Integrated Coastal Zone Management in Kenya

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1. INTRODUCTION

Kenya has a land area of approximately 580,000 square kilometres. It straddles the Equator and exhibits significant climatic and physical variations as a result of altitude and the strong influence of both the continental and marine attributes. The country has a coastline that runs for some 600 kilometres bordering the Indian Ocean and a fringing coral reef system that runs parallel to the coast. There are extensive mangrove forests, a complex wetland system, and some coral islands. Two major rivers drain the area into the Indian Ocean.

According to the 1999 Population Census, there are about 28,679,000 people living in Kenya. There are 2,243,000 people living in coastal districts that border the Indian Ocean. Within the coastal area, 29% of the total population is urban, 86% of who reside in the town and district of Mombassa alone.

The coastal and marine environments of Kenya are very rich in resources. Principal economic activities based on these natural resources are: Tourism (5%), port and shipping activities (15%), non-agricultural industry (15%), agricultural industry (8%), fisheries (6%), agriculture (5%), forestry (4%), and mining (2%), in that order. Their exploitation inevitably has impacts on the coastal natural environment.

The coastal activities presented above have resulted in some noticeable problems. These include overcrowded human settlements, a decline in water quality, deforestation and overexploitation of resources, construction in ecologically sensitive areas and excessive demand on infrastructure and services. This has resulted in negative impacts on the major coastal ecosystems. Main impacts include resource use conflicts, polluted water resources, an eroding coastline, creation of degraded land; destruction of important habitats, loss of biodiversity, poor sanitation and water borne diseases. To address the problems, the Integrated Coastal Zone Management (ICZM) approach was proposed for implemented as a tool in coastal resources management.

Early efforts to establish the Integrated Coastal Zone Management process in the country were made by NES working within the Regional Seas Programme of United Nations Environment Program (UNEP) in 1984. The project was to eventually involve other government agencies in the coastal regions, including provincial and district administrations. But it was not until 1993 that fresh attempts were made to restart the process.

After capacity building workshops on the ICZM process, stakeholder consultations and the holding of national workshops, championing for the ICZM process into the Kenyan development planning as a policy began. The formation of a Coastal Management Steering Committee (CMSC) and a Secretariat and their endorsement at the workshops to propel the ICZM process attest to this.

Since 1995, CDA in collaboration with the Kenya Wildlife Service (KWS), the Kenya Marine and Fisheries Research Institute (KMFRI), the Mombassa Municipal Council (MMC), and the
Fisheries Department (FD), have steered the ICZM process and demonstration projects have been attempted to show the benefits of the ICZM process. The above institutions form the ICZM Secretariat, while all the mandated institutions for resources governance in the coast are members of the CMSC.

2. DESCRIPTION OF COASTAL ACTIVITIES

Institutional Framework

In the immediate post independence era, development was the key issue. The various sectors of agriculture, forestry, water, mines and geology, fisheries etc exploited the resources, with the development goal as the primary aim, and conservation as a secondary goal. Though these different sectors had mandates to oversee sustainable use of the natural resources of the country, their own conservation ethos were later realised to be inadequate. So, the Kenya government guided by the recognition that the country’s economic stability depended on the maintenance of ecological integrity of its environment, created new institutions to co-ordinate environmental matters. Notable is the National Environmental Secretariat (NES) created in 1974 to co-ordinate environmental activities. NES chaired the Inter-Ministerial Committee on Environment (IMCE 1981) as a government discussion forum on environmental related development matters. The Presidential Commission on Soil Conservation and Forestation (1981) to focus on strategies for soil conservation, water conservation and to review existing legislation relating to the same. The National Museums of Kenya were there to protect Kenya’s national heritage. The District Officers’ Environment established in 1988 in the Office of the President, to co-ordinate the work of technical officers on environmental matters.

In recent times, new institutions and programs capable of cutting across administrative jurisdictions have been established. These include the Kenya Wildlife Service (1989), the Regional Development Authorities (RDAs) and the District Focus for Rural Development (DFRD) strategy for regional and grass-root activities on environment and development.

The DFRD has recognised that causes of rural poverty are multiple and inter-dependent and must therefore be addressed in a multi-sectoral way. It executes its programs through District Development Committees (DDCs), which have in their membership the heads of the different ministries in the District, Members of Parliament and Representatives of Non Governmental Organisations (NGOs). The DFRD strategy is not legally mandated, but operates through policy guidelines and Presidential decrees. Government reports DDC activities to the Inter-Ministry Co-ordination Committee (IMCC) for implementation.

Various RDAs operate in certain defined regions of the country by Acts of Parliament. The Coast Development Authority created in 1990 is one such RDA with mandates for carrying out surveys and studies, co-ordination and planning of coastal development activities to ensure sustainable utilisation of coastal resources including those of the Exclusive Economic Zone (EEZ). The RDAs have no enforcement authority.

In a continuous effort to improve environmental co-ordination it will be necessary to address identified gaps in environmental protection. The Kenya government enacted the Environmental Management and Co-ordination Act (1999). This Act has provided for the establishment of the National Environment Council (NEC) a policy arm, and the National Environment Management Authority (NEMA) is the co-ordinating arm in environmental management.
NEC as the policy making body will have the following specific functions:

- To formulate policy on environmental management and give directions on the implementation of the Act;
- Set national goals and objectives and determine policies and priorities for the protection of the environment;
- Promote co-operation among public departments, local authorities, the private sector, NGOs and any other organisation involved in environmental protection programs and;
- Perform any other functions, which are assigned under this Act.

NEMA will exercise general supervision and co-ordination over all matters relating to the environment and be the principal instrument of the government in the implementation of all environmental policies. NEMA will have a National, Provincial and District Offices. There shall also be Provincial and District Committees, which, shall be responsible for the proper management of the environment within the Province and District; and perform such additional functions as prescribed by the Act or as may be assigned by the Minister in the Gazette.

The Act also establishes the Standards and Enforcement Review Committee, establishes and designates Analytical Laboratories, a Public Complaints Committee and a National Environment Tribunal all dealing with matters related to the environment.

**Policy and Legal Framework**

The Kenyan government attaches great importance to sound environmental management. This is evident through Policy Statements contained in various session papers and other official documents. Presidential directives and pronouncements including the formation of institutions to handle environmental issues are further examples.

Legislation that governs the management of natural resources is found in various sectoral statutes under different line ministries.

The Kenya Legislation deals directly or indirectly with environmental matters and resources management and it includes:

- The Land Planning Act (Cap 303) - Which makes provisions for the use and Development of land;
- The Agricultural Act (Cap 328) - Deals with soil conservation and agricultural land use in general;
- The Forestry Act (Cap 385) - Deals with the establishment and conservation of central forests and other forested areas;
- The Local Govt. Act (Cap 265) - An Act that protects Trust Lands vested on Local Authorities;
- Wildlife Conservation Management Act (Cap 376) - Provides for administrative modalities of protecting Kenya’s wildlife;
- National Monuments Act - To protect Kenya’s National Heritage;
- The Water Act (Cap 372) - Provides for conservation and controlled use of water resources;
Territorial waters Act (Cap 371) - Prohibits discharge of oil from ships;

The Public Health Act (Cap 242) - Has provisions for controlling air and water pollution;

The Factories Act (Cap 514) - Prohibits discharges of dust, fumes or impurities to the environment without treatment;

- The Merchant Shipping Act (Cap 389) - Oil pollution control;
- Act (Cap 389) - Oil pollution control;
- The Tana & Athi River Development;
- Authority Act (Cap 449) - Tana and Athi Rivers development planning

The Coast Development Authority Act - coastal planning and co-ordination of development;

- The Mining Act (Cap 306) - Prohibits release of poisonous substances into waterways;
- The Chiefs' Authority Act (Cap 128) - Wider administrative powers that include environmental protection among others.

Unfortunately the statutes enacted to govern the management of the above resources are inadequate. There are duplications, overlaps, and weak penalties. There are however regular reviews updating and harmonising the legislation. There is also a changed focus to multi-sectoral action, enabling policies and a strong legal regime in the management of resources. Development plans, session papers and presidential directives all attest to this.

The National Environmental Action Plan (NEAP) however, presents the genesis for holistic environmental management in Kenya. NEAP has recognised the importance of the Coastal Zone, and that its resources are now experiencing the pressures of development. Through the proposals of NEAP, the country recently enacted the Environmental Management and Co-ordination Act. This Act spells out the regulations and institutional arrangements for guiding the protection and conservation of environmental resources.

The Act has set a National Environment Trust Fund to facilitate research on environmental management, capacity building, publications and environmental awards. It also set up a National Environmental Restoration Fund to act as supplementary insurance for the mitigation of environmental damage. It establishes environmental quality standards, provides for Environmental Impact Assessments, Environmental Restoration Orders, Environmental Conservation Orders, Environmental Easements, Environmental Audit, and Monitoring, Inspection and Record. Finally, the Act establishes a National Environment Tribunal, defines Environmental Offences, Fines, and Incentives and gives powers for the formulation of new Environmental Regulations. The Act also calls for the development of Integrated Coastal Zone Management Plans to be reviewed every two years.

Kenya has also adopted many international and regional conventions to protect the environment and its resources. Some of which include the following:

- International Plant Protection Convention, adopted in Rome 6 December 1951; Kenya 7 May 1974;
Conservation on Fishing and Conservation of the Living Resources of the High Seas, adopted in Geneva on 29 April 1958; Kenya 20 July 1969 and;


The first decade after independence also showed strong considerable commitment between 1963-73. A highlight is Session Paper No.10 on African Socialism and its Application to planning in Kenya. This paper recognised the need to conserve natural resources and placed environmental quality on equal footing with the exploitation of resources. During this post independence era Kenya accepted the following treaties:


Convention on Wetlands of International Importance especially as Water fowl Habitat, adopted at Ramsar on 2 February 1971, Kenya 5 June 1990;


The two decades 1973-1993 were a period of increased participation in the development of relevant treaties.


The UN Convention to Combat Desertification, adopted in 1994, Kenya October 1994;
• Lusaka Agreement on Co-operative Enforcement Operation Directed at Illegal Trade in Wild Fauna and Flora of 1994, Kenya September 1994;


Kenya has signed many of the conventions on dates they were open for signature, but it has however not ratified some of them. Arising out of commitment to these international conventions for example, Kenya is a member of the regional reference group on Marine Protected Areas. The country has designated institutions for Biodiversity conservation, lead by the Kenya Wildlife Service with the National Museums of Kenya, Kenya Marine and Fisheries Research Institute and the Coast Development Authority participating. Also the country protects its endangered species through control of licensing where for example the Kenya Wildlife Service is the licensing authority for CITES.

The above conventions adopted by Kenya, the other regional and international initiatives in place, the Environmental Management and Co-ordination Act of 1999 and a number of Policy Statements that do exist are in support of Kenya’s commitment to environment management in general with ICZM as a subset. On the ground-efforts to demonstrate on the benefits of ICZM are also making ICZM take root in Kenya. There is however, still no clear policy or legal instruments to back the process.

Stakeholder Participation

In the last three years of experience gathering on instituting the ICZM process in Kenya, a number of collaborators have consistently participated in various facets of this effort. The effort was in and around Mombassa mainly but over time the ICZM momentum is slowly spreading along the coast. Only the activities that have occurred in the last 3 years will be highlighted in various categories of stakeholder involvement.

Research and development organisations

The Coast Development Authority (CDA) has exercised its mandate to co-ordinate and lead the ICZM process in the country as initially reported in through a multi-sectoral secretariat and the (CMSC) working arrangement. To effectively execute this mandate, CDA liaisons very closely with research institutions that are based at the coast for incorporation of their latest technical information in the planning process. These institutions are (KMFRI), the Coastal Research Centre of Moi University (CRC-MU), National Museums of Kenya (NMK) research Centre, Kenya Forestry Research Institute (KFRI), Kenya Medical Research Institute (KMRI) International Centre for Insect Physiology and Ecology (ICIPE), the Kenya Agricultural Research Institution (KARI) and (KWS). As mentioned earlier, from the start KMFRI and KWS formed part of the planning team. The other research centres became resource and advisory bases in the respective areas of specialisation, i.e., Marine Resource Conservation and Utilisation, resource management through ecological principles, inland influences at the coast and the status of coastal agriculture. The government research institutions are augmented by some private sector specialised research and product development agencies like the Coral Reef Conservation Project (CRCP), Coral Reef Degradation in the Indian Ocean (CORDIO) and the Baobab Trust (BT) which emphasise research on coral, conservation and nature utilisation respectively.
Local Sectoral and Private Organisations:

The Local Authorities have been very important stakeholders in developing the ICZM tool and extensively using it for planning and managing their activities. The Mombassa Municipality, for example, has benefited much in utilising the ICZM tool to address its daily activities in urban planning, sanitation, information generation and collation, capacity building, conflict resolution, infrastructure rehabilitation and local tourism publicity.

The Fisheries and Forestry Departments have experienced the unsustainable exploitation of their resources. Through their involvement in the ICZM secretariat and planning, relevant information has been generated and shared by the stakeholders to demonstrate some management principles and alternatives that can alter such trends and possibly improve the lives of the relevant stakeholders now and in the future. The mandate of these departments was used to develop dugong, turtle and mangrove posters in order to enhance wildlife and habitat conservation. Related awareness instruments have also been developed to enhance management of protected areas with capacity enough for expansion in the region and for sustainable utilisation of marine habitats and wetlands, including the relevant codes of conduct for the habitat beneficiaries. The NEAP is the genesis of development of the Environmental Management and Co-ordination Act by the country, an Act that sets the environmental agenda for the country.

The Provincial Administration (PA) has played a crucial part in the initial stages of ICZM development. The administrative unification of government departments is a positive attribute in the ICZM process. It provides a link to the central government while recognising other relevant stakeholders. By nature of its position, the PA has helped to reopen beach access points and repossess some plots that were critical for public use but mistakenly issued to private developers.

The main tourism stakeholders, hoteliers and the KWS have direct involvement in the ICZM process. The tourism industry supports ICZM initiatives mainly through Mombassa and Coast Tourism Association (MCTA) and the Kenya Association of Hotelkeepers and Caterers (KAHC). Through improvement of infrastructure and possible contribution in marketing, the ICZM process strives to enhance the tourism industry. The KWS manages protected areas and was the lead agency in awareness development for mooring buoys and codes of conduct as management tools in these areas.

Non-Governmental Organisations (NGOs) and Registered Associations

Various NGOs and RA's are stakeholders in the ICZM process at various levels of participation. The Wildlife Clubs of Kenya (WCK) sensitises the young and students on issues of conservation and sanitation; the group is always the leader in annual beach cleaning events. Also at the forefront in environment matters is the Environment Trust of Kenya (ETK), which also runs attachments for upcoming hotel service providers. The Fisheries and Boat Operators' Associations service the tourism industry with boat excursions and fish products.

The East African Wildlife Society, a regional NGO, has helped ICZM network into the Tana River Delta concerns of managing an undisturbed wetland and also in teaming us up for cross-border concerns of the shared waters of Lake Jipe on the Kenya-Tanzania border. Closely related to cross-border issues is the Oil Spill Mutual Aid Group (OSMAG), which has developed the oil spill contingency measures. So far, OSMAG has capacity to deal with a spill of 10,000 metric tones only. This shows an opportunity to grow a regional collaborative oil spill contingency plan for the Western Indian Ocean.
Enforcement

There is a wide range of regulatory instruments in Kenya based on various legal authorities for resource management in the coastal area. The range of issues covered by regulatory instruments includes land-use planning, building regulations, construction guidelines for the coastline, conservation regulations, marine transport regulations, and licensing of various activities. The use of self-regulations has been tried but mostly in pilot projects. Some programs have come up with a combination of legal enforcement and/or voluntary compliance as discussed below.

A code of conduct for mooring buoys developed jointly with the Kenya Wildlife Service and the boat owners with the intention of preventing physical destruction of corals. The boat operators as an organised group report violations to the management authority. Equally the KWS rangers ensure proper anchorage during their routine patrol.

Kenya’s marine park and reserves present examples of the Marine Protected Area (MPA) management programs. The marine parks came into existence in 1968 in the classical top-down approach. With time the park managers have embraced stakeholder participatory approach in the daily management issues. Some of the issues in the park include encroachment of fishermen into the park area, use of illegal fishing gear in the reserves, illegal shell collection, and destruction of the coral habitats through wrong boat anchorage. A community management approach has been tried in the Kisite-Mpunguti Marine Park.

A number of statutes in the Physical Planning Act, the newly enacted Environment Bill, and Local Authority by-laws govern placement of structures along the shorefront. Further the Environment Act makes it mandatory for an EIA study prior to implementation of projects perceived to have a big social or environmental effect.

In broad terms, land use in the coastal area comprises urban built-up areas, rural settlements, peri-urban settlement, plantations, forests and scrublands. The need for planning in respect of infrastructure and public services is most apparent in the urban area. All the public utilities such as water, electricity, roads, and sewage are inadequate or completely lacking. Moreover there is clear lack of enforcement of land-use plans. Some roads for example cannot be expanded because of illegal construction on the road reserve. In other instances gazette beach access roads are blocked by property-developers leading to increased distances for beach users. A provincial committee was instituted in 19xx to look into land use issues. Some of its recommendations have been adopted such as unlocking of some beach access roads. The Commission of Inquiry into Land Law System of Kenya is also presently holding countrywide public hearings to address land use issues.

The Department of Fisheries has adopted the policy of community dialogue as means of enforcing the fishing regulations among artisan fishermen. There are a number of organised fishing groups all along the coast. This is an example of a self-regulatory approach to resource exploitation. The department conducts public meetings presided over by the fisheries officers for purposes of education and obtaining feedback from the respective fishing communities.

**Investments and Funding**

Investment and funding must be built at both local and international levels to support the ICZM process.

**Investment**

The Government of Kenya has demonstrated commitment to coastal management. The Coast Development Authority (CDA) has allocated a full-time technical staff person to co-ordinate coastal management activities. This is augmented by a significant portion of the Deputy Managing Director time (who acts as the chairman of the Secretariat) as well as several support services. The CDA also provides office space and related utilities. Institutional members of the Secretariat are drawn from the Kenya Marine and Fisheries Research Institute, Kenya Wildlife Service, the Mombassa Municipal Council and technical working groups from relevant institutions have allocated staff time to the ICZM effort. Moi University regularly makes technical contribution in local training coastal management and advice to the stakeholders.

**Funding**

So far the ICZM development has not been fortunate to be graced with a sustainable funding source of its own. Financial support therefore has been from external donors. The Food and Agriculture Organisation (FAO) through UNEP has supported the implementation of activities. The United States Agency for International Development (USAID) through the Coastal Resources Centre has continued to aid the project with technical support, operational expenses and international training. The Netherlands Wetland Project through KWS has supported the demonstration of projects and international training. The World Conservation Union (formerly IUCN) is supporting the planned extended profiling of coastal issues in the Diani-Chale Marine Reserve, south of Mombassa. The Swedish Agency for International Development Co-operation (SIDA) and the Western Indian Ocean Marine Science Association (WIOMSA) have funded international training, research and regional networking. Similarly, the networking and training have been supported consistently by the Secretariat for Eastern African Coastal Area Management (SEACAM). In particular, SEACAM has run a number of regional courses for NGOs working with coastal management issues and for practitioners in coastal aquaculture and tourism.

The total fiscal contribution to! all the above effort has been modest. So far, only 24,160 US$ direct funding disbursement is about to be achieved, but it has served to seed ICZM process very well. An additional 10,000 US$ has been allocated to enhance demonstration of activities at the pilot site through CRC/USAID support. Another 108,000 US$ will be spent by IUCN to affect the Diani-Chale profiling exercise.

**Capacity**

The first ICZM profiling at Nyali-Bamburi-Shanzu pilot site, also done as a training exercise, produced the strategy document for further evolution of the ICZM process. The profiling exercise involved many local, national and international stakeholders in mobilisation, sensitisation and engagement. Bandari College in Mombassa with its long experience in maritime industry training acted as the initial training ground of all the stakeholders. This institution runs courses tailored towards effective management of the Maritime industry generally and port and shipping enterprises in and around Mombassa. These courses are getting internationalised through input arrangements with the International Maritime Organisation (IMO). The initial training also drew from the expert experience of Moi University and the University of Rhode Island. Since then, the Secretariat has organised follow-up fact-finding
missions, experience sharing and on-the-job training workshops based on the pilot site and on other issues related to sites. The KWS regularly runs an ICZM course for targeted stakeholders at its training base in Malindi, using the core resource persons team that has been developed. Moi University School of Environmental Studies (MUSES) also runs a course that has coastal management in its curriculum. It also does research in coastal environmental issues including inland effects that impact on the coast.

Formalised training in ICZM has been received from international institutions; three members from CDA, four members from KMFRI, four members from KWS, three from Mombassa Municipality, one from Fisheries, one from National Museums and one from the NES have been formally trained so far in the general aspects of the ICZM process. To continue raising human capacity, local ICZM training programmes at the KWS station in Malindi for target groups such as game wardens, hoteliers, fishermen and boat operators have now been institutionalised, while overseas training and collaboration will continue to be undertaken. In planning for a University development at the Coast, coastal resource management is targeted as one of the pioneer programs. In this prospectus, we hope to see in the future more in-depth studies in maritime, environmental and industry-related issues at the Kenyan coast.

To further raise awareness, two strategy documents have been produced and appropriately articulated and a regular newsletter has been inaugurated from a capacity arrangement internal to the Secretariat. To support the Secretariat, the technical working groups and management reviews, three modern computers and a printer have been installed at CDA. As mentioned earlier, many public and private research organisations exist at the coast. One specific institution that addresses coastal research issues is KMFRI whose research portfolio includes fisheries research, oceanography, coastal habitats, marine pollution, data base development and information exchange. This capacity is well established to the level that doctorate research programs are conducted through the institution apart from the basic and applied research that is continuous.

Research, Monitoring, Awareness and Information Exchange

Research

Staff at the Kenya Marine and Fisheries Research Institute carries out a big portion of marine and coastal research in Kenya either directly or in conjunction with other government departments. There are also partnerships with international organisations (see table). Work going on currently comprises estuarine and coastal ecological monitoring for productivity, nutrient exchange processes, and biodiversity of the near-shore habitats. There are in addition, socio-economic studies, sea level monitoring stations and studies on near-shore hydrodynamic processes. Documents at the National Council for Science and Technology also indicate that public universities and some private research initiatives carry out similar studies.

Most of the contracting parties for these studies are UN agencies and international NGOs such as IUCN, WWF etc. A few management authorities have also commissioned some studies as a way of answering some management problems. Scientists at KMFRI are presently involved in water quality assessment and ecological studies at the Mombassa Marine Park, funded by the Kenya Wildlife Service wetlands program.

Monitoring and evaluation of performance of management programs is iterative and helps in revealing weaknesses and strengths in their structure and operation. No published reports have revealed the existence of environmental monitoring programs in the various coastal management programs. There are difficulties in getting administrative data, such as statistics on violations, number of permits issued, prosecutions etc. Social data such as earnings of artisan fisher folk, tourist arrivals etc are either not existing or are bundled together with national figures.
Public education and awareness programs

A number of education and awareness programs have been handled within the framework of the ICZM pilot program, at the program site in the Nyali-Bamburi-Shanzu area. The program carried out a series of workshops for stakeholders based in the coastal area and stakeholders at the national level. Production and dissemination of mangrove conservation posters and code of conduct have addressed the need for public education in particular for boat operators. An additional measure is the launching of a coastal zone newsletter edited by the program of the Secretariat.

The MPAs management has produced a series of posters, posted on signboards at strategic positions along the beach to create awareness of regulations.

The Kenya Society for the Conservation of Marine Turtles (KESCOM) is a non-profit making membership organisation involved in conservation of marine turtle in Kenya.

The annual Marine Conservation day targeting students in primary and secondary schools organised by KWS and Wildlife Clubs of Kenya is designed to impart conservation measures to the targeted audience by organising students to perform plays, make conservation models on the beach, and recite poems.

Numerous workshops and conferences have been held to address a wide range of issues on coastal management. The provincial task force on tourism and infrastructure convenes consultative meetings chaired by the Provincial Commissioner involving all the stakeholders from private and public sector.

Information exchange

The ideal coastal management process consist of inputs from scientists, managers, and, policy makers. Efforts in interfacing these three components have been addressed by workshops and databasing.

One of the efforts sponsored by IOC-UNESCO and implemented by KMFRI in 1998 is the Kenya National Oceanographic Data Centre, which will eventually provide a mechanism whereby, needs of resource managers are addressed through existing data sets. In practice the Centre has created a meta-database of existing marine and coastal data as a means of providing pointers to useful data held by various individuals and organisations. The data Centre is also a recipient of data sets from International Ocean observing systems being part of the network of IOC-UNESCO International Oceanographic Data and Information Exchange program.

The UNEP sponsored Eastern African Marine and Coastal Database and Atlas project initiated in 1993 has produced a GIS database of Kenyan coastal resources as well as a hard copy atlas of the same. The coastal resource database, in existence since 1995, provides information on biological resources and environmental parameters such as winds, rainfall, and population. There are also a number of GIS data sets on biological and physical parameters on coastal and marine environment, associated with this project.

The RECOSCIX-WIO project based at KMFRI was created in 1985 to promote networking among scientists within the Western Indian Ocean region through establishing an on-line database of marine scientists in the region. Some of the achievements from 1985 to date include bibliographic search service using the ASFA (Aquatic Science & Fisheries Abstract) CD, document delivery service, publication of WINDOW (Western Indian Ocean waters) newsletter, email and Internet services, and development of a Directory of Marine Scientists (WIODIR)
Other databases include the herbarium collection maintained by KMFRI to serve as a reference of collection for the identification of marine flora by scientists. A similar database is maintained by the National Museums of Kenya on how different people have been using flora (e.g., as food, medicine, etc.). The Herpes database at the National Museums of Kenya aims at monitoring the population and ecological status of the sea turtles of the Kenyan coast. The taxonomically classified database maintained by NMK is a national collection of taxonomy for crustaceans and echinoderms collected on coral, estuarine and mangrove areas, and used as a national reference.

Other modes of information exchange include workshops convened by Government departments and NGOs to address coastal issues.

3. CRITICAL ANALYSIS

Institutional Framework

Every government department with a mandate for coastal resources also has a direct or indirect responsibility for environmental conservation. Unfortunately, most departments have too few financial or adequate human resources to affect their mandates. Staff members of most departments have spread over the entire country with adequate plans for executing their mandates; they however lack the means to execute those mandates. Sadly, most management plans remain on paper. Recently there have been joint plans by institutions to pool resources and work together on resource and environment issues. Such efforts include the task force on coastal-forested ecosystems, a joint effort of Forestry, KWS and NMK. The Kenya Port Authority has pooled together institutional efforts of the private sector and government institutions to come up with Contingency Plans for Oil Spill Preparedness. All these sectors usually show great interest only when the subjects of their interest are on the agenda. They largely give lukewarm support for areas that affect them peripherally.

There is a joint effort by the Local Authorities and resident communities to manage solid wastes in towns, but co-ordination mechanisms are lacking. The call therefore to introduce Institutional Arrangements for ICZM to introduce co-ordination of efforts in order to effectively translate the various government policies on environment and development cannot have come at a more appropriate time. This will balance the interests among the relevant institutions and contribute towards integrated management of the environment and its resources. Since the Institutional Arrangements for the ICZM process do not exist nationally, they are hereby proposed. This is done taking cognisance of the existing institutions while embracing the key elements of the ICZM process, which includes inter alia the minimisation of conflicts, maximisation of benefits and the promotion of sustainable utilisation of the coastal resources for development.

Since the ICZM process is essentially a Government process, the onus is placed upon government to define the institutional arrangements for the process, support its development and give it legal backing. Some background information to lead to critical evaluation of the arrangement is also presented.

Within the Eastern African Region, the co-ordination of ICZM activities has largely been placed within Ministries dealing with environmental matters. These placements reflect the genesis of support for ICZM process by the environmental Rio UNCED Conference. Some countries have placed ICZM co-ordination within Ministries responsible for planning. This dichotomy signifies the importance of conceptualising the ICZM process as more than an environmental concern.

In Kenya at present, there is an ICZM operational framework that does not have a definite link to the Central Government. There however a CMSC on the ICZM process that was suggested...
and endorsed in a National Workshop. Decisions made by the CMSC therefore cannot reach the Government to be acted upon. Although the CMSC is considered informal, its diverse multicultural composition of both government and NGOs gives it strength to propel the ICZM process. Thus, if the CMSC were to be recognised by the government, then its decisions on ICZM could reach the central government for action through the DDCs’ since most of its members already sit on this Committee. In this arrangement, CDA could be the co-ordinator of the process and the CMSC decisions would reach the government through the established multi-sectoral committees of government rather than through the sectoral approach, if CDA were to channel the same decisions through its parent Ministry.

An alternative approach is to consider the ICZM process more as an environmental issue, in which case the institutional arrangements would have to be considered through NES. NES has a national mandate for the co-ordination of environmental matters in Kenya and can therefore propose a mechanism for the ICZM process (Fig.2).

Institutional arrangement mechanisms for ICZM can also be provided through the Environmental Management and Co-ordination Act, although the proposed National Environment Management Authority (NEMA) has not yet been formed. It looks certain however that NEMA will succeed NES and the above analysis for NES might have to be shelved. The modalities for this are as yet unknown.

With the new Environmental Management and Co-ordination Act, it is significant to note that there is now a more elaborate institutional arrangement supported by law. As a result of this new Act, the institutional arrangements showed in Fig. 3 supersede those shown in Fig. 1. It is notable that the IMCE is not covered by the Act but is superseded by the National Environment Council (NEC) supported by various specialist committees.

Since the Act covers all national environmental issues and does not distinguish any particular regional perspectives, the respective Provincial and District Environment Committees can deal with ICZM issues. In addition, the Environmental Act has recognised the need for integrated coastal management and the existence of lead institutions for coastal issues, and as such designating a lead institution for co-ordinating ICZM issues should pose no problem.

Policy and Legal Framework

To understand the strategy on environment and resources, it is important to make a critical analysis of some of the policies and legal frameworks. For example, whereas the Land Planning Act provides for wise use and development of land, most planning authorities concentrate on towns leaving rural areas to develop unplanned. Enforcement does not reach these areas. Through the unilateral declaration of some forested areas as conservation areas using the relevant acts, there is resistance from affected communities thereby making the Act ineffective because of poor enforcement and no support from the communities.

The Kenya Port Authority is in charge of controlling pollution at ports and in Kenya’s territorial waters, but unfortunately there is no provision in law requiring ports to provide receptacle facilities. The Chiefs Authority Act has been used to conserve natural resources. But because of its colonial origin the Act is very unpopular. The Kenya Tourist Development Co-operation Act and the Tourism Industry Licensing Act offer guidelines for tourism development in Kenya, but unfortunately the Act makes no provisions for the conduct of tourists, which may have impacts on the coastal and marine environments.

One Act or another governs virtually all-available resources in Kenya. Most of them however, suffer from a lack of enforcement. If enforced, the Acts can reduce environmental degradation...
considerably. There is also the problem of overlap and lack of harmonisation of the acts and policies. The Agriculture Act has as its focus the protection of agricultural land and waters; the Presidential Commission on Soil Conservation and Forestation has a similar function. No co-ordination exists between the two. We are also told that PCSCA can review laws relating to its subject. It has to be realised that most laws were enacted when environmental protection was low on the list of priorities. In the absence of agreed policies, each department followed its own views, leading to conflict and thereby weakening the laws. The District Focus Strategy for rural development was adopted with the objective of decentralising development to grass root levels with participation of the people resident in the Districts. Not backed by law and frustrated by the centralised planning approach to development, the DFRD strategy has been rendered weak despite its good intentions.

Again, unfortunately, because there is a strong tradition for centralised planning and administrative control in Africa, only top-bottom initiatives tend to be adopted as policy.

The ICZM process could change all this, but the process needs support at the national level. The adopted ICZM policy framework would create an enabling environment that would succeed in providing opportunities for the requisite institutional arrangements to cater for conservation and development. The policy directions could result in dynamic mechanisms for the regular engagement in dialogue, planning and conflict resolution.

A host of national legislation, regional and international commitments as given above are in support of environmental management. Some of which are more specific to supporting ICZM. For example, Kenya signed the Nairobi Convention in 1985; the Arusha Resolutions (1993) and consequently participation at state level in follow up Regional ICZM meetings in Seychelles (1996) and PACSICOM Maputo, Mozambique (1998). Kenya is also signatory to the Environment UNCED Agenda 21 Rio Agreement (1992). On signing Agenda 21, the country became a partner in protecting and managing the oceans from impacts arising from both land and marine activities. ICZM draws its support from this Rio agreement.

The foregoing is an indication of the recognition given to the ICZM process. It is known that there are constraints like lack of adequate numbers of competent professionals to handle legal matters and put them into workable instruments. Also there are insufficient lobby groups influencing the translation of legislation into action. It is also known that Parliament does not participate in the treaty making process, which slows progress on current national, regional and international obligations, but there are efforts to improve on all the above..

The Environment Management and Co-ordination Act of 1999 for example has made a good start by recognising the need for ICZM. The Act should however go further to define the necessary legal instruments required affecting the ICZM process.

**Stakeholder Participation**

Under the leadership of CDA, various research institutions in the Coast have been mobilised to contribute to the information of pool for coastal management and their future participation in this task is granted. Most of the research institutions with their individual sectoral mandates are however short of qualified scientists to initiate and sustain long-term research. Most institutions are also short of equipment and maintenance capacity. This situation results in partial and disjointed research, which is not integrated. With well researched information and planned data, coastal managers will be empowered to plan and execute their short and long-term programmes more accurately and efficiently. Otherwise the country needs to be empowered with adequate resource base information in order to adequately plan the exploitation of the coastal resources for the benefit of its citizens. Further to this, the Western Indian Ocean is the area least covered by meteorological data collection.
Satellite recording stations need to be put in place for continuous generation of weather information to enhance prediction of seasonal fluctuations both on sea and on land.

Closely associated with research and data generation is basic training in coastal management. So far, only short-term training opportunities and on-the-job training have been available. Long-term training and education in coastal management opportunities need to be pursued to fully understand coastal issues. As we plan for undergraduate training in this field, a vigorous post graduate training in various facets of coastal management needs to be mounted with on-site research programs generating immediately useful personnel and information. Coastal issues should be introduced early in school syllabi to encourage a wider interest. Currently, there is no clear curriculum on ICZM and the subject is being slotted into other programmes related to coastal resources.

The indigenous knowledge base and practice should be appreciated, especially from already registered interest groups, which require economic empowerment in order to provide quality services and need to be empowered in legal ownership of the plots from which they currently operate. There are the Tsunza Community Mangrove Conservation Project, the Shiraz group for commercialisation of Oyster farming, the Jomvu Kuu Crab Farming Group and the Jomo Kenyatta Public Beach Self Help Group. These self-driven local community groups, which are nucleus offshoots of ICZM efforts, play a demonstrative and adaptable role on how ICZM may spread into the coastal communities.

In sectoral analysis, while in ICZM we have started planning and implementing activities together with many departments, they are still very sectoral in their approach to management. Ideally, the departments should now be planning an ICZM budget within their sectors for overall inclusion in the ICZM process. We still have to build slowly towards that objective as some departments have so far shunned leadership roles and even participation in the technical working groups. It is our management belief that technical working groups become the engine of long and short-term issue driven implementation strategies.

Private participation tends to be sceptical of the ICZM process as they expect immediate and tangible benefits for their full participation. Local communities have also expected to be directly empowered by donor funds. These management misconceptions will have to be addressed to enhance full participation. On the other hand, local communities have to increase their buying into projects even if through in-kind contribution. Slow early participation because of a lack of immediate tangible benefits may eventually delay community empowerment. These inherent socio-economic weaknesses are currently being addressed through community mobilisation on the ground to make ICZM truly a stakeholders’ programme. The government has a vital role to play through the administration in delineating production and business sites to stakeholders. Such mobilisation is the current challenge facing all managers of the ICZM process.

Enforcement

It is difficult to assess overall achievements in the various enforcement mechanisms since there is no clear baseline data on indicators. Various enforcement agencies consider this kind of information as classified and therefore it is not easy to obtain. An overall coastal management policy would set a clear framework for objective evaluation on impacts.

The concept of self-policing and code of conduct now being engendered in welfare organisations is an indication of a change of behaviour in a number of the targeted groups.

Enforcement based on legal prohibitions pose a more complex problem. There is often limited funding human resources and infrastructure to mount adequate patrols. It is also perceived that the overall success relies on good governance practices. New legislation is sometimes required to address emerging shortcomings.
Significant progress has been made in self-enforcement approach to make for the shortcomings mentioned above.

**Investments and Funding**

As we evolve ICZM, the relevant local institutions need to also make their funding contribution to the process. Budget line items for ICZM need to be developed from stakeholder departments to sustain the projects. The Government can also levy some access to end-users of improved coastal management practices in order to have funds to sustain ICZM. For example, in investing in new structures a few shillings could be charged to go to a coastal management fund for ICZM use. Otherwise external funds should be used for strategic development. Ways of sustainable financing ICZM will have to be found and instituted within government budgetary provisions in order to develop ICZM on a long-term basis. The success of ICZM will largely depend on dependable internal funding structures.

One of the critical areas of ICZM development is for stakeholders to be officially assigned to the operation areas and be helped to equip themselves with appropriate technology. Investment has to be made in appropriating land parcels for various stakeholders and also to provide basic infrastructure i.e., water, access roads, markets and fish landing sites and regular electricity for effective execution of business. The Government has to aid in evolving high and strict standards of building and other business structures. If all of these investments can be developed along business lines, the approach will build towards sustainable ICZM. In the next iteration of structural ICZM effort, these financing, physical structure and planning mechanisms will have to be incorporated into the overall organisation structure.

Even though external funding continues to be erratic, existing capacity has grown initially from limited external funding. It has therefore, been demonstrated what can be done with little funding if the effort to develop ICZM is consistent and supported locally. It is necessary for ICZM managers to forge long-term partnerships with external financiers and to keep cultivating new funding, physical investment, technology development and information/experience exchange relationships. As we rationalise the ICZM effort, investment programmes may also be planned for common use by neighbouring or related countries. This approach may enhance the efficient utilisation of scarce internal and external funds.

**Capacity**

This issue ties in with the training mentioned in section two above. The human capacity we have built so far has been middle level and short-term. While continuing to offer this development over the long-term, lower and higher level training will have to be instituted at primary schools, teacher training colleges and at universities, possibly on site at the coast. State -of -the art equipment both for training, research and implementation of planned activities needs to be installed at appropriate locations, with back-up services for maintenance. Most of research has tended to be academic, without connecting to the total socio-economic and cultural situation. More ecosystems-related research approaches would have to be evolved to clearly understand the capacities or potentials of the coastal situations we are dealing with. Successful implementation would entail good communication and transportation. The latter so far has been on a low-level participatory basis and mostly from CDA. Transportation will also have to be institutionalised for effective ICZM implementation in the country.

As we develop the ICZM process, specific efforts will therefore have to be directed towards addressing environmental aspects of coastal development (i.e. environmental impact assessments for projects), trans boundary fishing including trawling, the hygienic aspects of harvesting and handling fish products, resource prospecting and exploitation in the exclusive zone,
increasing environmental and infrastructure capacity for development (i.e. more fresh water and electrical power at the coast) and increase accessibility to distant prime coastal areas like Lamu. Security aspects will have to address the issue of surveillance of our entire coastline to ward off illegal and harmful practices. This calls for significant physical and administrative investment from government to build effective capacity. Inevitably this development will have to be achieved progressively, given the current fiscal constraints - but since the ICZM commitment has been made, we are all looking positively towards its progress.

**Research, Monitoring, Awareness and Information Exchange**

**Research**

Presently most research is being conducted on near-shore ecosystems. Studies include ecosystem functions such as biotic systems, nutrient dynamics, hydrodynamics and other systems such as the Large Marine Ecosystems, of concern to local and international scientists. These research projects are useful since much information on ecosystem functioning as well as baseline data has been derived from the study programs for use in profiling and monitoring. However, the issue for the identification of coastal management programs should identify significant resources and direct research towards them. In general this is not the case at the present time.

A policy development would hopefully ensure that research aspects of ICZM are adhered to through development of human capacity, funding and necessary institutional arrangements. The policy would also give directions on important factors such as dissemination and explanation of research findings and priority activities (e.g. mapping, literature reviews, ecosystems functioning). These factors have not yet been clearly demonstrated.

In addition, exchange visits may help programs benefit from the experiences of other coastal management programs.

**Monitoring**

Environmental monitoring programs should be designed and put in place at the time that goals of ICZM are established. Performance monitoring of programs together with project evaluations has received very little attention locally. It is observed that there is no training to build capacity in this vital area.

Administrative and social data does exist but again the only available reports are at a country-wide scale. It is thus difficult to distinguish between tourist arrivals destined for Mombassa from those destined to other parts of the country. Similarly there is no compilation of permits issued and types of uses. Moreover such records are not normally open to scrutiny outside departmental levels.

**Public education and awareness programs**

Substantial achievements have been realised in raising awareness of public officials of the concepts and practice of ICZM, judging by meeting attendances of high-level officials.

A number of workshops have targeted various target groups ranging from the national level to resource users. Some target groups such as mangrove cutters, tourist boat owners and fishermen are now more aware of the consequences of bad practices.

There is still a need to systematically conduct awareness activities to identify target audiences and messages to be displayed on a long-term basis.

Information exchange

There is need for a more active link among the various categories of coastal management practitioners as a means of facilitating information exchange. The common perception is that information flow is from scientists to management.

The infrastructure so far described can provide a basis for a sustained information exchange. MOUs may assist in establishing protocols for exchanging various types of data especially for environmental monitoring, administrative data and social data. This may make the data broadly available to any program in need of monitoring data.

4. ACHIEVED PROGRESS

Good progress has been made in the quest to adopt the ICZM process since the process was initiated in 1994. Starting with training and profiling of a selected pilot site and implementation of modest demonstration projects to demonstrate the benefits of ICZM, the process is now extending to other coastal areas of concern. These demonstration projects have brought many stakeholders into the ICZM process and laid a base for future activities. IUCN has been attracted to this effort and supports the extension of the ICZM experience at another site, which should be cited as progress in the ICZM process. Initial efforts were directed at providing a starting point for identification of coastal issues, informing and enriching dialogue on how to address the increasing urgent coastal management problems nation-wide.

Institutional arrangements for the process which were defined earlier, have now taken root and linked with the national office responsible for environmental matters, to provide a national forum on ICZM that has since been established and is expected to be operational soon. There was a second forum that discussed ICZM issues in the country, which came up with a number of recommendations for enhancing the process in Kenya. An institutional arrangement to guide the proper utilisation of wetlands along the coast is operational. This is leading to adequate environmental management of valuable but threatened species that are of significant importance. The initiation of ICZM training for Park Wardens and hoteliers is contributing greatly to coastal management within MPAs and around beach hotel establishments. The Mombassa Municipality - the largest Local Authority along the Kenya coast - has initiated a beautification project incorporating war on litter and garbage, advocacy for a cleaner port and beaches, repair of roads, drainage of the city’s streets and beautification of the town’s parks. All this is contributing to a healthy environment.

Additionally, equipping the ICZM Secretariat in order to enable it address the various ICZM issues has given it the strength to develop into a national program, is also viewed as progress for ICZM. Further to this, almost all government institutions involved with the management of coastal resources have some understanding of the ICZM process.

The forgoing indicates the basic capacity that has been built into the process, which needs to be developed and empowered with specialised training equipment and starter funds for commercial projects, especially at the first pilot site.

Local NGOs and CBOs that have emerged to support environmental protection and proper utilisation of coastal resources, are benefitting from government support, tapping professional advice and capacity from specialised government agencies, and using their energies to utilise the knowledge gained in putting practical ICZM activities on the ground. For
example, the Tsunza Community Development Program, which initially concentrated on mangrove rehabilitation, will move further to start crab culture in the mangrove habitats. The Shirazi community that lives along the Kenya coast has initiated oyster farming as an alternative to mangrove pole harvesting. These initiatives have learned from the ICZM experience.

The greatest achievement so far by the ICZM process is the general creation of awareness in the interest groups and in the government, that ICZM as a tool has a great potential to achieve desired utilisation of coastal resources. Likewise, the Wildlife Clubs of Kenya annual events of sensitising the youth on good environmental citizenship and its beach clean-up activities have attracted national attention, with the fora attracting guests of national importance and thus getting continuous funding support to implement its activities. There is also the Environmental Trust of Kenya, another NGO that has specialised in awareness-rising on topical environmental issues.

Another great achievement is the mobilisation of stakeholders to participate in various activities related to their mandate. There is now great participation in research and resource management institutions in the ICZM process.

All the cited NGOs and CBOs have had enhanced activities since 1996 through external funding support and their ability to utilise the local available trained human resources of the specialised government institutions. Advantage has been taken to train both government and NGO personnel on topical areas of environmental management. SEACAM has been instrumental in offering training programs in Environmental Impact Assessment in Coastal Aquaculture Development and Tourism. These training programs have been of immense importance.

Private sector participation on environmental matters is on the increase. The push to have Kenya develop its oil spill response preparedness is basically driven by the private sector, which has in addition financed training of relevant personnel drawn from both government and the private sector itself. The rehabilitation of limestone quarries and putting them into other productive uses is also private sector-driven. The largest nature trail in Kenya is found in Bamburi, Mombassa, and has been developed in a disused quarry, and so is the Mamba Village - the largest crocodile farm in Africa.

On the Policy and Legal front, significant progress has been made. The country now has an Environmental Act, which has a specific article on integrated management of the Kenyan Coast. This Act, which became law in 1999, is a milestone in environmental management in Kenya. Policy statements have been adopted for the management of coastal resources, for example the National Water Policy of 1999 that outlines water resources management and development in Kenya. This Policy outlines the Management of the Resource, Sewerage Development, Institutional Frameworks, Financing and an Action Plan on the policy. A Policy on Wetlands is also being developed. As the Policy remains in preparation, certain activities like the development of management plans for marine protected areas have been going on, as has participation in important forums on biodiversity indicators. Other progress that can be reported is in the Physical Planning Act No of 1996 that became operational in 1998. The Act has many facets of the ICZM process and is using the pool of the trained ICZM managers in committees to resolve disputes in land use planning matters, identification and declaration of certain places as special planning areas depending on unique development potential or problems.

The existence of multi-sectoral committees to deliberate on the process is also progress for ICZM. Measurable success has been achieved in that some government institutions now have ICZM line items in the expenditure of their financial resources. The ICZM experience
has also made some national contributions. Through the soil erosion technical working group of the CMSC, Environmental Impact Assessment (EIA) guidelines for structural development along beachfronts incorporated into the Environment Management and Co-ordination Act.

Now that environmental issues are backed by law and that participation on environmental issues is practised across the board, what needs to be put in place are compliance mechanisms to achieve the stated objectives of the law. The ICZM process that has been initiated could have achieved much more if the major constraints -such as lack of a nationally and legally recognised institutional arrangement, had been addressed.

Fishing gear violations are notably less frequent both in marine parks and reserves than in unprotected areas, which is attributed more to education and self-enforcement mechanisms. There are still incidences of night poachers in the parks and also beach-seines, which are deliberate violations and are dealt with according to laws and regulations of the park management and fisheries department.

The demonstration activities that were mounted as a learning experience for ICZM have tended to spread to surrounding areas because of public demand. We are therefore moving to a second ICZM site south of Mombassa to profile the issues of the south and to come up with appropriate strategies using the experience and the country capacity built so far.

Local scientists do most of the research. Therefore coastal management programs may benefit from this capacity.

Practitioners have recognised awareness and education as being an important component of coastal management programs. There is increased responsible mooring since the KWS published a mooring buoy code of conduct. Similarly the fishermen are more aware of violations and they must take action accordingly.

A number of workshops have sensitised practitioners of the need for information exchange among scientists, managers and policy makers.

5. WHAT NEEDS TO BE DONE

Given the present status of ICZM development in Kenya and taking cognisance of the recommendations extended in the last two national workshops and other regional and international experiences, the following are viewed as the immediate steps to be undertaken:

- The Coast Development Authority needs to be further empowered with legislation to direct the ICZM process. CDA should equip itself and be adequately placed to be part of an Environmental Impact Assessment team to vet upcoming developments;

- Following on the above, the ICZM experience gained in the North Coast should now be extended to the South Coast, Tana River, Malindi and Lamu areas, but given the current funding levels, the spread should be limited to one site at a time;

- As we plan to move to new site(s) and continue working on the old Nyali-Bamburi-Shanzu site, new ICZM tools need to be incorporated in order to up-date the process. For example, environmental and infrastructure carrying capacity, environmental and cultural impact assessments should be part of development processes;
• The mechanism (framework) for evolving a national ICZM programme should also be put in place with secure funding from as much local resources as possible;

• The National ICZM programme needs to network very strongly with other regional and relevant international activities. In this respect, an ICZM database should be instituted to be part of the coastal information and documentation centre;

• On the ground, the ICZM process should be gearing itself to integrating hinterland and trans-boundary activities, thus widening the stakeholder base to reflect true national and regional co-operation. Technically, this will take account of ocean-land interface considerations, cross border human and seasonal fish movements, tracking illegal activities and endangered species, trawling activities and co-ordinating marine weather data information flow, as well as tourism planning and marketing;

• Greater emphasis has to be laid on self-enforcement, as this would decrease pressure on the public financing and personnel required in enforcing regulations;

• Coastal management programs should seek answers through well-designed research programs;

• Access to monitoring data should be enhanced by continuous compilation of environmental, social and administrative data either by a key agency or by respective public and private agencies;

• In conducting awareness programs, there is a need to co-ordinate efforts among various agencies taking part so that there will be a balance on the number of target audience covered. For example one may end up with a higher number of officials who are targeted at the grass roots level and;

• Encouraging data compilation and producing the compilation in computer databases should enhance information exchange. This should be done for environmental, social and administrative data. Analyses of these datasets would produce useful information for monitoring and evaluation. Protocols for doing this should be established by the key coastal management agencies or through an inter-agency effort.

6. FUTURE TRENDS

Envisioning the future development of ICZM in Kenya, expectations will focus on implementation of the long-term strategies that have been established for the profiled site(s) and an orderly taking up of the issues of new sites. In order to evolve a true ICZM national programme, we therefore expect to see the following scenario in Kenya:

• More empowered local residents both economically and socially. There is evidence of this development happening among local groups as they are made aware at inception of their participatory requirements in projects;

• Better-trained personnel up to graduate level as the ICZM process get firmly institutionalised in the government machinery. New training initiatives in the Eastern African region will complement achievements in this area;

• Networked international programmes because of globalisation and similarity of issues worldwide. World experience will be shared faster and at less cost as it is done presently;

• Mombassa which has been the nucleus of ICZM so far, will be have more organised public facilities, both privatised and commercialised;

• Severe challenges in water supply, especially in Mombassa, as port facilities and population expand and more industrialisation takes place. There is an increasing case for Mzima pipeline II to be accomplished urgently otherwise all facets of development in coast region as a whole will stagnate;

• Improved planning in land-use, placement of structures, and general environment management consideration as the new environment management bill comes into effect;

• Increased stakeholder awareness that will call public authorities to greater transparency in the way they conduct business;

• More profiling of the coastal area, with respective evolution of site-specific management plans;

• More research in and utilisation of the EEZ. Cruise tourism platforms are being planned by KPA, for example, and there is a national need for a research vessel and the revival of the national oceanographic committee and;

• A coastal development master plan that may incorporate inland and trans-boundary issues and recognise Mombassa as a projected hub of industrialisation.

7. CONCLUSION

The development of the ICZM has started well in Kenya. Institutions that can carry the process forward exist. To further the evolution of this initiative to a mature national programme, the government is asked to give the proposed framework arrangements official recognition and legitimacy and to provide the necessary supervision, technical assistance and financial support to sustain the process. It is therefore concluded that sustained internal financial arrangements are critical to the enhancement of the ICZM process.

It is also proposed that the government moves forward to formulate a Coastal Development Policy with the ICZM process providing the initial steps towards this realisation. Since the Environment Management and Co-ordination Act, provision for NEC to formulate policy on environmental management, the recognition of ICZM by NEC and its inclusion in the act as the tool for coastal management, could facilitate the goal of formulating the Coastal Development Policy. The institutional arrangement set forth by the act is to elaborate enough to accommodate and execute such a proposition.

In both short and long term plans, the ICZM process is now expanding to the South Coast and possibly to the Lamu, Malindi and Tana River areas. To support this development, emerging ICZM programs should allocate adequate resources to sponsor natural and social science management studies. The role of research as a source of information for management requires more emphasis. Most management programs have not internalised research. This also applies to the monitoring of performance. A specialised university at the coast to catalyse this process is envisaged and should be supported. These initiatives would receive a great boost if the ICZM process became a national programme and an enabling environment for it set forth.
Integration of information exchange still requires more attention. The management process, the policy formulation and the research process all require exchange of information. The scope and structure of the process needs to be fully established and appreciated by all parties.

Certain critical activities requiring regional efforts are also envisaged, including illegal trawling surveillance, marine research vessel acquisition, oil spill contingency plan development, tourism (cruise) planning and marketing, meteorological data stations, trans-boundary issues and other inland activities that have bearings on coastal issues. The ICZM process could easily catalyse regional integration to address the raised concerns.

Enforcement policies are clearly fragmented since each sector is pursuing one or a combination of methods. The methods adopted are often dictated according to available manpower and financial resources. A sustainable enforcement mechanism will be required for an overall policy framework as well as increased resources.

The role of research as source of information for the management process requires more emphasis. Most of the management programs have not internalised research in their work plan. This also applies to monitoring of performance.

Consistent stakeholder’s education as well as awareness activities can play a crucial role in enhancing the ICZM process. Activities need to be consistent and regular. There is not much being done, especially at the grass root level.

Integration of information exchange still requires more attention. The following requires information: management process, the policy formulation, and guided research. The scope and structure of the process needs to be fully established and appreciated by all the parties.

Monitoring is crucial to management. The objective evaluation of a program will require good quality data during the program history, and the points to successes and shortfalls to be addressed during the programs iterative circle.
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## 8. ANNEXES

### Appendix I

#### The Membership of the Coastal Steering Committee

- Coast Development Authority;
- Kenya Wildlife Service;
- Kenya Marine & Fisheries Research Institute;
- Mombassa Municipal Council;
- Provincial Administration;
- National Environment Secretariat;
- Ministry of Planning;
- Ministry of Agriculture;
- Tourism Department;
- Baobab Trust;
- East Africa Wildlife Society;
- Kenya Power & Lighting Company;
- Kenya Ports Authority;
- Kenya Post & Telecommunication Corporation;
- Boat Owners Association;
- Fishermen's Association.

### Coastal Management Steering Committee ICZM Secretariat

- Coast Development Authority;
- Kenya Wildlife Service;
- Kenya Marine & Fisheries Research Institute;
- Mombassa Municipal Council;
- Fisheries Department;
- Other Coastal Local Authorities;
- Ministry of Environment;
- Ministry of Planning;
- Ministry of Agriculture
Figure 1: Institutional arrangement with ICZM linked to Provincial administration

Figure 2: Institutional arrangement with ICZM linked to the National Environment Secretariat
Figure 3: Institutional arrangement with ICZM linked to the structure as per the Environmental Management and Coordination Act.