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Integrated coastal zone management in Kenya: initial experiences and progress

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1. INTRODUCTION

Land and ocean interactions make coastlines unique zones with equally unique resources and environment that attract an ever increasing human population. This scenario has caused depletion of some coastal resources and environmental degradation. However, the paradox is that despite the decline in coastal resources and the quality of the environment, those residing in these zones do not abandon their settlements and migrate elsewhere, but import resources to sustain their survival and enjoy the coastal environment at expensive costs. The combined commercial and aesthetic values of the resources and the coastal environment are the foundations of various economic mainstay activities.

As with other coastlines of the world, Kenya's coastline (Fig. 1) faces various types of environmental impacts due to rapid development activities mostly associated with tourism, industry, agricultural activity and fishing. The 600 km Kenyan coastline lies in a semi-arid region and the following is its brief profile.

Kenya's fringing reef system spans almost continuously along the coast from the Kenya/Tanzania border to Malindi, with scattered fringing reefs northward to Somalia. This extensive reef system is critical to activities such as fishing and tourism. Kenya took the lead in Africa by establishing protected marine areas and today there are four marine parks and six marine reserves, encompassing 5% of Kenya's reef areas.

The coastal resources of importance in Kenya include beaches, coral reefs, mangroves, Kaya forests, seagrass beds, marine and inland reserves and historic sites. They provide the foundation for today's Kenyan coastal economy. Kenya's coastline has about 53 000 ha of mangroves occurring mostly in creeks, bays and estuaries.[1] The mangroves are most significantly used for their wood, both commercially and at the subsistence level.

2. CLIMATE

The Kenyan coastline with a length of about 600 km generally lies in a semi-arid region.[2] Its climate is influenced by two seasonal wind regimes called monsoons. The major monsoon season is the south-east monsoon, which lasts from April to October and its winds bring in the highest rainfall (55 to 272 mm) and lower temperature ranges (20–31°C). The shorter north-east monsoon lasts from November to March and the season is characteristically drier (8–84 mm of rainfall) and hotter (23 to 32°C). The hydrographic conditions of the ocean are also under the influence of the monsoons. The effects of the monsoons on the oceanic processes and biological productivity in the area are reviewed by McClanahan.[3]

3. GEOLOGY

The geological structure of the coastline is variable but is characterized by Pleistocene buried coral reef and living fringing reef, as well as marine and continental deposits that date from the Triassic period to the present day.[4–9] The cliffs that boarder the shorelines are mostly Pleistocene coral rocks that extend considerably inland. A series of terraces occur along the coastline, which have been related to different sea levels of the Pleistocene and post-Pleistocene periods. Land-based sediments are very common in estuaries of the major rivers, i.e. the rivers Tana and Athi-Sabaki.

4. HYDROLOGY

There are only two permanent rivers, which originate from the Kenyan highlands and flow to the sea throughout the year, and there are several seasonal rivers whose catchment is in the semi-arid coastal area and therefore discharge during the rainy seasons. The groundwater table in most parts of the coastal area is high and seepage of freshwater from underground aquifers into the sea is common.[10]

5. HYDROGRAPHY

As with the rest of the Western Indian Ocean waters, the coastal waters of Kenya are under the same influence of the northward flowing East African Coastal Current (EACC) and the southward flowing North Equatorial Current (NEC).[11] The coastal waters are also under influence of tidal currents and

the tidal range varies from 4 m at extremely high spring tides to 1.4 m at extremely high neap tides.

6. SOCIOECONOMICS

About 9% of the total Kenyan population resides in the coastal area. Of the total coastal population about 29% reside in urban areas. The urban population of Mombasa, which is the second largest city in Kenya, makes 86% of the total coastal urban population.[12]

The major economic activities that generate significant income to support livelihoods in the coastal area of Kenya are:

(1) Tourism
(2) Maritime transport (harbours)
(3) Non-agricultural industries (especially oil refineries, cement industries)
(4) Agricultural based industries (especially cashew nuts, horticulture, bixa, coconuts, cotton)
(5) Fisheries
(6) Agriculture (crop and livestock)
(7) Forestry
(8) Mining

Their relative importance in income generation for economic support is as shown in Fig. 2.

6.1. Governance of coastal and marine resources

Coastal and marine resource management is still essentially sectoral and is governed through various acts under the mandates of different authorities or institutions. It is not uncommon for one resource to be governed by more than one act under more than one Institution. This causes management conflicts leading to unsustainable use of the resource.

7. DOES KENYA NEED INTEGRATED COASTAL ZONE MANAGEMENT

To ensure the sustainable use and economic health of coastal areas an integrated approach to manage Kenya's coast and its resources is needed. Coordinated action among many government agencies in cooperation with the private sector is urgently needed to solve these problems.

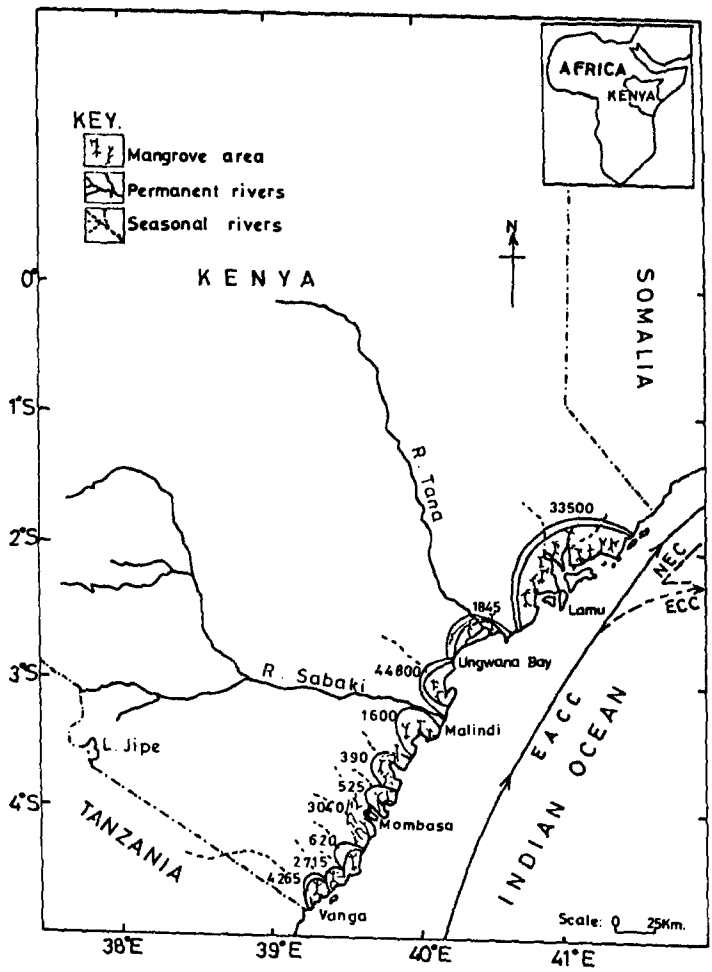

Fig. 1. Kenyan coastline.

The national economic importance of the coast has not come without cost. Once pristine, the natural resources of the area are being degraded at an increasing rate. New economic activities create urbanization and change the way people use the resources. More people and activities result in intensifying use conflicts and pressure on the resource base, the public services and the infrastructure that supports the coastal population.

A number of significant coastal environment and resource-use issues that are detrimental to the management of Kenyan coast will intensify as population and development pressures increase. Broadly stated, the primary national

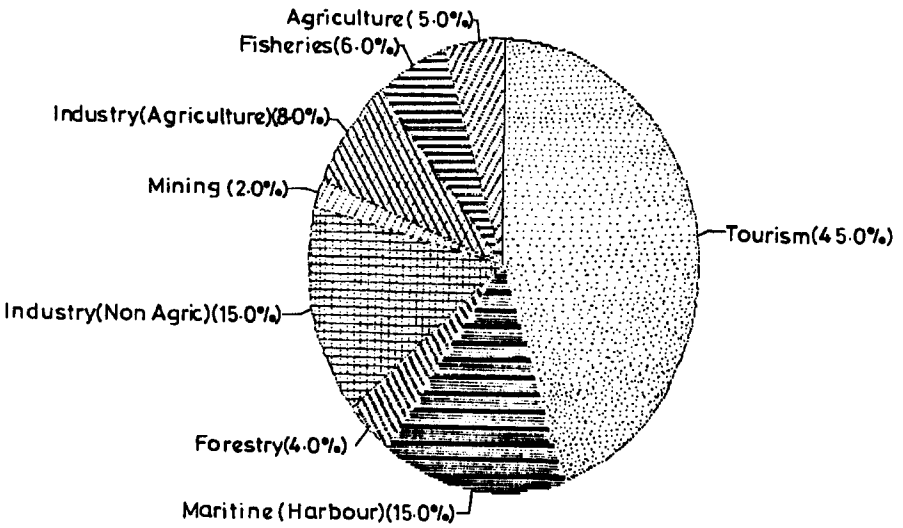

Fig. 2. Major economic activities in the entire Kenyan coastline.

coastal management issues include:

(1) Development activity in the coastal zone has been done with only modest planning and organization. The result has been unsound changes in land-use patterns that affects both environmental quality and economic stability for the local community.

(2) Total fish catch rose slightly over the previous decade to a reported 8000 tons in 1990.[13] The total fish catch has stagnated. While inshore reef areas are generally considered overfished, offshore waters offer opportunities for expansion. Other traditional coastal resources such as mangroves show signs of overharvesting. Both of these traditional activities are now overshadowed by coastal tourism and related subsectors. This shift is having a significant socioeconomic impact on local, traditionally based communities.

(3) In areas of the coast that serve a burgeoning tourism economy, coastal resources are threatened by unplanned development and pollution. Mangrove exploitation for fuel and construction material has resulted in many mangrove forests being overharvested beyond sustainable limits. Coral reefs are over-exploited and in decline, particularly areas outside the marine parks. Areas outside the influence of coastal development remain unspoiled, but are under increasing threat from expanding development and human settlement.

8. USE CONFLICTS ON THE KENYAN COAST

There is increased use of coastal resources throughout the country. On the coast, this intensive use of land and water space has led to conflicts, e.g blocked access to the sea, land and water use, and cultural standards and values.

At present, no one institution in Kenya has the institutional mandate to adequately address coastal management issues in an integrated manner. Progress towards an integrated coastal-zone management plan (ICZM) and programmes for its implementation in Kenya will require close cooperation and collaboration of many national agencies with local government and the appropriate research institutions, private stakeholders and NGOs.

An integrated policy framework is therefore needed to address coastal management issues, minimize resource degradation and promote the sustainable development of the coastal environs. Integrated coastal zone management can provide the necessary framework to address national coastal management issues.

9. INSTITUTIONAL FRAMEWORK FOR ICZM

Kenya does not have a national ICZM programme. Although many institutions play a role in managing coastal areas and uses, there is no overall framework that effectively integrates individual institution's actions and decisions. In many cases, this lack of co-ordination makes management problems worse.

As called for by the United Nations Conference on Environment and Development (UNCED), at the Earth Summit held in Rio de Janeiro, June 1992—Kenya has taken some important steps towards coastal management through national efforts and international agreements. At the national level Kenya has prepared a National Environmental Action Plan (NEAP). The NEAP is aimed at providing a broad framework for sound management of natural resources and the environment, including coastal environments, thus integrating environmental considerations into socioeconomic planning and implementation at all levels. At the international level, Kenya is signatory to a number of treaties and conventions that provide the basis for establishment of integrated coastal management. Kenya is a signatory to the Nairobi convention within the Regional Seas Programme of UNEP and has signed the Arusha Resolution,[14] which calls for sustainable development and integrated management of coastal areas for the primary benefit of coastal communities.

In 1993, Kenya showed interest when it hosted, through the Kenya Marine and Fisheries Research Institute (KMFRI), a workshop funded by the United Nations Environment Programmes (UNEP) on 'Protection and management of the marine and coastal areas in the Eastern African region'. This was one of

the UNEPs Projects on the Eastern African Regional Seas Programme under EAF/5, which envisaged among others, the Regional Workshop on the Development of Coastal Area Management Plans, Surveying Techniques and Marine Resources Assessment. During the Workshop, KMFRI received a set of computer equipment for a global imaging system (GIS).

10. INSTITUTIONAL ROLES AND RESPONSIBILITIES IN THE COSTAL ZONE

Much of the Kenyan marine inshore waters and the 200-nautical miles, which include the EEZ (Exclusive Economic Zone) and most of their resources, are normally under public ownership. Therefore, programmes to manage those resources and areas are operated by the governments for the benefit of their people. Typically, particular government ministries, departments, and/or agencies are responsible for management of particular resources. The National Marine Parks manage the beaches, but coastal and marine resources conflicts do arise.

In an ICZM program, important roles will continue to exist for specialized agencies at both national and local governmental levels for research institutions, for users and owners of the coastal zone and its resources (stakeholders), and the general public. The key to success is involvement of all parties and the demonstration that the ICZM programme is in the interests of the majority of people and posterity.

The existing management framework in Kenya is as follows.

10.1. The Kenya Wildlife Service (KWS), Forest Department and Fisheries Department

At the moment, there are no local regulations for controlling the number of glass-bottom boats and/or tourists going to reefs. Some mooring buoy systems have been installed by KWS to reduce damage to coral from anchors. Marine Park Management Plans are continually updated by Kenya Wildlife Service, but do not yet adequately address intensifying use of the park and reserve and its associated impacts. In addition, increasing development on land that impacts the park, is beyond the jurisdiction of KWS. KWS has limited authority for managing uses in the Marine Reserve. The Fisheries Department has a fisheries act that forbids collection of coral heads, both live and dead. The Forestry Department is responsible for management of coastal forests, including mangrove forests.

10.2. Tourism development

There are multiple government regulatory agencies and non-governmental organizations that are involved in managing tourism and approving additional development:

(1) Kenya Tourism Development Corporation promotes investments in tourism industry
(2) The Coast Development Authority evaluates developments alternatives and monitors sustainable development
(3) The Kenya Wildlife Service can influence development adjacent to marine park areas by enforcing legally mandated 100-foot setback limits along the shoreline, however, the marine parks are also encouraged to promote tourism
(4) There are several associations that represent a wide range of tourism related interest groups including the Mombasa and Coast Tourism Associations, Kenya Association of Tour Operators and Kenya Association of Hoteliers and caterers
(5) The Mombasa Municipal Council (MMC) is responsible for implementation of the existing land-use plan for the area
(6) The Tourism Department has the responsibility for licensing and regulating the growth of tourism industry
(7) The District Environment and Development Committees are mandated to approve or disapprove new development
(8) The Ministry of Lands, Physical Planning and Settlements provides physical plans for new development and housing projects

However, the decision-making processes for siting and designing tourism facilities and the inter-relationships among agencies is unclear and often confusing. Making the situation worse, none of the agencies have the necessary resources to adequately enforce existing regulations and follow-up on complaints and violations.

10.3. Research

The Kenya Marine and Fisheries Research Institute is mandated to exclusively undertake aquatic research. Other institutions, whose research also includes aquatic research, are universities and some government agencies.

A sound ICZM programme must be based on good data and information. KMFRI works very closely with scientists from local universities in the collection and analysis of data concerned with coastal resources, environmental degradation, mitigation strategies, new economic development possibilities and the like.

Considerable investment in research is necessary for a better understanding of the factors that maintain the functional integrity of the resource system, the assimilative capacity of the marine environment, the social costs of a poorly managed environment, the technologies for waste management, etc.

The most common management actions under this category are:

(1) Research and development
(2) Public awareness and information dissemination
(3) Technical assistance
(4) Training and education
(5) Public infrastructure, e.g roads, embankments, waste collection and disposal systems/facilities

11. PURPOSE OF THE CO-ORDINATION MECHANISM

The main purpose of the co-ordination mechanism is to:

(1) Provide a forum for conflict resolution among sectors
(2) Minimize duplication of functions of line agencies
(3) Reduce inter-agency rivalry and conflicts
(4) Promote and strengthen inter-agency and inter-sectoral collaboration
(5) Implement actions that result from the evaluation exercize
(6) Monitor and evaluate the progress of ICZM projects and programmes

12. ORGANIZATIONAL FRAMEWORK

The organizational framework is shown in Fig. 3. There is a need for networking, which will involve the following:

(1) Associations
(2) Collaborating and working together to attain the objective of the network

13. KENYAN CASE STUDY—BASIS FOR EXPERIENCE

At the initial stages an ICZM core team of five institutions: Le Coastal Development Authority (CDA), Kenya Marine and Fisheries Research Institute (KMFRI), Kenya Wildlife (KWS), Fisheries Department (FD), Municipality Council of Mombasa (MCM) and Kenya Association of Hotel keepers

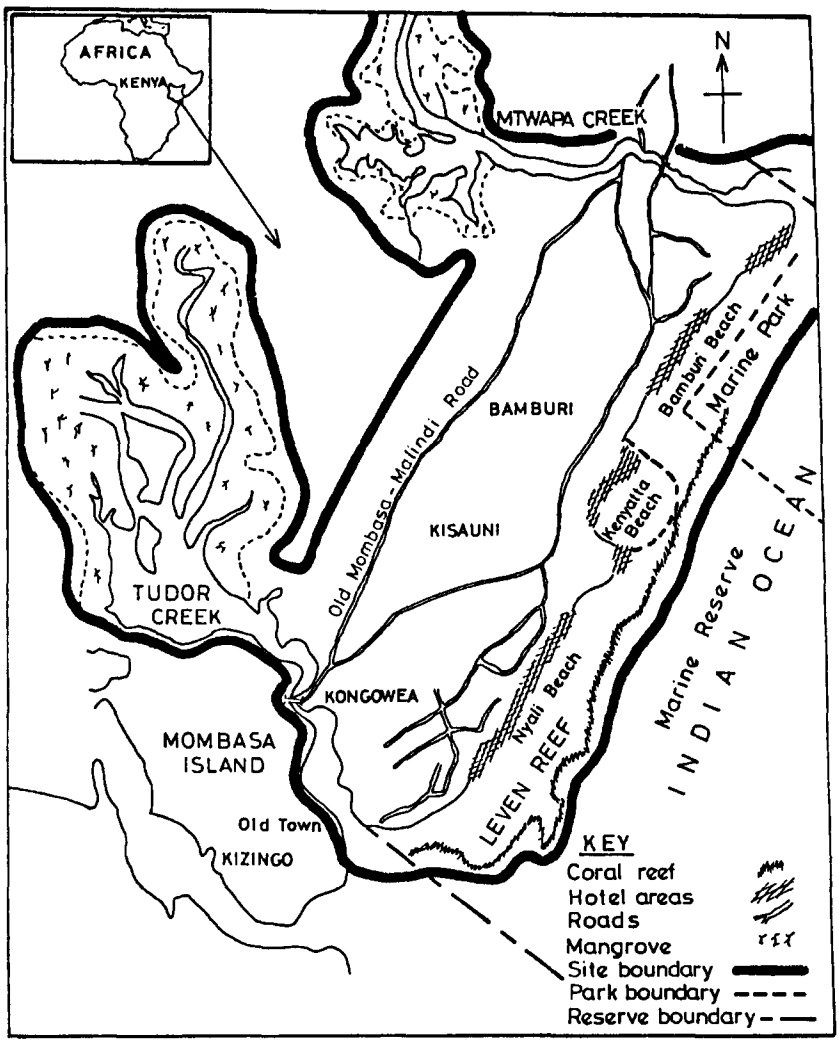

Fig. 3. The Nyali–Bamburi–Shanzu area.

and caterers (KAHC) was formed. This team underwent training to enable it to undertake a case study at a portion of the Kenyan Coast near Mombasa (Fig. 3).

Issues were identified essentially through a participatory approach involving communication with local communities, fishermen, mangrove cutters, boat operators, curio dealers, businessmen hoteliers, administrators, researchers, etc. and included stakeholders, both at grass-roots level and policy makers. Two workshops were held to discuss the findings of the facts of issues

crystallized by the team. This allowed consensus-building on the issues between the team and stakeholders. The team received training and support from the Coastal Resources Center, University of Rhode Island, USA, the Priority Actions Programme/Regional Activity centre of Mediterranean Action plan, FAO and UNEP-OCA/PAC.

13.1. Study area

The study area was peri-urban, and the main economic activity is tourism. It accounts for about 24% of the total coastal tourism industry earnings.[15] The habitations vary from planned modern housing estates along the coastline, to slum dwellings in the central parts, to simple rural community living in the Hinterland without basic utilities and poor infrastructure. Most of the natural vegetation from a birds eye view is the evergreen mangrove vegetation lining the creeks in the background of bare ground and coconut palm tree patches. The shoreline forming the open sea is protected by a fringing reef. The seashores are mostly sandy beaches but with some rocky shores with lifts at other portions. It is estimated that the area supports a population of about 150000 people, which is about 8% of the total coastal population.

13.2. Economic activities

The economic activities in the area are: artisanal fishing, mangrove cutting, peasant farming, tourism, and mining (cement factory). However, in monetary terms tourism and fossil coral mining and processing for cement are the most significant income-generating activities. Most of the infrastructure development in the study area is directly or indirectly associated with the tourism industry. The performance of the tourism industry is as shown in Fig. 4 and Fig. 5. For artisanal fishers, their catches range from 10–65 kg/person per month,[16] and at a price of about 1US$/kg of fish this is hardly sufficient to support an individual fisher's family, which averages six members per family. In general, a number of families are involved in multiple activities in order to consolidate enough income for their survival. The mangrove vegetation covers 1990 hectares[1] and has been heavily over-cut to provide firewood, charcoal, building, fencing, etc.

13.3. Issues for ICZM

The following were identified as the issues that require integrated area management for the study area:

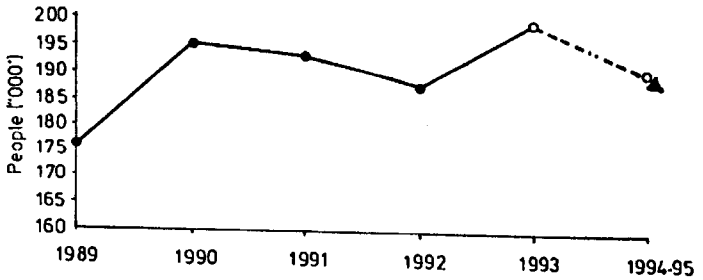

Fig. 4. Annual visitor arrivals in the North coast.

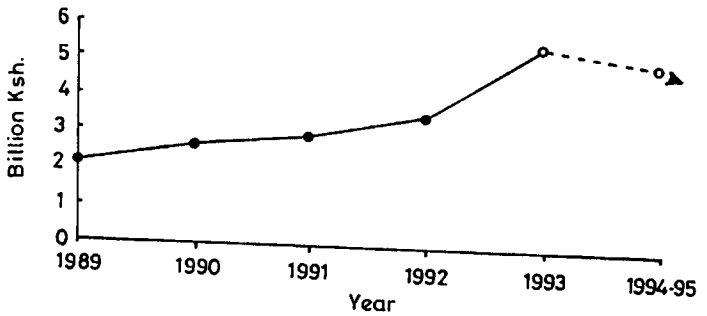

Fig. 5. Gross recipts from tourism.

13.3.1. *Inadequate infrastructure and public services*
This was caused by rapid development of the tourism industry and urbanization of the area, which consequently increased the demand on supplies of water and electricity and communication networks (telephones, roads, etc.).

13.3.2. *Degradation of water quality*
Both the groundwater and the surface marine and coastal waters are threatened by pollution. The use of septic tanks and soakage points that reach the groundwater table contaminate drinking water. In an area such as the study site, which has no adequate water supply, water from boreholes is very frequently used and its contamination brings about significant public health threats. The marine and coastal waters are also threatened from degradation by seepage of sewage from septic tanks and soakage pits. This consequently leads to biodiversity imbalances and loss of aesthetic value of the environment.

13.3.3. *Degradation of coastal and marine habitats*
Mangroves, coral reefs and seagrass beds are threatened with degradation due to overexploitation and physical damage, besides pollution. The physical

damage is mainly caused by fishes, swimmers (locals and tourists) and boatmen.

13.3.4. *Coastal erosion*
This is caused both by natural coastal and marine processes and human induced activities, e.g. the removal of natural vegetation, inappropriate use and silting of sea waters, coral reef destruction, etc.

This has been estimated to be taking place at a rate of 2 m/year in some parts of the study area.

13.3.5. *User conflicts*
There is a growing problem of increased user conflicts over the exploitation of the coastal and marine areas because of the changes that have occurred in usage over time, which include fishing, water sports activities, glass-bottom water operations and hotel constructions along the coastline. These have caused a loss of access to local fisherfolk to the beach and fishing areas.

14. ACTION PLAN

14.1. Inadequate infrastructure and public services

Improved development and management of infrastructure and public services to cater for increased economic activities and population will also have benefits for local communities, e.g. the rehabilitation of the public facilities at Kenyatta Beach, promotion of water harvesting and conservation, promotion of solid waste recycling and composition of organic waster, the promotion of communities to participate in decision making about water activities, the promotion of a low-cost long-term plan to benefit the majority, the use of appropriate plans for residential, industrial, road network development and other utilities.

14.2. Degradation of water quality

There is a need for the establishment of a regular groundwater monitoring programme for quality management, and the establishment of a regular coastal and marine monitoring programme especially through a multi-institutional collaboration.

14.3. Degradation of coastal and marine habitats

Habitats play an important role in fishery and tourism activities. It is therefore essential to promote activities that will mitigate against degradation of coastal and marine habitats. These activities include the use of mooring buoys for anchoring boats in coral gorges to promote public awareness education and to support improvement regulations.

14.4. Coastal erosion

The shoreline is characterized facilities that were built with large investments at a time when shoreline erosion was not significant. There is, therefore, a need to promote or encourage activities that will minimize shoreline erosion, to discourage the use of shoreline structures that enhance erosion, and the need to repeat the setback regulation, even away from the protected area, in order to minimize erosion.

14.5. User conflicts

Existing public awareness routes need to be mentioned and leading beaches retained for local fishermen. Fishing infrastructure, which includes shelters where fishermen can weigh, display and market their catches, need to be improved. Specific sites need to be allocated for beach operators and traders to be located in order to avoid harassments of other beach users who include both tourists and local communities. Public awareness should be promoted to the importance of protected areas and other education activities that will reduce tourist–local population cultural conflicts.

15. WHY THE STUDY AREA WAS CHOSEN

In order to build momentum towards a national ICZM approach and to develop the necessary experience in the practice of ICZM, a coastal management demonstration initiative was started on a small part of Kenya's coast—the strip encompassing the Nyali–Bamburi–Shanzu area (Fig. 3). The site was chosen as the demonstration area for the following reasons:

(1) Its coastal resources are important for tourism at both the local and national level
(2) The area encompasses one of the most critical coastal issues in Kenya, that of incorporating and sustaining an international tourism industry in a manner that is environmentally sound and benefits both the

people of the area and the nation as a whole. Hence, management approaches and techniques used here may be useful in other locations

(3) There is local demand for the project. One major impetus in the area selection was that local residents recognized that issues exist which required immediate attention

(4) Most of the key government agencies and organizations maintain offices in Mombasa, thereby facilitating their participation in a cooperative effort

(5) Unlike other areas of the Kenya coast, data about the area, although limited, exist

16. THE ICZM PLANNING PROCESS AT THE NYALI–BAMBURI–SHANZU AREA

To make progress on ICZM planning in the Nyali–Bamburi–Shanzu area, a multi-agency team was created in October, 1994. The team developed initial strategies to address critical management issues and worked to build support within the government, user groups and the private sector, which was a move forward in strategy implementation. This team operated under the leadership of the Coast Development Authority, whose mandate includes planning, co-ordination and implementation of development projects in the whole of the Coast Province and the Exclusive Economic Zone. Team members include senior officers from other key institutions, including the Kenya Marine and Fisheries Research Institute, the Kenya Wildlife Services, the Fisheries Department and the Mombasa Municipal Council. The Hotelkeepers Associations and Moi University also played an important role in the process. The team also interacted closely with the Ministry of Land Reclamation, Regional and Water Development, the Ministry of Research, Technical Training and Technology; and the Ministry of Tourism. The Ministry of the Environment and Natural Resources was also involved.

This Ministry is developing the National Environment Action Plan, which has made the creation of an ICZM programme for Kenya a priority.

Since the team's inception, it has also been working closely with local stakeholders to clearly describe the coastal issues affecting the site and to outline basic management strategies that can be employed to solve identified issues. A first draft of this document detailing the site's coastal management issues was prepared in March 1995.

In June 1995, a 2-day 'Stakeholders Workshop' provided a forum for over 80 people to discuss the issues outlined in the draft document and their possible solutions. From this workshop, several working groups were formed to implement small-scale activities. These were identified as early implementation activities that would solve immediate problems and help move the coastal

management process forward. Based on input from the June workshop, the document was revised and expanded to include objectives, strategies and initial actions to address each issue. This draft document was reviewed at a workshop at the Mombasa Beach Hotel, December 5–7, 1995. Over 70 participants representing key government agencies, non-governmental agencies (NGOs) and the private sector, as well as a number of international participants, carefully reviewed the draft findings and strategies.

17. INTEGRATED COASTAL ZONE MANAGEMENT (ICZM) STAKEHOLDER'S WORKSHOP

The Integrated Coastal Zone Stakeholder's Workshop was held at Bandari College, Mombasa, Kenya from 21–22 June 1995. The following were the participants: fisherfolk, conservation groups, Baobab Trust, Forestry Department, KPA, trawler operators, sport fishers, aquarium representatives, NOSRC, KWS, mangroves dealers and cutters, local representative of NEAP, boat operators, Tourism Department, CDA, KMFRI, MMC, MCTA, Ministry of Lands, CD, Boat Operators Association, Beach Operators Association, representative of the Bamburi Cement Company, police, hoteliers, Ministry of Water, National Water and Pipeline Corporation, Public Works, KPLC, Fisheries Department, Kenya Navy, and Kenya Post and Telecommunications.

17.1. Purpose

(1) Receive feedback from key stakeholders on the facts, objectives and actions stated in the draft management strategy
(2) Suggest additional management measures/action
(3) Reach consensus on key management issues (findings, objectives and actions)
(4) Build support for the management strategy
(5) Identify areas of disagreement
    (5.1) Recommend actions for solving disagreements
    (5.2) Document why disagreement exists

17.2. Workshop outputs

As a result of each day's efforts, the following outputs were generated:

(1) Revised list of issues, by workshop theme, that combined the participants' list and the ICZM team's list

(2) Suggested management strategies for identified issues
(3) A detailed outline of tasks for several management actions that the group identified as being easy to implement and pertinent to the problem
(4) Seven volunteer groups, which were formed around the management actions, were identified as easy to implement and pertinent to the problem. Three of the seven volunteer groups met at the end of the workshop to identify a chair and select the next meeting time and agenda. The purpose of these volunteer groups was to encourage public and private stakeholders to work together towards progress on coastal management issues in the area

18. NATIONAL WORKSHOP ON INTEGRATED COASTAL AREA MANAGEMENT

The National Workshop on Integrated Coastal Area Management was held in Mombasa from 5–7 December 1995.

The workshop brought together national and regional coastal managers and practitioners, relevant government agencies, university lecturers and policy makers. They met to deliberate on how the ICZM tool could assist in managing coastal resources in a sustainable, issue-driven manner.

18.1. Purpose

(1) To demonstrate the need for ICZM to a wide array of Kenya coastal stakeholders and constituents
(2) To share the experience gained at the Mombasa ICAM demonstration area with national policy makers and stakeholders
(3) To receive feedback from key stakeholders on the facts, objectives and actions stated in the draft management strategy
(4) To define the framework for implementation of ICZM in the area

The start of Integrated Coastal Management activities at this study site is expected to yield results and to make progress on Integrated Coastal Zone Management in Kenya.

Progress towards an integrated coastal areas management (ICZM) plan and programme in Kenya will require close cooperation and collaboration of many national agencies with local government and appropriate research institutions, private stakeholders and NGOs. A number of ICZM-related

projects are being initiated and planned within the country. The projects, along the Nyali–Bamburi–Shanzu ICZM strategy, are to providing lessons for effective co-ordination. They are also helping define needs for national policy development and co-ordination.

To make progress in solving problems in the Nyali–Bamburi–Shanzu area and to gain nationally relevant ICZM experience, continued planning and implementation actions, as outlined in this strategy document, are essential. This requires continued support, commitment and involvement of national and local agencies, stakeholder groups and NGOs. Stakeholder involvement needs to go beyond consultation, and reach full partnership and shared responsibility for implementation alongside government efforts. This can mean commitments of individuals' time, or in some cases financial, and in other, resource commitments. In addition, implementation requires an institution framework to promote and foster coordinated actions among various government agencies, the private sector and voluntary groups to achieve the common set of objectives, strategies and actions formulated through consensus from the participatory planning process.

The organizational structure that was proposed for the integrated coastal zone management programme on the Kenyan coast is shown in Fig. 6.

To oversee the implementation of the strategies proposed, the document gives direct and clear vision to ICZM, a Coastal Management Steering

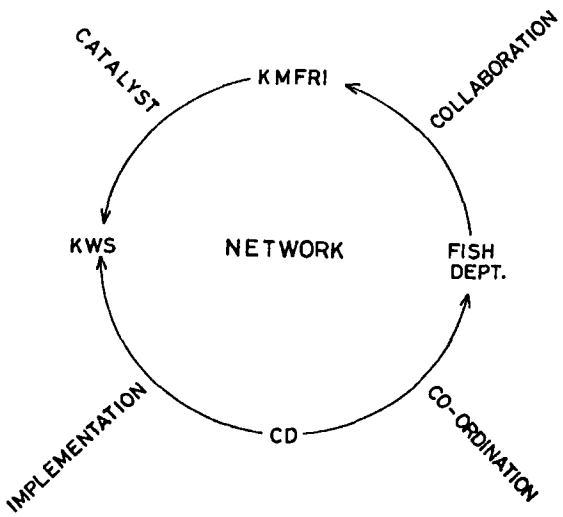

Fig. 6. Organisational framework.

Committee (CMSC), which builds on the team of institutions initially assembled to develop this strategy, along with other agencies, the private sector, NGO representatives and other representatives. This committee should be small enough to effectively direct the implementation of the strategies. The CMSC, with the assistance of a secretariat and appointed working groups will be responsible for completing the planning and action strategies outlined in this document. The working groups are designed to allow for maximum input and participation to the process without unduly increasing the size of the CMSC.

The CMSC will be convened and initially chaired by the Director of the Kenya Marine and Fisheries Research Institute. The existing ICZM Planning Team, coordinated and housed by the Coast Development Authority, will continue to house the Secretariat. The chair is responsible for organization committee meetings, establishing working groups as required and ensuring that necessary actions are being completed in a satisfactory and timely manner. The secretariat will provide support to the CMSC. Support will include the co-ordination of meetings, and technical assistance to the CMSC and appointed working groups. The CMSC should appoint working groups as follows to complete planning and action strategies:

Public services
Water quality
Reef fisheries
Marine habitat
Coastal erosion
Mangrove forests

Use conflict issues will be addressed through the working groups and full committee. Working groups should be drawn from the cooperating agencies assigned to each designated key issue. It should also draw members from other public and private groups that were represented in the National Stakeholders' Working Party, as well as other interested parties.

19. IMPLEMENTATION AGENCY AND FUNDING

Concentrating the jurisdiction of resources as single agency has been avoided. Due to a legal mandate given to the Coastal Development Authority (CDA), it is taking the lead in initiating an ICZM programme initiative. The CDA's mandate has involved many agencies, Government Department and private organizations.

Financial and economic justification is an essential feature of the ICZM plan as it provides an idea of its costs and benefits. This is of particular interest

to decision makers because the plan will require public investments (e.g. cash, personnel, equipment), which could have alternate uses. The implementation budget should be realistic and within the financial capability of the government. There is urgent need to consider how to obtain sustainable funding for ICZM in Kenya.

20. COASTAL MANAGEMENT STEERING COMMITTEE

The Coastal Management Steering Committee (CMSC) was formed during the workshop in Mombasa November 1995.

The Coastal Management Steering Committee is composed of the following members:

Coast Development Authority
Kenya Wildlife Service
Kenya Marine and Research Institute
Fisheries Department
Mombasa Municipal Council
Provincial Administrator
National Environmental Secretariat
Forestry Department
Tourism Department
Kenya Ports Authority
Baobab Trust
National Water Conservation and Pipeline Corporation
East Africa Wildlife Society
Kenya Post Office and Telecommunication Corporation
Representative of the Boat Operators Association
Representative from the Mombasa Coast Tourism Association
Kenya Power and Lighting Company
Other public or private sector members as deemed appropriate by the CMSC

21. SECRETARIAT

The Secretariat was formed to be housed at Coastal Development Authority with a coordinator and co-director from CDA. The Secretariat will be managed according to the set rules and regulations of CDA, until such time that the secretariat becomes independent and moves out of CDA.

The Kenya Marine and Fisheries Research Institute was selected as Chairman of the CMSC. The chair is responsible for committee meetings, and ensuring that the necessary action is being completed in a satisfactory and timely manner. The Secretariat will provide full-time support to the CMSC. Support will include the co-ordination of meetings and technical assistance to the CMSC. The CMSC may appoint *ad hoc* committees during the implementation of assigned actions to deal with specific issues. It may also appoint sub-committees as the need arises to complete planning and implementation actions. The sub-committee members will select one member for liaison with the Steering Committee.

22. SUB-COMMITTEES

The following sub-committees were formed and departments in charge named:

(1) Reef Fisheries—Fisheries Department
(2) Water Quality—Government Chemist
(3) Public Services—Kenya Power and Lighting Company
(4) Marine Habitats—Kenya Wildlife Services
(5) Coastal Erosion—Kenya Marine and Fisheries Research Institute
(6) Mangrove Forests—Forest Department

The CMSC, with the assistance of the secretariat and appointed sub-committees will be responsible for completing the planning and action strategies outlined for the pilot site.

22.1. Action agenda for implementation

Once the CMSC is established, the following action is proposed:

22.1.1. *Activity* 1.
Complete the on-going demonstration projects already identified for the next 6 months to 1 year. The CMSC will provide logistical and technical support to the volunteer groups during the implementation of the demonstration projects. Volunteer groups were formed during the first stakeholders workshop to implement demonstration activities in the area.

Demonstration projects currently underway include:

Developing and rehabilitating the public facilities at Kenya Beach
Demonstrating water conservation measures in hotels

Installing new mooring buoys in the Mombasa Marine Park (Fig. 7)
Producing a brochure and posters on coral reefs and mangroves

22.1.2. *Activity* 2

Continue to build public support for ICZM (Fig. 8) and implementation of the strategy for the study area. This will be done within the initial year after the formation of the CMSC. It will be the responsibility of the CMSC to:

Circulate extensively the final area strategy document among national government, private sector and NGO groups
Pursue TV and radio programmes and newspaper articles, to highlight coastal management issues inthe area and actions being taken to solve them
Publicize the strategy document through presentations at national and international workshops, seminars and other international forums

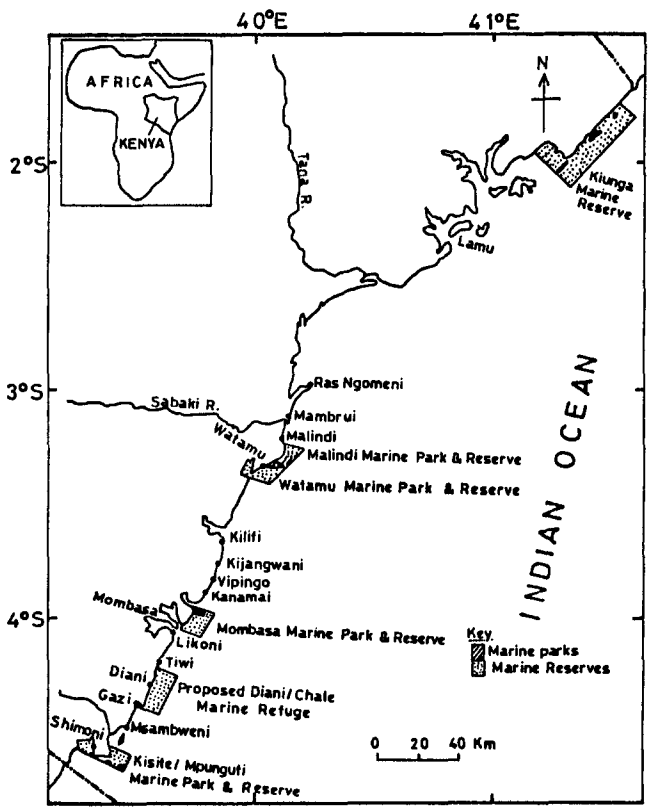

Fig. 7. Mombasa and other marine parks and reserves.

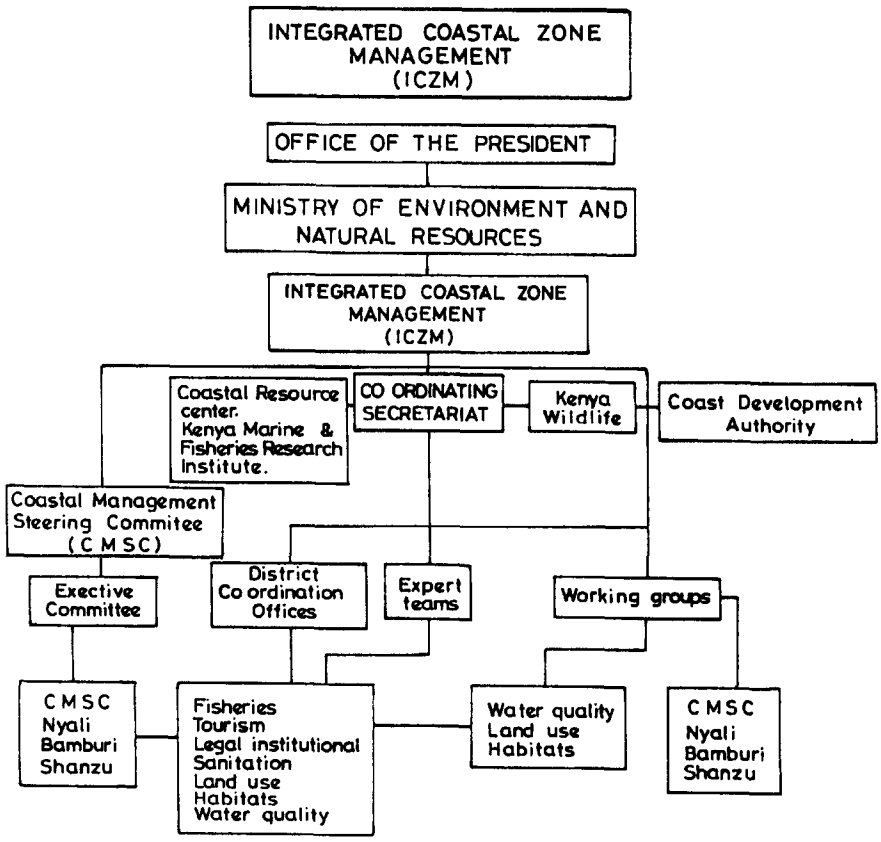

Fig. 8. Organizational structure for integrated coastal zone management program in the Kenyan coast.

Conduct public awareness meetings for various user groups
Organize drama and songs in schools to highlight ICZM management issues
Distribute promotional items banners, posters, brochures, T-shirts, bags, pens, etc. on specific study area issue and other general ICZM issues.
Solicit private sector contributions to produce the promotional items that acknowledge their support.

22.1.3. *Activity* 3
Initiate the formation of working groups as required.

22.1.4. *Activity* 4
Monitor implementation of the strategy and report back to stakeholders on a periodic basis regarding progress being made.

22.1.5. *Activity* 5
Solicit and secure resources for the successful implementation of this strategy and the implementation of ICZM. Resources may range from voluntary actions to financial commitments.

22.1.6. *Activity* 6
The CMSC will ensure that activities of the working groups are coordinated, overlaps are identified and linked, and management actions are considered in order to form an integrated approach to coastal management in the area.

22.1.7. *Activity* 7
At the conclusion of 1 year, CMSC will develop and circulate a report on the implementation experience in the area and disseminate the lessons learned.

22.1.8. *Activity* 8
The CMSC will advocate for the development of a national ICZM policy by working, in cooperation with others, to explore mechanisms for and participate in the development of a national ICZM policy and the institutional arrangements for its implementation.

23. WORKING GROUPS

Once the working groups are established, the following action agenda is proposed:

23.1. Activity 1

Prioritize the list of Planning Strategies for which the working group is responsible, and take the necessary steps to complete a detailed work plan and budget for each.

23.2. Activity 2

The CMSC will ensure that the working groups are completing action strategies as detailed in the specific work plans. The CMSC, in cooperation with the working groups will actively seek support for voluntary action and financial commitments for implementation.

23.3. Activity 3

As resources become available, implementated of the strategies that are detailed in the work plans.

24. MONITORING AND EVALUATION

The results of the ICZM programme should be subject to regular monitoring and evaluation as a way of continually improving the process. It is especially important, therefore, that the goals of the overall ICZM effort and the goal objectives of individual management and/or action projects be specified as clearly and as quantitatively as possible, otherwise, assessment as to how well they are being achieved is difficult.

The monitoring procedure should include: identification of expected performances, assessment and/or measurement of the actual performance variances (e.g. shortcomings or excesses), and procedure for communicating variances that exceed pre-established limits to the appropriate authorities.

25. PARTICIPATION APPROACH

The benefit of the participatory approach is the reduction in use conflicts resulting from improved stakeholder participation and collaboration. Table 1 gives the participatory approach—advantages, drawbacks and lessons learned from individual components.

26. WHICH WAY AHEAD

To make progress in the study site and to continue to gain nationally relevant experience, continued planning and implementation actions are essential.[15] This requires continued support as well as the commitment and involvement of national and local agencies, stakeholder groups and NGOs. Stakeholder involvement needs to go beyond just consultation, and reach full partnership and shared responsibility of individual time or in some cases, financial and other resource commitments.

Funding is needed for the operations of the secretariat and running the programmes. A donor is called upon to assist in the setting up of the secretariat office and Kenya Government would sustain it in future. Also heads of departments and directors can commit some funds and personnel from their Departments to the secretariat. It is envisaged that ultimately the secretariat will stand on its own and operate the ICZM in Kenya.

TABLE 1
Participation approach—advantages, drawbacks and lessons learned from individual components

Component	*Advantages*	*Drawback/problems encountered*	*Lessons learned*
National/Local Thematic groups	Capacity building (training exercise)	Management is complex and time consuming on countries	Need strict guidance and work methodology
	Development national project ownership	Outputs are of very heterogenous quality	Need flexible procedures for contracting people
	Build up project sustainability	Delivery time is long	Project managers need autonomy for consultants selection and management
	Ensure identification of national/ local specificity		
Population Survey	Ensure identification of national/ local specificity	Low feedback if not directly interviewed	Must be designed and undertaken by survey experts
		Heavy and costly if directly interviewed	Best if done as direct interviews
	Develop national project ownership	Unproper questionnaire format	Questionnaire should contain multi-choice type answers to facilitate results analysis and homogenity
Steering Committee	Development project ownership	Risk of loosing project's autonomy and pertinence because of arbitrary decisions	Committee should not interfere in project micro-management
	Build up project sustainability	Project's methodology is misunderstood or not well accepted (too complex and theoretical)	Members should be at the director level
	Facilitate information exchange	People are difficult to mobilize	Steering committee should be set up at two levels: political and technical incentives (financial, training...) and should be provided to committee members to ensure their commitment
	Platform for conflict resolution		

What happens next is in the hands of those who helped launch ICZM in the Nyali–Bamburi–Shanzu area. The road to improved management of the area, while perhaps long and difficult, is clear. Continuing to move forward will not only help sustain today's benefits, but also help create an even brighter future for North Coast residents.

27. CONSTRAINTS AND OBSTACLES TO ICZM

Some of the major constraints and obstacles to Integrated Coastal Zone Management in Kenya are as follows:

(1) Competing interests and lack of priorities
(2) Limited understanding of, and experience in, integrated coastal zone management
(3) Funding of the programmes

28. RECOMMENDATIONS

Integrated coastal zone management is an urgent necessity of Kenya. ICZM can be seen as a means to pull together all stakeholders and issues of importance in Kenya and to approach natural resources problems in a holistic manner. Basic monitoring of coral reef, seagrass, mangroves and beaches should continue. It is of paramount importance to be involved in the planning and management of the coast zone and the communities along the Kenya Coast. Good partnership between stakeholders and the community is necessary.

29. ICZM IMPEDIMENTS

Full realization of these benefits requires that the following impediments be addressed:

(1) Differences in languages and culture (progress in Kenya has been made as Kiswahili is the National language in Kenya for several decades now)
(2) Lack of donor co-ordination
(3) Inadequate intra-regional co-ordination, collaboration and sharing of expertise
(4) Inadequate political commitment to long-term conservation benefits, with policies and decisions that favour short-term gains

(5) Insufficient stakeholder participation, inter/intra-sectoral collaboration, and information exchange in the decision-making process and programme planning, including sharing of expertise and resources
(6) Insufficient human, institutional, material and financial resources, including legislation and understanding of coastal issues and market forces

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