecoregion, though it is clearly recognised that the two ecoregions are linked.

The Eastern African Coast

The coast of Eastern Africa extends for over 7,000km (4,000 miles), from the northern tip of the Horn of Africa to Cape Town, and is home to the peoples of Somalia, Kenya, Tanzania, Mozambique and South Africa. North of Chisimayu in Somalia, the coast is strongly influenced by an up-welling of colder, nutrient rich water from March-October. As a result there are marked changes in seawater temperature during the year, varying between 17-30°C. The central region, stretching from Chisimayu all the way down to Sodwana Bay in South Africa is exposed to consistent, tropical, environmental conditions throughout the year, with seawater temperature usually between 24-31°C. This region extends for approximately 4,600km and includes some or all of the territorial waters of Somalia (approx. 300km), the entire coastlines of Kenya (500km), Tanzania (900km), and Mozambique (2,800km), and the north-eastern portion of South Africa (approx. 100 km). South of Sodwana Bay the coast is influenced by colder seawater and weather that changes the environment from tropical to temperate.

WWF's Ecoregion Programme (Global 200)

The **Global 200** identifies a series of ecoregions, representing all major habitat types in the terrestrial, freshwater and marine realms, which deserve greater emphasis because of their outstanding biological features. A total of 238 land and water based ecoregions have been identified worldwide. The Eastern African Marine Ecoregion is one of about ten marine ecoregions, for which a special focus towards the preservation of biodiversity is being developed. Other selected marine ecoregions include the Meso-

American Reef (Guatemala, Honduras, Belize and Mexico), Galapagos, Gulf of California, Bering Sea and Sulu-Sulawesi Sea. Ecoregions are much larger geographical areas than the places where conservation efforts have traditionally been targeted. Furthermore, because of the complex management issues related to the political, socio-economic and biodiversity characteristics of the areas, these ecoregions require a conservation commitment over much longer periods of time – as much as 50 years.

Within the tropical portion of the eastern African coast, the shores and coastal seas harbour a characteristic set of species, habitats, dynamics, and environmental conditions. The coastal and marine plants and animals present in the region have adapted and evolved to live and breed in the consistent, reliable tropical conditions that prevail here. This coastal region, functioning largely as a unit, or ecological region, is called the **Eastern African Marine Ecoregion (EAME)**.

The Eastern African Marine Ecoregion and its Biodiversity

For the majority of people living along the shores of eastern Africa, life in the sea is mysterious. At high tide the reflective surface of the sea gives little indication of its secrets and no access to the extraordinary diversity of plants and animals found in its waters or on the seabed. Six hours later, as the tide has ebbed and a much greater expanse of the shore is exposed, a mix of sand, mud or rock may stretch away from the beach for 500m or more. This intertidal zone is accessible on foot, and a short stroll will reveal myriad forms of shells, crabs, seagrasses, seaweeds (algae), starfishes and other creatures. In rock pools small fish, shrimps, coral colonies, sponges and sea-squirts can be seen, while at the back of sheltered bays and inlets, where wave action is reduced, mangrove stands and forests are found.

For a fuller understanding of the marine biodiversity of these warm, tropical waters however, it is necessary to take a mask and snorkel and drift or swim in the shallow waters over the coral reefs and seagrasses where a spectacle of biodiversity can be seen. The inshore waters of the eastern African marine ecoregion support around 1,000 different seaweeds, several hundred sponge species, over 200 coral species, more than 3,000 species of molluscs (oysters, cockles, mussels and clams), over 300 species of crabs, at least 50 species of starfishes, over 100 species of sea-cucumbers and more than 1,500 species of fish. As studies continue, the number of species recorded for these waters continues to rise, but already we know that the eastern African marine ecoregion supports an incredibly rich species composition, easily exceeding 11,000 species of plants and animals.

About 15% of the marine plant and animal species occurring in the region are pan-tropical, that is they can be found in all warm seas. Between 60-70% are found only across the Indo-Pacific, a vast area of similar tropical conditions that stretches from eastern Africa to the eastern Pacific Ocean islands of Hawaii and Polynesia. Whilst 10-15% of the eastern African marine life is found nowhere else on earth. These species (including several species of corals, starfish, molluscs and fish) are said to be endemic to the region.

All of the larger animals and plants of the ecoregion that we have described so far can be seen with the naked eye, but there is also an abundance of minute life forms. These microscopic creatures include much of the plankton, bacteria and fungi. Though vital to all other life, these tiny creatures are much less well known, but could well number tens of thousands of species, and thus the larger creatures represent only a small percentage of the total marine

biodiversity of the region. As research continues we will learn more. Even for the larger animals there is still insufficient information on species distributions and abundance. For example, the well-known, deep water, ancient fish, the Coelacanth, first discovered in 1938 by fishermen off South Africa, was thought to be endemic to the SW Indian Ocean until the discovery in 1998 of a close relative of this fish off Sulawesi (Indonesia), 10,000km from its previously known population.

Approximate proportions of the main plant and animal groups of larger marine organisms in the eastern African marine ecoregion.



On the seashores, and in the shallow coastal waters, the habitats that contain the bulk of the larger plants and animals are easy to identify. These are the sand beaches and dunes, mangrove forests, river deltas, seagrass beds, rocky shores, mud flats, coastal lagoons, coral reefs and open waters. Each habitat has its characteristic compliment of species, though many species require more than one habitat. Fish and shrimps for example will move from one habitat to another for food, breeding or for refuge.

The **beaches and coastal mud flats** of the region provide feeding and breeding areas for about 35 species of resident and migratory seabirds. Between October and March each year, hundreds of thousands of shorebirds fly from their breeding grounds in northern Europe to feed on the mud flats of the large mangrove estuaries of Lamu in Kenya, the Rufiji River in Tanzania and the Zambezi Delta in Mozambique. Other resident seabirds, nesting on small, isolated islands will scout the seas for hundreds of kilometres in search of sardines and anchovies to feed their young. Further down the shore, **seagrasses** form extensive beds on mud and sand, to depths of 15m or more, though they are restricted in their depth range by the presence of light. These are the only true flowering plants to have colonised the sea and 12 species are found in the region. Seagrass beds are home to thousands of small species of animals and plants including seaweeds, sponges, worms, crabs, shrimps, marine snails, starfish, sea-cucumbers and fish. Some of these depend on the seagrass beds for shelter, food or as nursery grounds. Much larger creatures like the Dugong (or sea cow, distant relative of the elephant) and marine turtles also feed on seagrasses.

Mangrove forests occupy the largest area of all these coastal habitats, typically around river estuaries. Ten species of salt-resistant trees, some reaching 20m in height, plus numerous shrubs and palms, form the mangrove forests of eastern Africa, all specially adapted to survive in sea water and root in mud or sand. Mangroves are one of the most productive habitats on earth. When exposed at low tide the forests teem with crabs, worms and snails, many of which are food to birds. At high tide mangrove forests attract hundreds of species of fish, crabs and shrimps which swim among the submerged branches and depend on the forests as feeding areas and nursery grounds for their young. The best developed forests occur around river mouths where they are important in trapping river sediments that would otherwise be washed out to sea. Kenya has a total area of mangrove of about 53,000ha (530km²) and Tanzania, with a total of 133,000ha (1,330km²) also contains the largest continuous mangrove forest of 53,000ha in the Rufiji River delta. Mozambique has by far the largest mangrove area in the region with 500,000ha (5,000km²) scattered along its 2,800km coastline, and the South African coastline supports a smaller extent of mangrove, the southernmost forests of the continent.

Coral reefs are an extremely species-rich habitat, rivalled only by tropical forests in terms of their diversity and productivity. They are a community based on rock-forming coral animals and algae that exist and grow into large submerged mounds, slopes and islands. Non-reef building corals and seaweeds, soft corals and sponges are also important members of this community. The coral animals harbour microscopic algal cells (zooxanthellae) within their own cells that allow them to use sunlight to make food and so help to build their limestone structure. The depth of coral reefs is therefore limited by light penetration with few reefs extending deeper than 40 metres. Growth of the rock-like corals varies between a few millimetres to 10cm per year, depending on the species and water conditions. In the eastern African marine ecoregion fringing coral reefs are the most common type of reef, in many places forming continual stretches of 100km or more, and constituting most of the estimated total of 1,500km of reefs along these shores.



Seagrass bed



Masked boobies on Latham Island



Mangroves at low tide



Rock-forming corals and reef fish



1 Dugong



2 Bottlenose dolphin



3 Slinger



4 Humpback whales



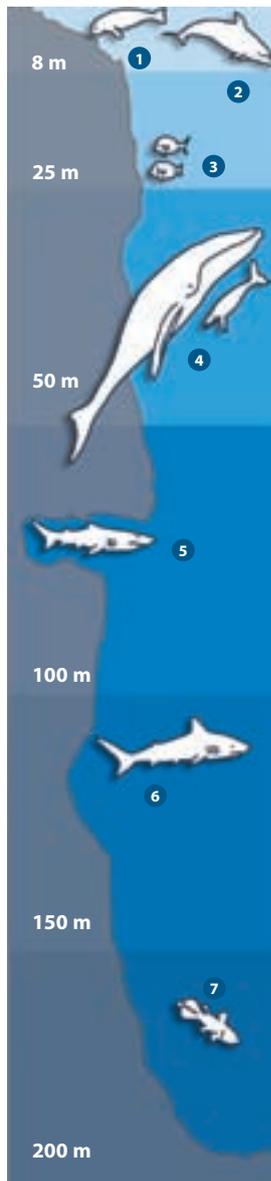
5 Raggedtooth shark



6 Shortnose blacktail shark



7 Coelacanth



The **open waters** of the region are important for large pelagic fish including various species of tuna and billfish, such as the black marlin whose distribution is restricted to eastern Africa and Australia. The region also provides crucial nursery or feeding habitats for 34 species of marine mammals, including the endangered Humpback whales that migrate from Antarctica each year into the warm waters off eastern Africa to give birth. The depths of the seas are little known, as specialist equipment is needed to explore and study this dark and hazardous world. Certainly animals unknown to science are yet to be discovered. The Coelacanth for example, is now known to live at depths of 50-400m in southern Mozambique and northern South Africa. Deep-water sharks, lantern fish and giant squid may also be found at these depths.

The geographical extent of the coastal habitats of eastern Africa is something that is often difficult to grasp. Most people live in the big cities and towns along the coast with very little access, or interest, in other parts of the coastline. As a result, very few people have a broader view of the extent of mangroves, coastal lagoons or coral reefs. Since coral reefs live below the surface of the sea, even fewer people, perhaps only spear-fishermen or SCUBA divers, have any idea of the incredible diversity and variety of animals and plants that live together to form the coral reef habitat.

From the shoreline, the line of breaking surf is usually the only indicator of the presence of coral reefs. Migrant fishermen and airline pilots probably have the best over-view of the geographical extent of the coastal habitats in the region. The view from an aircraft window for example, will reveal that coral reefs form only a narrow strip, usually fringing the land or islands, and mostly not much wider than 1000m.

Typically the coast of the eastern African ecoregion is comprised of a mixed array of the coastal habitats described above. These various habitats are often closely connected physically and are linked both through the coastal waters and by the species they comprise.



Aerial view of mangrove creek discharging into the Indian Ocean

Connectivity within the Ecoregion

The monsoon winds of eastern Africa, with their characteristic seasonal reversal from the north-east (NE) to the south-east (SE), are a major influence on the climate and seas, affecting weather patterns, rainfall and human activities. Another feature of the eastern African ecoregion is the tides. The coast from Chisimayu to Sodwana Bay, experiences a maximum tidal range of 3-4 metres, with a tidal regime roughly the same throughout the region, that is, time of low tide in Mombasa is almost the same as that in Maputo. This almost uniform vertical movement of the coastal waters throughout the region increases the strength of tidal currents and the resulting mixing of inshore waters. Superimposed on the movement created by tidal currents, is the much larger scale movement of oceanic and long-shore currents that exist along these shores. Ocean currents are driven by the rotation of the earth and the prevailing winds. The main current that influences the region is the South Equatorial Current that travels west across the Indian Ocean reaching the African coastline at approximately the border between Tanzania and Mozambique. There it splits into the north-flowing East Africa Coastal Current (EACC), and generally south-flowing Mozambique Current. The EACC travels steadily north at speeds of 2-5 knots (3-9km per hour) depending on the season. During the SE monsoon, the EACC is accelerated and continues north leaving the coast at Somalia. During the NE monsoon season the current speed is reduced and the meeting with the southward-flowing Somali current off Kenya results in the east-flowing Equatorial Counter Current. The Mozambique current extends southwards in a twisting and curling manner along the Mozambique coast varying in extent from year to year. Towards the southern end of Mozambique, the Agulhas Current swings round from southern Madagascar and continues southwards along the KwaZulu-Natal coast of South Africa, eventually mixing with the cold waters off the southern tip of Africa.

Although the strength and extent of influence of the region's ocean currents varies from year to year, dictated by global environmental conditions that in turn affect the strength of the monsoon winds, the overall effect is a fairly consistent movement of offshore waters along the coastline. Combined with the daily ebb and flood of the tide, the resulting currents mix and distribute the inshore waters, its sediments, nutrients, plankton and other floating marine life.

The minute floating plants and animals, the latter usually feeding on the former, and on each other, comprise the plankton community. This community, of which the familiar jellyfish is a member, includes the eggs and larval stages of much larger marine animals such as fish, lobsters, crabs, shrimps, oysters, coral, sponges, as well as the spores of seaweeds. When a mature, female lobster (for example) casts adrift her half a million eggs, she is unlikely to ever see her young. The hatched larvae will join the plankton community, many will be eaten, and others will be washed out into the deep ocean never to find a suitable home. But a few, several weeks later, will finally metamorphose into miniature lobsters. The juveniles may be hundreds of kilometers away from the home reef of their parents. Seeds of coconut trees, mangrove trees, seagrasses and many other coastal plants also rely on the currents as their means of dispersal. Other specialist swimmers use the currents to navigate and carry them throughout the region to reach feeding or breeding areas. Loggerhead turtles nesting in KwaZulu Natal in northern South Africa have been found in Zanzibar, and vast schools of tuna migrate each year through the eastern African waters to feed and breed.

The above descriptions of coastal and offshore currents, tidal influences, the transport of nutrients and plankton and the movement of large marine animals, reflect the important connectivity within the ecoregion. This cohesion, provided by the coastal waters that bathe these shores, is vital to sustaining the biodiversity and productivity of the region.



The jellyfish, a well-known member of the plankton community



Fishing boats in Maputo harbour

Uses of and Threats to Biodiversity

People have been present along the shores of the eastern African marine ecoregion for over 25,000 years. The first inhabitants may have never actually ventured into the sea, but simply collected shells and fish from the shore at low tide, or cut mangrove poles for building. With the advent of sea trade, mainly by merchants visiting from Arabia about 2,000 years ago,

coastal settlements began to develop and expand. These were centred on sites with safe anchorage for ships, such as Mombasa, Zanzibar, Kilwa, and Ilha de Mozambique. Some of the trade items included turtles, sea shells and mangrove poles, as well as ivory, minerals and slaves.

Estimates of the coastal populations for the Eastern African ecoregion (2000).

Country	Total population (millions)	Estimated Coastal population (millions)	% of total population
Somalia	9.9	3.8	38
Kenya	30.0	2.7	9
Tanzania	33.5	8.4	25
Mozambique	19.6	6.6	34
South Africa	40.4	na*	na*

na* = not available.

The coastal people of the eastern African marine ecoregion presently number around 22 million, comprising between 9-38% of the population of the countries along this stretch of coast (see table above). These coastal people are the main dependants of the region, though others such as foreign businesses (e.g. hotels, fishing companies) are also important especially for creating job opportunities. All depend on the coastal environment for their livelihoods. Most of the coastal population live in the cities and towns in the region, notably Chisimayu, Mombasa, Tanga, Bagamoyo, Zanzibar, Dar es Salaam, Mtwara, Nacala, Beira and Maputo. The ports of these cities connect the region with traders from Europe, the Middle East, Asia and beyond, handling cargoes of oil, timber, minerals and fish.

Today the growth of the coastal population is faster than any inland area, largely because the coastal cities and towns attract rural migrants. The average population growth rate for the region is about 3% per year, whilst the growth rate of coastal populations, is estimated at 5-6% per year. This rapid increase in the number of coastal dwellers in the region has a major influence on marine biodiversity, on the resources of the coastal seas and on the quality of the coastal environment.



The marine biodiversity of eastern Africa, with its many species of plants and animals, constitutes a vital resource for the well being of coastal and inland inhabitants. In most rural areas along the 5,000km coastline, people are involved in a diverse range of activities that exploit this biodiversity. Over the last fifty years increasing demands for these marine resources have resulted in significant ecological changes in many parts of the ecoregion.

Coastal fishermen of Tanzania

Marine mammals, for example, were hunted to the edge of extinction in the Indian Ocean before anyone realised that they were declining to such low numbers that their very existence was threatened. The more recent intensive collection of certain animals (e.g. sea-cucumbers) has caused local extinction along some areas of the coast. Sharks and rays are extremely slow breeders, producing only a few juveniles each year. They too are being fished

beyond their natural recovery rates, with the result that these days in the shallow waters of most of the region, sharks are very rarely observed.

A few larger species, known to have been abundant one hundred years ago, are currently so rare that there is a very real possibility that they may completely vanish from the region. Trends indicate that in the next 50 years Dugongs and marine turtles may no longer be part of the marine diversity of eastern Africa. Dugongs used to be common around estuarine areas where they fed on seagrasses. Nowadays, perhaps only a few hundred are believed to exist in the entire region. In many areas marine turtles continue to be caught and killed for meat. Five of the world's seven marine turtle species (Green, Hawksbill, Olive Ridley, Loggerhead and Leatherback), all of which are recognised as being in danger of extinction, nest on the beaches of the region. In many places their eggs are taken from their nesting sites which are also vulnerable to destruction from the construction of beach hotels, sand-mining and beach erosion.



Leatherback turtle hatchling

Fisheries are a vital employment activity to hundreds of thousands of families on the coast. At least as many again are involved in the post-harvest activities of marketing and processing. The products of the industry (fish, molluscs, shrimps and crabs) provide the main protein component of the diet of the majority of the coastal people and many more people inland (where dried or salted products are sold). In Tanzania, for example, the estimated average consumption of seafood per person (9.4 kg/year) is greater than the combined consumption of meat and poultry. For the entire region at least 500 species of fish constitute the bulk of catches, yielding an estimated 200,000 tonnes each year. Most of the catch is from fishers equipped with simple, artisanal gears such as hook and line, hand spears, woven fish traps and various types of nets. Total catches from Mozambique are about 115,000 tonnes, with between 90-95% being caught by about 80,000 artisanal fishers. Other more industrialised fishing methods also exist, including motorised vessels equipped with trawl nets hauled by power winches. In Mozambique alone the industrial and semi-industrial fishing fleet exceeds 150 vessels, earning the economy over US\$ 100 million per year, mostly through the export of shrimps. These trawlers are also active in Tanzania and Kenya, though not to the same scale as in Mozambique which has far greater areas around river mouths suitable for shrimps.

Pole and line fishing off Mozambique



Humpback whale and calf, seasonal visitors to the region



Shrimp trawler off Mozambique

Over the last few decades destructive fishing methods, such as the use of dynamite and small-meshed nets, have destroyed seagrass beds and coral reefs. These practices still continue in many places despite being illegal in all countries. Preliminary research along the coast of Kenya and Tanzania indicates that human activities such as these have reduced fish catches from coral reefs by 30-40%. Large proportions of the by-catch (e.g. non-commercial or unwanted species) of shrimp trawlers are juvenile fish. The loss of these immature individuals threatens future fishery resources. Offshore fishing grounds, some of the only areas on earth from where fish catches are increasing, are also open to plundering, often by industrial foreign fleets.



Salt pans in Tanzania

Mangrove wood is extremely hard and insect-resistant. The harvesting of mangroves for timber and fuel, like basic fishing techniques, has been practised for thousands of years, with poles continuing to be exported from the region. Reckless cutting of mangroves has cleared large areas of previously productive forest. Mangrove forests are also the first to be cleared for the construction of salt pans from where most of the region's much-needed sea salt is produced. Additional pressure from tourism developers, coastal construction, farmers and the ever-growing need for fuel wood, further encourages large swathes of primary mangrove forest to be cut indiscriminately with little or none replanted.



Seaweed farming in Zanzibar

Seaweeds have recently become an important economic resource in Tanzania where they are farmed for export and processing into food additives. The seaweed is grown on lines attached to wooden stakes across the seabed of shallow lagoons. Other methods of farming marine organisms, known as **mariculture**, include the culture of shrimps and fish in coastal ponds, usually in mangrove areas. There are not many mariculture farms in the region at present. However, investors and developers have started to persuade governments of the region of the financial benefits of such practices, which, if not sensibly developed, can adversely affect not only the forests, but also the many fisheries and people who depend on the productivity of the habitat.



Pollution of coastal waters and fish kills

Recently **medical research** into fighting the various forms of cancer and other diseases which affect humans has begun focusing on the sea for possible cures derived from animals such as sponges, soft corals and tunicates. This kind of research, known as **bio-prospecting**, has started to explore the rich coral reefs of eastern Africa where these animals are found in abundance.

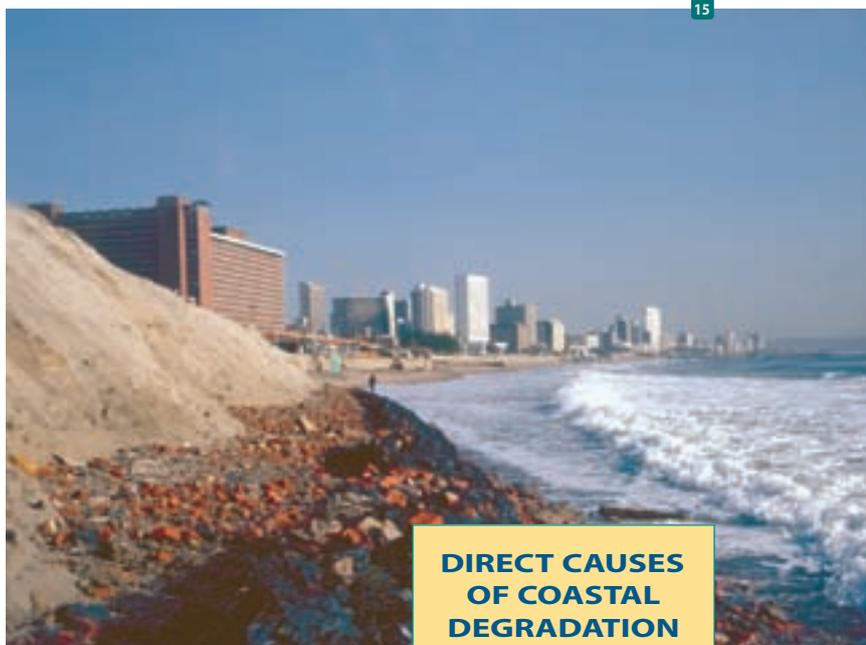


Clear cutting of mangrove forest



Sponges and soft corals

The rapid growth of the **coastal urban centres** in Kenya, Tanzania, Mozambique and South Africa, and the fast development of the coastal tourism sector, produce vast quantities of **pollution** from untreated domestic sewage, posing a threat to the near-shore habitats such as coral reefs. Pollution from industrial waste is generally not a problem since the level of this development is localised at present, though measures need to be in place to prevent potential harm. Pollution from shipping and oil terminals is also minimal at present, despite a large proportion of oil exports from the Gulf region passing through the coastal seas of eastern Africa. Serious oil spills have already occurred around Mombasa and Maputo, damaging nearby mangrove forests and beaches. The threat of further spills is likely to increase as economies develop and industries expand - demanding greater supplies of oil.



Durban Bay

Coastal tourism contributes significantly to local economies of the region, particularly Kenya, where it accounts for a large and increasing proportion of foreign currency earnings. In Tanzania and Mozambique the potential for growth of this sector is huge. Tourism relies heavily on the coastal zone, not just for beach sites for development, but for food and as a leisure area for tourists. Though an important source of income, coastal tourism often raises a number of environmental concerns. The activities of tourists can affect the marine ecosystem directly, through boat and anchor damage to coral reefs, and indirectly by increasing demands for cleared land for development, collection of shells for souvenirs, seafood, and mangrove poles and coral lime for construction. The **extraction of living corals**, baked in kilns to produce lime, has also contributed to coastal habitat degradation especially in Tanzania.



Live coral extracted for lime production

The many large rivers along the coast of the ecoregion carry vital nutrients and sediments that are important to plankton, mangroves and seagrass beds. These rivers connect the shoreline with the interior of the continent of Africa; thus activities hundreds of kilometres up-stream can influence the coastal zone. During periods of severe floods the tremendous loads of **sediment** washed out to sea can overwhelm nearby coral reefs that require clean waters for their existence.

Changes to the coastlines caused by human activity have exacerbated the **effects of climate change**. Sea level is rising at about 1 millimetre per year, which, under normal circumstances, habitats can adapt to, but the loss of inshore coral reefs and coastal mangrove forests adds to the potential damage caused by sea level rise and coastal erosion. The result can be catastrophic. Already the loss of coastal land due to erosion is an ever-growing concern to developers and farmers.

Fallen coconut trees - a clear sign of beach erosion

DIRECT CAUSES OF COASTAL DEGRADATION

No further studies are needed to confirm what government departments are now quite sure of - the destruction of the coastal resources of the region is continuing to worsen. The direct causes are inter-linked and include:

- Population growth
- Increased pressure on resources
- Increased use of destructive methods
- Pollution
- Coastal erosion
- Coastal tourism and industrial development
- Climate change (resulting in seawater warming, more frequent El Nino events, severe flooding)

The Importance of Biodiversity Conservation

With the continuing growth of coastal human populations, the importance of conserving the integrity, productivity and value of the marine biodiversity on which we all depend is paramount. Marine resources are important globally as well as to local people, so we must all share the responsibility of conserving them. At present we are destroying our marine biodiversity. It is critical that biodiversity be maintained and that the degradation, which began several decades ago, is halted. Failure to achieve this will result in ever diminishing returns from the sea.

The four most important reasons for maintaining marine biodiversity are:

- A diverse and healthy marine ecoregion is more productive and therefore provides more fish, mangrove wood, etc. for the users. Each species has a specialised way of using different resources and adapting to changes (e.g. in water salinity or temperature), thus by having more species the productivity of the habitats and ecosystem is maximised.
- A diverse and healthy marine ecoregion, through having more species, is also more stable. This helps protect against environmental changes (e.g. sea level rise, flooding, hurricane and cyclone damage) and improves recovery.
- A diverse and healthy marine ecoregion allows species that depend on different habitats at certain stages of their life cycle (e.g. larval period, growth period, reproduction and nesting) to continue to exist. Keeping only one habitat may not be sufficient to retain all species, but keeping all habitats in a healthy condition again maximises productivity.
- The quality of life for coastal people, and visitors, relies in part on the marine biodiversity for aesthetic reasons.

Despite the threats to the marine biodiversity of the eastern African marine ecoregion and the recognition that it is being degraded, there are still many biodiversity-rich areas, some of them in almost pristine condition. However, achieving effective marine conservation is not a simple task. Over 40 years ago many coastal sites were identified as deserving of protective status. Some were subsequently developed into marine parks or reserves. The approach at that time was to designate an area for non-extractive uses. Successful examples from the 1960's include the marine park of Watamu-Malindi in Kenya and the Inhaca Island Reserve near Maputo in southern Mozambique. These early attempts aimed at protecting the coastal environments, on a site-by-site basis, often encouraging tourism development. More recently, effective marine protected areas (MPAs) have been shown to actually generate greater income from tourism than from the fisheries they displaced. MPAs also help depleted fish stocks recover.

Numerous other sites have been identified for marine conservation since the 1960's. However, of the 30 or so currently designated in eastern Africa, sadly, very few can be said to be effectively managed. With our increased understanding of processes and connectivity within marine ecoregions has come the realisation that protected sites can help each other, and thereby add value to existing efforts and achievements. Integration is the key and there is good reason for enthusiasm towards making the existing sites work.





Common dolphins, one of 34 species of marine mammal common to the region

One of the key components of effectively managed MPAs is the creation of a baseline against which we can measure the changing condition of habitats. If the mangrove forests of today had all been harvested at some time in the last forty years, no one would know what their full diversity comprised. Mangrove forests would be seen as muddy expanses with a few stumps of trees and some scattered seedlings supporting a handful of small fish during high tide, i.e. far removed from the towering 20m tall trees and tangles of roots of a truly pristine and well-developed forest, and the mass of fish and other marine life they support.

In many tropical countries poverty is the main driving force behind the degradation of marine and terrestrial resources, although even wealthy countries experience such problems due to over-consumption of resources, ignorance and greed. In the eastern African ecoregion the majority of coastal inhabitants are poor. Driven by the need for income, younger fishermen especially have taken to the use of destructive gears, and discarded the traditional wisdom of their fathers for careful use of the sea and its riches. Many now fish with little or no regard for the future. Given the opportunity, many of the younger generation that use the sea would prefer to undertake a benign marine or land-based activity, but opportunities are few. Unfortunately, without combating poverty and providing alternative income-generating activities, little can be achieved towards long-term conservation.

Marine Protected Areas (MPAs)

Marine protected areas are generally designed to accommodate a multitude of marine resource users. The active participation of all the main users is seen as an integral part of the process of deciding what types of management systems are appropriate. By definition, however, the designation of an MPA will restrict some activities, thereby requiring some form of enforcement. A legal framework for the management of the MPA is vital.

Current practices recognise that to balance the needs of all users with conservation objectives, a **zoning** scheme is necessary, whereby clearly defined activities (e.g. fishing, tourism, mariculture, mangrove harvest, and research) are permitted in specific (and possibly overlapping) areas or zones. **Core zones** totally protected from all extractive or damaging activities may also be considered, and are known to help considerably with:

- preserving the genetic and ecological basis of the region as a whole;
- providing safe refuges for breeding stocks of fish as well as boosting replenishment, recovery and productivity of neighbouring areas;
- providing a baseline for comparison with other areas, or the future, and;
- attracting environmentally-aware tourists and thus generating alternative incomes and further boosting awareness.

Ecoregion Conservation: Theory and Practice

The scale and approach of conservation efforts around the world has recently been re-examined. WWF and other major institutions concerned with the use of natural resources (World Conservation Union (IUCN), World Resources Institute (WRI), The Nature Conservancy (TNC), Conservation International (CI) and UNEP) concluded that conservation in the 21st Century needs to:

- be driven by a common vision and raise a collective voice for conservation;
- use networks of protected areas within managed coastlines as the core component of conservation planning;
- be planned and implemented over time scales compatible with ecological processes (30-50 years);
- combine rigorous science, traditional knowledge and practical politics, and;
- be integrated in the broader social, economic, and policy factors critical to sustainability.

Together these institutions recognised that the traditional focus on species, protected areas, environmental policy and public information, though reasonably successful in the past, will not be enough to meet the challenges of the future. Instead, working with stakeholders at much larger geographical scales, and better integration into development planning is seen as the appropriate approach. The Ecoregion approach supports conservation of biological diversity and ecological processes at broader scales and the links between different species habitats within the bigger picture of national development.



Big-eyes, common members of the reef fish community

ECOREGION CONSERVATION

The Ecoregion Conservation approach is an important tool for bringing stakeholders together to set ambitious conservation goals, to lay out a strategy to reach those goals and to facilitate implementation. This approach aims at focusing even greater attention on regions and boosting the interest and commitment of individual national governments. The potential benefits of the ecoregion approach are that it:

- builds collaboration for conservation;
- creates energy for stakeholder participation;
- generates donor and government support;
- provides options for conservation effort, and;
- integrates conservation in the broader vision of coastal development.



Ecoregion Conservation should not be seen as a separate initiative to replicate what other regional or local initiatives are trying to achieve, but rather to support them to accomplish the conservation of biodiversity. Marine Ecoregion Conservation attempts to harmonise local and international efforts to secure healthy marine and coastal environments in order to provide sustainable benefits for present and future generations. To be successful over the long term, Ecoregion Conservation must be multidisciplinary - involving, encouraging and depending upon the participation of all sectors who affect biodiversity or who are affected by it. These stakeholders range from local communities of coastal inhabitants, to national governments, international conservation organisations, and businesses, such as foreign investors and owners of industrial fishing fleets. To achieve this there needs to be a strong emphasis on creating and sustaining partnerships.

The old and new generation of fishermen

Eastern African Marine Ecoregion Vision

Development of EAME Biodiversity Vision

A vision for the Eastern African Marine Ecoregion was developed at a Biodiversity Vision workshop held in Mombasa in April 2001. Participants at the workshop included scientific experts and representatives of various stakeholders, including government agencies and NGOs (local and international). The vision encapsulates the stakeholders' wishes for a healthy and productive marine environment that would benefit local and international communities. It also represents their desire that both international and local communities participate in the management of the marine environment- aiming to maintain biodiversity values, ecosystem processes and a supply of protein to poor people. Participants identified the twenty-one most important seascapes of the Eastern African Marine ecoregion, from a biological point of view. These areas were mapped and ranked in terms of their biological importance (global, ecoregional or sub-regional) (see Map on page xx).

Threats and Root Causes

The Vision workshop also identified the key causes of biodiversity loss and principal threats to biodiversity in the ecoregion. The deeper causes of these surface signs of degradation are often called their 'root' causes. A socio-economic analysis of these root causes was undertaken for Kenya, Mozambique and Tanzania, the results of which were used to inform the strategy development process.

Developing the Strategic Framework

In November 2001, an ecoregional workshop held in Bagamoyo, Tanzania, brought together key stakeholders to develop conservation targets and actions needed to achieve the EAME vision. A regional partnership between the major stakeholders, known as the Eastern African Marine Ecoregion Partnership (EAMEP), was initiated to guide the implementation process.

Action Plans

National action-planning workshops were held in Kenya, Mozambique and Tanzania in April and May 2003, where national priorities for action were identified and national EAMEP committees elected to facilitate the implementation process. A Regional Action Plan was developed in August 2003, complementing and supporting these National Action Plans. An action plan for the EAME coastline in South Africa was developed in a parallel process.

A full list of the participating organisations, research reports and workshop reports produced during the process is to be found at the end of this document. The key documents are also available on the internet.

Identification of key sites of biodiversity for conservation

All participants contributed information and expertise to help map priority areas for species and community groups. The criteria used to select these sites included their contribution to global or ecoregion biodiversity and to national economies.

A total of 21 sites (●) within the ecoregion were identified, with 8 considered to be of *Global (G)* importance, and a further 13 sites identified as important on *EcoRegion (ER)* or *Sub-Region (SR)* levels.

From north to south, these sites are:



SOMALIA: 1. Shebela Delta (SR) 2. Bajuni (SR)

KENYA: 3. Lamu Archipelago (G) 4. Tana River Delta (ER)
5. Mida Creek-Malindi (G)

KENYA-TANZANIA: 6. Msambweni-Tanga (ER)

TANZANIA: 7. Pemba Is. (ER) 8. Unguja Is. (ER) 9. Bagamoyo (SR)
10. Latham Is. (ER) 11. Rufiji-Mafia Complex (G)

TANZANIA-MOZAMBIQUE: 12. Mtwara-Quirimbas (G)

MOZAMBIQUE: 13. Nacala-Mossuril (ER) 14. Ilhas Primeiras e Segundas (ER) 15. Zambezi Delta system (G) 16. Sofala Bay (SR)
17. Bazaruto Archipelago (G) 18. Inhambane Bay (SR) 19. Inharrime Complex (SR) 20. Maputo Bay-Machangulo Complex (G)

SOUTH AFRICA: 21. Greater St. Lucia Wetlands (G)



The 8 sites of global importance were selected because of the following main features:



3

Lamu Archipelago

- Extensive mangrove formations in delta, creeks and basins (345 km²) with 160 km² in pristine condition.
- Breeding populations of Olive Ridley, Hawksbill and Green turtles and Dugong.
- Most northerly coral reefs in the ecoregion.
- Colony of 10,000 Roseate Terns and breeding site for Ospreys and Pelicans.



5

Mida Creek Malindi

- High coral diversity (>60 genera)
- Important bird feeding area (including Flamingos).
- Muddy high nutrient bay with sudden drop-off providing a nursery for sharks and globally important feeding area for sailfish, marlin and swordfish.



Eastern African Marine Ecoregion Priority Areas



11 Rufiji-Mafia Complex (Rufiji River Delta, Mafia Island and Songo Songo Archipelago)

- Extensive and varied coral reef habitats with high coral cover and diversity (>45 genera).
- Rufiji River delta with extensive riverine and deltaic mangroves (53 km²).
- Very important breeding area for shrimp and fish and nesting and feeding site for shorebirds.
- Abundance of top predators including crocodiles.
- Important feeding area for Dugong and turtles.
- Resident populations of Hippopotamus.

12 Mtwara-Quirimbas Complex (Mnazi Bay, Ruvuma Delta and Quirimbas reefs to Pemba)



- Located where the South Equatorial Current meets the African coast.
- Extensive complex of reefs with high coral diversity (>48 genera).
- Important turtle feeding and nursery site and feeding area for Crab and migratory birds.

- Unique Ruvuma dunes system with likelihood of rare or endemic flora.
- Important nursery area for Humpback whales.

15 Zambezi Delta system



- Part of the largest mangrove complex in the western Indian Ocean (2,800 km²) with a large pristine proportion.
- Terrestrial complex includes floodplains, grassland and palm savanna.
- Important area for globally threatened wetland birds

e.g. Wattled Cranes, Pelicans, African Skimmer.

- Concentrations of Risso's Dolphin, Humpback Dolphins and whales including breeding Humpback Whales



17 Bazaruto Archipelago

- communities with 6 endemic gastropod mollusc species.
- Parabolic sand dunes.
- Populations of six bird species regularly exceeds 1% of the global population.
- Largest Dugong population

in the ecoregion, plus 5 dolphin, 3 whale, 4 turtle and 4 shark species.

- Unique sand blown island (barrier to cyclones and barrier Lakes).

20 Maputo Bay-Machangulo Complex (including Inhaca Island)



- Important feeding area for turtle, dugong and migratory birds e.g. Whimbrel and Flamingos.
- Extensive marshes and flooded grasslands with endemic fish and plant species.
- Important for Dugong, whales, white and whale sharks.
- Turtles (Loggerhead and Leatherback) nesting area.

- Northern limit of migration for Southern Right Whale.
- Endemic fishes and unique tube-worm reefs.
- Deep rocky formations dominated by gorgonians.

21 Greater St. Lucia Wetlands

- Longest estuary in Africa.
- Southernmost coral communities in the western Indian Ocean, extending for 80km.
- Narrow coastal shelf with deep canyons, with a resident population of Coelacanth.
- High endemism of soft corals.
- Important for Dugong, seasonal aggregation of whale sharks and raggedtooth sharks.
- Loggerhead and Leatherback turtle nesting area.
- Nesting seabirds, including the White-backed Pelican and Caspian Tern.



20-year Strategic Framework for Conservation of Biodiversity.

Ecoregional conservation aims to go beyond the approach taken in the past where projects were often undertaken at local level in an uncoordinated way. There are three principal ways that make this approach different and more effective. Firstly, biological targets, priority areas and critical ecological processes across the ecoregion are identified in a collaborative manner. Secondly, action in these areas is supported by action at national and international levels to enhance the policy, legal and institutional environment (the “enabling” environment) in which site-based action takes place. Thirdly, local action is undertaken on the basis of an ecosystem or seascape approach (see box). This approach is holistic and strategic, and aims to catalyse and co-ordinate action by a range of stakeholders, improving the opportunities for shared learning and replication of successes.

The EAME Strategic Framework has been formulated within a participatory process that has established a partnership for implementation, the EAME Partnership (EAMEP). The 20-year Strategic Framework comprises:

- The EAME Programme Vision including the twenty-one priority seascapes for conservation
- Conservation targets for habitats and species
- Strategy components for achieving the targets:
 - 1 Priority seascapes and the marine protected area network
 - 2 Conserving wide-ranging species and addressing transnational threats
 - 3 Enhancing the enabling policy and legal environment
 - 4 Support for sustainable livelihoods
 - 5 Monitoring, innovating and building capacity

The Strategic Framework complements and provides a means of linking related initiatives (which take account of ecological processes at the regional level) that are being undertaken in the region by national governments and international agencies. These include the Nairobi Convention, the Tanzanian National Integrated Coastal Environment Management Strategy and the Mozambican Coastal Management Project.

The first five-year phase of implementation will be undertaken through National Action Plans complemented by a Regional Action Plan, and makes provision for co-ordination at national and ecoregional levels, to ensure that the various activities support and complement each other, and that the process is monitored and reviewed.

The EAME Partnership

The EAME Partnership (EAMEP) comprises a wide range of agencies and organisations. Participating organisations (to date) are listed at the end of this document.

What is meant by “ecosystem” or “seascape” conservation approach?

“Ecosystem” or “seascape” approaches to conservation allow the consideration of linkages between different habitats, the relationship between humans and the natural environment, and the network of Marine Protected Areas within an area of ecologically similar sea. In the marine environment the approach has benefits because of the broad ecological connections between areas (larval stages that drift in the current) and the potential linkages between well-managed MPAs, and the overall productivity of the seascape for fishing people

Reversing the trends in biodiversity loss: a long-term conservation strategy for EAME

How fast are we losing biodiversity in our marine and coastal areas? What needs to be done to reverse the trend? Although we don’t know enough, we know that action cannot be postponed. We need to act now and with conviction to address the problem.

In the first few years, the EAME Partnership will be laying the foundations for later phases, trying out new ideas, demonstrating the value of alternative approaches, and testing the feasibility of implementing them at a larger scale. We will be working towards creating an enabling environment to support our site-based work.

In later phases, EAMEP will expand its scale of activities, consolidate the gains made, and extend work to new areas where action may be called for. EAMEP will measure the effectiveness of its work at key moments, and use this information to review the strategy, refine the approach, and ensure that it makes a difference.

EAME Strategic Framework



EAME Vision:
"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 its biodiversity"

Conservation of Habitats and Species

Ecoregion planning provides an opportunity to establish goals and objectives for the conservation of habitats and species across the whole ecoregion. EAME goals were developed in a stakeholders workshop held in Bagamoyo, Tanzania, in 2001. Actions to achieve these goals are addressed in the various components of the strategy and in the Action Plans of each country.

ECOREGION CONSERVATION GOALS AND OBJECTIVES

Strategy Components

Priority Seascapes and the Marine Protected Area Network

Seascape Planning and Management

Enhancing the Marine Protected Area Network

Enhancing the Enabling Policy and Legal Environment

Livelihoods Promoting Sustainable

Conserving wide-ranging species and addressing transnational threats

Monitoring, Innovating and Building Capacity

Conservation of Habitats:

Goal: To ensure that all priority habitats of the EAME are effectively conserved and provide benefits for present and future generations.

Coral reefs and associated communities

Strategy: To ensure the long-term stability and diversity of coral reefs and coral communities.

Objective: Decline in the quality of coral reef/community areas halted and/or reversed by 2010.

Indicator: None of the 15 priority reefs have greater than 20% are damaged. Four medium quality and 3 high quality coral sites have improved by at least 1 status level.



Mangroves

Strategy: To ensure the long-term productivity, stability and diversity of mangrove forests and associated biota.

Objective: Decline in the quality and area of mangrove forest is at least halted by 2010.

Indicator: At least 400,000 ha of healthy, viable and representative mangrove forest spanning the Ecoregion.



Seagrasses

Strategy: To maintain productivity, biological diversity and ecological functions of sea grass meadows.

Objective: Decline in the quality and quantity of seagrass areas will have been halted/ or reversed by 2010.

Indicator: Species richness is at least maintained in seagrass beds. The three seagrass sites currently ranked as having medium quality status will have increases to 'high' quality status.



Coastal Wetlands

Strategy: To ensure the persistence of significant coastal wetlands and their characteristic plants and animals.

Objective: Destruction or degradation of priority wetlands halted in the EAME by 2010.

Indicator: At least six healthy, viable wetlands support characteristic and representative wildlife associated with them.



Coastal Dunes

Strategy: To ensure protection of unique coastal dunes.

Objective: Destruction or degradation of priority dunes halted by 2010.

Indicator: At least four EAME areas support stabilized and restored sand dunes. Extent (ha) and percentage vegetation cover increased.



Conservation of Species

Goal: To ensure the long-term viability of populations of key threatened, endangered, or vulnerable species within the EAME.

Species exploited by small scale/artisanal fisheries

Strategy: To ensure that the utilization of species of particular importance to small scale and/or artisanal fishing communities is sustainable.

Objective: Livelihoods improved while inshore fisheries resources are at least stabilised by 2010.

Indicators:

- Capable local communities managing marine resources collaboratively with government
- Marketing techniques improving returns to local artisanal fishing communities
- Viable, healthy populations of:
 - Lobsters
 - Gastropods: (*Conus chaldeus*, *Cypraea moneta*, *Cypraea lynx*, *Mitra mitra*, *Lambis digitata*, *Ovula ovum*, *Lambis scorpius*, *Lambis crocata*, *Conus litteratus*, *Conus virgo*, *Pleuroploca trapezium* (in Somalia and Zanzibar), and *Chicoreus ramosus* (in Zanzibar and Kenya))
 - Coastal sharks and rays
 - Sea cucumbers
 - Small pelagic fish species.



Species exploited by offshore and industrial fisheries

Strategy: To ensure that the utilization of species of particular importance to industrial and off-shore fisheries is sustainable.

Objective: Offshore fisheries area at least stabilised by 2010.

Indicators: Viable, healthy populations of:

- Sharks and rays (three most heavily exploited species)
- Prawns
- Yellowfin and Skipjack Tuna
- Squid (e.g. *Loligo* sp.).
- Demersals (*Lethrinidae*, *Sparidae*, *Serranidae*)
- Billfish (e.g. *Tetrapturus* sp.)



Species of special concern:

Strategy: To ensure the long-term viability of populations of threatened, endangered, or vulnerable marine reptiles and mammal species within the EAME (Marine Turtles, Dugongs, Dolphins, and Whales).

Objective: Populations of priority threatened marine species are at least stable by 2010.

Indicators:

- *Marine Turtles:* The five species of marine turtles in the EAME have viable breeding populations and a fully representative age structure throughout their ranges.
- *Dugongs:* The number of dugongs in the EAME increases by 10%.
- *Dolphins:* All species of dolphins in the EAME have a viable breeding population and a fully representative age structure throughout their ranges.
- *Whales:* All species of whales in the EAME have a viable breeding population and a fully representative age structure throughout their ranges.



Action to achieve goals and objectives

The EAMEP strategy identifies a number of priority actions in order to achieve these targets, clustered into five components:

- Planning and management of priority seascapes, with a focus on developing the network of marine protected areas
- Conserving wide-ranging species and addressing transnational threats
- Enhancing the policy and legal framework for conservation and sustainable use
- Promoting sustainable livelihoods
- Monitoring, innovating and capacity-building

Strategy Component 1: Priority Seascapes and the Marine Protected Area Network

Eastern African Marine Ecoregion Conservation Strategies

Objectives:

- Where appropriate, management plans will be developed and implemented in priority seascapes, in partnership with local governments, communities and user groups;
- Programmes will be initiated to help change the way people use natural resources so that livelihoods that are dependent on biodiversity do not exhaust the resource base, but instead, use it sustainably for present and future generations;
- Local government will be strengthened and communities empowered to ensure that they play a meaningful role in local conservation initiatives; and
- The marine protected area network will be expanded so that it becomes more effective, and the capacity of MPA management will be strengthened.

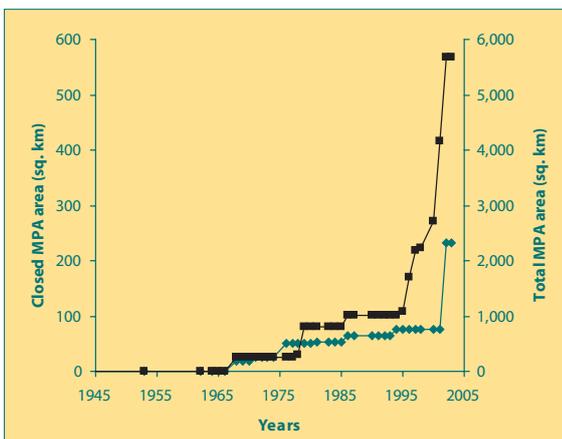
Increasing support for marine conservation

A dramatic increase in marine protected areas in EAME has taken place over the last decade, arising from the commitment of political leadership at the highest levels of government and of key stakeholders.

Between 1895 and 1995, governments declared 1,082km² of marine protected areas in the EAME. During the past 8 years, 4,590 km² of MPAs have been added, 2.5 times the total for the entire previous century. The EAME MPA network now covers nearly 5.7% of the continental shelf of eastern Africa, much more than the 2.3% of the shelf within MPAs across the rest of Africa. In addition, there has also been a measurable increase in funding available for marine conservation in the region and an enhancement of management effectiveness of the MPAs that have been created.

Eastern African governments have engaged actively in the Nairobi Convention (i.e., the UNEP Regional Seas Convention for the eastern African region) and have developed a long-term marine conservation vision for the EAME. Gaps in MPA coverage have been identified through these processes and governments have responded by declaring new MPAs to close these gaps.

MPAs have demonstrated a role in maintaining fish catches and preventing fisheries collapse in local communities, providing a crucial link between marine conservation and the provision of protein to millions of poor people - a focal issue for African governments. MPAs have also contributed to increased tourism revenues. Significant funding is now available from bilateral, multilateral and NGO sources to support marine conservation, including the establishment and management of MPAs.



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In September 2003, Mozambique declared its intention to extend the Maputo Special Reserve 5 km out to sea, and to implement cross-border reserves with Tanzania in the north and South Africa in the south. Tanzania has committed to expanding the area of its sea under protection to 10% by 2010 and 20% by 2025. Kenya is committed to maintain its current MPAs and to enhance their management effectiveness, and work to create community-based MPAs. South Africa outlined its intention to expand the existing St. Lucia reserve northwards to the border with Mozambique.

This continued commitment to expanded MPA coverage in the EAME might be seen as remarkable in a region where national priorities are focused on poverty alleviation. In fact it is far from being remarkable - it shows that governments recognize the economic benefits to be gained from well-managed marine resources, particularly in terms of coastal livelihoods and the revenue generated from tourism.

Management planning for priority seascapes

Each priority seascape includes a large area of land and sea. At present the boundaries of many of these areas have not been defined in detail. They are also enormously variable in size (from less than 500 km² to over 12,000 km²). In each area, there are a number of conservation initiatives taking place, often including establishment of marine protected areas. In many cases, these initiatives are poorly co-ordinated. Through seascape planning, EAMEP will help to identify what planning approaches are needed for each seascape and support co-ordination of efforts where needed. Co-ordinated management planning and implementation as proposed through the seascape planning process would make these individual efforts more effective and enhance support for marine protected areas.

Seascape management planning needs to be undertaken in partnership with all key stakeholders, including local communities. It brings together existing initiatives, addresses both biodiversity and community concerns, and helps to ensure broad and effective land use planning in the area. An essential component of the planning process is the establishment of pilot projects from an early stage, to gain experience and credibility, test new approaches, demonstrate their effectiveness, and build local support.

Collaborative management:

Community natural resource management plans, often being established through existing initiatives, are important components. These help to organise and legalise access and control of natural resources in the area, through collaborative management and enforcement involving both the local community and local government. Elements could include no-take areas, closed seasons, fishing gear regulation and mangrove management.

Effective local government:

In the long term, important natural resources will only be effectively managed if local government has the resources, skills and political will to be an active partner. Local government needs sustainable sources of revenue and a range of options needs to be explored in each priority seascape to achieve this. In addition, local government capacity needs to be enhanced through training in managing natural resources effectively. Local political will needs to be strengthened through participatory planning and collaborative management of natural resources in the area. Finally, local government needs to be strongly supported and mandated by central government.

Sustainable tourism:

Tourism is both a threat and a key opportunity for livelihood enhancement and conservation in EAME. EAMEP will support well-regulated tourism that does not impact negatively on important marine and coastal environments and that provides much needed revenue to communities and local government. Key actions will be to develop (where needed) and implement guidelines for the tourism industry, encourage a focus on the development of eco-tourism enterprises as a source of employment and income to local communities.

Integrated catchment management:

Agricultural and settlement activities often impact on marine resources near coastal cities and major rivers. EAMEP will encourage integrated catchment management practices to secure reductions in marine pollution due to industrial effluent, sewage, siltation and agricultural run-off. Work will focus on those priority areas most impacted, and be undertaken in the context of seascape plans, river basin management policies (where these exist), and policy advocacy.

What would a seascape management plan involve?

In many of the priority seascapes, there are a number of different conservation initiatives underway at present.

The role of EAMEP seascape planning would be to identify, in consultation with all relevant stakeholders, the various types of conservation and management areas and actions that are still needed within that seascape, and to develop an action plan to address these. Seascape planning would thus:

- Include all relevant stakeholders, be participatory and partnership-based
- Build on existing initiatives in the area
- Identify key issues and pressures on biodiversity
- Integrate biodiversity and community concerns
- Develop a framework for action
- Be structured into phases
- Set up institutional structures to manage implementation
- Initiate action on priorities
- Test new approaches in pilot projects
- Undertake capacity-building to support implementation.
- Ensure monitoring and evaluation.

Enhancing the marine protected area network

Representative networks of marine protected areas, based on the ecosystem approach, are an essential tool for effective marine biodiversity conservation. They help to maintain the natural range of species, ensure adequate mixing of the gene pool to maintain natural genetic characteristics of the population, and ensure protection of ecological processes that are essential for ecosystem functioning. They also play an important role in maintaining food supply to poor communities and allow countries and communities to control and manage their resources more effectively functioning.

Designing an effective network requires both scientific rigour and a framework that harmonises the interests of conservationists, fishery managers, local communities and other stakeholders. To improve the network of MPAs in the EAME, two issues need to be addressed: firstly, ensuring sustainable and effective management of MPAs, and secondly, by expanding the network by creating new MPAs. These are discussed below.

Enhancing management of MPAs

While it is essential to expand the MPA network, care must be taken to ensure sustainable funding and effective management of existing and future MPAs. Currently, the effectiveness of the existing MPAs is impeded by:

- Limitations on staff skills, particularly with regard to marine natural resource management and marine socio-economic and livelihood support;
- Prevalence of top-down approaches to decision-making, with negative consequences for participation and co-management;
- Lack of harmonised and effective policy, legislation and institutional arrangements
- Competition between agencies for limited financial resources;
- Lack of sustainable funding mechanisms, e.g. from tourism; and
- Unwillingness of a number of MPA management authorities and their parent ministries to fully engage in the unpopular task of enforcing existing marine regulations.

To support the effective management of MPAs, existing and future, the EAME Partnership will seek to:

- Support training and capacity building programmes;
- Advocate stakeholder participation in decision-making and benefit-sharing in relation to MPAs;
- Advocate policy and legislation that promotes good management of MPAs and effective compliance;
- Foster the institutional and technical arrangements needed to facilitate the development and management of national MPA systems;
- Advocate regular monitoring and assessment of management effectiveness;
- Promote compliance with and effective enforcement of marine legislation; and
- Support the development of sustainable financing mechanisms.

Expanding the EAME network of MPAs

Several levels of management are needed: a core network of fully protected MPAs or zones (or no-take areas), embedded within a larger network of multiple-use MPAs and/or priority seascapes, which would be part of overall integrated coastal area management programmes and which would cover 100% of the ecoregion.

In recent years there has been significant progress in the establishment of MPAs in the EAME, particularly in the form of larger MPAs. However, major gaps remain in the current network of MPAs. To support the achievement of a representative network of MPAs in EAME, the EAMEP will seek to:

- Support the development of a scientifically-based marine protected area network in EAME;
- Invest in research to determine appropriate network design;
- Advocate the creation of MPAs, in particular through providing information and analysis demonstrating the benefits of MPAs to fisheries, tourism and livelihoods;
- Develop sustainable funding mechanisms for the long-term management of MPAs; and
- Fundraise to make new MPA projects a reality.

The IUCN definition of an MPA:

“Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.”

This broad definition covers all forms of protected area, provided its primary objective is biodiversity protection. Protected areas can involve different degrees of sustainable use by scientists, tourists, local communities and other economic interests.



Field day in Chumbe Island.

Strategy

Component 2: Conserving Wide-ranging Species and Addressing Transnational Threats

Conserving wide-ranging and migratory species:

Taking an 'ecoregion-level' perspective allows decision-makers and conservation practitioners the possibility of working together across nations to address the conservation needs of wide-ranging species such as marine turtles, and migratory species such as tuna, whales and some commercially valuable fish. The conservation of species whose larvae are carried by currents along the whole coastline of EAME and spawning aggregation sites is made possible. No nation alone can implement all of the actions and policies necessary to protect these animals throughout their life history, so collaborative action is necessary. Priority actions (other than policy and legal aspects, which are addressed under Component 3) include:

- Advancing turtle conservation, including through regional agreements and support for Turtle Excluder Devices (see box);
- Helping to develop and implement a regional dugong conservation plan; and
- Promoting common approaches across the region to shared resources, including wide-ranging and migratory species like turtles, commercially valuable fisheries, bill fish, sharks, whales and the management of common resources.

Addressing transnational threats and threats emanating from outside the region

Taking a regional view enables planners to develop joint strategies for tackling threats that cross boundaries or emanate from outside of the ecoregion, such as unsustainable offshore/industrial fisheries, oil spills, pollution, global warming and climate change.



Tuna - Migratory stocks.

Regional Action to Conserve Turtles

The EAME hosts populations of each of five marine turtle species: the green (*Chelonia mydas*), the hawksbill (*Eretmochelys imbricata*), the loggerhead (*Caretta caretta*), the leatherback (*Dermochelys coriacea*), and the olive ridley (*Lepidochelys olivacea*).

All five species are categorised as endangered or critically endangered on the IUCN Red List. Key threats to turtles are deliberate or incidental catch, egg collection, pollution, and destruction or degradation of nesting and foraging habitats.

Stakeholders in the EAME process identified two key actions needed to address these threats:

- *Implement regional marine turtle action plans (IUCN/SSC MTSG Conservation Strategy and Action Plan for the Western Indian Ocean (WIO Strategy), CMS Conservation and Management Plan for Marine Turtles of the Indian Ocean and South East Asia (CMP)); and*
- *Establish marine turtle working group to identify and facilitate implementation of priority marine turtle conservation activities.*

In support of this, the EAMEP will undertake a collaborative regional programme to build capacity in the Ecoregion to implement the WIO Strategy and the CMP. The objectives of the programme are to:

- Build regional capacity for marine turtle conservation and management, through support of National Marine Turtle Committees, development of National Marine Turtle Recovery Plans, support for study tours, personnel exchanges and training programs, and building capacity to collect, manage and analyse data;
- Address information needs for marine turtle management, including standardizing methodologies, developing standard turtle database and protocols, co-ordinating regional tagging program, genetic assessment, monitoring trade and fisheries;
- Reinforce networking and collaboration amongst regional practitioners; and
- Implement priority actions for marine turtle management, including promoting the use of turtle excluder devices, advocate strengthened policy framework and support community-based monitoring and conservation initiatives.

Offshore or industrial fisheries

Ensuring the sustainability of offshore or industrial fisheries will require developing effective working relationships between the private and public sector across the region to assure understanding, support and compliance. EAME will support this objective through:

- *A better understanding of the problem:* Determining distribution, abundance, and range of normal variation of key species (where information is lacking), establishing criteria for “viable and healthy” populations of key species, quantifying current levels and patterns of trade and extent of pressure, and developing, implementing and monitoring the effect of different management strategies;
- *Effective policies and legislation:* Developing a regional approach to ecologically sustainable and fair fishing agreements; promoting legislation regulating fishing gear, quotas, size limits, seasons, and no-take zones, harmonising fishing regulations between EAME countries, establishing ecoregional responses to pirate fishing, supporting compliance and promoting a fisheries certification programme;
- *Developing area-specific and species-specific management plans that promote sustainable utilisation:* This needs to be done with private sector involvement and support in all aspects of planning, implementation and monitoring, and should build on international best practice for private sector partnerships;
- *Lobbying and advocacy regarding international fisheries and /or trade agreements:* supporting CITES and Traffic regarding turtles, sharks, sea cucumber, lobster, molluscs etc.; and
- *Supporting improved fishing agreements* (both international and bilateral access agreements and conservation agreements); promoting learning and exchange of experience between countries relating to negotiating fishing agreements and seeking coherence between agreements especially those addressing shared stocks.

Oil spills, pollution and global climate change

Action to address oil spills, pollution and global climate change would require:

- Encouraging the development and implementation of a joint disaster response plans for oil spills;
- Promoting international advocacy for mitigating oil spills from ships (EAME is a major shipping route transporting oil);
- Promoting strict Environmental Impact Assessments for all oil and gas developments across the region and harmonizing EIA standards;
- Developing joint pollution mitigation plans in transnational areas;
- Supporting national participation in global policy forums on how to mitigate global climate change; and
- Jointly seeking international financial and technical support for addressing the impacts of climate change on marine resources in EAME, particularly coral bleaching.



Strategy Component 3: Enhancing the Enabling Policy and Legal Environment.

The conservation of natural resources in the EAME requires an effective set of policies and laws, operating at regional, national and local levels, to provide a supporting framework for local-level action.

The governments of the region have signed various international agreements, such as the Convention on Biodiversity, the Nairobi and Ramsar Conventions and the Jakarta Mandate, and have developed national development strategies, such as Poverty Reduction Strategy Papers supporting an enabling policy and legal environment to assist the sustainable use of natural resources.

Through its regional approach, the EAME Programme reflects the intent to intervene and influence events at a broader scale. This perspective includes addressing policies and institutions in individual countries as well as those that cross national boundaries, and supporting national governments in meeting their international obligations. It also includes efforts to address some of the root causes of ecological change in the ecoregion that reach beyond Africa all together. It also includes efforts to address some of the root causes of ecological change in the ecoregion that reach beyond Africa altogether.

An analysis of the root causes of biodiversity loss in the ecoregion, which was conducted as part of the EAME planning exercise, presented a broad range of social, political, institutional and economic factors operating at different levels. Many of these factors impact on conservation efforts on the ground. For example, policy and institutional changes aimed at stimulating economic activity resulted in environment destruction of coastal marine resources and undermined the needs and interests of the rural poor, who depend on EAME's natural resources for survival.

Policy advocacy and reform

In order to foster the development of international, ecoregional and national policies, practices and legal frameworks that support effective management of marine resources in the ecoregion, a policy advocacy programme will be undertaken.

Strategies in this component are focused on providing institutional and policy support at all levels for activities at local level. At the international level, the EAME programme will work in partnership with governments to help them meet international obligations under international conventions such as the Convention on Biodiversity, and to influence regional development processes such as NEPAD. The EAME programme will also enlist the support of international NGO partners to help promote its needs and interests in the international policy arena. At the national level, there are suggestions for incorporating environmental and social impacts into development policies and programmes and support for national strategies for sustainable development. At the local level, economic alternatives to unsustainable resource use, especially in areas of growing environmental scarcity, are identified.

This programme will:

- Identify and prioritise policy and legal actions that should be implemented at international, regional, national and local levels to implement the EAME programme, for example in relation to fisheries, marine protected areas, devolution to local government, community policing, trade in endangered species and tourism activities. Ensure that both root causes and proximal causes of threats are addressed within these policy and legal interventions;
- Identify how and where the priorities and activities of EAME can be best incorporated within existing regional and national strategies, examples being regional fisheries agreements, National Poverty Reduction Strategy Papers (PRSPs) and national fisheries plans of FAO;
- Promote harmonisation of legislation and policy between governments, relating to shared resources, including wide-ranging and migratory species like turtles, commercially exploited fish, billfish, sharks and whales;
- Promote harmonisation of legislation and policy relating to the management of common resources where practice in neighboring countries affects management;
- Assess the costs and benefits of the trade-offs inherent in different strategies of economic growth and environmental protection;
- Work in partnership with national governments, communities and the private sector to implement policy and legal frameworks effectively. This component would develop enforceable regulations, enhance the capacity to ensure compliance, seek ways to engage the private sector, and provide information on the relevant policies and laws;
- Build capacity of government and communities to implement policy and legal interventions; and

- Support and work in a complementary manner with relevant international conventions and programs, including CITES, Nairobi Convention, regional fisheries bodies, national fisheries plans of FAO, UNCLOS, WTO and UNCCC, and regional economic development plans, such as NEPAD.

Examples of policy and legislative actions needed:

Fisheries

- Work to make all destructive fishing methods and gears illegal and to ensure compliance.
- Initiate national and regional approaches towards ensuring any industrial fisheries access agreements are ecologically sustainable and fair to the artisanal fishing communities.
- Establish national programs of action based on FAO international plans for action for seabirds, bycatch and sharks.
- Enable regional collaboration to control illegal, unregulated and unreported fishing; and
- Foster establishment of joint regional agreements on highly migratory fish stocks.

Protected areas

- Develop an initiative to strengthen and harmonise national marine protected area authorities across the region; and
- Undertake a focused effort to harmonise regional tourism policy with the objectives of protected area management.

Collaborative management

- Work to develop and implement relevant land policies and laws that allow community control and management of natural resources, including marine resources; and
- Develop an initiative to promote networking between, and give a greater political voice to, fishing communities throughout the EAME.

Corals

- Advocate the establishment / harmonisation of local, national, regional, and international sectoral legislation (i.e. fisheries, tourism and trade) relevant to the conservation and management of coral habitats;
- Provide incentives to produce alternative construction materials on a commercial basis; and
- Promote the adoption of measures to address global warming and climate change.

Mangroves

Promote effective enforcement of licensing system for mangrove harvesting, and the closure of harvesting if management systems become unsustainable.

Seagrass

- Ensure that the importance of seagrass beds is reflected in national policies and legislation; and
- Establish policy and legal frameworks within and between countries in regions that protect seagrass meadows from destructive practices including trans-border destructive fishing practices.

Coastal wetlands

- Encourage implementation of Ramsar Convention for coastal wetland conservation, including further designation of sites; and
- Implement coastal zone management planning in all three countries.

Coastal Dunes

Promote drafting of protective legislation for coastal dunes.

Threatened and vulnerable species

Develop new protective measures for threatened and vulnerable species. To eliminate by-catch resulting from all forms of fisheries, action plans for species of special concern, such as dugong and sea turtle, need to be developed and implemented

Awareness

- Undertake awareness-raising activities to reach the government and coastal populations about the relevant policies and laws controlling the exploitation of marine species; and
- Develop an initiative to "export" the successful campaign against dynamite fishing in Tanzania throughout the region.

Cross sectoral

- Ensure that the priorities of EAME are reflected in and aligned to PRSPs;
- Support policies of decentralised decision making and the increased financial capacity of local government ; and
- Work to implement other relevant cross-sectoral policies and laws, for example planning, trade, subsidies etc.

Strategy Component 4:

Supporting Sustainable Livelihoods

Approximately 22 million people live along the coast of Eastern Africa between southern Somalia and the very northernmost section of the South African coastline. This is likely to increase significantly over the next 50 years with average birth rates in the area at around 3% per annum and in-migration a continuing challenge. Populations along the coastline largely make their living from natural resources. Marine resources probably account for a significant part of household livelihoods whether from fishing or the harvesting of other resources such as mangroves. Important livelihood activities along the coast include fishing, gathering marine and coastal products, agriculture, trading tourism, mariculture, harvesting of medicinal plants, salt production, wildlife harvesting and others.

In the past, sustainable resource use was possible, either because community management systems were effective or because population densities were low enough for open access regimes to be sustainable. Currently, throughout most of the ecoregion, the fishing communities outside of existing MPAs still manage their own fishing activities, in effect, reaching agreements amongst themselves about the operational specifics. However, the increase in coastal populations and the rising number of people fishing have fundamentally changed the dynamics of these systems. In recent times, community management systems have failed to prevent over-harvesting and pillaging of marine resources.

Local people, in both civil society and local/district government, are therefore key to resolving the environmental challenges along the coast, and must be at the core of the strategy for sustaining and conserving marine resources.

Three principles of implementation have been highlighted as key for developing successful strategies:

- The principles of collaborative management (involving both local government and communities) and local access, control and sustainable use are key to successful and equitable governance of marine resources;
- Economic development components of conservation programs should address the primary livelihood activities of local populations;
- Developing strategic partnerships with other organisations (governmental, private sector and NGO) to help design and implement livelihood strategies is critical to immediate success and long-term sustainability. To successfully facilitate the development and implementation of sustainable use plans within the livelihood context, the EAME Partnership needs to embrace organisations with development expertise.

Supporting collaborative management of natural resources at local level:

Effective governance of local natural resources is key to success. As local government takes on more responsibility for this (devolved from central level) in all countries, so local seascape initiatives should build on the principle of collaborative management, with local communities and local government working as partners. Access, control and sustainable use of resources by local communities are important facets of this.

In this context developing organisations and capacity at both local community and government level becomes central to good livelihood strategies. The EAME Programme will support organisational development and empowerment of coastal communities regarding access, control and use as well as collaborative management. The EAME programme will also help build the capacity of local government to work with local communities. This involves local government staff learning new skills and attitudes, as well as developing sustainable financial streams to be able to continue the work after EAMEP withdraws.

Promoting sustainable harvesting practices

The EAME Programme will place an important emphasis on educating the communities about the reality of what is happening to the marine resources and about the extreme poverty that will confront these communities when the marine resources have been totally degraded. The programme will help the fishing communities to recognise their responsibilities, to move away from destructive activities and to devise more sustainable practices. Individuals and communities are often aware of the damage their practices are causing to the environment, but poverty or external factors can prevent them from taking action to change. EAMEP will need to address some of the poverty and external factors alongside education and enforcement.



Cephalopods fishery in Mafia.

Individual household livelihood opportunities will be complemented by community or habitat wide resource management plans, often developed in collaboration with local government, They will be further aided in this process of change through a parallel programme of improved enforcement of regulations on outsiders and individuals unwilling to comply - meaning that those that do adopt sustainable practices are not undermined by those that do not. Governments need to ensure that progress towards sustainability by artisanal fisherfolk is not undermined by the practices of industrial fleets.

Efforts will be made to facilitate the use of both traditional and new resource management techniques to ensure sustainable harvesting, reduce destructive fishing practices and protect nursery or reproduction areas. As part of this, EAMEP will promote supportive policy and legal measures relating to fishing gear types, gear exchange, quotas, size limits, seasons, and allowed fishing areas.

Exploring sustainable coastal livelihoods

Promoting alternative livelihoods, or increased returns to existing livelihoods, will not by themselves reduce the pressure on the resource base - they can even increase the pressure. Improved and alternative livelihoods can however provide the conditions that make it possible for local communities to adopt sustainable management practices. The two processes, of livelihood improvement and sustainable natural resource management, need to be developed hand-in-hand, with each supporting the other, within an overall process of improved governance. This is not easy, and lessons need to be learnt across the ecoregion and from other parts of the world.

Strategy development for priority seascapes should be built around existing mainstream livelihood activities without ignoring alternatives. Improved marketing and processing, will enable fisherfolk to receive a higher proportion of the value of their catch, and can help soften the blow of harvesting restrictions. Similar attention to marketing and value added can increase returns on agriculture and natural resource harvesting. Sustainable intensification of agriculture and some other livelihoods can prove beneficial to the individual household and to the environment.

Alternative livelihoods should be rigorously tested for economic viability, with special attention paid to marketing, technical assistance will be sought as appropriate. Micro-credit can be an important driver, enabling investment in improved and alternative livelihoods; this requires involvement of specialised microfinance agencies, and genuinely profitable improvements to invest in. As tourism, and particularly eco-tourism, becomes a viable option, it is important to recognise that building relationships with the private sector, (as in other livelihood activities), will be key to developing this sector as will assuring a balanced relationship between private business, local communities and local government

EAMEP will recognise that most households pursue a mix of livelihood strategies, and that these are often different for men, women and children. Different ethnic groups, wealth groups, genders and age groups may be affected very differently by changes to livelihood opportunities - it is therefore important that the community is not assumed to be homogeneous, and that the views of all those using a resource are consulted before management plans are developed.

Regional EAMEP activities will provide support to seascape livelihoods work, in the form of coordination between seascapes, technical assistance, lesson learning, communicating best practice, promoting the interests of local fishing communities at regional level, supporting marketing activities and monitoring progress.

Empowerment of fishing communities

If fishing communities are to become part of the solution, rather than part of the problem, they need power and influence not only at the community level, but also at the District, National and Regional levels. This is because many of the decisions that will guarantee the sustainability of EAME will be taken at these higher levels - levels at which there is currently very little representation of fisherfolk. To ensure that artisanal fishing communities have an effective voice in conservation planning and action, EAMEP will support organisational development of, and linkages between, fishing communities. Fishing communities will be encouraged to send representatives to decision making meetings - they will need training and encouragement to operate in these forums.

Empowering resource users

An important thrust of the EAMEP program will be to support political empowerment and networking of coastal and fishing communities, and to help them network with each other. This is based on the premise that for the long-term sustainability of EAME, the main resource users need political power - within EAME structures, local government, MPA structures, national governments and regionally.



Bwasini women

Strategy Component 5:

Monitoring, Innovating and Capacity Building

Ecosystem and livelihood monitoring for improved management

In order to support learning and capacity to undertake improved resource management in the ecoregion, EAMEP will:

- Seek to provide improved and relevant information on which to base key management decisions, and facilitate the development and dissemination of this information across the ecoregion in formats adapted for ease of use by decision-makers; and
- Monitor the state of the environment, state of coastal livelihoods and EAMEP programme progress.

This monitoring would include developing and implementing a monitoring plan, including the following activities:

- Establishing a baseline on the current state of the environment and livelihoods, including examination of past data to help estimate ecological and economic trends and understand the impact of future activities;
- Developing practical indicators of ecosystem or species-level change (Geographic Information System (GIS) based modeling may be useful when dealing with such large scales and uneven data quality and quantity);
- Undertaking an inventory of existing institutions which are already collecting and analyzing biological and economic data related to the indicators, and promoting linkages among them;
- Seeking ways to overcome constraints to regional data sharing and analysis;
- Develop ways of communities participating in monitoring, both as an incentive to their own management and to feed into wider data collection systems;
- Providing ecological monitoring and project impact information mapped in GIS and summarised on a web page; and
- Publishing national 'State of Coastal and Marine Resources' and regional 'State of EAME' reports at regular intervals.

A key cross-cutting element in this component would be to develop the capacity of communities to monitor ecological change in their areas - both as a contribution to regional monitoring and to increase awareness and help inform their management decisions

Support for targeted research:

In consultation with the EAME Regional and National Committees, and based on the targets identified in the Monitoring Plan, EAMEP will identify key environmental management knowledge gaps and seek funding for research to fill them. (e.g. ecological processes, habitat restoration, impact of climate change and tourism carrying capacities). EAMEP will:

- Publish and disseminate findings, both in peer-reviewed journals and in user-friendly formats for local decision-makers;
- Promote research and monitoring collaboration among institutions within the region and catalyse partnerships with key research institutions based in other parts of the world; and
- Support research into alternative technologies, e.g. by-catch reduction (dolphins, dugongs, marine turtles) and alternative fuel and building materials.

Incentives for innovation:

EAMEP will put in place a number of initiatives designed to foster innovation.

The priority will be support for a regional programme to explore the feasibility of market-based incentives for sustainable management, such as:

- *Tourism operator ratings and levies:* In collaboration with the tourist industry and other stakeholders, EAMEP will investigate the option of developing a rating system that would encourage environmentally friendly tourism operations; and
- *Sustainable fisheries certification:* In partnership with Government and the private sector, EAMEP will carry out the assessments necessary to determine the feasibility of certifying sustainable fisheries, either at the commercial or artisanal level in EAME.

Coral monitoring in Mafia.



EAMEP will seek to establish a fast-track small grants fund, providing seed funding to pilot projects and emergency initiatives that advance the objectives of the EAME Strategy.

Capacity building:

To implement the EAMEP Strategy, capacity building will be required across all key actors from communities, local and regional government to MPA managers and staff, fishing, forestry, and agriculture extension agents and management authorities. The EAME programme needs to build on the strengths that are already there and support higher levels of competency in all areas. Training, motivation, management expertise and financial and logistical capability need to be improved in order to implement new policies, develop natural resource management plans and work to ensure they are enforced. Many Government officials are not used to working collaboratively with local communities, this will require learning new participatory techniques, but equally important will require new attitudes on both sides. Enforcement is a task both for the local communities and for government. Local government will need continuing resources to make enforcement a reality - this may mean improved local taxation or more financial support from central government to achieve this.

Exchange and learning programme:

To support improved awareness, understanding and practice, EAMEP will:

- Run a 'best practice' exchange programme with participants from communities in priority areas, partners, scientists, government decision-makers, politicians and opinion-formers;
- Support existing national marine forum meetings in Kenya and Tanzania, and initiate similar forums in Mozambique and at ecoregional level;
- Establish an ecoregional marine protected area management forum, and support participation of key individuals in relevant conferences;
- Explore and support curriculum development with national education ministries and appropriate tertiary institutions, particularly with regard to the importance of marine resources and conservation to these nations, and the management of marine protected areas; and
- Establish a website and email newsletter.

Implementation and Phasing

The EAMEP Strategic Framework is a long-term programme, to be implemented over 20 years. It will be structured into phases, the first of which will take place over five years. Action in Phase 1 will take place at international, ecoregional, national and local levels, guided by a Regional Action Plan and National Action Plans.

The first phase will focus on laying the foundations for the programme, building partnerships for implementation, addressing critical priorities, mobilizing resources and testing new approaches. Establishing the institutional framework for implementation (co-ordination, communication and co-operation mechanisms) is also part of the first phase. A strategic review of outcomes will be undertaken at the end of Phase 1, to refocus the strategy and generate momentum for Phase 2.



Whale shark.

Regional Level Action: Phase 1

Action at international and ecoregional levels is designed to support and facilitate national and local level implementation, and to address issues that cross boundaries or require regionally or internationally co-ordinated action. The priorities for action at regional level for the first phase of implementation of the EAMEP Programme are the following:

Priority Seascapes and Marine Protected Areas:

- Promote legal recognition of seascape plans by national governments;
- Help identify what planning approaches are needed for each seascape, on a case by case basis;
- Promote technical exchanges and information sharing, including the establishment of a regional Seascape Working Group;
- Support the establishment of a scientifically-based marine protected area network in EAME; and
- Enhance management effectiveness of MPAs, and support sustainable income generating activities.

Conserving wide-ranging species and addressing transnational threats:

- Initiate a regional approach to ecologically sustainable and fair fishing agreements; and
- Establish a pilot project with one major tourism operator to implement best practice.

Policy and legislation:

- Identify the key policies that constrain EAME strategy implementation (as discussed earlier under Component 2: Enhancing the Enabling Policy and Legal Environment); initiate action to amend these at the regional level as well as the global level with international NGO partners;
- Develop at least one pilot initiative to develop working relationships between countries on issues of common concern e.g. controlling illegal, unregulated and unreported fishing (joint enforcement protocols, etc.);
- Promote further use of CITES for marine species;
- Foster the establishment of regional agreements on fisheries management, particularly commercially valuable, highly mobile fish stock; and
- Explore legal mechanisms for sustainable financing of MPAs e.g. through tourist levies etc.

Sustainable livelihoods:

- Develop pilot examples of sustainable harvesting and collaborative natural resource management planning and implementation;
- Develop examples of improved livelihood returns through better marketing, value added, sustainable intensification, incentives and livelihood alternatives;
- Support organisational development and empowerment of fishing communities;
- Support regional learning exchanges and capacity building around collaborative management and sustainable livelihoods;
- Pilot Income Generating Activities within MPA programmes; and
- Demonstrate the link between MPAs, increased fish stocks and reduced poverty.

Monitoring, innovating and capacity building:

- Identify critical knowledge gaps and establish a research fund;
- Develop a Monitoring Plan for the EAMEP programme and establish a Data Sharing System;
- Set up or support existing regional or international data centres on key issues, such as fisheries;
- Institute an exchange and learning programme with key opinion-makers at national and local levels; and
- Publish State of the EAME report, including indicators of biodiversity, MPA status and effectiveness, social, human, economic, livelihood trends etc.

Funding for implementation

Funding for the vision and strategy development phase of EAMEP was provided by WWF, which remains committed to supporting implementation, and in particular, to funding the core co-ordination costs of the programme for the first two years of implementation.

A funding strategy will be developed as part of the implementation of Regional and National Action Plans. There are two major potential sources of funding for implementation. The first is funding raised on a project-by-project basis. The second potential source is funding released through the realignment of the budgets of government agencies and other bodies, in support of EAMEP goals.

National Level Actions

Phase 1: Overview

Much of the implementation in the first phase will take place through National Action Plans. Three of these were drawn up in stakeholder workshops in Kenya, Mozambique and Tanzania in April-May 2003. The South African National EAME Action Plan derives from a parallel process, and elements of a Somalia plan have been proposed with limited input from within the country due to security reasons.

Each plan contains:

- An analysis of proximate and root causes of biodiversity loss, together with conservation targets;
- Priorities for seascape planning and marine protected areas;
- Priority actions to address the most pressing proximate and root causes of biodiversity loss;
- Proposals to enhance the national enabling environment and capacity building; and
- Priorities for seascape planning and marine protected areas.

Strategic principles

The approach to drafting the National Action Plans was based on agreed strategic principles:

- Implementation should be focused on developing seascape plans and marine protected areas, involving communities in managing resources, and enabling an ecosystem approach to be adopted;
- Action planning should promote ecologically sustainable livelihoods, that are also socially and economically viable;
- Cooperation, collaboration, and community co-management should be built into all aspects of implementation, including support for partnership development and for effective local government;
- Action plans should seek to use donor funding to leverage funding from national governments in EAME and from other sources;
- Implementation should encourage the involvement of the private sector, and facilitate partnerships between conservation and private sector agencies;
- Action at seascape level should be complemented by the promotion of an enabling policy and legal environment, as well as capacity-building; and
- Implementation should include consideration of issues that affect both EAME and neighbouring ecoregions, such as the Eastern African Coastal Forests.

Priority areas targeted in Phase 1

Kenya	Lamu Archipelago, Mida Creek-Malindi, Tana River Delta Msambweni-Diani
Mozambique	Bazaruto Archipelago, Maputo-Machangulo complex, Quirimbas Zambezi Delta system, Inhambane Bay
South Africa	Greater St Lucia Wetlands Complex
Tanzania	Mafia-Rufiji-Kilwa complex, Mtwara, Pemba

Seascape management planning

EAMEP will support seascape management plans, which address the need to:

- Identify, in consultation with stakeholders, gaps and priorities for action, as well as mechanisms for coordinating the work of various stakeholders
- Develop management plans for marine resources, mangroves and fisheries, including community management and restoration programs
- Provide support to communities for improved fishing methods - technical, equipment and microcredit
- Promote technologies to reduce by-catch
- Improve community awareness on wise use of fisheries and mangroves
- Increase capacity for enforcement, including support to community-based protection
- Promote sustainable livelihoods (largely through improving mainstream livelihoods) to reduce pressure on resources and habitats
- Develop measures to protect dugong feeding areas and turtle nesting sites
- Promote sustainable tourism to relieve pressure on reefs, and promote education and awareness on the part of tourism stakeholders
- Reduce sediment from rivers by promoting wise land use practices in river basins, in particular through promoting the development of river basin management plans



Traditional fishing traps in Mafia.

Priority seascapes:

In the first five-year phase of the EAME programme, work will begin in the most important twelve of the twenty-one EAME priority seascapes. Stakeholders at the EAME national workshops agreed that the critical priority areas would be targeted for action in Phase 1. Seascape planning will be undertaken in each of these areas, to identify (in collaboration with all key stakeholders) gaps and priorities for action, and ways of working together to implement the plan. This process will begin with the global priority areas, and the EAMEP will promote the establishment of marine protected areas where needed. The long-term aim is for every priority area to be addressed in this way.

National-level enabling frameworks and capacity building

Enabling action at national level is needed in each country, to ensure that policy, legislation and even agency budgets support initiatives in the priority areas. For instance, national fisheries co-management policies are necessary to support establishment of co-management projects on the ground. Learning and exchange programmes need to be co-ordinated between sites and levels of government, to improve skills, understanding and practice. Each country's action plan thus contains activities aimed at strengthening the enabling environment and capacity building.

Co-ordinating implementation at national level

The responsibility for co-ordination of EAMEP activities within each country rests on the National EAME Committees, the National Co-ordinator, and the National Focal Institution. The National EAME Committees play a crucial role in promoting the programme, facilitating access to funding sources, and developing national ownership of EAME plans and programmes.



National Action Plan: Kenya

Pressures on biodiversity

Direct pressures on marine and coastal biodiversity in Kenya include:

- Pollution, beach erosion and destruction of mangroves as a result of unplanned urban settlements and poorly sited tourism development;
- Reef damage from tourist activities such as boat anchoring, reef walking and collection of ornaments;
- Removal of coral and mangroves for use as construction materials
- Coral bleaching due to global climate change;
- Poor cultivation practices and herding of livestock resulting in soil erosion and siltation of mangroves and wetlands;
- Conversion of mangrove areas for salt production and port development;
- Use of destructive fishing gear, including beach seines, small mesh nets and dynamite;
- Over-exploitation of fisheries and marine resources such as turtles; and
- Commercial trawling and associated by-catch, particularly of turtle and dugong.

Action in priority areas:

There are four EAME priority areas in Kenya. Two of these, Lamu Archipelago and Mida Creek-Malindi, are global priorities, while the other two, Tana River and Msambweni-Diani, are ecoregional priorities. All four areas require action in Phase 1, the nature of which will differ from one area to another. In these areas, EAMEP will complement the work of other organisations with similar aims, taking account of existing management plans and promoting multi-stakeholder planning and implementation processes.

EAME priority areas in Kenya:

Global priority areas:

- Lamu Archipelago
- Mida Creek-Malindi

Ecoregional priority areas:

- Tana River
- Msambweni-Diani



Proposed action in Lamu Archipelago:

In collaboration with stakeholders, draw up a seascape plan, which will focus on:

- Developing management plans for mangroves
- Effective management of fisheries, including access regulation
- Reduce demand & seek alternative to local use of resources (fish, mangroves, coral reefs).
- Exclude local fishing methods from known dugong feeding areas.
- Reduce gases through international agreements like Kyoto Protocol.



Proposed action in Mida Creek-Malindi:

- Promote sustainable tourism for Watamu and Malindi.
- Reduce sediment fluxes from rivers by promoting good land use practices in river basins.
- Effective management of fisheries, including access regulation.
- Develop a management plan for mangroves.
- Promote marine turtle protection



Proposed action in Tana River Delta

- Develop policy for wetlands conservation.
- Declaration of Tana Delta as Ramsar site.
- Initiate a community based management programme for Tana Delta,
- Promote sustainable livelihood options.



Proposed action in Msambweni-Diani

- To regulate marine resources use
- To reduce mangrove cutting and illegal export
- To ensure environmentally-friendly extraction methods and benefits to local communities



National Enabling Environment and Capacity Building: Kenya

In order to support action at local level, three issues will be targeted at national level in the first phase of implementation: Awareness creation - to provide catalytic effect; Cooperative governance to support and facilitate debate; PRSP - lobbying. These are discussed below

Awareness creation - to provide catalytic effect:

In collaboration with relevant agencies, EAMEP will:

- Identify stakeholders in target groups
- Identify the gaps in knowledge and understanding of critical marine issues in target groups
- Develop a 4-5 year program which includes monitoring and the items hereunder
- Organize field visits
- Produce awareness materials: videos, brochures, posters, workshops, and radio and TV programs
- Organize events for information exchange
- Develop exchange program for the communities

Cooperative governance to support and facilitate debate:

It is of primary importance that key stakeholders in the Kenya marine and coastal arena share a common vision on marine and coastal management, and align their activities and budgets to support this vision. To this end, EAMEP will:

- Convening debating workshops of stakeholders on critical marine issues where cooperative governance is needed.
- Agree on pilot activities/enterprises
- Stakeholders develop strategic framework and action plan around key issues, and support them with working groups

PRSP - lobbying:

The drafting of national poverty reduction strategy papers (PRSP) for Kenya provides significant opportunities to link conservation with improved livelihoods. This potential needs to be more fully explored in both policy and implementation. To support this, EAMEP will focus on:

- Policy: National Environmental Council (NEC) to develop policy inputs to PRSP and use NEMA as an entry point to government
- NEMA to be asked to take up NEC policy inputs to PRSP on behalf of NEC
- Implementation: Support, facilitate, and motivate
- Conflict resolution by NEC as an informal initiative
- NEC to take up advisory responsibility for policy implementation

National Action Plan: Mozambique

Mozambique has the longest coastline in EAME, with nine priority areas: Quirimbas, the Zambezi Delta system, the Bazaruto Archipelago and the Maputo-Machangulo complex which are of global significance, Nacala-Mossuril, Ilhas Premeiras & Segundas which are of ecoregional significance, and Sofala Bay, Inhambane Bay and the Inharrime complex which are of sub-regional importance.

Direct pressures on marine and coastal biodiversity in Mozambique include:

- Removal of coral and mangroves for use as construction materials;
- Conversion of mangrove areas for salt production;
- Coral bleaching due to global climate change;
- Poor cultivation and livestock management methods resulting in soil erosion and siltation of mangroves and wetlands;
- Use of destructive fishing gear;
- Over-exploitation of fisheries;
- By-catch and direct hunting of turtle and dugong;
- Damming of rivers for electricity and irrigation;
- Pollution, beach erosion and destruction of mangroves as a result of unplanned settlement and poorly sited tourism developments; and
- Reef damage from tourist activities such as boat anchoring, reef walking and collection of shell species.

Action in priority areas:

In Phase 1, action will be focused on five priority areas: Bazaruto Archipelago, the Maputo-Machangulo complex, Quirimbas, the Zambezi Delta system, and Inhambane Bay. A seascape plan will be undertaken first for the Bazaruto Archipelago, and then for Quirimbas. In all areas, EAMEP will complement the work of other organisations with similar aims, taking account of existing management plans and promoting multi-stakeholder planning and implementation processes

Proposed action in Bazaruto Archipelago

Draw up a seascape plan in collaboration with key stakeholders, which will focus on:

- To promote alternative livelihoods for subsistence fishers.
- To improve management of industrial fishing
- Strengthen tourism management system through implementation of tourism management plan
- Improve management at protected species (turtles, dolphins and dugongs).



EAME priority areas in Mozambique:

Global priority sites:

- Quirimbas
- Zambezi Delta
- Bazaruto Archipelago
- Maputo Bay -Machangulo

Ecoregional priority areas:

- Nacala-Mossuril
- Ilhas Premeiras & Segundas

Subregional priority areas:

- Sofala Bay
- Inhambane Bay
- Inharrime complex



Proposed action in Maputo Bay-Machangulo:

- Promote sustainable fishing and improve fish stocks
- Mangrove area stabilized, maintained and providing ecological and socio-economic benefits for communities
- To prevent Dams/River runoff modification
- Tourism development master plan and guidelines designed and initiated
- Coastal dunes stabilized and dune health positive indicators shown
- Reduced mortality of endangered species



Proposed action in Quirimbas:

Draw up a seascape plan in collaboration with key stakeholders, which will focus on:

- Provide a mechanism to mitigate the impacts of climate change on corals, mangroves and sea grasses
- Ensure sustainable inshore fisheries
- Promote alternative livelihoods and opportunities to contribute in poverty alleviation within local communities
- Promote sustainable tourism development for Quirimbas Arquipelago
- Promote conservation of endangered species.



Proposed action in Zambezi River Delta:

- To promote integrated management for the river system
- Develop alternative energy and material sources



Proposed action in Inhambane:

- Promote sustainable management of fishing activities in Inhambane Bay,
- Identify and promote sustainable livelihood alternatives for fisherman in Inhambane Bay



National Enabling Environment and Capacity Building: Mozambique

Action at local level will be supported through capacity building, strengthening of policy and legal frameworks, and promoting the development of market mechanisms in support of sustainable use.

Promote and support building of capacity, policy and legal frameworks

EAMEP will promote the concept of sustainable development through integrated planning by:

- Participating in working groups e.g. inter-institutional technical committee for ICZM, Marine Turtle Working Group, Marine Species Use Group (Fisheries) etc;
- Lobbying, providing information and analysis;
- Publicising results of pilot demonstration projects, trials by partner organisations and best practice (international/ecoregional).

Promote the development of market mechanisms to support sustainable use of coastal natural resources

EAMEP will support sustainable use of coastal natural resources through:

- Develop a certification system with all stakeholders and get it adopted by relevant authorities
- Develop and propose guidelines for implementation of certification system/s
- Support pilot projects with the private sector at local level to promote origin-certified products
- Disseminate lessons learnt and use them to promote further projects in other areas
- Lobby for adoption of certification systems into policies and legislation.

National Action Plan: Somalia

Two EAME priority areas are to be found in Somalia: Shebela Delta and Bajuni. Both are of sub-regional significance. In addition, a small part of the Kenyan global priority area of Lamu Archipelago stretches across the Somali border.

Political conditions in Somalia during the EAME strategy-development process prevented a multi-stakeholder process from taking place there, and thus no formal National Action Plan has been developed as yet.

Action proposed in Phase 1 by the EAME Partnership:

- The EAME Partnership will monitor the situation and where possible initiate a process of dialogue with international NGOs active in Somalia and Somali government agencies, to further the objectives of the EAME Programme; and
- The Kenya National EAME Committee will explore options of trans-frontier collaboration between Somalia and Kenya, particularly with regard to the Lamu Archipelago priority area.

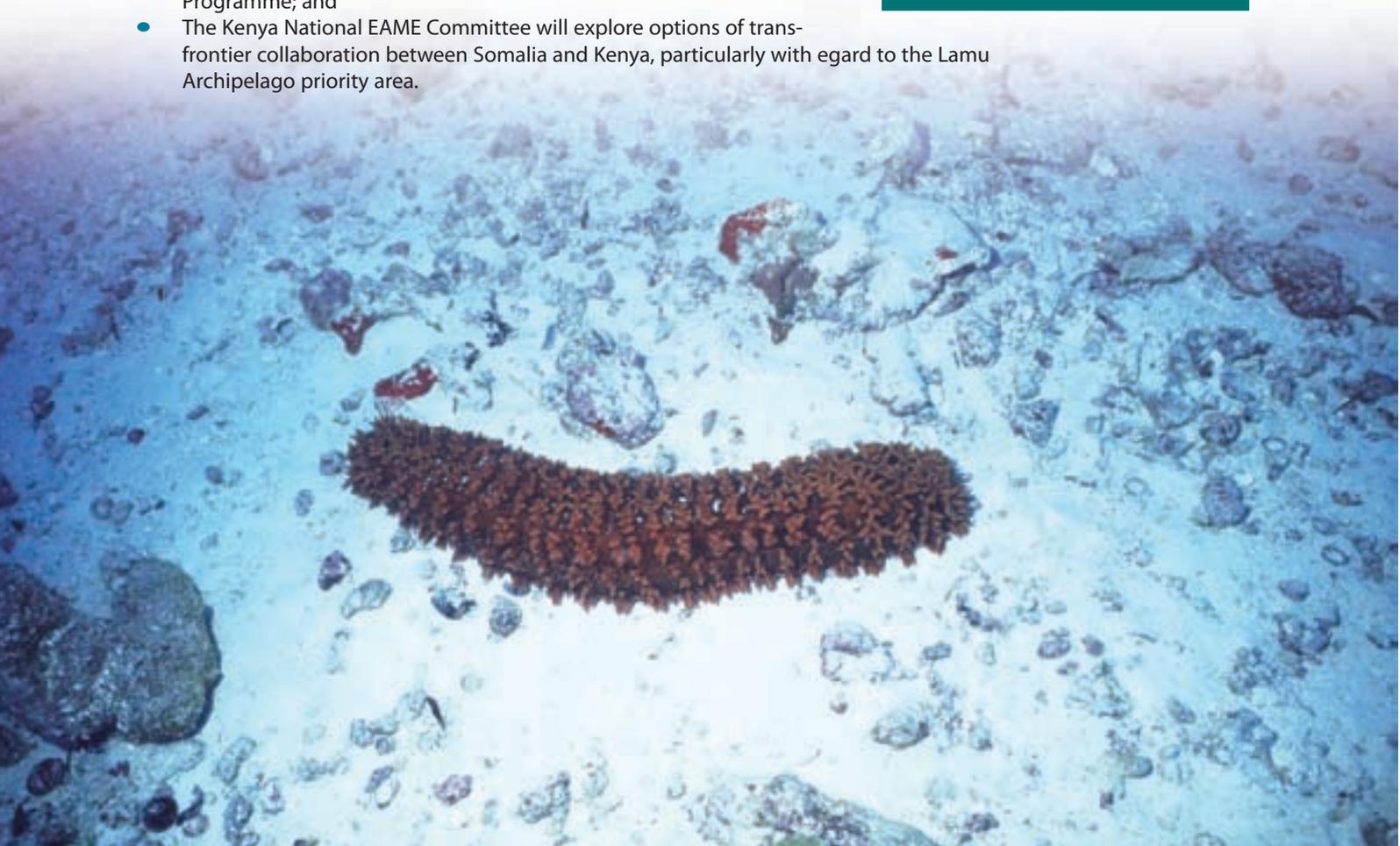


EAME priority areas in Somalia:

Sub-regional priority areas:

- Shebela Delta
- Bajuni

A small segment of Lamu Archipelago (global significance)



National Action Plan: South Africa

Only a small portion of the eastern coastline of South Africa falls within the Eastern African Marine Ecoregion, which is estimated to extend as far south as Richards Bay. This southern boundary of EAME accommodates the marine biogeographic break found at Cape Vidal, as well as ensuring that all of the marine and wetland areas of the Greater St Lucia Wetland Park are included. It is part of the coastline described in the visioning exercise as the “Parabolic Dune Coast” which stretches from Bazaruto Archipelago in Mozambique to Mlalazi estuary in South Africa.

One priority EAME area, of global significance, has been identified in South Africa. This area, the Greater St Lucia Wetlands Complex, includes both the Kosi-Maputaland system and the adjacent but distinct St Lucia system, and is part of the Greater St Lucia Wetland Park (GSLWP), which was listed as a World Heritage Site in 1999 for biodiversity, scenic beauty and superlative natural phenomena criteria.

Direct pressures on marine and coastal biodiversity in the region include:

- Over-exploitation of fisheries and marine resources by subsistence and recreational harvesters and for traditional medicine;
- Commercial trawling and linefishing, and associated by-catch (turtles, fish, seabirds);
- Marine species viewing activities (whales, dolphin and whale-shark viewing, and turtle tours);
- Wetland, mangrove and swamp-forest conversion/degradation for agriculture, forestry, building materials and industry;
- Reef damage due to tourist activities, including recreational diving and collection of ornamental species; and
- Pollution, dune and beach erosion, and disturbance of sensitive habitats due to unplanned urban settlements and poorly sited tourism developments (and uncontrolled tourism activities).

Action in priority areas:

The priority area falls within proclaimed protected areas, and EAME Partnership will strive to assist with, strengthen, and complement the work of the agencies responsible for their management, and the existing multi-stakeholder planning and implementation processes. In Phase 1, action will be focused on the Greater St Lucia Wetland Park (GSLWP). A statutory Integrated Management Plan (IMP, draft status) provides objectives and principles for biodiversity conservation, local socio-economic development and tourism development. Furthermore a Biodiversity Conservation Operational Plan (BCOP) identifies the conservation targets, threats, policies and guidelines, and strategies and programmes. The priority action will be to finalise and implement the IMP and BCOP, with specific proposed actions outlined below.

Proposed actions common to the Kosi-Maputaland and St Lucia systems of the Greater St Lucia Wetland Park:

- Finalise and implement new zonation plan, providing for representative protection of biodiversity, while providing for a spectrum of tourism and resource use activities;
- Assess conservation status of key biodiversity targets and identify gaps in protection and sensitive/vulnerable sites;
- Implement strategies to conserve endemic and endangered species;
- Develop a resource use policy, and management plans for each fishery and resource harvesting activity;
- Promote co-management of natural resource use and encourage incorporation of indigenous knowledge for management;
- Promote alternative and supplementary income opportunities for natural resource users, to reduce reliance on consumptive use;

EAME priority areas in Tanzania

Global priority sites:

- Mafia-Rufiji-Kilwa
- Mtwara
- Zanzibar

Ecoregional priority sites:

- Pemba
- Tanga
- Latham Island

Subregional priority:

- Bagomoyo



- Prevent / phase out all commercial consumptive resource use;
- Prevent resource use practices that harm habitats/non-target spp.;
- Promote sustainable land use by neighbouring communities, to prevent habitat destruction, and contribute to improving socio-economic conditions in neighbouring areas;
- Develop Management Plans for non-consumptive tourism activities;
- Prevent illegal and unplanned settlement and tourism developments;
- Promote community-authority partnerships for tourism developments;
- Develop and implement strategies to address catchment degradation; and
- Remove alien plants and rehabilitate cleared areas.

Additional proposed actions specific to the Kosi-Maputaland part of the Greater St Lucia Wetland Park:

- Develop joint management and strategies for protection of endangered species (turtles) with Mozambique and other WIO countries;
- Develop joint management of shared fishery stocks (fisheries) with Mozambique and other WIO countries; and
- Develop joint management to formalise and consolidate traditional trap and spear fisheries and blend traditional and modern management.

Additional proposed action specific to the St Lucia part of the Greater St Lucia Wetland Park:

Incorporation of the marine component into the St Lucia Marine Protected Area (achieve MPA status for the southern portion)

National Enabling Environment and Capacity Building: South Africa

Action at local level will be supported by:

- Implementation of policy, legislative and management planning frameworks;
- Strengthening environmental aspects of national poverty alleviation strategy; and
- Exchange approaches for capacity-building and knowledge-sharing, international transboundary management and institutional collaboration.

Poverty alleviation:

There are significant opportunities to link the national poverty alleviation programme with conservation efforts, especially with regard to subsistence resource use and local community involvement in tourism developments

- Develop policy inputs to the national Poverty alleviation programme;
- Initiate pilot projects to demonstrate sustainable livelihood projects linked to conservation; and
- Advocate focusing of poverty alleviation activities in priority areas to reduce threats to biodiversity.

Exchange for capacity building and knowledge-sharing:

- Communication links between research institutions;
- Country collaboration with respect to shared stocks and priority species; and
- Manager exchange programmes for training and experience-sharing.

National Action Plan: Tanzania

Seven areas on the Tanzania coastline were identified through the EAMEP process as priority areas for conservation action: the Mafia-Rufiji-Kilwa complex, Mtwara, Zanzibar, Pemba, Tanga, Latham Island and Bagomoyo.

Direct pressures on marine and coastal biodiversity in Tanzania include:

- Use of destructive fishing gear, including beach seines, small mesh nets and dynamite;
- Over-exploitation of fisheries and marine resources such as turtles;
- Removal of coral and mangroves for use as construction materials;
- Poor cultivation practices and herding of livestock resulting in soil erosion and siltation of mangroves and wetlands;
- Overharvesting of mangroves for local market and export;
- Overharvesting of non-fish marine species for export trade mainly - sharks fins, octopus, sea cucumber, larger fishes and some shells;
- Pollution, beach erosion and destruction of mangroves as a result of unplanned urban settlements and poorly sited tourism developments;
- Coral bleaching due to global climate change;
- Conversion of mangrove areas for salt production and port development;
- Reef damage from tourist activities such as boat anchoring, reef walking and collection of ornaments; and
- Commercial trawling and associated by-catch, particularly of turtle and dugong.

Action in priority areas:

In Phase 1, action will be focused on three areas: the Mafia-Rufiji-Kilwa complex, Mtwara and Pemba. In the first instance, a seascape plan will be undertaken for Mafia-Rufiji-Kilwa. In all areas, EAMEP will strive to complement the work of other organisations with similar aims, taking account of existing management plans and promoting in multi-stakeholder planning and implementation processes.

Proposed action in Mafia-Rufiji-Kilwa:

Draw up a seascape plan in collaboration with key stakeholders, which will focus on promotion of sustainable use of natural resources:

- Through diversification of livelihoods
- Through improved fisheries management
- Through monitoring, conserving and restoring critical ecosystems (coral reefs, mangroves and sea grass beds)
- Through monitoring and protecting threatened, endangered and over-exploited species (dugongs, turtles, dolphins, sea cucumbers)
- Through improving management of natural resources at community and district levels.



EAME priority areas in Tanzania

Global priority sites:

- Mafia-Rufiji-Kilwa
- Mtwara
- Zanzibar

Ecoregional priority sites:

- Pemba
- Tanga
- Latham Island

Subregional priority:

- Bagomoyo



Proposed action in Mtwara:

In conjunction with related initiatives, EAMEP will work to:

- Reduce pressure on nears-shore fisheries.
- Develop joint management of transboundary activities.
- Reduce rate of exploitation and destruction of mangroves, coral reefs and sea grass ecosystems.



Proposed action in Pemba

- Assess, monitor, conserve and restore critical ecosystems (coral reefs, mangrove forests, seagrass beds).
- Protect turtles and dolphins and their critical habitats.
- Improve socio-economic conditions of the coastal communities.
- Improve management of natural resources at community and district levels.



National Enabling Environment and Capacity Building: Tanzania

In support of action at local level, three issues will be targeted at national level in the first phase of implementation: provide policy and legislative guidance, as well as enforcement, for effective implementation of EAME programs; establish a mechanism for institutional coordination and linkages for effective implementation of EAME program; and establish networking mechanism for effective stakeholder participation in the implementation of the EAME program. These are discussed below:

Provide policy and legislative guidance, as well as enforcement, for effective implementation of EAME programs:

- Review, update and harmonize the existing policies and regulations and, where necessary, to create new ones to deal with all aspects of the sustainable utilization of natural resources, including those related to fin, shark, what and shellfish fisheries as well as sea cucumber collection, coral reefs, mangrove resources, wetlands and tourist activities.
- Facilitate local authorities in establishing appropriate by-laws.
- Solicit regional and international support to help enforce international agreements.
- Formulate strategies for effective compliance and enforcement of all policies and regulations, including the provision of skills and equipment for patrolling and surveillance.
- Establish effective policy and legal framework regarding transborder issues such as destructive fishing practices, mangrove cutting, and pollution.
- Draft guidelines for port and harbor development as well as other major types of development.
- Develop mechanisms to reduce by-catch, such as turtle exclusion devices for prawn trawl fisheries, and enforce their use.
- Implement socio-economic development policies that help harmonize the local basic needs with conservation.
- Gazette at least six proposed new MPA sites; the likely areas in Tanzania to be considered for MPAs are Kilwa/Songo Songo and Tanga Coral Gardens.
- Institute national award scheme as incentives to local initiatives.
- Establish credit or grant facilities to fishing groups to acquire offshore fishing gears.
- Include important sea grass beds in new MPAs in Tanga, Songo Songo and Rufiji.
- Review, harmonize, and strengthen relevant regional and international conventions and national policies and legislation within the region.

Establish a mechanism for institutional coordination and linkages for effective implementation of EAME program:

- Set up Inter-Ministerial Committee responsible for effective coordination of government activities along the coast.
- Establish national working groups to deal with critical habitats, e.g., mangroves, coral reefs and seagrass beds, as well as species of special conservation interest, e.g. dugongs, sea turtles, whales, etc.
- Facilitate and coordinate research institutions in conducting collaborative research (national and regional) and monitoring of critical habitats, e.g., mangroves, coral reefs, wetlands and seagrass beds, as well as specific groups of organisms, e.g., finfish dugongs, sea turtles, whales, sharks, rays, gastropods, etc., such that accurate and up-to-date information is provided to managers and decision makers.
- Conduct research on methods of restoration and strategies/approaches to management.
- Enhance coordination and communication links between research institutions and government institutions.
- Establish national database of information on all aspects of the marine environment and natural resource utilization (including marketing) and ensure information sharing amongst national regional district and local institutions.
- Strengthen collaborative enforcement involving central, district and local government institutions as well as regional and international institutions.
- Promote advocacy and networking in relation to international trade in marine organisms (medium term).

Establish networking mechanism for effective stakeholder participation in the implementation of the EAME program:

- Establish sea turtle, dugong, dolphin and whale networks to prioritise conservation issues and responses.
- Establish current levels and patterns of trade of selected species and influence global demands for lobsters, gastropods, sea cucumbers and other commercial species.
- Link and integrate with relevant global and regional initiatives in conserving coral reefs and mangroves.
- Investigate the tourist carrying capacity for various areas in order to develop appropriate tourism development plans.
- Produce a scientific document describing representative MPAs in EAME, with respect to location, area covered, strategies and actions.
- Build the capacity of partners to sustainably manage and conserve marine resources through continued support with scholarships, exchange visits and research grants.
- Organize visits, exchanges and forums between local communities within and beyond sites in order to spread knowledge.
- Establish and standardize a monitoring program in EAME covering all critical habitats (e.g., coral reefs, mangrove forests and seagrass beds) and important groups of marine organisms.
- Undertake assessment of threats to unique and endemic fauna and flora and/ or critical breeding habitats in small islands within priority sites.
- Explore and integrate traditional resource management practices.
- Identify and establish alternative sources of income generation to take the pressure off the marine and coastal resources.
- Promote ecological and community-based tourism with world tourism organization and other relevant tourism bodies.
- Conduct on-going public environmental awareness/education campaigns on sustainable use of natural resources.
- Develop participatory approach to all resource management, i.e., consultation with communities/stakeholders.
- Ensure capacity building for management and research.
- Improve information sharing and communication links amongst all stakeholders, e.g. research institutions, government bodies and local communities.

Co-ordinating and Managing Implementation

EAMEP has adopted an approach to implementation based on loose cooperation between stakeholder agencies working to achieve similar goals. Co-ordination of the implementation process, essential to realizing the vision, will be undertaken through national and ecoregional co-ordinating structures, linked closely to the existing government agencies, and ecoregional conventions and agreements.

Acknowledging the importance of developing partnerships for co-ordination, EAMEP has established National EAMEP Committees in each country comprising partner agencies, and a Regional Committee, made up of representatives of each of the National Committees. The National committees meet twice yearly, while the Regional Committee meets annually. In each country, a National EAMEP Co-ordinator, hosted by a National Focal Institution, is responsible for national co-ordination of EAMEP activities. The EAMEP Regional Co-ordinator and Secretariat, currently hosted by WWF, are tasked with co-ordinating and managing the activities of the Regional Committee, and facilitating the development of project and activities of EAMEP structures in each country.

Regional EAMEP Committee: The focus of the work of this committee is on the ecoregional enabling environment, and it is thus responsible for strategic planning, facilitating implementation, identifying potential funding sources, monitoring and evaluation, and promoting awareness. A significant function is linking activities of EAMEP to other regional programs such as the Nairobi Convention. This committee is made up of representatives of national EAMEP committees, assisted by the relevant National Co-ordinators and the Regional Secretariat.

National EAMEP Committees: These committees, established by stakeholders at EAMEP National Action Planning Workshops, comprise members of key stakeholder agencies and prominent individuals, serving in their personal capacities. They provide advice and assistance on the implementation of the relevant National Action Plans, both at the level of the priority areas and the enabling environment, foster debate and networks, and disseminate information on the state of the marine and coastal environment. Management structures in South Africa will follow the same principles but take a slightly different form.



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