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PRIORITY ACTIONS PROGRAMME

Progress in Integrated Coastal Management for Sustainable Development of Kenya's Coast

The Case of Nyali-Bamburi-Shanzu Area

Report Prepared within the Project "Protection and Management of the Marine and Coastal Areas in the Eastern African Region" – EAF/5-II

East African Regional Seas Technical Reports Series No. 6

UNEP/FAO/PAP/CDA, 2000

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List of Acronyms

ASK	Agricultural Society of Kenya
CBO	Community-Based Organisation
CDA	Coast Development Authority
CMSC	Coastal Management Steering Committee
DDC	District Development Committee
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organisation
FD	Fisheries Department
GDP	Gross Domestic Product
GoK	Government of Kenya
ICAM	Integrated Coastal Area Management
KAHC	Kenya Association of Hotel Keepers & Caterers
KATO	Kenya Association of Tour Operators
KMFRI	Kenya Marine & Fisheries Research Institute
KPA	Kenya Ports Authority
KTB	Kenya Tourist Board
KTDC	Kenya Tourism Development Corporation
KWS	Kenya Wildlife Service
MCTA	Mombasa and Coast Tourist Association
MMC	Mombasa Municipal Council
MOPW	Ministry of Public Works
NBS	Nyali-Bamburi-Shanzu
NEAP	National Environmental Action Plan
NGO	Non-Governmental Organisation
PAP/RAC	Priority Actions Programme / Regional Activity Centre
RDA	Regional Development Authority
SAREC	Swedish Agency for Research Co-operation
SIDA	Swedish International Development Agency
TARDA	Tana and Athi River Development Authority
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNCED	United Nations Conference on Environment and Development
URI-CRC	University of Rhode Island – Coastal Resources Centre
USAID	United States Agency for International Development

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Preface

The implementation of the Integrated Coastal Area Management (ICAM) process in the Kenyan Coast was initiated in July 1993 through a Regional Workshop organised by UNEP, PAPRAC, and KMFRI. The Nyali-Bamburi-Shanzu area was selected as a demonstration site for training regional participants in the workshop on the Development of Coastal Area Management Plans, Surveying Techniques, and Marine Resources Assessment. Using this information base, dialogue was started with all stakeholders in 1994 to introduce the ICAM process. Coastal management issues for the chosen pilot site were profiled and confirmed in two stakeholder workshops in 1995. Through this process, consensus was established on management objectives and strategies to address the identified issues. So, in 1996, with the technical support of URI-CRC, a Strategy Document, outlining short-term activities and long-term plans was developed. Since then, stakeholders led by the Coast Development Authority (CDA) have used the strategy document to develop conservation, rehabilitation and environmental projects that have demonstrated the benefits of ICAM as a tool for use in managing coastal resources in the Nyali-Bamburi-Shanzu pilot site and the surrounding area. Some of the accomplishments include: capacity building of the Mombasa marine protected area managers and other stakeholders in building, installation, maintenance and application of mooring buoy technology; training of trainers and the public in mangrove conservation, development of Environmental Impact Assessment (EIA) for coastal structures. The Nyali-Bamburi-Shanzu ICAM experience has been used in the development of the environmental bill in 1999. The experience has been presented in continental and international workshops as well as in international training courses as a case study.

The El Nino rains of 1997/98 that resulted in a broken infrastructure, together with other related economic setbacks, e.g. the collapse of the coastal tourism industry, increased land-use conflicts, etc. has increased the need for a deeper understanding of the inter-relationship between coastal issues in the pilot area. Immediate short-term concerns identified includes the need to understand the land-use and planning issues, effects of the urban sprawl on environment, socio-economic and land tenure, tourism trends and the projection for suitable institutional arrangements for ICAM in Kenya. For the long term the ICAM process identified projects on waste management plan for the pilot site and an infrastructure development projection for Mwembe Legeza settlement scheme.

The demonstration project at the Jomo Kenyatta Public Beach is reviewed to demonstrate some of the benefits that can be obtained from the ICAM process with small investments. Based on this experience more bankable projects are proposed. This publication is a synthesis report that summarises the enhanced strategies based on the issues identified above. Several studies and analyses were undertaken, issues identified through a consensus building process in a two-day national workshop with local and national stakeholders and technical collaborators under the auspices of the Food and Agriculture Organisation (FAO) of the United Nations. The experience and results of the ICAM process are encouraging. ICAM activities are now undertaken at the grass root level by Community Based Organisations (CBOs) and Non-Governmental Organisation (NGOs) groups in consultation with sectoral experts and technical working groups. Because of successful interventions in the pilot site a need to extend the ICAM process to the entire Kenyan coast within the frame of the national ICAM programme has been recognised.

The ICAM process has been facilitated and executed by a multi-institutional management steering committee through a secretariat that has been guided by Coast Development Authority. Through the secretariat and with the continued technical collaboration of all partners, a coastal programme is being built incrementally to answer the aspirations of coastal communities.

Executive Summary

This report summarises the findings of an enhanced profiling of topical issues in the expanded pilot site of Nyali-Bamburi-Shanzu area in Mombasa, Kenya. The base issues of the area had been delineated in 1995 and strategies to address them on priority basis put in place in 1996. Some demonstration activities to exemplify the benefits of ICAM to the stakeholders were executed and public awareness on how general development at the coastal areas can be fashioned in an integrated manner has been greatly amplified. The current in depth findings were presented to stakeholders in a two-day interaction from which the way forward to the enhanced ICAM process was crystallised. The issues/topics necessitating enhanced profiling were, therefore, identified from the initial ICAM practice/experience. The profiling also demonstrated institutional capacity building in the ICAM process that has been attained so far.

The land-use report has showed the demise of traditional farming, mangrove harvesting and the communal ownership to land. Since 1978 and on an increasing scale most of the land has been put into urban uses. Land for agriculture has diminished. Land ownership is not secured on a large portion of the area. This has resulted into unplanned developments, squatting and the creation of gapping holes and badlands through indiscriminate quarrying. Cashing on the booming tourism trade every available land has been put into use with access points to the beach blocked. Incompatible land uses have emerged, e.g. the huge human settlements surrounding the Bamburi Cement Factory and the existence of Shimo-La-Tewa Prison alongside tourists' establishments and dwelling houses. Subdivision Schemes and Squatter Settlement Schemes on once agricultural land has increased the human population further constraining the infrastructure and other services. The report has recommended for the preparation of action plan areas, urban and regional plans, as well as structural plans and the declaration of special areas depending on their unique development potential and to provide for controls in land uses. The report has proposed short-term, medium-term and long-term measures to address land uses in the area.

Urban sprawl has had negative impacts shown in air pollution, declining water quality, accelerated soil erosion, degraded coral reefs, mangrove and other marine life, and the loss in aesthetic value of the general environment. Air pollution caused by Bamburi Cement Factory, motor vehicles smoke and rotting garbage was identified. Groundwater is contaminated from defuse pollution from solid waste rot and improper liquid waste discharges and excessive pumping which prompts seawater intrusion. Poor farming practices, opening of vegetated areas for structure development and poor siting of properties have tended to increase instability of physical coastal formations and hence increased soil erosion. Soil depositions into the sea, sewage discharges, uncontrolled fishing and tourism have affected critical marine habitats and life. Poor land ownership patterns and informal settlements have also aggravated the environmental impacts by urban sprawl. Stakeholder participation approach to sanitation problems complete with legal, administrative and sustainable financing mechanisms are seen as recommended solutions to the detailed problems.

The study site is one of the hot spot tourism destinations of the Coast controlling up to 8.6% of national tourism receipts. The tourism industry has, however, been characterised by lack of clear development policy, lack of integrated planning and strict zoning with private and informal activities mingling with the fully developed tourist structures at the beaches. The scenario has led to lowering of tourism aesthetic value

and bed capacity over-establishment. The industry crashed in 1998 with some hotels closing up. Possible ways of revitalising the industry were envisaged to be in the form of rehabilitation of infrastructure which got extremely disrupted in 1997 El Nino rains, strategic marketing, diversification of tourism products both on land and at sea, encouraging local community ownership participation and evolving new management principles that are based on the carrying capacity of the destination. Further research into the latter is recommended.

On the socio-economic front, it was found that the majority of the people living in the area are immigrants from outside Kenya, from the Kenyan highlands and from outside the Mombasa district. The majority of the people are in low-income brackets with large mean family sizes and with high rates of unemployment. Their education and health standards were also found to be relatively low. It was proposed that the living standards of the inhabitants could be improved by focussing on sectoral reforms and reactivating the already existing policies that govern their settlement and utilisation of the resource base.

In the enhanced ICAM activities, a provision was made for completion of demonstration projects especially the expanded version of the rehabilitation of tourism and sanitary structure at the Jomo Kenyatta Public Beach and the evolution of bankable projects for solid and liquid waste disposal and infrastructure development for a planned settlement scheme (Mwembe Legeza) in the study site. Critical in the rehabilitation of structures at the Kenyatta beach is also identifying sustainable ownership and management mechanisms that would guarantee quality public services at the beach. At Mwembe Legeza, a model settlement is planned that has all public utilities in the masterplan and in the solid and liquid waste disposal proposal it is envisaged a modern solid waste recycling process and a functional liquid waste treatment plant before final disposal into the sea.

For sustainability and efficiency of operations, the ICAM process is seen as a critical approach in the wise use of the coastal resources and in the aforementioned issues. The ICAM process, therefore, needs to be appropriately institutionalised by first giving it a clear legal status in Kenya. The Coast Development Authority (CDA) should then play a pivotal role at provincial level in linking the process to the central government, bearing in mind that other institutions like the provincial administration, the various municipalities, research institutions and the private sector also hold some stake in the ICAM process development and institutionalisation.

It has been recognised that the ICAM process offers the best tools for coastal resources management, and now there is advocacy that the ICAM process should be extended from the pilot area to the entire Coast within the frame of the national ICAM programme.

1. Integrated Coastal Area Management in Kenya

1.1. Introduction

For the last five years the Coast Development Authority (CDA), in collaboration with the Kenya Wildlife Service (KWS), the Mombasa Municipal Council (MMC), the Kenya Marine and Fisheries Research Institute (KMFRI), and the Fisheries Department (FD), have spearheaded the introduction of Integrated Coastal Areas Management Programme in Kenya. This has been possible with support from the Swedish International Development Agency (SIDA), the Kenya Government, the United Nations Environment Programme (UNEP) and the Food and Agricultural Organisation (FAO). UNEP and FAO are the implementers of this EAF/5 project – a programme whose mission objective is to assist national authorities and experts to develop capability in the protection and management of the marine and coastal areas in the Eastern African Region and the island states.

To achieve this, the project has, as its main objective, to develop, in collaboration with other United Nations (UN) agencies and multilateral/bilateral donors, national self reliance in all matters related to integrated development and management of the environment of coastal areas. CRC-URI/USAID provided the initial technical support and funding for the first phase of the ICAM process, while PAP/RAC implemented the second phase with the financial support of FAO.

This project was launched in October 1993 by the Eastern African governments in collaboration with the UNEP's Regional Seas Programme and FAO. The project was designed with the need for incremental learning-based approach in its implementation.

Phase one of this project was largely completed where an interactive participatory learning process was initiated. Equally, this phase proposed pilot activities in a well-defined site with clear boundaries and representative issues in the Nyali-Bamburi-Shanzu area to provide practical exercises in order to build experience and a comprehensive information base from which holistic approach to coastal management would be developed.

The first phase process was adaptive enough to reconcile already conflicting and diverging interests over resources use, and pro-actively evolved a management tool that was dynamic enough to facilitate resource allocation. At this stage, a few issues were identified, attainable objectives set, and both short-term and long-term management actions proposed.

The output of the first phase of the project was the development of a guiding strategy document named "Towards Integrated Management and Sustainable Development of Kenya's Coast: Findings And Recommendations for an Action Strategy in the Nyali-Bamburi-Shanzu Area", prepared and adopted at the National Workshop in Mombasa on 5-7 December 1995.

Among the workshop conclusions and recommendations, the following emerged as the most relevant for the formulation of the EAF/5 second phase work plan:

- the economic importance of tourism, and hence the need for planning of resource use;
- the need to develop a land-use master plan that addresses environmental and socio-economic factors;

- the management of water resources, among others, that is directed towards: (a) rational use; (b) demand survey; (c) constant ground water monitoring; and (d) diversification of existing water supply sources in order to reduce pressure on ground water;
- the management of solid and liquid waste around established and upcoming development structures.

In this second phase of the project (also known as the Planning and Implementation Phase), which inter links with Phase 1, the need for studying spatially broader pilot site issues from the immediate hinterland, where most of the coastal environmental problems are generated, was recognised. Basic efforts were made to indicate the relevant sources of environmental degradation (urban sprawl, tourism development), and to propose adequate management strategies to mitigate the impacts. Land-use policies, and planning and management policies were reviewed and appropriate proposals made.

Activities undertaken in this EAF/5–II phase can be grouped as follows:

- development of further ICAM strategies;
- development of Bankable Project Proposals; and
- implementation of demonstration activities.

For the selected pilot site – the Nyali-Bamburi-Shanzu area:

1. A further coastal profiling has been done for the entire Kisauni Division (of the Mombasa District) detailing the activities of the peri-urban sprawl adjacent to the pilot site that have included evaluation of the present tourism status;
2. An expanded Demonstration Project at the Jomo Kenyatta Public Beach has been undertaken;
3. Further consultative workshop to include decision-makers in the coastal zone process was held;
4. Support of NGOs to participate in ICAM project activities is to be sought;
5. Support for national institutions to implement project activities, demonstration projects, and preparation of bankable projects;
6. Support to, and strengthening of national experts to undertake project activities, e.g. expert reports developed;
7. A proposed institutional framework has been presented for discussion to find out the most appropriate method of making ICAM a national programme.

The results and outputs of this exercise are presented in the form of:

1. A Coastal Profile – a report with emphasis on:
   - urban sprawl and its impact upon coastal resources; and
   - tourism carrying capacity indication and trends for the study area.
2. Action Strategies reports on:
   - land-use policies;
   - tourism development policy; and
   - socio-economic issues.
3. A proposed framework for the Institutional Arrangement for ICAM in Kenya.
4. Bankable Project Proposals for:
   - Solid Waste, Waste Water and Sewage Management in the Kisauni Division;
   - Proposed Infrastructure Development for the Mwembe Legeza Settlement Scheme; and

- Identification of other bankable projects.

5. A report on the Implementation of the Demonstration Project at the Jomo Kenyatta Public Beach.

Workshop resolutions and recommendations for both short- and long-term activities are to constitute the third phase of ICAM.

1.2. Background

1.2.1. Position and Size

Because of the nature of the study being undertaken, the whole of the Kisauni Division of the Mombasa District has been considered as the study area (Figures 1 and 2).

Stretching from 7°5' E to 7°15' E and from 3°55' N to 4°10' N, the area encompasses the Tudor creek in the south and the Mtwapa creek in the North. It borders the Indian Ocean in the East, while the Junda creek forms the Western limits.

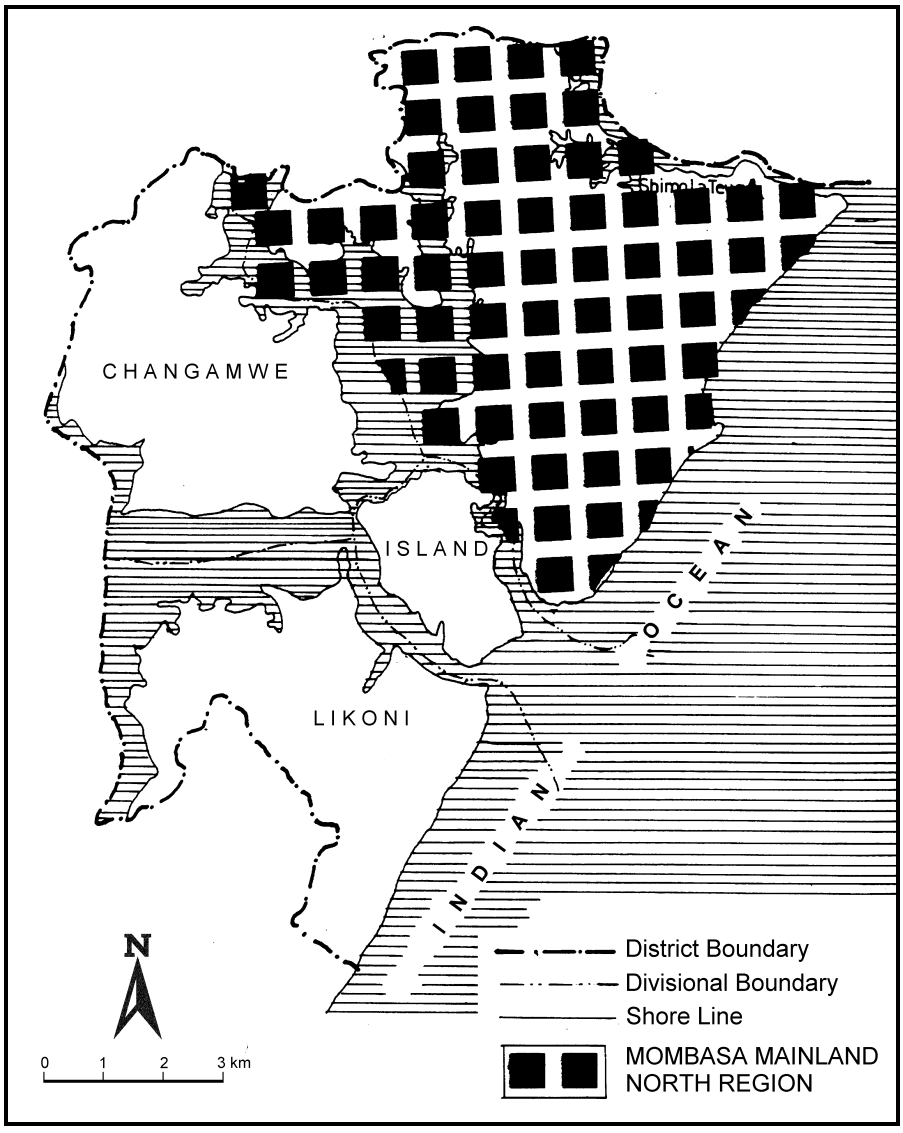
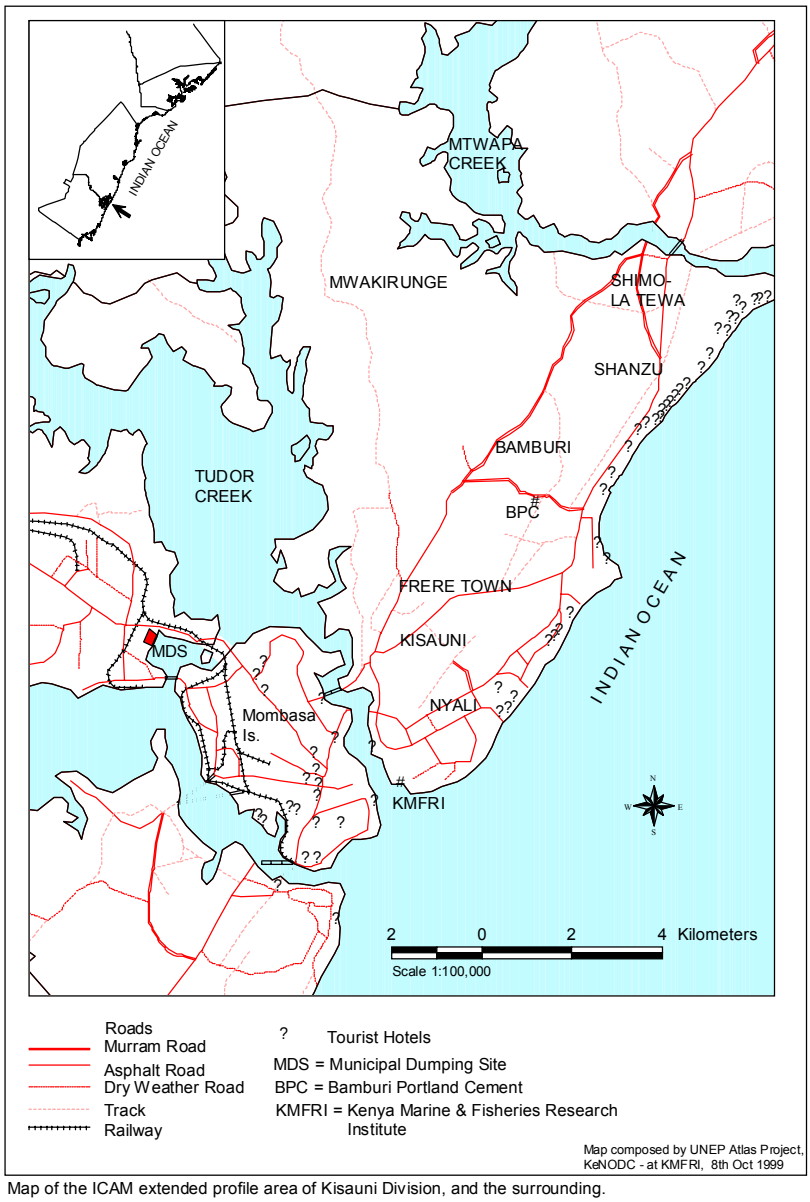


Figure 1: Mombasa mainland north region



Map of the ICAM extended profile area of Kisauni Division, and the surrounding.

Figure 2: The study area

1.2.2. The Physical Environment

Topographically, the region forms part of the coastal lowland belt with extensive flat areas in the East rising to 123 m above sea level westwards to form the Mwakirunge Hills (see Figure 3).

The seaward margin of the plain is a composed of a Pleistocene coral reef. Inland, the coral gives way to sands. The geology of the area consists of a well-exposed fossil coral reef in a narrow coastal strip and the north Mombasa crag composed of variegated series of course calcareous sands imbedded with quartz sands, coral sands, clays and Shelly crags.

The development and environmental implications of the above physical characteristics are many. Coral has excellent drainage and groundwater potential is good from shallow wells, although the possibility of seawater intrusion is always present. The lagoon sands have fairly good drainage, but there is tendency for water logging in some areas in wet weather; ground water potential is similarly good. Shales have very poor drainage, with overlying soils becoming waterlogged during rain seasons. Ground water, when present

is highly mineralised. The land being generally flat, it is unlikely to experience serious soil erosion.

Situated in the hot tropical region, the climate and weather of the study area are dominated by the large-scale systems of the western Indian Ocean and the two distinct monsoon periods.

From November/December to early March, the weather is dominated by the N.E. Monsoon, which is comparatively dry. During March and April, the wind blows in on East to south-easterly direction with strong incursions of maritime air from the Indian Ocean. This brings the long rains between late March to early June, decreasing in July/August. Then the SE Monsoon sets in May–August, bringing cooler temperatures. Between September and November, the N.E. Monsoon re-establishes itself bringing with it the short rains that occur between October and November decreasing in December when the dominant influence of the N.E. Monsoon is fully re-established with the rains dwindling to reach a minimum in January/February.

The natural vegetation in most of the region has been cleared to give room for the development of human settlements and its attendant socio-economic activities. However, westwards in the Mishomoroni – Utange areas, thick bush is found. Further north, in the Maunguja – Mwakirunge areas, the thick bush gives way to a thicket and grasslands. The creek fringes and inlet along the Mtwapa, Mwakirunge and Junda are thickly covered with mangrove swamps.

1.2.3. The Human Dimension

According to the 1989 population census, the Kisauni Division had the highest number of people among the four divisions of the Mombasa District. At that time, the population stood at 153,324 persons. The population has been projected to reach 208,711 by 1999.

These people are distributed in the locations of the Kisauni Division as presented in Table 1.

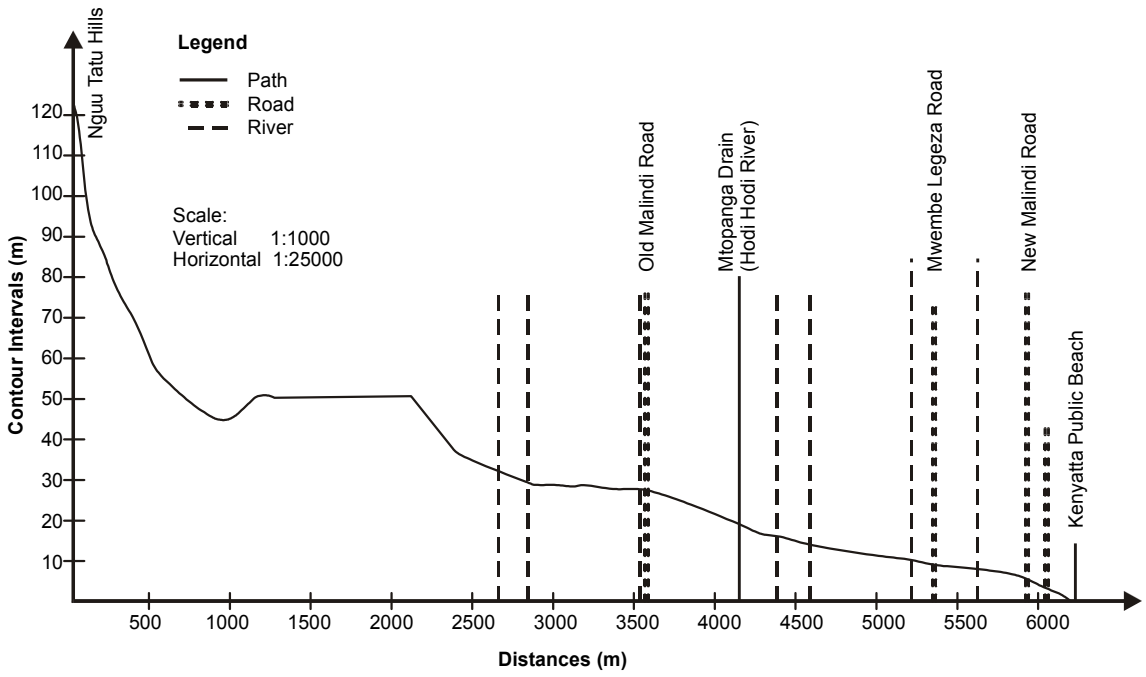


Figure 3: Topographical profile (Nguu Tatu – Kenyatta Public Beach)

Table 1: Population and population distribution (1989-1999)

Location	Pop. 1989	Estimated pop. 1999	Area (km^2)	Density 1999
Mwakirunge	3635	4935	47	105
Bamburi	25662	34790	32	1087
Kisauni	71997	97647	31	3150
Kongowea	52030	70537	16	4408
TOTAL	**153324**	**207862**	**126**	**1650**

From the figures above, it can be seen that the Division has experienced a 33% increase in population in the last 10 years. This is the highest increase of all the Divisions in the district. This increase is attributed to a number of factors, among which are the following:

- The ease of access provided by the new Nyali Bridge, commissioned in the early 1980's, which has resulted in the spread of development of human settlements to the western side of the new Mombasa – Malindi road. Hosting the biggest peri-urban area in the district, this region has become an attractive and receptive area for the population increase.
- As a leading tourist zone with beautiful beaches, the area has a big number of beach hotels that have lured people countrywide to come and seek for opportunities in employment and trade.
- The siting of the giant Bamburi Cement Factory in the area has also attracted a large labour force.
- Land prices for residential land in some parts of the Division are comparatively lower, and being near the central business district (Mombasa Island), and the Kilindini Harbour, this has attracted a large number of people to purchase land.
- Because the region has a large area under informal housing, rents in this type of housing is low, and thus affordable to a large spectrum of the population, hence the large number.
- Within the Division, Kisauni location has the largest number of people, while Kongowea is the most densely populated. The relatively low density of the Bamburi location is a reflection of the existence of high-class, low-density residences, especially along the beachfronts.
- Finally, the 1996 ethnic clashes in the mainland south (Likoni area) dislocated many people to the Kisauni Division. This has, needless to say, drastically increased the population of the area beyond the projected figures for 1999.

1.2.4. Resources Potential and Exploitation

Most of the land in the study area is used either for agriculture for human settlements. The lagoon sands support fruit growing, that includes coconuts, mangoes, jackfruit, cashewnuts and citrus fruits, and vegetables. The thicket and grassland of Mwakirunge – Maunguja support livestock rearing interspersed with cassava and maize growing. The mangrove forests provide wood for poles that are used in the building industry and also for firewood, among other uses. Due to the land tenure system where most of the people are squatters, agriculture is not exploited to the full. The rock structure, comprising shales, sandstone, limestone and clays, is extensively used in the building industry. Quarrying of limestone for the manufacture of cement is done extensively, as well as stone cutting for construction purposes. The existence of many abandoned quarries indicates massive stone cutting practised in the past.

Groundwater resources in the study area are tapped through shallow boreholes and wells. Unfortunately, this water resource is either saline or contaminated with faecal matter and therefore not a very suitable substitute for reticulated supplies.

Artisanal fishing occurs on the inshore waters of the Indian Ocean. This type of fishing is largely for subsistence.

The sandy beaches of the study area have attracted tourism with very many first class tourist hotels built along the shoreline. This has created many jobs, with the industry becoming a major employment.

Photo 1: PC equipment donated to the ICAM Secretariat, hosted by the CDA, by the EAF/5 Project

Photo 2: Mwembe Legeza

2. Sectoral Studies

2.1. Land Use and Land-use Changes

2.1.1. The Regional Setting

Mombasa is the headquarters of the coastal province and is the second largest town of Kenya, after Nairobi. It is a port city whose facilities serve even the interior landlocked states of Uganda and Zaire, among others. It occupies a focal point in the human settlement hierarchy in the province providing the highest level of essential services not only to the people of Mombasa but also to the other six districts in the province. The town is divided into four physically separated areas by inlets of the sea. The four areas also coincide with the administrative divisions, namely: Mombasa Island, Changamwe (mainland west), Kisauni (mainland north), and Likoni (mainland south).

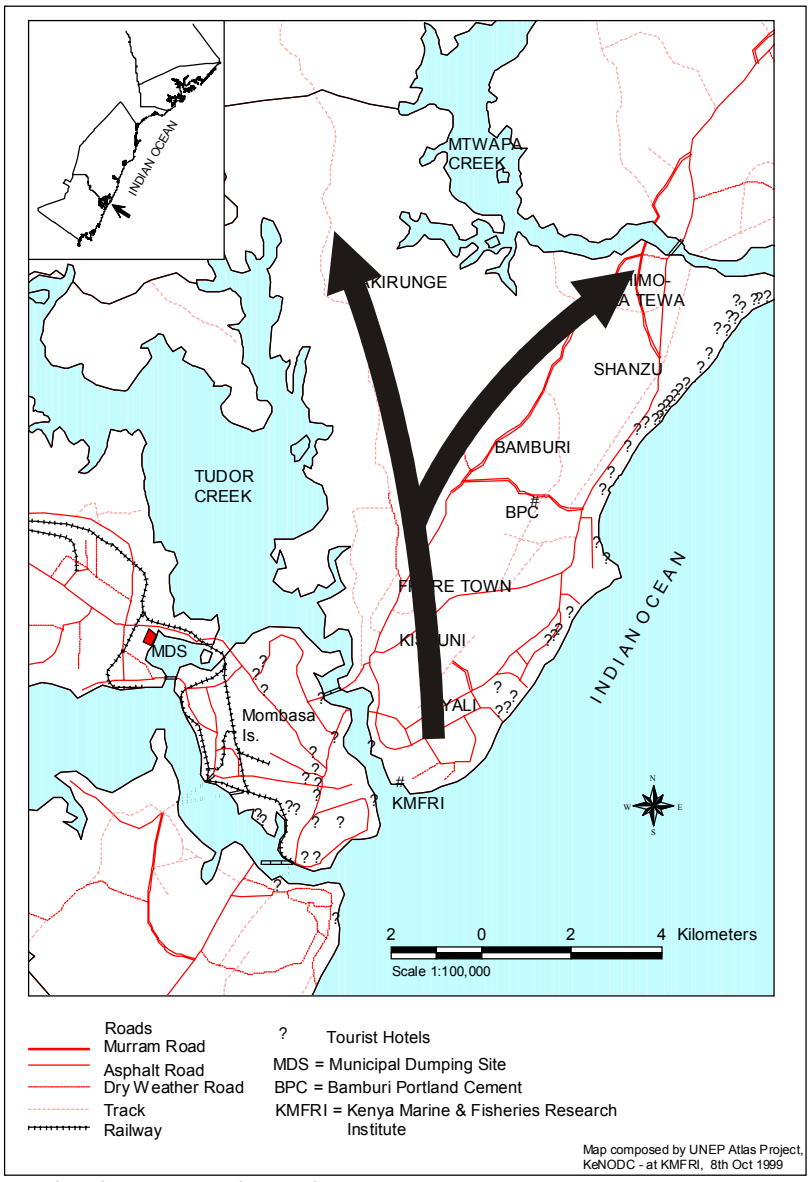
The Kilindini port, the international airport, the oil refinery and other commercial and industrial activities in the town, as well as the concentration of essential services in it, have attracted large numbers of people to seek employment and settle in the town. Moreover, Mombasa is a leading tourist centre at the coast with international reputation. Its tourism potential is not only the sun and the sea but includes the historical and cultural attributes, which the town is more commonly associated with. The existence of the marine national parks and wildlife reserves in the neighbouring districts makes Mombasa a very attractive tourist destination. It should be noted that over 70% of the town's tourist establishments are located in the mainland north region.

The Mombasa town attractions, as highlighted above, have led to the high population movements in the sixties and the seventies along the Island/West mainland axis, and concentration of developments in these two areas. As a result, very high population densities were registered in the two divisions leading to over-crowding, loss of amenity, and degraded infrastructure facilities. The continued population increase in the town including the eighties and nineties led to the concentration of a bigger part of this excess population in the Nyali-Bamburi-Shanzu region (mainland north) due then to its conducive environment and better infrastructure developments as opposed to the mainland south region. As a result, this mainland north region is presently experiencing environmental degradation which has brought about the need for this study.

2.1.2. The Need for the Study

The sharp growth of population in the Nyali-Bamburi-Shanzu region (Figure 4) has brought about a rapid growth of development activities that has occurred with modest planning. The result has been planned but unsound changes in land-use patterns affecting both the environmental quality and economic stability of the local community. With the increase in demand for coastal resources there has been an increase in conflicts over their use. Although tourism development and rapid urbanisation of this area have led to prosperity, this has also led to a number of social, economic and environmental problems that threaten sustainable development.

Hence, among other issues**,** there is an urgent need for the study in this sub-region in order to come up with an improved land-use management, as well as with proposals to limit and control the conflicts that have been generated by this rapid development.



Map of the ICAM extended profile area of Kisauni Division, and the surrounding.

Figure 4: Direction of growth

2.1.3. Characteristics of the Study Area

The Nyali-Bamburi-Shanzu region encompasses the whole of Kisauni division and covers an area of 162 km^2. The region stretches from the Tudor Creek in the south to the Mtwapa Creek in the north, and from the Junda Creek in the west to the Indian Ocean in the east. The region is characterised by the unpopular land tenure system where one can own a house without owning the land.

The region is characterised by the following land uses:

- it has the biggest high cost, low density residential area in the Mombasa district, in the form of Nyali and Shanzu areas;
- it has the biggest stock of middle class housing in Mombasa, such as Raha estate, Fahari, Ratna Square, Municipal housing at Khadija estate, and the sprawling Kiembeni estate;
- it has the largest area under informal housing in the form of sprawling Kisauni, Mlaleo, Mwandoni, Magogoni, Mishomoroni and Mtopanga conglomerations of

the Swahili-type housing. This also includes the semi permanent housing at Shanzu settlement scheme, Maunguja and Utange. This is as a result of the land tenure system mentioned above;

- it has the biggest slum area at Ziwa-la-Ngombe-Bombolulu;
- it has the biggest peri-urban area in the district, and incorporates the vast Nguu Tatu, Utange and Mwakirunge areas;
- it has the biggest amount of land under educational purposes with the only teachers training college site here;
- the region boasts a large number of world class tourist hotels, and holds a sizeable market share of the coastal tourism of Kenya. It is the leading tourism region in the district;
- it has the biggest Golf Course in the district;
- it has the only Agricultural Society of Kenya Showground at Mkomani;
- it has the only wholesale market in the district sited at Kongowea;
- it has the largest single industrial complex in the form of the Bamburi Cement Factory.

The region has, however, been experiencing a number of changes in its land uses. These changes have been brought about by a number of factors, among which are:

- an increase in the region's population which has brought about an increase in demand for housing and other related infrastructure facilities;
- the region being the leading tourist centre in the district and having the biggest single industrial complex, attracts large numbers of people to seek employment in these two sectors;
- the New Nyali Bridge has helped to access the region and spread the development to the north and to the western side of the New Mombasa – Malindi road.

2.1.4. Land-use Changes

Traditionally, land was communally owned, and economic activities were similarly communally initiated through a consensus. The region's economy depended on fishing and mangrove cutting, and the fishing villages were located near the seashore. Mangrove forests were judiciously cropped in order to allow for their re-growth. These were basically seasonal activities, as during bad weather season the fishermen would concentrate on net mending, boat repair and mangrove cropping and planting. All these activities were carried out on the beach or shoreline. There was enough time for the forest to regenerate itself and over-cropping was unheard of. The sea had plenty of fish, and the fish landing sites were known and revered places where the fishing community meets. Most of the agricultural activities were subsistence to supplement fishing, production of the coastal horticultural crops, as well as the traditional coconut and cashewnut crops.

Today, these traditional sectors have been uprooted wholesale. The fishing villages are now located away from the sea shore, and the traditional fish landing sites have been replaced by tourist hotels and high cost residential buildings. The beach area is now being increasingly taken over by the shoreline and water dependant tourism activities. Mangrove forests are now over-exploited due to increased demand. As a result, mangroves are now only used for selective harvesting. The communities that previously depended on mangrove systems must now depend on other economic sectors for their livelihood. Today tourism, residential and commercial development, and industry have overshadowed the traditional economic sectors. The economy of the region can be said to be dominated by tourism.

Table 2: Land-use changes (1978-1998)

Land use	Area 1978 (ha)	Area 1998 (ha)
Residential	1,380.0	3,129.0
Industrial	28.0	40.0
Educational	146.6	232.5
Tourism	30.0	105.0
Public purchase, utility and roads	40.0	165.0
Commerce	15.4	30.5
Agricultural, vacant land	5,692.0	3,608.0
Recreational	109.0	131.0
Water bodies	2,559.0	2,559.0
	10,000.0	**10,000.0**

For the twenty-year period, that is 1978 to 1998, all the land uses showed remarkable increase in the area. The only exception is the land under agricultural use, which has shown a remarkable decrease. Table 2 shows the areas in hectares under the different land uses, which have been adapted for this study in the two intervening periods (see also Map 1 and Map 2).

Rapid urbanisation, which is taking place in the region, is reducing the land under agriculture and turning it to other urban uses.

2.1.5. Development/Environmental Implications

The land tenure system, the land uses and land-use changes have brought about a number of development implications in the region as highlighted below:

- The form of land ownership whereby a person can own a house but not the land is common but a barrier to development. This is because of lack of security of tenure. Secondly, this type of land tenure system denies the community living in such neighbourhoods a planned environment, whereby accessibility to the houses, amenity and separation of incompatible land uses from each other is assured.
- Quarrying of limestone for the manufacture of cement, as well as for building, had the crucial environmental impact on the creation of badlands and open pits, hence defiling the original landscape. The process of quarrying itself is a major source of dust pollution in the environment. Limestone quarrying, however, takes place without adequate legal protection of the environment. As a result, reclamation of badlands made by quarrying activities cannot be reinforced, as the law does not govern it.
- The rapid urbanisation as a result of rapid population increase has led to the urban services in the region to be slowly breaking down. Water supply meets only 50% of the demand. Roads have fallen into disrepair, private clinics and hospitals, private nursery and primary schools and orphanages are mushrooming all over the region because the Municipal Council cannot cope with the demand caused by this population increase. There is no public sewer in the region and the widespread use of soak pits and septic tanks is slowly polluting the underground water through seepage. In other words, the planning and implementation of these urban services have not been able to keep pace with the growth of the population.
- As a result of the rapid growth in tourist numbers in the 1980's there was a rapid increase in investment in tourism, in the provision of tourist facilities, such as hotels, bars, restaurants, apartments, guesthouses, curio shops, onshore and on water activities. Because of this high growth in the tourist numbers every available

piece of land along the beach has been allocated to tourism, including the public access routes to the beach. However, the sensitive nature of this industry was realised only recently. Because of lack of tourists some establishments were forced to close down and many workers have been laid off.

- The siting of the Bamburi Cement Factory is presently unsuitable, a nuisance and a health risk. Though this is a single largest industry in the region employing a substantial number of people, this is not without costs. The factory releases a lot of dust and smoke into the atmosphere which, directly or indirectly, pollutes the environment and the health of the local population, as developments have now surrounded the factory site.
- The siting of the Shimo-La-Tewa Prison, likewise, is unsuitable, as precious urban land of this region is presently being put under non-urban use. The prison and its attendant farms are occupying 210 ha of land. Being non-resource based this could be resited elsewhere, since residential and tourism related developments have literally surrounded the prison.
- Many tourist hotels and private households along the shoreline have made access to the beach impossible by knowingly blocking the planned public accesses. In some instances these access have been allocated to individuals or the hotels for their private use. As a result of this, members of the public are denied their unalienable right to the beach for recreational enjoyment.
- There have been a large number of subdivision schemes and squatter settlement schemes on lands, which in the recent past was basically agricultural. Once developed, these will lead to an increased demand for more schools, hospitals and other public purpose needs. If we assume that more than half of these plots will be developed in the next ten years or so, the demand for infrastructure facilities will more than double the present demand
- The rapid growth of population and uncontrolled tourism activities have brought about various problems resulting from on-shore activities, such as removal of dune vegetation, and illegal structures erected by curio sellers and beach operators.
- Because of the rapid increase in the region's population, the water supply has never been able to meet the demand. Secondly, there being no public sewer system, the population has been dependant on soak pits and septic tanks as a form of sewage disposal. This has thus resulted in the contamination of the ground water due to the extensive dependency on this disposal system, particularly in the high-density settlements.

2.1.6. Legal and Institutional Planning Framework

It has been realised there this is no single land-use policy that covers the study area or the whole of the coast. There are various fragmented sectoral policies which have been in operation through the various acts of parliament. These have been discussed in the main study. However, the Coast Development Authority Act and the new Physical Planning Act (No. 6) of 1996, which became operational in November 1998, have addressed a number of planning and development issues which can be applied in this region. Among other things, the new Physical Planning Act has provided for the following:

- Preparation of various types of plans (i.e. action area plans, urban and regional plans, as well as structure plans).

- The declaration of certain areas to be special planning areas depending on their unique development potential or problems.
- Prohibition or control of the use of land and buildings in the interest of proper and orderly development, as well as in order to reserve and maintain all the land planned for open spaces, parks, urban forests, and green belts in accordance with the approved physical development plan.
- Preparation of an environmental impact assessment report for proposals of development of industrial locations, dumping sites, sewage treatment works, quarries or any other development activity which will have harmful impacts on the environment.
- Conflict resolution machinery through the formation of the District/municipal liaison committees, as well as the national liaison committee.
- Strict fines in cases of non-compliance to planning permission.

On the other hand, the Coast Development Authority Act (Cap 449) provides for the establishment of the Coast Planning Authority to Plan and Co-ordinate the Implementation of Development Projects in the whole Coast Province**.** The acts gives powers to the authority to plan, co-ordinate, gather and disseminate information, and to generally manage and develop coastal resources in a sustainable manner. In an effort to avoid duplication of efforts and ensure the best use of available technical resources, the Authority maintains close links with other Government Institutions and the Private sector.

Kenya is therefore well served with legislation to provide for the planning and management of the coastal zone. However, implementation of the applicable statutes has not always been as efficient. The new Physical Planning Act, 1996, is still in its infancy though a lot of expectations have been placed on its enforcing regarding orderly development of our habitat.

2.1.7. Physical Plan Implementation

The details of the physical plan implementation framework have been discussed in the main study in details. It is stated that land-use planning is the responsibility of the Ministry of Lands and Settlement, though the Physical Planning Department of the Ministry prepares the plans in collaboration with the local authorities. It is the local authority which is empowered to implement these plans, under the local authority by-laws. In the course of preparation of any of the plans mentioned earlier various stakeholders are invited to participate.

The department is presently in the process of preparing the structure plan for the Mombasa Municipality, and the present study will be used to provide information for the section dealing with this region. However, it has been realised that the department lacks very important modern equipment, which is needed to improve its productivity and efficiency. This has been highlighted in the list of bankable projects in the Chapter 5.

2.1.8. Proposals

The study has come up with two land-use plan proposals, alternatives “A” and “B”, based on a number of assumptions (see Map 3 and Map 4). These have been explained in details in the main study. Among the proposals put forward there are the following:

- The Shimo-La-Tewa Prison is to be re-sited elsewhere and the land so vacated will be put to tourism and other urban uses.

- Due to environmental threats posed by the present location of the Bamburi Cement Factory, the factory is to be re-sited elsewhere. The land so vacated is put under recreational forest and parks.
- The Agricultural Society of Kenya Show Ground is moved to a part of the land to be vacated by the Prison.
- An area for further industrialisation of the region is to be set aside in Mwakirunge, strengthening the existing cottage industries.
- A tourism training college is to be set up on part of the land to be vacated by the prison.
- Public access to the beach should be repossessed or opened to the public and the fishermen.
- Domestic and regional tourism is to be encouraged. This strategy will safeguard against the low season and the sensitive nature of this industry.
- A clear cut policy on shoreline developments should be promulgated.
- Amendments of the mining act could include control over mining and harvesting of limestone, clay, sand murram and sandstone in the coastal belt. This will assure the rehabilitation of the scarred surface and put a check on the indiscriminate quarrying.
- Study on tourism carrying capacity is to be carried out in order to arrive at a threshold level to which tourism could be allowed to be developed.
- The Municipal Council of Mombasa should stop approving the Swahili house plans for the "tenants at will". Instead they should encourage the landlords to subdivide the land so that the house owner could also own the land.
- The Government should acquire all big chunks of land which are privately owned but presently unutilised, for the purpose of settling genuine squatters and the landless.
- The volume of traffic on the Mombasa – Malindi is steadily increasing and there are many private accesses which create bottlenecks in the flow of traffic. It is strongly recommended that the proposal to make this a dual carriageway be implemented immediately.
- The study has proposed the putting up of fire fighting facility in order to cope with the high incidences of the fire outbreaks, particularly in the Informal Settlement areas.

For few of the proposals, the national experts were encouraged to translate them in the implementation project activities through the preparation of bankable project.

This has been highlighted in the list of bankable projects in the Chapter 5.

2.1.9. Benefits and Threats to Coastal Resources

The study area's wide variety of ecosystems is the "factory" providing benefits to the local coastal communities, as well as to Kenya as a whole. Direct benefits to be derived from these resources include the goods that are consumed, such as seafood, like fish, crabs and prawns, etc. Others include coastal agriculture, coastal tourism, coral stone extraction, as well as mangrove pole harvesting. Indirect benefits include the ambient weather which many people associate with the coast in general, as a place of spiritual significance, for peace and relaxation.

In addition, people derive benefits from retaining future option and simply knowing the coast exists. "*Option benefits*" are resources that are reserved for future use. In the study

area an attractive scenic place like the Kenyatta Public Beach has the potential as a future resource to promote camping tourism. Presently, the site is under-utilised.

On the other hand, there are "*existence benefits*" that are realised from coastal resources simply because they exist. An example in the study area may be the sense of well being gained from knowing that the Kenyatta Public Beach site has been set aside for the enjoyment of the local residents, as well as Kenyans at large, and that it will not be grabbed for private development.

The region, however, faces a number of threats which have been discussed in detail in the main study. The threats in brief are as follows:

- pollution from urban stormwater runoff as well as raw sewer discharge into the sea by some of the hoteliers, and the Shimo-La-Tewa Prison, as well as the dust and smoke pollution by the Bamburi Cement Factory;
- inappropriate on-shore developments which are destroying dune vegetation. Hence, the coastline protection service provided by the dune system is lost;
- over-harvesting of mangroves;
- fear of over-developed tourism;
- loss of employment which may occur in the process of relocating the Bamburi Cement Factory;
- fear of slum development occurring in the vast areas of Kisauni and Mishomoroni if the landlords are not encouraged to subdivide their land to sell to the "tenants at will"; and
- population projections show that the current population will double in twenty years to come. Hence, the continued use of soak pits and septic tanks as a form of sewage disposal will definitely increase the groundwater contamination.

2.1.10. Conclusions and Recommendations

As highlighted in Box 1, coastal resources are multi-sectoral, which requires innovative partnerships between the Government, resource users and the private sector. In order to achieve this aim, the ICAM process was mooted in Kenya almost five years ago, though, this management process is yet to be institutionalised into a formal tool for planning and resource governance. The new Physical Planning Act (1996), on the other hand, was promulgated and became operational in November 1998 in order to strengthen and prepare the entire land-use basis for efficient participation, preparation and implementation of the physical development plans.

Box 1
Effects of land use – proposals for action
(recommendations by the Workshop participants)

The Land Use Working Group adopted the "Action Strategic Report on Land Use Policy" paper and recommended the following:

1. All the land should have security of tenure.
2. Development of structures must conform to the various existing planning regulations.
3. Policies to balance development in both urban and rural areas should be formulated in order to reduce population pressure in urban centres.
4. The local government should have preparedness to rapid urbanisation by ensuring the following:
   - develop proper roads;
   - develop central water supply;
   - open adequate schools;
   - provide low-cost and high-cost building; and
   - develop central sewerage system.
5. Enforce physical planning regulations with regard to residential estates and other uses.
6. Set aside land for public facilities (recreation facilities).
7. All Acts affecting land be reviewed and land-use policy established.
8. Blocked access points to the beach should be reopened.
9. Bamburi Cement Factory should install modern dust arrestors, and have more environmental programmes, e.g. tree planting, effective monitoring and evaluation of pollutants from the factory.
10. Shimo-La-Tewa Prison should develop its own sewage system to arrest the pollution problem in the creek waters of Mtwapa.

Under this new act, the land-use planning process has allowed for the strong involvement of all the stakeholders from the inception of the planning process. This can be efficiently implemented in the framework of the ICAM process, which should be fully institutionalised under the auspices of the Coast Development Authority. It is, thus, important that a strong bond is inculcated between the operators or implementers of the new Physical Planning Act and the Coast Development Authority through the ICAM secretariat to ensure the continued use and success of the implementation of ICAM process.

This study has, in the meantime, made a number of recommendations for follow up. These have been summarised under short-, medium- and long-term activities, as presented in Table 3, Table 4 and Table 5, respectively. Besides the recommendations of the study, also the recommendations of the Workshop will be included in the follow up.

The study also proposes bankable projects that are listed on a priority basis for implementation purposes in Chapter 5. Particular attention should be given to the importance of the bankable project "Proposed Infrastructure Development for Mwembe Legeza Settlement Scheme", which has been prepared by local experts as part of the project relevant to training of experts and enhancement of responsible institutions, providing for the first time evaluation of financial framework for the development of new settlements. Knowledge gained and methodology adopted should help create a more realistic approach to the preparation of the future land-use plans.

Table 3: Land use and land-use changes: short-term activities

Item	Activity	Aim	Stakeholder/ Beneficiary	Lead Agency	Finance Monitoring Evaluation
1.	Equipping of the physical planning office, Mombasa	To provide efficient tools for planning and monitoring activities	• GoK • CDA • Mombasa Residents	• Physical Planning Department • CDA	• Donor • CDA
2.	Stakeholder participation in the structure plan preparation	To ensure public and other stakeholder participation in the preparation of the new structure plan for Mombasa Municipality	• GoK • CDA • Municipal Council • NGOs • Residents	• Physical Planning Department • Municipal Council	• Donor • CDA
3.	Tourism carrying capacity study	To arrive at threshold level which tourism could be allowed to be developed	• GoK • MCTA • Tourism Board • CDA	• CDA • Tourism Board • Ministry of Tourism	• Tourism sector • Donor • CDA
4.	Building of fire station	To cope with the high incidence of fire outbreaks in the region	• Municipal Council • CDA	• Donor • CDA	
5.	Policy on shoreline development	To address issues on dune & beach erosion; limits of shoreline protection works; siting of buildings and other structures and on-water & on-shore activities	• GoK • CDA • Tourism sector • The public • Municipal Council	• CDA • Ministry of Lands • Municipal Council	• GoK • Municipal Council • CDA
6.	Encouragement of domestic & regional tourism through aggressive marketing & publicity campaigns	To safeguard against low seasons, and secure less dependence on tourists from western countries	• Ministry of Tourism, hotel owners, MCTA, Tourism Board KATO	• KTB • Ministry of Tourism • Tour operators	• KTB • CDA
7.	Studies on small scale industries	To provide data base for local entrepreneurs and to encourage industrialization of the region	• Ministry of Industry • CDA • Local Entrepreneurs	• CDA • Donor	

Table 4: Land use and land-use changes: medium-term activities

Item	Activity	Aim	Stakeholder/ Beneficiary	Lead Agency	Finance Monitoring Evaluation
1.	Planning of the Swahili settlements in the areas operating under tenants at will	To enhance security of tenure and a planned conducive environment for the house owner	• GoK • Municipal Council • Landlord • Tenant • CDA	• Ministry of Lands • MCM • CDA	• GoK • CDA • MCM
2.	Planning of the squatter settlements	To enhance security of tenure and a planned conducive environment for the house owner	• GoK • Squatter	• Ministry of Lands • Provincial Administration	• GoK • CDA • Donor
3.	Amendment of the Mining Act to include control over mining of limestone sand, etc.	To ensure environmental quality by rehabilitating the quarries	• GoK • Public Health Dept. • Quarry owners • CDA	• Dept. of Geology and Mines • CDA	• GoK • CDA
4.	Infrastructure improvements and rehabilitation (transportation sector)	To improve accessibility and to encourage development activities in the region	• GoK • MCM • Residents	• MOPW	• GoK • Donor
5.	Expansion of public schools and hospitals	To cope with the demand for these services	• GoK • Municipal Council • Residents	• Ministry of Health • Ministry of Education • MCM • NGOs	• GoK • MCM • Private Sector • NGOs
6.	Infrastructure improvements and rehabilitation (water section)	To cope with the demand for this facility	• GoK • Water Corporation	• Ministry of Water • Water Corporation	• GoK • Donor
7.	Opening up of public accesses to the sea	To ensure the unalienable right of the members of the public and fishermen on access to the sea	• GoK • MCM • Fishermen • Residents • CDA • Tourism Sector	• Provincial Administration • Ministry of Lands • MCM • Fisheries Dept • CDA	• GoK • MCM • CDA
8.	Acquisition of some of the public accesses already allocated	To ensure the unalienable right of the public and fishermen on access to the sea	• GoK • Fishermen • Residents • CDA	• Provincial Administration • Ministry of Lands • CDA	• GoK • Donor • CDA
9.	Acquisition of some undeveloped private lands of tourist potential e.g. Plot 1732/I/MN	To promote recreational facilities under public domain as well as preserve the turtle nesting grounds found on this plot	• KWS • CDA • Residents • MCM	• CDA • KWS	• Donor • KWS • CDA
10.	Setting aside land for future industrialization in the region at Mwakirunge (infrastructure provision)	To expand the employment opportunities and industrial base of the region	• GoK • CDA	• Ministry of Lands • CDA • Ministry of Public Works	• GoK • CDA • Donor

Table 5: Land use and land-use changes: long-term activities

Item	Activity	Aim	Stakeholder/ Beneficiary	Lead Agency	Finance Monitoring Evaluation
1.	Re-location of the Shimo-La-Tewa Prison	To put this expensive urban land to a public-planned compatible urban use	• GoK • Tourism Sector Agencies	• Ministry of Tourism, MCTA • Tourism Board	• GoK • Donor
2.	Putting up of the Tourism College	Capacity building for the tourism sector	• GoK • Bamburi Cement Company • Residents	• Ministry of Tourism, MCTA Tourism Board	• GoK • Donor
3.	Re-location of the Bamburi Cement Factory	To enhance environmental quality by relocating the pollution source away from the dense population area	• GoK • Bamburi Cement Company • Residents	• Ministry of Health, Public Health Dept. (MCM) • CDA	• GoK
4.	Opening up feeder roads	To enhance accessibility	• GoK • Municipal Council	• Public Works, Municipal Council	• GoK • Donor
5.	Infrastructural improvement and rehabilitation (water sector)	To cope with the demand for this facility	• GoK • Water Corporation	• Water Department • Water Corporation	• GoK • Donor
6.	Re-location of the Agriculture Society of Kenya Grounds to Shimo-La-Tewa	To put this expensive urban land to a compatible urban use	• GoK • ASK • Residents	• Ministry of Lands • Agricultural Society of Kenya	• GoK • Donor
7.	Acquisition of undeveloped large tracts of idle land	Settlement of genuine squatters	• GoK • Squatters	• Ministry of Lands	• GoK
8.	To make the Mombasa Malindi Road a dual carriageway	To improve the traffic flow in the region	• GoK • Tourism sector	• Ministry of Public Works	• GoK • Donor

2.2. Impacts of the Urban Sprawl on the Natural Environment

It has been observed that the urban sprawl in Kisauni Division of the Mombasa District (the study area) has negative impacts on the natural environment.

Increasing pressure is exerted on the components of all the major ecosystems: air, water, soil and biota. Further to this, the deterioration of the environmental quality, to a large extent, passes unnoticed, or is at least not given the attention it deserves.

Clouds of dust emitted by the Bamburi Cement Factory rent the air as daily routine, as well as smoke from motor vehicles and stench from rotting garbage. There is overexploitation of the ground water resources because of the inability of the traditional supply sources to meet the current demand. This has resulted in salinization of the ground water. Poor waste management, particularly that of sewage and wastewater from the community in the inhabited areas, contaminates the same groundwater, rendering it unsuitable for potable purposes. Neither are the soils of the area spared.

In the farming areas, there is loss of top fertile soil due to erosion, through poor farming methods, while in the urbanisation areas the vegetated lands are scoured bare to give room for physical development in housing and other commercial activities. The loss of forest cover has resulted in exposure of the soils to erosion leading to siltation of the marine environment. This is particularly worrying in view of the impact silt on coral polyps. Along the coastline, the loss of vegetation cover has resulted in coastal instability, as manifested by the accelerated loss of beach sands. The consequent construction of defence structures along the beaches has either accelerated the instability problem or transferred it elsewhere. Added to this, as natural forces destroy the defence structures, they leave behind ugly sites with previous aesthetic value lost.

Solid waste of all types are found spread in most open spaces in the low income housing areas, trade areas, and along roadsides. Unpleasant odours are common, as are rats and insects.

Pollution of the marine environment and to groundwater sources through improper sewage/waste water management and diffuse pollution emanating from the decomposing wastes are worrisome. Non-biodegradable wastes litter both residential and business areas, with plastics being the most common. These plastics have since found their way into the marine environment posing a threat to marine living species.

Waste discharges have impacted negatively the water resources, as evidenced by the prevalence of water borne diseases, and the marine environment, as evidenced by the declining quality of the creek waters. In the latter case, the Mtwapa Creek receives sewage discharges from the Shimo-La-Tewa Prison and the neighbouring Mtwapa town.

It is important to note that the study area, divided into high-cost areas, developed tourist areas, business areas, medium-cost housing areas, and low-cost housing areas, is impacted differently. In the low-cost housing areas, where the majority of the people are squatters, the effect of the urban sprawl on the environment is most pronounced. The old adage runs supreme: squatters have no motivation to take care of their environment. It goes without saying, therefore, that it is here that sanitation problems are worst. In the remaining areas where the land tenure is defined, the environment is, at least, being taken care of.

2.2.1. Priority Issues relating to the Impact of the Urban Sprawl on the Natural Environment

The main issues of priority relating to the impact of the urban sprawl on the natural environment are those relating to:

- declining groundwater quality due to microbiological contamination caused by on-site domestic sewage disposal;
- habitat and ecosystem destruction and loss of aesthetic value of the area caused by poor domestic refuse disposal and the destruction of vegetation;
- saline intrusion caused by increased abstraction of groundwater;
- public health concerns caused by on-site wastewater and sewage discharges, poor drainage and accumulations of solid domestic wastes; and
- soil erosion.

These issues have arisen as a result of the incorrect or sectoral land-use policies or missing legal and administrative instruments for the protection of the natural environment, and/or the lack of sustainable financial mechanisms to support the protection efforts. The absence of an Institutional Framework for ICAM, where such issues could be discussed collectively with stakeholder participation and remedial measures proposed, compounds this already sorry state.

2.2.2. Recommendations

Land-use policy

Land Policies in Kenya are skewed to favour those who can afford to own vast chunks of land, leaving the majority landless. The study area is no exception.

This has contributed largely and significantly to the problems of sanitation, soil erosion, declining water quality, and habitat loss and destruction. All these have led to negative impacts on the natural environment.

Land policy change in Kenya, therefore, need to be addressed, as this would help to solve more than half the problems of environmental degradation encountered in the study area.

Administrative, legal and financial mechanisms

In the present set up, the provision of sanitation services is a statutory responsibility of the Mombasa Municipal Council. This responsibility, however, does not oblige the council to be the sole provider of the service.

In a sanitation stakeholder consultation workshop (July 17-18 1997) supported by UNDP and the World Bank, water and sanitation programme, the problems identified as bottlenecks to improve sanitation were classified under the following headings:

- institutional problems;
- technical and technological problems;
- problems related to stakeholder involvement; and
- problems related to resources, finance and recovery.

Upon analysis and consultations at the workshop, an Action Plan of intervention was developed.

Partners determined to participate in the process, the way of their co-operation, and the role of each of them in solving the problems are given in Table 6.

Each stakeholder has been given a task to be carried out in the process of solving the problems, and the support to be expected from other partners has been identified. The stakeholders matrix including identification of the activities are presented in Table 7.

In co-operation with partners, a list of causes for the three main groups of communal and ecological problems has been established at an institutional, technical and partners inter-relationships levels. This problem analysis matrix is given in Table 8.

The Action Plan developed during the said workshop proposed the following interventions:

- institutional strengthening through improved personnel recruitment, training and management within the relevant departments of the council;
- creation of an enabling environment for privatisation of services based on proper, transparent and competitive mechanisms and policy articulation;
- review and enforcement of existing legislation and licensing procedures;
- improved technology policy;
- rehabilitation of existing facilities wherever possible;
- efficient information management;
- full use of existing resources;
- increased stakeholder involvement through community mobilisation, networking and co-ordination;
- awareness creation on sanitation issues;

- increased community and private sector involvement through privatisation and recycling of waste products;
- pilot projects that generate income for community-based activities in sanitation;
- improved cost recovery through realistic tariffs;
- provision of credits for community-based activities; and
- expanding revenue and resource base.

Effecting the above proposals requires consultation and co-ordination. This can be achieved easily through Integrated Coastal Area Management process by strengthening of institutional arrangements for ICAM in Kenya through appropriate legal instruments and capacity building. This arrangement for ICAM will play the catalytic role required for facilitating the achievement of the above proposals, and thus meeting the set goal of improved sanitation and an environment protected against degradation.

Table 6: Mombasa sanitation consultation stakeholder matrix – role in relation to sanitation

Stakeholder	Mode of incorporation	Role in relation to Mombasa sanitation
1. Central Government and District Administration	• Public, non profit making	• Community mobilization • Information collection and dissemination • Providing enabling environment • Policy formulation/implementation • Planning, budgeting and financing • Pollution control
2. Local Authority (MMC)	• Public, non-profit making	• Provide and maintain services • Regulation and law enforcement • Supervision • Coordination of activities • Collection of revenue
3. Parastatals e.g. National Water Corporation	• Public, cost recovery	• Provide clean safe water • Supplement municipal activities • Help in revenue collection • Conservation, pollution control and distribution of water • Research and quality analysis
4. Consumers	• Multiple	• Cleanliness at household level • Provide checks and balances • Determine demands for services • Safe refuse storage • Recycling and composting • Pay for services provided
5. NGOs	• Private non-profit making	• Complete and supplement local authority and central government activities • Awareness creation • Skills, knowledge and information dissemination
6. Community Groups	• Private non-profit making	• Mobilization, health education, pollution control, disease prevention, small scale revenue generation, waste managers • Activities influencing environmental status.
7. Private – income generating	• Private profit making	• Provide exclusive services • Articulate demand for services • Employment generation • Alternative providers of services • Recyclers of waste
8. Training Institutions	• Public/private non-profit making	• Manpower development • Technical development and research • Business orientation, skills, education, training • Information dissemination

Table 7: Participation matrix – identification of the activities

Stakeholder	What can you contribute to improve sanitation in Mombasa?	What assistance do you require to help improve sanitation in Mombasa?
1. Central Government and District Administration	• Information collection & dissemination • Provide enabling environment • Policy formulation • Implementation and regulation	• Policy sensitization and awareness • Need for government departments to pay on time for services • Need to review statutes to allow adequate cost recovery levies • Provide adequate resources • Address the current image of the government as regards services • Review budgetary allocations • Develop manpower and retain personnel
2. Local Authority	• Supervision • Coordination of activities • Collection of revenues • Provision and maintenance of existing services • Regulations and enforcement	• A strategy to set "Rules of the game" • Wider scope to allow international information flow • Review of technologies • Effective use of staff resources • Implementation of the Omamo Commission Report • Widening revenue base to include levies being collected by other bodies e.g. port, tourism • Making local authorities pro-active • Pressurizing Central Government • Adequate staffing at all levels • Capacity building • Higher degree of autonomy (financial, administrative) • Creation of a database and effective dissemination • Improved coordination • Revenue from activities in Mombasa • Prompt remittance of payments by the public
3. Parastatals (e.g. National Water Conservation Pipeline Corporation)	• Provide clean safe water • Supplement municipal roles • Help in revenue control, water conservation and distribution • Research and quality analysis • Pollution control	• User acceptance and support • Commercialized services • Be allowed to operate according to their objectives (with transparency) • Prompt payment of dues • Prevention of tax evasion • De-linking from political influences
4. Consumers	• Provide cleanliness at household level • Provide checks & balances • Determine demand for services • Safe refuse storage • Recycling • Pay for services provided	• Community understanding of its responsibilities at the primary level • Increased dialogue between consumers and the Council • Communities organized for action • Training on business etc. • Citizen responsibility in use of facilities • Motivation of consumers • Increased dump sites • Improved water supply • Access to resources • Proper recycling programs • Attitude change and organization
5. NGOs	• Complement and supplement local authorities and Central Government • Awareness creation • Provide skills, knowledge and information	• Representation in the DDC and support by local authorities • Freedom to operate according to their values/objectives • Creation of a positive attitude • Effective coordination & collaboration • Capacity building • Creation of enabling environment

Table 7 (continued)

Stakeholder	What can you contribute to improve sanitation in Mombasa?	What assistance do you require to help improve sanitation in Mombasa?
6. Community group	• Health education • Pollution control • Disease prevention • Small-scale revenue generation • Waste management • Environmental protection	• Technical assistance • Technology • Assistance in proposal development • Training
7. Private sector	• Provides alternative and exclusive services • Generates employment • Recycling	• Privatization issue de-politicized • Regulations enforced • Rules/regulations • Research into options • Financing assistance (credit) • Training programs on waste and financial management • Better relationship with MMC

In the first Phase of the ICAM project, the problems of solid and liquid waste were identified as the most critical problems. So, in the second Phase of the project, the bankable projects "Solid Waste, Waste Water and Sewage Management in Kisauni Division" were prepared within the framework of the training of local experts and institutions for the preparation of implementation projects.

Realisation of this project, which is expected to be provided with international financial support, would contribute a lot to the reduction of the urban sprawl impact on the environment, and enhance the living conditions of the population in the study area. The summary of the project is presented in Chapter 5, while the complete project is available at the DOE.

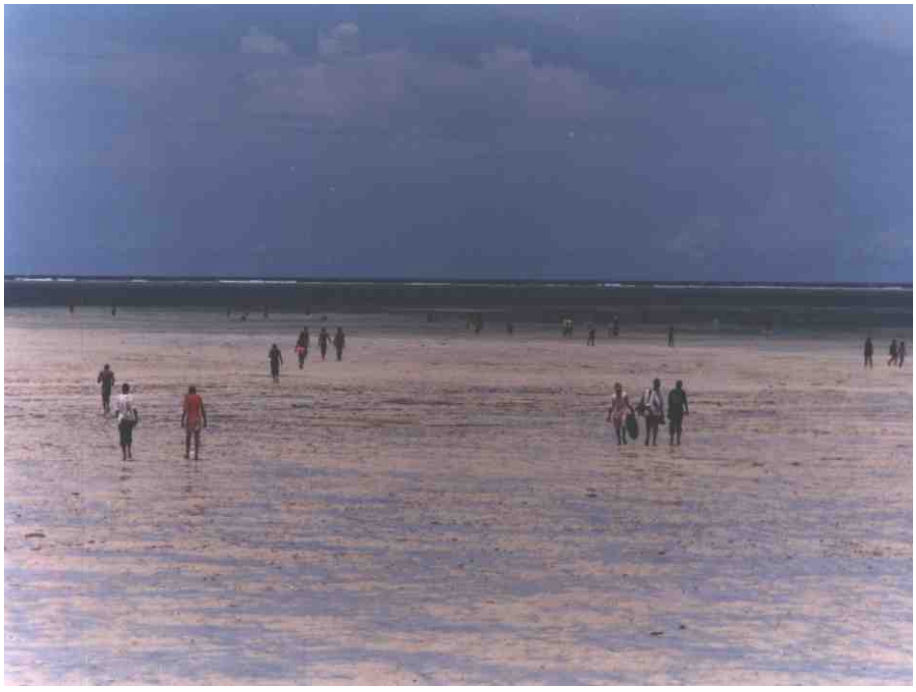


Photo 3: Jomo Kenyatta Public Beach landscape

Table 8: Problem analysis matrix – *"who and what?"*

Heading	Group A – sewage	Group B – sullage and stormwater	Group C – solid and hazardous waste
Institutional actions	• Political interference • Lack of understanding of political roles • Insufficient management capacity • Lack of training • Policy sensitization and regulation	• Poor maintenance of existing facilities • Land tenure problems • Land grabbing • Illegal connections of sewers to storm water drains • Landlord/tenant problems • Absence of all sanitation facilities in informal settlements • In operational pumping stations • Limited supply of piped water	• Inadequate and outdated by-laws • Penalties too low • Existing laws and by-laws not enforced especially on hazardous wastes • Industries not complying with the law and dumping hazardous wastes illegally
Technical and technological	• Insufficient/outdated equipment • Lack of knowledge • Lack of dumping sites • Ineffective use of resources • Poor maintenance & operation of sewerage system • Weak community mobilization • Lack of initiative and money • Lack of information • Lack of public toilets • Lack of awareness of income generation possibility • Negative attitude to hygienic means of exhausting sludge	• Inadequate existing drainage • Inadequate roof-water harvesting • Inadequate outlets in premises • Limited waterborne sanitation • Unpaved drainage areas • Flat terrain resulting in stagnation • Back to back construction of houses preventing drainage • Sullage discharge onto open ground • Lack of community awareness on importance of drainage • Mistrust of authority • Unplanned informal settlements • High density of population	• Recurrent problem of compacting garbage at Kibarani • Breakdown of machinery • Kibarani site inappropriately sited • Poor Management of hazardous wastes • Industrial Emissions • Inappropriate collection, storage dumping of waste material • Careless disposal of wastes by the public • Health hazards experienced by scavengers
Stakeholder involvement	• Insufficient community mobilization • Lack of initiative and money • Lack of public toilets • Lack of awareness of income generation possibilities • Negative attitude • Unhygienic means of exhausting	• Prevalent practice of discharging sullage water in the open • Lack of community awareness on importance of sullage water disposal and use of drainage • Mistrust of authority • Unplanned structures in informal settlements • High density of population	• Careless disposal of wastes by the public • Health hazards experienced by scavengers
Resource, finance and cost recovery	• Inadequate revenue base • Poor collection of revenue • Sewer development not catered for	• Existing resources not well utilized • Existing tariffs do not cover cost or provide for inflation • Revenue collection inefficient	• Rates inadequate to cover cost of garbage collection • MMC lacks authority to adjust tariffs

Box 2

Impacts of the urban sprawl on the natural environment – proposals for action (recommendations of the Workshop participants)

The Working Group adopted the "Urban Sprawl and its Impact upon Coastal Resources" paper and recommended the following:

1. Water Conservation/Quality
   - Conserve water and maintain its quality by proper siting of boreholes/wells in relation to pit latrines and soakage pits to avoid contamination of the groundwater resource;
   - Establish alternative sources of water supply, e.g. rainwater harvesting;
   - Disinfect by boiling, domestic filters, chlorinating.
2. Prevent Habitat and Ecosystem Destruction by:
   - Enforcement of building by-laws;
   - Public Awareness on various methods of solid waste disposal;
   - Restoration of lost aesthetic value by urban forestry.
3. Address Public Health Concerns by:
   - Enforcement of building by-laws for proper drainage systems;
   - Change of attitude of the public regarding waste disposal;
   - Local Authority to provide incentives for solid and liquid waste collection and disposal, e.g. lower charges.
4. Resolve Land Tenure Conflict by:
   - Government offer of security to land;
   - Government to discourage peoples who sell allotted lands i.e. perpetual squatters.

2.3. Tourism Trend and need for Carrying Capacity Assessment in the Nyali-Bamburi-Shanzu Area

2.3.1. Tourism Trend and Problems

Tourism earnings contribution to the country's GDP has been of great importance. In contrast, there has been little planning in various aspects of the industry to ensure sustainability of the profits. The national tourist arrival figures show a sudden drop in 1998 of 1 million arrivals. This downward trend is also replicated in figures for the study area. This drop is attributed to a number of factors acting jointly or in isolation, such as tribal clashes, over-pricing, external competition, bad press publicity, economic recession, poor infrastructure, etc. The revenue generation shows a similar pattern with some restaurants recording zero revenue (closure).

The Coast Development Authority (CDA) initiated Integrated Coastal Area Management (ICAM) programme is *inter alia* to address some of the factors that impact negatively tourism and other sectors. The pilot area for the programme is based in the north coast area, called Nyali-Bamburi-Shanzu. Under this initiative, a profile of the area has been drawn-up. The following issues were identified: need to improve land-use management, inadequate infrastructure and public services, fresh and coastal water quality degradation, decline in reef fishery and viability of artisanal fishing as a livelihood, degradation of marine habitats, coastal erosion, and increasing water- and land-use conflicts. Complementary to this earlier study, this summary concerns a further study to determine the need for making a carrying capacity assessment in the pilot area (Maps 5, 6, 7 and 8).

Several factors have a direct bearing on the sustainability of tourism. The profile of the area reveals a number of deficiencies.

Land is variously owned in the area by government free hold, private free hold, municipal owned, and squatter settlement schemes. A high diversity of commercial,

domestic and recreation uses characterises the land-use pattern of the area. A cement factory, Government prison, an industrial training institute, hotels and tourist facilities, agricultural show ground, golf course, shopping complexes, a central agriculture-produce wholesale market, and residential areas are some of the most prominent land uses. An aggressive informal sector tends to set itself in any available space of the study area because of lack of zoning. The land-use potential for tourism development in the area still exists in the form of some undeveloped beach plots and change of use for other areas, for example the prison farm.

Although there is evidence of uncoordinated construction, a number of acts and pieces of legislation provide regulations for development in all these categories of land-ownership, but strict adherence to these regulations is floated.

An inventory of infrastructure in the area also reveals a number of deficiencies. The road network in the area is not up to date considering that the main Malindi road is narrow, whereas some other roads are in poor physical condition. There is increased demand for telephone lines from the tourism industry. The water supply is in deficit in the area. This situation will be aggravated if new settlements or other developments occur. Frequent power outages have necessitated generator supplementation in some hotels.

Population of this area is expected to be dynamic in view of the new settlement schemes in the area.

The marine resources of the area are still under pressure from over-fishing or fishing techniques, poaching of endangered species (dugongs, turtles), and illegal collection of marine trophies for export market. The marine habitats are, however, still in a relatively good condition. Exceptions are incidences of coral bleaching and beach erosion, currently a subject of research work. Mangrove management programme started under the initiative of ICAM has achieved good results, and is well embraced by local communities in and around the study area.

There is inadequate solid waste disposal in the area. In addition, almost 90% of the sewage systems rely on pit latrines. Inefficient waste disposal methods result in contamination of ground water resources, as well as of the seawater. Other sources of pollution in the area include noise from discos, dust from the cement factory, smoke from burning of waste from the Kongowea market, raw sewage out-falls at various points at Mtwapa and Tudor Creeks, and unplanned kiosks.

Storm water drains in the area are non-existent or are blocked by unplanned constructions.

2.3.2. New Opportunities and Need for Planning

The development of tourism has been determined by investor interest and government interest, largely ignoring other factors critical to the industry. Thus, there is a need for a tourism master plan. Such a plan will form the basis of the tourism policy embodying such critical factors as carrying capacity, culture, local participation, environmental consideration, and client's taste. Other important factors are shortly explained.

The tourist origins show a partiality for Germans. There is more room to diversify the origins to less traditional areas, if appropriate marketing techniques are used. The concept of "mass tourism versus quality tourism" should be considered in such a marketing strategy.

There is opportunity for more tourism products by opening up or improving on historical and religious sites, leisure sites at the beaches, nature parks, culture tourism, water sports and marina.

Table 9: Suggested activities, lead, collaborating and possible financing agencies to sustain tourism – short-term activities

Item	Activity	Stakeholder/ Beneficiary	Legal/Lead Agency	Financing/Monitoring
1.	Strategic publicity and marketing	Ministry of Tourism, hotels, tour operators, enterprise owners	Kenya Tourism Board (KTB)	KTB, Property Owners, CDA
2.	Infrastructure rehabilitation (mainly roads)	Ministry of Transport/works, enterprise owners, tour operators	Ministry of Works	Kenya Government, Hoteliers
3.	Security	Police, Hoteliers, tourists, all citizenry	Office of the President	Kenya Government
4.	Cleanliness/ Beautification	Hoteliers, Mombasa Municipality Council	Mombasa Municipality Council	Mombasa Municipality Council, Hoteliers, CDA
5.	Defining Carrying Capacity Assessment	The hotel industry, environmentalists, KWS, CDA	CDA, PAP/RAC	PAPRAC and other international financiers
6.	Comprehensive development: data base, e-mail & internet facilities	Hoteliers, developers, visitors	CDA	External sources

Table 10: Suggested activities, lead, collaborating and possible financing agencies to sustain tourism – long-term strategies

Item	Activity	Stakeholder/ Beneficiary	Legal/Lead Agency	Financing/Monitoring
1.	Master plan/zoning development	Ministry of tourism, Hoteliers, industry, etc.	Ministry of Tourism	Ministry of Tourism & Hoteliers/External Sources
2.	Security	Police, Hoteliers, tourists and citizenry	Office of the President	Kenya Government, Hoteliers & Communities
3.	Diversifying development, tourism products and visitors	Stakeholders/Tourism and local communities	Ministry of Tourism & Hoteliers	Kenya Government, Hoteliers and local communities
4.	Enforcing EIA & Municipality by-laws	Ministry of Transport and Mombasa Municipal Council	Ministry of Tourism & Mombasa Municipal Council	Ministry of Tourism & Mombasa Municipal Council/CDA
5.	Community ownership/ participation	Local communities	Private developers, Tourism & Culture Ministry, CDA	Local financing firms and international organizations, NGOs etc.
6.	New Access roads And water works	All stakeholders	Works and Water Ministries, CDA	Kenya Government/ External sources
7.	Rehabilitation and new disposal and sewage works	Mombasa Municipal Council and other developers	Mombasa Municipal Council/CDA	External Sources
8.	Capacity building – Equipment and Personnel	CMSC ICAM Secretariat and other stakeholders	CDA	Various Sources

The Kenyan residents of local descent should be made to have more stakes in tourism, both in ownership and consumption, since the present arrangement is proving unsustainable. Some local groups are already in place for eventual management of improved beach facilities at the Jomo Kenyatta Public Beach, as part of ICAM pilot activities. Government policy in support of these initiatives would be necessary.

Development of mini terrestrial parks will also create more opportunities for tourist visits, as it is understood that most tourists visit terrestrial parks during their stay on the coast.

Low tourism performance is likely to persist in the absence of improved road infrastructure, sound zoning for land-use, innovative approach, such as theme parks and other custom-made excursions.

The bed capacity in the area is without a sound economic basis. Clear guidelines need to be set on what to do with the present ones and any future developments. These guidelines may then be applied to the rest of the tourism areas along the coast. A case, therefore, exists of performing tourism carrying capacity assessment for the study area and other planned tourism hot spot. Establishment of an updated database should also be part of the development.

Institutional interventions are necessary. The Kenya Utalii College has been in existence for some time for the purpose of developing local skills. A second Utalii College needs to be placed at the coast. The Kenya Tourism Development Corporation (KTDC) was set up to promote the industry. The Coast Development Authority has a far reaching mandate in co-ordinating development activities in the coastal area. Some short- and long-term proposed activities to meet the goal of sustainable quality of tourism in the North Coast to be executed by various agencies/stakeholders, are presented in Tables 9 and 10.

2.4. Socio-Economic Profile

2.4.1. Introduction

This project paper is part of a wider project on the Integrated Coastal Area Management process of the Shanzu-Nyali-Bamburi and Kisauni Coastal Area of Mombasa District in the Kenya Coast. The project aims at developing strategies that can lead to identification of the major issues and problems of coastal area development, to prioritise them according to the felt needs, and to prepare appropriate frameworks for solving these problems. It also wishes to come up with overall measures of uplifting the standards of living of the people. It is hoped that such proposals can lead to better utilisation of the available resources in the respective coastal areas and, at the same time, guaranteeing a free and healthy coastal environment.

Box 3
Tourism trends and carrying capacity estimates – proposals for action (recommendations by the Workshop participants)

The Working Group adopted the paper "Action Strategic Report – Tourism Development Policy" and recommended also the following:

1. Empower beach operators to operate bush tours;
2. Diversify tourism activities, e.g. culture, historical and occasion-related activities at the hotels;
3. Encourage ownership of tourism industry by locals;
4. Train beach tour operators to enable them to acquire appropriate work ethics; and
5. Sensitise the community on security matters so as to live in peace with the tourists and among themselves.

The study area covers the Nyali and Kongowea areas just north east of the Mombasa Island and the other adjacent regions of Shanzu, Bamburi, Utange, Kisauni and Mwakirunge. Several places are found within this area where the land and Indian Ocean interface is either under human and environmental stress or faces natural threats.

2.4.2. Purpose of the Study

The overall purpose of this report is to propose measures for upgrading the social and economic livelihood of the local communities in the area. The issues to be covered, among others, include the culture, employment opportunities, access to and provision of essential facilities and services, relationship between local and external communities, land uses and land ownership, and impacts on the environment.

Three aspects were covered:

a) Demographic and social characteristics of the study area, including the size, composition, nature and future trends of the population, patterns of migration, and dispersion of the different strata of the population.
b) The existing and future economic conditions in the area, what is being done currently to ensure economic stability and what measures can be put in place to stimulate economic growth in the future.
c) An analysis of existing planning, development and management policies in the area as reflections of the overall national integrated coastal area management system.

2.4.3. Salient Features of the Area

Population: the population of the study area, like for the whole of Mombasa has not been estimated with certainty. It ranges between 235,000 and 256,000, making about a third of the total population of the Mombasa District. The annual growth rate is estimated to be 4.2%**,** which is the same as the national average for the period 1990-1999. Mombasa and its coastal belt are one of the three most-densely-populated regions of Kenya, together with the Central Highlands and the Lake Victoria Basin.

The study area is part of the Kisauni Division of the District and covers an area of approximately 126 km^2. The average density is 1500 persons per km^2, but this varies between each of the sections. For example, Kisauni and Kongowea have the highest densities, while Nyali has a comparatively lower density. Official figures indicate that the Mombasa District is the most densely populated district of Kenya, with the estimates for the year 1989 of 2429 persons per km^2.

Over 75% of the population is composed of migrants, i.e. people who have only moved into the area. These people have outnumbered the local inhabitants, and the concentration of the indigenous people is mainly in the rural Mwakirunge area, Utange and Bamburi hinterland.

An average size of families is 8, and even this depends on the particular section of the study area and the level of education. The largest families are found in Kongowea, Kisauni and Mwakirunge. There are also many polygamous families, and these are mainly found amongst the low-income people, a majority of whom are illiterate or semi-illiterate.

Given that the area is a net importer of people, one can safely predict that the ratio of migrants to the indigenous will keep on increasing. The “foreign” people are attracted to the area by the prospects of getting employment, either in the formal or informal sector, especially in tourism and allied jobs. Others come here to settle, because of the ease of acquiring pieces of land.

The effect of the population magnetism is that the area is now heavily populated, openly crowded, and has over-stretched the available services and facilities. Security to people and property is poor and cannot be guaranteed at all. This is a threat to the tourism trade, which is an industry that survives on good hospitality and safe environments.

Living Conditions

Both income and employment levels in the Nyali-Shanzu-Kisauni show a dichotomy of variance. Two types are discernible, the low-income people and the high-income people, with a group in the middle being disproportionately found in Nyali, Shanzu and Bamburi, while the low-income are found in the remaining areas. Mwakirunge houses the majority of the lowest of the low-income earners. It was found that the high-income earners derive their income from official businesses, while the low-income earners are mainly farmers and loafers.

Employment sources are either formal or informal, mostly of the self-category. The largest source of employment is this informal sector. Other sectors are the tourism-allied trades, the Bamburi Cement Factory, clerical (municipal, private and public) jobs, and the services industry.

Expansion of employment should target the fish processing industry, the heavy industrial manufacturing sector, and the ever-promising tourism trade. Business expansion will also benefit a lot from creation of training opportunities and the formation of local co-operatives for various purposes.

General Infrastructure and Services

This was found to be inadequate for some, and well-supplied for others. Roads, for example, are found in almost all the areas, some paved, others not. Electricity and telephone services are provided**.** Perhaps the worst served sector is the water and sanitation part, with more than 70% of the study area without water-borne sanitation. Piped water supply is also intermittent, sometimes lacking altogether. This is partly because the area gets water from outside, and partly due to the growing population and uses. These supplies are barely sufficient.

Land Uses

Several types of land uses are found in the study area. The dominant use is residential, which is mostly mixed with commercial use, i.e. it is in the same residential areas where we find commercial centres. There are also few well known commercial centres, like the Kongowea market, Ratna Square in Mkomani, and along the Mombasa-Malindi road. Shopping centres are also found in Bamburi, Shanzu and Kisauni.

Agricultural land uses are found in Bamburi and Nyali (small scale), but mainly in Mwakirunge and Magogoni. Crops grown include coconuts, cashewnuts, maize, vegetables and fruits, such as mangoes, oranges, tangerines and bananas. The future of agriculture is rather uncertain because land for agricultural use is being consumed and converted to other uses, especially residential. Almost all the food is imported from outside the study area, and with the rising population, the situation of food supply is going to be critical in the future.

Forestry is another user of land. Natural forests, which are being depleted gradually, are found in Magogoni and Mwakirunge. They are mainly used as sources of fuelwood and building poles. Man-made forests are also present within the Bamburi Cement Company Land. These forests are part of the company's afforestation measures to restore the scurred earth surfaces that have supplied materials for cement manufacturing for many

decades. A tourist attraction park called "Nature Trail" has now been created in one of these forests, harbouring wildlife and fishponds, which produce large quantities of fish for sale.

Land and Socially-related Conflicts

These were found to be many in the study area, and they arise out of different reasons: increasing population, a higher proportion of "foreigners" than the locals, imbalance in economic opportunities, shortage and lack of employment. The most conspicuous conflicts are those between the different types, classes and origins of people, conflicts between opposing and competing land uses, conflicts related to construction on unpermitted land, and problems in the tourism-related issues of fishing rights and access to the beach by fishermen and the general public. At times these conflicts generate unheralded tensions between the concerned parties, even leading to court cases.

Environmental Degradation

Environmental degradation is not particularly serious, with the main threat posed by the Bamburi Cement Factory. The areas surrounding this factory bear the brunt of emissions from the factory. The most common type of degradation is the stagnation of water on the numerous unpaved streets, thereby leading to permanent pools of dirty water that emit obnoxious smells. Due to the flat nature of the land in the study area and the lack of paved streets, coupled with construction of structures on virtually any available open space, there is little room for surface run-off of rainwater. Also, because of lack of water-borne sanitation and an absence of proper street drains, all the water and water from domestic usage is spilled onto the open streets, leading to permanently wet and muddy conditions.

The muddy environment is made worse by the failure of the Mombasa Municipal Council to collect domestic and commercial garbage. This is a common problem all over the Municipality of Mombasa, but the negative implications of this on the study area are quite serious. Tourists visit the Nyali, Bamburi and Shanzu areas, and the impression they get erodes their appetite for enjoying the natural beauty of the area.

2.4.4. Key Proposals to Improve the Identified Matters

Evidence from the fieldwork has shown that the Nyali-Shanzu-Bamburi-Kisauni-Kongowea corridor is a rich tourist attraction area, a hub of business activities and a reasonably convenient place of residence. The Mombasa Island and other key facilities are available nearby, and direct access is adequately offered by the existing infrastructure. However, there is a need to uphold and improve on the said features, especially those directly related to coastal environments in order to fully exploit the pleasures of the coast. The following are some suggestions to this effect:

- The damaged and poor infrastructure needs to be quickly and urgently repaired to facilitate all domestic, commercial and industrial facilities. Past experience has shown that both the central Government and the Municipal Council have been unable to maintain the infrastructure. Perhaps a revolving fund should be set aside for these facilities and services, and they should preferably be leased out or put under the auspices of a tourism-related authority (e.g. Mombasa and Coast Tourism Association), or privatised altogether. Such efforts will simplify the planning operation, and reduce management problems currently afflicting the facilities and services sector. Organisations such as the Mombasa and Coast Tourism Association, the Kenya Ports Authority, the Kenya Navy, and the Bamburi Portland Cement Company should be made responsible for these operations.

- Many people continue to be attracted to the study area and its environs. The physical planning laws need to be strictly enforced to control the land development in the area. New residential sites can be developed, or the existing Swahili houses can be replaced with flats to house more people. For either of these options there must be a commitment to supply, increase and maintain infrastructure, facilities and services. Land in Magogoni and Mwakirunge, for instance, could well be developed into posh residential areas. The Coast Development Authority, in conjunction with the Mombasa Municipal Council, can oversee the development of various types of housing/residential estates in the area.
- In order to stimulate the business, commercial and social activities in the study area, many respondents feel that there is need to form and run co-operative societies in the various fields. Welfare groups, women's groups and co-operatives in fishing, farming, small scale informal trades (jua kali) and the like would help access to and pool credit facilities, purchase and develop land, buy and construct equipment or tools and equipment for the different trades. With reinforcements from local co-operative officers this initiative can go a long way in alleviating the poverty levels of the area's inhabitants. All the legal machinery for these activities is there and what is required is just to activate the co-operative officers, the community development officers and the local branches of the Kenya National Chamber of Commerce and Industry.
- A complete land ownership system and issuance of titles should be streamlined to benefit the local people, majority of who are squatters. This will avert the frequent ethnic confrontation and resentment that at times culminate into fights. Again, the relevant legalities and institutional arrangements to organise, facilitate and implement such exercises are well in place in Kenya. Perhaps the Coast Development Authority should take the lead in lobbying for a proper coastal land ownership, distribution and development mechanism that will accommodate all the relevant interests. Squatters on public land should be settled once for all.
- Employment creation should be stepped up in the study area, either by way of including more manufacturing industries or setting up self-employing businesses. This ought to be done with the local people in mind, so that they should benefit equally with the migrants. Such efforts shall reduce the high rates of thuggery, theft and general insecurity currently prevailing in Kisauni, Bamburi, Kongowea and Nyali.

  The Provincial and district labour offices should be activated in placing the unemployed in relevant job markets. From past experience, it would be better to re-route the work of job placement to other local interest groups such as the CDA, local NGOs and manufacturers, politicians and administrators, who know the communities well. Employment bureaus could be created in every location, through which all work is advertised.

  In order to reduce population pressure, environmental and development stress on the study area, the rural areas of Mwakirunge, Utange, Magogoni, Mtwapa and Vipingo should be well developed to both retain and attract residents. This can be done through putting up permanent roads, supply of electricity and clean water, provision of essential services and facilities, and availing a more conducive platform for commercial farming. The same should be done for mainland west and mainland south, from where many people migrate to the study area. Again, organisations like CDA, KPA, and the Kenya Petroleum Refineries, local NGOs, the Municipal Council and interested partners can join hands in realising these ideals.

Box 4

Socio-economic issues – proposals for action
(recommendations by the Workshop participants)

The Socio-economic Working Group adopted the "Action Strategic Report on Socio-Economic Issues" and recommended the following:

Target 1: Construction on unpermitted land

Interventions:

- remove unpermitted structures;
- block any new construction on such land; and
- designate zones to enable the affected persons seek alternative livelihoods.

Target 2: Land-use patterns unsustainable (Livelihoods affected adversely)

Interventions:

- perform a comprehensive survey to determine the most appropriate and sustainable land-use pattern for urban, peri-urban and rural areas of the coast; and
- encourage high rise/restructuring zoning regulations.

Target 3: Strengthening agricultural extension services to enhance production

Interventions:

- increase technical staff;
- increase resources;
- training seminars, workshops, field days, etc.;
- develop a pro-active strategy to reach out to farmers; and
- identify and replicate achievable micro-agro-forestry projects.

Target 4: Laxity or poor leadership/semblance of crisis in institutions charged with marketing responsibilities (other) to improve livelihoods

Intervention:

- re-activate the relevant organs to enable them fulfil their obligations and discharge their proper (assigned) responsibilities.

Target 5: Carrying capacity of the coastal area under severe strain

Intervention:

- establish regulatory mechanisms to control and manage the utilisation of resources within the coast's carrying capacity.

Target 6: Poor implementation and enforcement of maritime and fisheries laws

Interventions:

- build and strengthen institutional capacities (technologies, manpower, etc) to enhance effective implementation and enforcement of relevant laws; and
- create adequate safeguards which would enable traditional and artisanal fishermen secure livelihoods (credit facilities, access to the beach, etc).

Target 7: Stimulation of employment opportunities

Interventions:

- encourage cottage industries in potentially promising areas, e.g., fruit processing, horticulture, and vegetables; and
- strengthen the informal sector by identifying promising opportunities and appropriate technologies based on labour-intensive strategies.

Target 8: Hawking (Indiscriminate)

Intervention:

- enforce by-laws to prevent unregulated and indiscriminate hawking.

Target 9: Small Scale Businesses

Interventions:

- creation and establishment of co-operatives for fishermen and other cottage industries (e.g. small scale business);
- encouragement and incentives;
- training and sensitisation programmes on co-operatives, management and business ethics:
  - transparency;
  - accountability; and
  - good governance in general.

A need has been recognised for a more rapid and better quality development in solving the ever increasing socio-economic problems based on establishment of new jobs in the pilot location, as well as in locations under the biggest pressure of immigrants. In the preparation of the bankable project a number of possibilities were recommended for the development of small enterprises which would be based on local resources and need a relatively little initial support. The list of projects is included in Chapter 5. It is expected that the international community would recognise the advantages in providing financial support to the projects.

Photo 4: Jomo Kenyatta Public Beach equipment

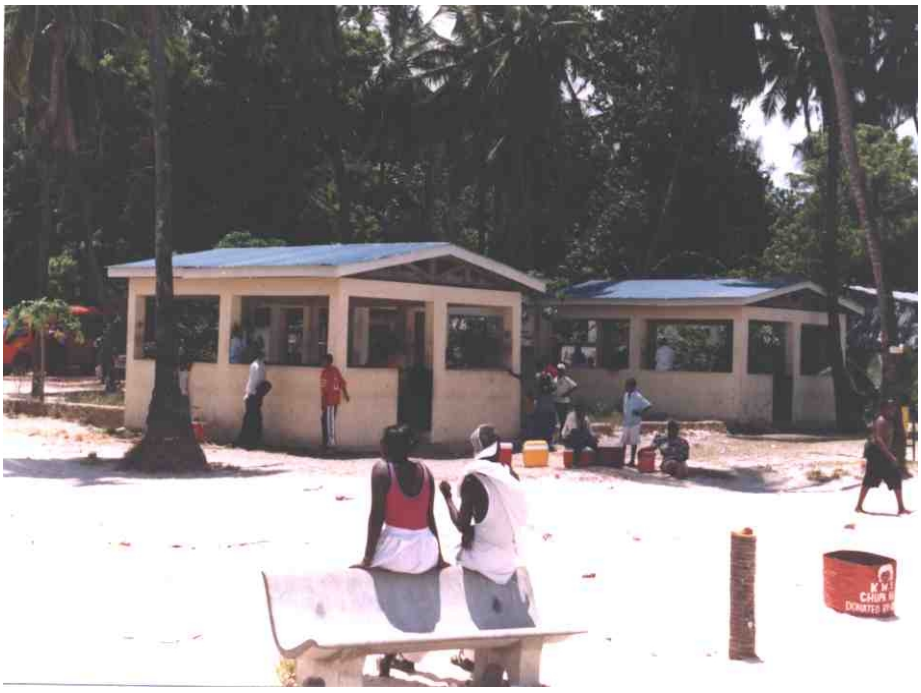


Photo 5: Jomo Kenyatta Public Beach construction

3. Institutional Arrangements for Integrated Coastal Area Management (ICAM) in Kenya

3.1. Background

The advocacy for practice of Integrated Coastal Area Management (ICAM) in Kenya has been going on since 1993, after the training of a core resource team to address ICAM issues, and also following the 1993 Arusha Resolutions. These actions further address the 1992 UNCED Rio Agenda 21 concerning partnership in management and protection of the oceans from impacts of land and marine activities. The management is geared towards good resource governance that will not only alleviate poverty among the inhabitants of the coastal areas but also mitigate adverse environmental impacts on oceans resulting from various anthropogenic activities. With its 600 km coastline (Figure 2), proclamation of the 200 exclusive economic zones, and being signatory to the Nairobi Convention (1985), which is a Convention for the Protection, Management and Development of Marine and Coastal Environment in the Eastern African Region, Kenya has a crucial commitment.

Despite the fact that the ICAM process has been advocated for more than 5 years in Kenya, it is yet to be institutionalised to become a national process in planning and resource governance. The economic roles in the national economy based on coastal and ocean resources, especially tourism and maritime activities, need not be overemphasised, and that these activities more than justify the need for national institutionalisation of the ICAM process can not be an overstatement.

Although ICAM is a relatively new process in coastal resource management in Kenya and generally world-wide, the concept of integrated management through a participatory process is not new in Kenya. For example, the District Focus for Rural Development Process is an integrated rural development strategy based on the idea that causes of rural poverty are multiple and interdependent, and they must be addressed simultaneously in many sectors.

Thus the District Focus for Rural Development Process is multi sectoral with participation of the local people of the area, and it is envisaged that projects that are identified with the people themselves readily gain acceptability and enhance part of development in the area concerned**.** The ICAM philosophy has a lot of parallelism with the District Focus for Rural Development Process thus facilitating the acceptance of the former. Besides, the success and failures of the District Focus for Rural Development Process will help in shaping up of the ICAM process in Kenya. There have been various successes with the District Focus for Rural Development Process. However, the main drawbacks in the administration of this process have been identified as follows:

- the highly centralised national bureaucracy which is too strong to allow effective decentralisation;
- inadequate resources that cannot suffice, e.g. financial and logistical requirements;
- local people and civil servants are ill-prepared to participate in planning;
- civil servants posted in districts are considered as juniors, so cannot make independent decisions, which consequently undermines the autonomous status of the District Development Committee by the centralised bureaucracy.

Local participation has been taken to mean involvement of the local chief and local councillors of the area in the planning process, and there is no mechanism described how to get public consensus on the development based on the opinions of the various stakeholders in the area concerned. The lack of this undermines the real participatory nature of the process, and the problem of endorsing development plans based on the unpopular assertive unilateral or sectoral decision still persists.

ICAM approach helps minimise these conflicts by recognising the need of capacity building to have in place a core manpower group which is trained on issue identification and crystallisation or distillation through participatory approach, development of appropriate institutional arrangement which enhances the integrated management, and establishing evaluation indicators.

The ICAM secretariat has been trained through collaborative efforts with FAO, UNEP, PAP/RAC, USAID (University of Rhode Island, CRC) and SIDA-SAREC.

The paper focuses on the aspect of Institutional Arrangement taking special cognisance to Kenya's resource governance system as per its Constitutional mandate. In this exercise the existence of the numerous institutions which are directly or indirectly associated with the governance and exploitation of the coastal and marine resources is taken into consideration. These institutions exhibit diverse aura of responsibilities, as per their mandates, and based on these attributes possible inter-linkages for the ICAM process to the Central Government are analysed, so that ICAM obtains a national perspective as a resource governance process, rather than being perceived as a peripheral symbol.

The institutional arrangement for ICAM was described in two approaches: *first*, in relation to the resource governance system through the Provincial Administration; and *second* in relation to environmental management according to the Environmental Management and Co-ordination Bill (see Figures 5, 6 and 7). In both cases the ICAM Coastal Management Steering Committee and the ICAM Secretariat were linked to the appropriate multi-sectoral Committees at the Provincial and District levels. Linkage to the Central Government is achieved through the Inter-ministerial Committees described in each system. It was noted that ICAM has a more secure niche in the Institutional Arrangement linked with the Provincial Administration because the latter has a wider mandate in resource governance, security including environment, and more so given the fact that ICAM has still no clear legal status in Kenya. In all cases the Coast Development Authority (CDA) has a pivotal role at provincial level. It is also recognised that the Tana River Development Authority (TARDA) holds a stake, but with CDA having been mandated with a larger geographical extent, almost the entire Coast Province and the Exclusive Economic Zone Ocean area, holds more stakes. Thus CDA is more suitable to play the pivotal role in the institutional arrangements.

3.2. Recommendations

- There is a need to institutionalise the ICAM process in Kenya's resource governance system and embed it in the national planning system as some economic activities, e.g. tourism and maritime activities provide significant national contribution to the total national economy.
- Linkage of the ICAM through various Inter-ministerial Committees to the Central Government can be strengthened in two approaches, either in relation to the resource governance system through the provincial Administration under the Office of the President, or in relation to the Environmental and Co-ordination Bill. However, ICAM has a more effective functional role in the Institutional

Arrangement linked with the Provincial Administration because of the latter's wider mandate in resource governance, security including environmental management, and given also the fact that ICAM has still no clear legal status in Kenya.

- There is a need to review the terms of reference for the functions and compositions of the ICAM Secretariat and CMSC in order to strengthen the ICAM process, not only for national but also for regional and international activities. The ICAM activities in Kenya also need to be linked to those in other regions, or to international institutions due to the transboundary nature of various issues and hence the need of international co-operation. Collaboration with FAO, UNEP, USAID, (URI-CRC), SIDA-SAREC, UNESCO, PAP/RAC already in existence should be enhanced.
- Comparing what entails ICAM and Kenya's Constitution relating to resource governance the responsibility of undertaking ICAM is vested with the Government. This implies also that any suggested institutional arrangement would require an endorsement by the Government for effective performance. There is also a need for legal review of relevant laws, acts, and by-laws to enhance the framework for Institutional Arrangement, financial sourcing, research, enforcement, valuation and implementation to enhance ICAM's enabling environment.

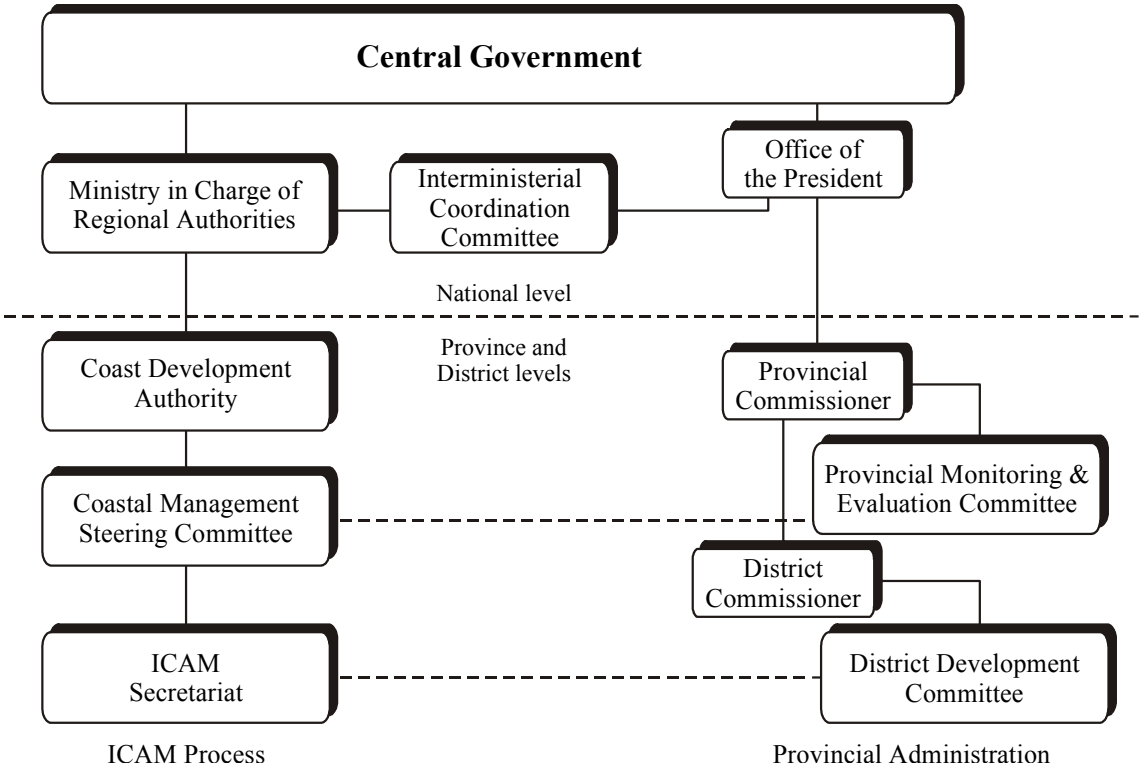


Figure 5: Institutional arrangement with ICAM linked to Provincial administration

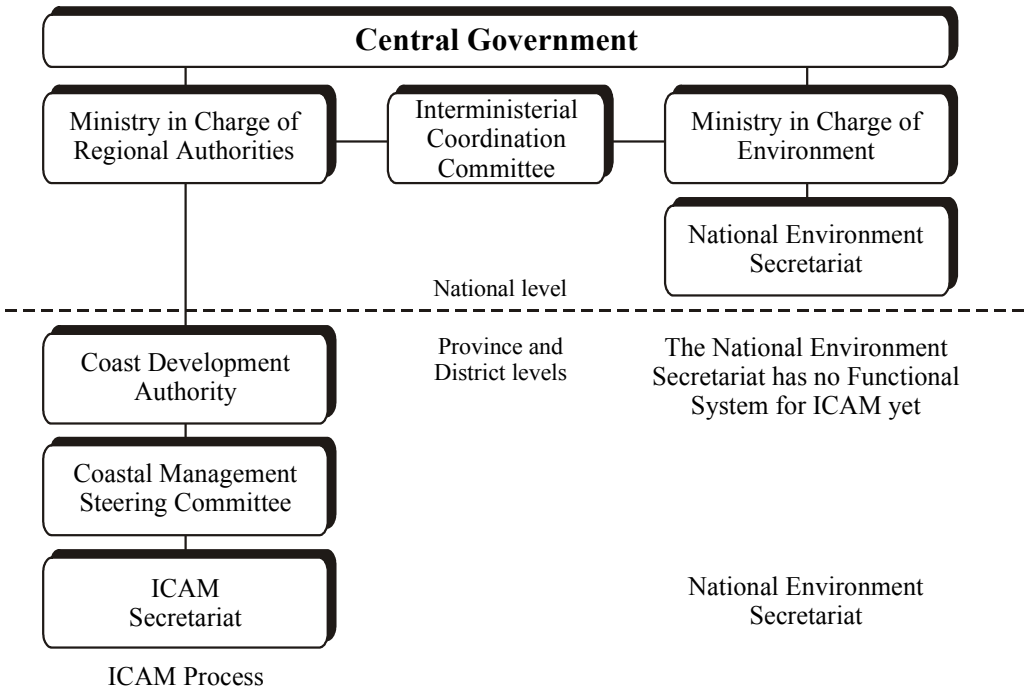


Figure 6: Institutional arrangement with ICAM linked to the National Environment Secretariat

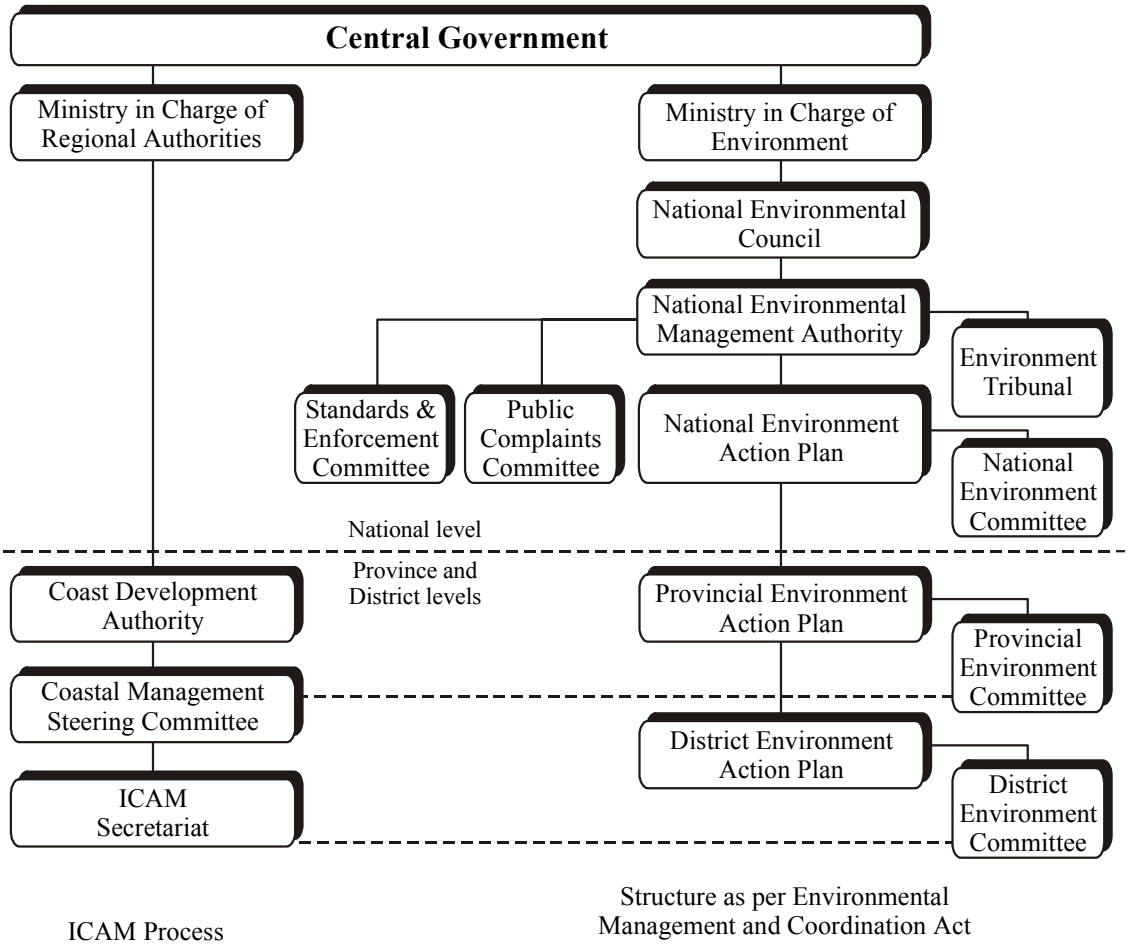


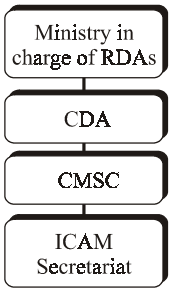
Figure 7: Institutional arrangement with ICAM linked to the structure as per the Environmental Management and Co-ordination Act

Box 5

Institutional arrangements for ICAM in KENYA – proposals for action (recommendations by Workshop participants)

The Working Group adopted the "Report on Institutional Arrangements for ICAM in Kenya" and recommended that:

- ICAM Institutional structure should be as follows:



- the Coastal Management Steering Committee will be chaired by CDA.
- the ICAM Secretariat will be housed at CDA.
- the membership of the Steering Committee will include:
  - Coast Development Authority;
  - Kenya Wildlife Service;
  - Kenya Marine & Fisheries Research Institute;
  - Mombasa Municipal Council;
  - Provincial Administration;
  - National Environment Secretariat;
  - Ministry of Planning;
  - Ministry of Agriculture;
  - Tourism Department;
  - Baobab Trust;
  - East African Wildlife Society;
  - Kenya Power & Lighting Company;
  - National Water Conservation & Pipeline Corporation;
  - Kenya Ports Authority;
  - Kenya Post & Telecommunication Corporation;
  - Boat Owners Association;
  - Fishermen's Association; and
  - Forestry Department.

ICAM Secretariat

At:

- Coast Development Authority;
- Kenya Wildlife Service;
- Kenya Marine & Fisheries Research Institute;
- Mombasa Municipal Council; and
- Fisheries Department.

Expanded to include:

- Other Coastal Local Authorities;
- Ministry of Environment;
- Ministry of Planning; and
- Ministry of Agriculture.

4. Demonstration Projects

To immediately solicit public confidence and continuous support, the CMSC Secretariat planned demonstration projects that would show the resources conservation management:

- installing mooring buoys in the Mombasa Marine Park;
- producing brochures and posters that highlight the coral reefs and mangroves conservation;
- demonstrating water conservation measures in public institutions and hotels;
- developing and rehabilitating the fish landing, recreation and sanitary facilities at the Kenyatta Public Beach.

The demonstration projects were thought out carefully so as to provide certain lessons on coastal resources management. Mooring buoys will guide the park users on where to go to view the natural resources while protecting their integrity. Proper management and substitutes of mangroves will ensure stability of their ecosystem. Efficient utilisation of water, management of run-off including extensive capture and use of rain water for domestic purposes, will minimise erosion at the outlet points, and structural utilisation of facilities at the public beach(es) will minimise trampling and erosion due to high human activity. It is envisaged that effecting these demonstration activities will buy in many stakeholders into the ICAM process and lay the baseline for future activities. Embedded in the demonstration effort is the production of educational materials and holding of education seminars for various stakeholder groups including schoolteachers. The mooring buoy exercise and the production of brochures were completed in the first phase of the ICAM project.

4.1. Current Rehabilitation Exercise at the Jomo Kenyatta Public Beach

4.1.1. Objectives of the Demo Project

The Project had the following objectives:

- to supply potable water for use by fishermen, boat operators and the general public;
- to improve sanitation of the area by rehabilitating the public toilets and providing improved showers;
- to provide a sitting arrangement by making available concrete benches at the beach;
- to provide shades and secure facilities for use by fishermen and boat operators that will also provide meeting halls;
- to demonstrate water conservation; and
- develop self-financing mechanisms to sustain the demonstration activities.

4.1.2. Accomplishments

Provision of concrete seats

It is estimated that some 30,000 people visit the Jomo Kenyatta Public Beach every weekend, for leisure and for other purposes. The project felt that providing sitting arrangements for this multitude of people was a good idea. The lesson to be learnt from this was that the people could be organised into a good sitting arrangement that would spare the grass from being used for this purpose. This would, needless to say, leave the land vegetated and hence prevent soil erosion. Up-to this point the project has supplied 21 out of the budgeted 42 seats. As a gesture of goodwill individual donation of such seats to the beach stand at additional 12 seats. The seats are currently put into the good use.

Rehabilitation of toilets and the provision of potable water

The Mombasa Municipal Council had provided for the use of toilet facilities by the beach goers. Unfortunately, no arrangements were put in place for the sustainable management of these facilities. Soon, the facilities went out of service due to many causes. The ICAM project resolved to make it part of its project to repair and rehabilitate these facilities and develop, in consultation with the Local Authority, ways for their sustained utilisation. By making the facilities functional, the project has addressed the issues of good sanitation at the Public Beach. It has offered a chance to reduce incidences of the spread of water borne diseases, and stopped the practice of people going to defecate in the bushes, thereby addressing the subject of diffuse pollution to the marine environment during the rain season.

The project has provided cisterns and toilet seats to the two toilets. It has repaired the water systems by providing new pipes for water supply. Broken doors have been removed and new ones fitted. Repair works were performed and the walls painted. The septic tanks were de-sludged and repaired. The toilet roof was also repaired, and the bushes in the toilet compound were cleared. Locks to secure the toilets at night were bought, and the caretaker's residence was made habitable.

4.1.3. On going activities

Construction of the shades and meeting places for fishermen and boat operators, and provision of water

The project recognised the fact that the people who derived their means of livelihood through water based activities, fishermen and boat operators, had no safe places to keep their tools of trade. The fishermen had nowhere to store their nets, nor a facility where they could sell their fish, let alone a place to hold meetings. The same was experienced by the boat operators who largely earn their means of livelihood by ferrying tourists into the marine parks and reserves, but had nowhere to store their engines, let alone a place to repair the boats, hold meetings or organise their trade decently. Because these two groups of people were exploiting the resources legitimately, contributing towards beach security for the enhancement of tourism in the area, and helping towards conservation matters, the project set itself to providing an enabling environment for their success. To date the skeleton structures providing the above are standing with only the final touches pending, as can be seen in the photographs provided.

4.1.4. To be Done

Water conservation demo

The principle towards this demo activity is as given in the introductory part of this section of the report. It is still a pending activity of the project.

4.1.5. Measurable Outputs

The main outputs of the Project are:

- improved showers and toilets;
- provision of pre-cast concrete garden benches;
- improved open office for meeting; and
- tidy public beach.

4.1.6. Success Indicators

The main success indicators of the Project are:

- successful exercise for the ICAM secretariat in concrete management activities; opening of the possibilities for the implementation of other bankable projects; and gaining confidence of international donors regarding the way of using the funds;
- win-over of different stakeholders in ICAM process; demonstration how, with relatively small financial sources, with local participation, the essential benefits for the local groups can be achieved;
- attracted the Rotary club that rehabilitated the toilet facility they provided;
- presence of functional toilets, fish landing shades, boat shades with water and seats available; and
- attracted the goodwill of the Local Authority and other NGOs to support the project.

Photo 6: Jomo Kenyatta Public Beach construction

Photo 7: Jomo Kenyatta Public Beach reconstruction

5. Bankable Projects Proposals

The implementation of ICAM should enhance the quality of life of the local population, and secure protection of the ecosystem, the available natural and economic resources as those are of essential importance for the local population. Apart from the financially not much demanding activities relevant to the training and enforcement of institutional capacities and the raising of public awareness, the process of ICAM implementation will include activities requiring higher investments.

However, a financial analysis evaluating investment needs, or determining exactly the financial means for the realisation of relevant goals has not been carried out so far. Furthermore, cost evaluation, and identification of financial sources was recognised as one of the biggest faults of the former ICAM process implementation, and should be included in the third phase of the project as one of the most important activities.

In all the sectoral studies it was identified that the already accumulated environmental problems relevant to urban infrastructure should be solved urgently. Priority should be given to the problems relevant to water management (such as fresh water supply and waste water treatment) and solid waste disposal. Based on numerous consultations with relevant stakeholders, a detailed bankable project was prepared so as to get insight into the investments which should be ensured for the preparation of a project on fresh water supply and waste water treatment, including waste disposal. The summary of the project is presented in Chapter 5.1, while the entire project is available at DOE. Since the project is elaborated in phases, indicating the possibilities of individual investments, it is expected that support of interested donors will be obtained.

Sectoral studies also realised that the former development had been based on a poor planning not providing the relevant infrastructure investment framework. The study on ICAM, however, stressed the importance of cost evaluation for settlements planning so as to ensure better living conditions, and to reduce the impact of urban development on the environment. In order to get a better insight into the needed investments for settlements construction, cost evaluation was prepared within the pilot project on Infrastructure Development for Mwembe Legeza Settlement Scheme. The methodology applied could also be used for the preparation of other land-use plans. The summary of the project is given in Chapter 5.2, while the entire project is available at DOE.

Besides gaining professional knowledge, which could be used for ensuring the required financial means, the local experts gained knowledge on how to prepare bankable projects, which could also be of particular importance for the implementation phase of all planned projects.

The preparation of bankable projects was recognised as a very efficient tool for the implementation phase of ICAM. Practically each issue pointed out in the present document can be translated into the needed format for financing. The bankable project allows having the clear picture of the needed funds, as well as of potential funding sources. Therefore, the local experts were encouraged to identify potential bankable projects in relevant sectors, on the basis of which a list of projects was made, as presented in Chapter 5.3.

The Secretariat will continuously up-date the file with other/new bankable projects.

5.1. Solid Waste Management

The capacity of the Mombasa Municipal Council to collect solid waste in the study area is inadequate. About 1/3 of 200 ton of the daily production is effectively collected. Privatisation of refuse collection has so far proved inadequate.

The current position of the MMC waste department points at inadequacies of facilities such as dumping site, storage capacity, and collection vans. There are also behavioural problems such as non-use of refuse bags or dustbins, supervision of hospital refuse, throwing of refuse without care. Lastly, there are managerial problems, whereby the decision-makers are unenlightened on solid waste management issues.

The goal of the project is to improve sanitation in the area through proper solid waste management and thereby prevent environmental pollution, reduce pestilence, house flies, ticks, crows, rodents and general public nuisance, protect potable ground water sources, prevent and protect against hazardous solid wastes and arrest the spread of diseases and therefore improve human health.

This proposal to institute a solid waste management involve the following activities:

- distribute mobile and static containers;
- conduct/initiate workshops and discussion groups;
- provide community managed waste storage facilities;
- prepare alternative tipping facility;
- effect bulk-refuse reduction methods such as glass recycling, plastic recycling, metal recycling, incinerator, manure/fertiliser making;
- encourage community initiation in refuse management activities;
- construct and manage concrete containers in low housing areas;
- campaign for road and lane sweeping operations and cleanliness of inaccessible areas.

The project activities are spread to cover 5 years (see Table 11), but could also be developed in long term or step by step depending on funding abilities.

Table 11: Time table for solid waste improvement/investment

1st year	2nd year	3rd year	4th year	5th year
EIA of proposed dumping site	Initiate public awareness campaigns	Construct refuse tip offices	Develop recycling options	Purchase damper vehicles
Prepare refuse tip and access roads	Initiate demonstration projects	Purchase vehicles and equipment	Purchase vehicles and equipment	Purchase vehicles and equipment
Purchase/make containers	Purchase and distribute equipment	Construct dept. of Environment	Improve night street cleaning	Develop laboratory
Start training program	Purchase vehicles and equipment	Establish maintenance unit for vehicles and equipment	Purchase water tankers and breakdown vehicles	Continue training programs
Purchase refuse vehicles and equipment	Purchase refuse vehicles and equipment		Construct incinerators for hazardous waste	Continue capacity building training
Purchase supervision vehicles			Prop up replenished areas	Prop up replenished areas

Table 12: Proposed Mombasa municipal council budgetary contributions (US$)

	1st year	2nd year	3rd year	4th year	5th year
Capital costs per year	30,000	30,000	30,000	30,000	30,000
Recurrent per year	30,000	60,000	90,000	120,000	150,000

Table 13: Proposed donor funding

1st year	2nd year	3rd year	4th year	5th year
1,000,000	300,000	200,000	200,000	100,000

Financial Implications

Capital and operational costs are expected to be raised both from the donor community and the Mombasa Municipal Council, as shown in Tables 12 and 13.

The success of the project will be gauged against the following performance indicators:

1. Reduction of litter scattered in the environment;
2. Pest control, reduction or extermination of crows, rodents, houseflies, cockroaches, etc. due to good solid waste management;
3. Increased aesthetic value of the environment;
4. Improved sanitation, and hence improved human health through control of diseases; and
5. Minimised pollution of potable water supplies and the marine environment.

5.2. Liquid Waste Management Project Proposal

Currently, 16% of the population of the Kisauni Division depend on septic tank/soakage pits, and 10% rely on connected water borne sewage. Besides, most roads in the area do not drain the storm water, and direct effluent discharges into the creeks and marshes prevail.

Only 3 hotels have their own sewage treatment works. The Mombasa Municipal Council is charged with servicing the community with adequate construction and maintenance of liquid waste management system, but so far it has not had enough capacity to do so. This is the basis of this proposal for the council to embark on the phased development and capacity building of the Department of Environment to meet the ever-increasing demand for functional liquid waste management arrangements for Kisauni.

The proposal is intended to:

- improve septic tanks/pit latrines and soakage pits emptying;
- protect the existing wells, and partially offset the effects of land based pollution;
- develop a sewage system for Nyali-Bamburi-Shanzu area;
- develop a central waste water treatment plant;
- provide enough public toilets in recreational places and markets; and
- provide means of draining public roads and any other standing water bodies.

These activities will be spread out in a development plan of 8 years costing a projected total of 50,000.000 US$. The programme would entail the following short-term (the first 5 years) activities:

- protection of boreholes;
- purchase of 3 damper vehicles;
- purchase of chemicals for treatment of soakage pits and pit latrines;
- purchase of two soakage pit emptiers and exhausters;
- purchase of 1 tanker and 1 breakdown vehicle;
- purchase of 4 sewage portable machines and construction of public toilets in primary schools, beaches and markets;
- purchase of laboratory equipment and chemicals;
- chlorinating of wells; and
- running liquid waste management awareness workshops.

The success of the project will be gauged against the following performance indicators:

1. Regular emptying of soakage pits and septic tanks;
2. Potable water conditions from wells/boreholes improved;
3. Working storm water road drainage;
4. Functional pollution laboratory;
5. Elimination of stagnant sewage and stagnant water pools;
6. Reduced incidences of water-borne diseases;
7. Disappearance of indiscriminate defecation and flying toilets;
8. Change of attitude in sewage management;
9. An attractive and aesthetic environment; and
10. Improved sanitation and recycling of waste water.

5.3. Infrastructure Development for Mwembe Legeza Settlement Scheme

This project has set, as its mission statement, the upliftment of the living standards of the Mwembe Legeza community. This is set to be achieved by the provision of planned infrastructure, community facilities, special purpose facilities, affordable housing and the introduction of small-scale income-generating activities, where the residents will own and develop their individual plots. This, it is envisaged, will reduce pressure on coastal resources, control the spread of communicable diseases and reduce the squatter problem.

The proposed settlement scheme is on the government land plot 337/R Section I Mainland North measuring approximately 95.247 ha. The scheme is neighbouring the Bamburi Portland Cement Factory to the east and other formal settlements on the other sides.

The scheme has a total of 1549 sub-plots, out of which 1471 are designated for residential purposes. The present population of Mwembe Legeza is approximately 3000.

The site suffers from decent housing, poor sanitary conditions, inadequate quality water supply, health facilities, bare lands raped of vegetation, and mushrooming of informal settlements.

The project envisages the construction of row houses, water supply system, roads infrastructure, electric energy supply, liquid waste management, rainwater discharge, solid waste collection, as well as the construction of other community facilities to include schools, a health centre, a market, social facilities, and special purpose facilities (Table 14).

The financing will be ensured in phases, and the total project cost is US$ 5,226,437.

Table 14: Summary of cost of projects infrastructure development for Mwembe Legeza settlement scheme

Project title	Activities	Time Frame	Costs US$	Funding Sources
1. Affordable Housing i) Permanent Housing ii) Semi-permanent iii) Temporary House	Construction of house to completion inclusive of electrical, plumbing and drainage facilities.	3 months	 15,429 7,714 5,143	International donors, banks, individual & Government agencies
2. Water Supply <u>Phase I</u> i) Rehabilitation of existing wells (3)	Rehabilitation by cleansing protecting and installation of hand pumps preferably Afridev standard pump.	2 months	2,857	Donors, NGOs Government Agencies, UN Agencies
<u>Phase II</u> ii) Piped water supply network	Installation of water pipes to all households & connection to nearest water pipe line.	4 months	58,914	International donors, banks and Government Agencies, UN Agencies
3. Roads & Streets Network i) 15 m wide roads ii) Rest of roads and streets	Constructing light tarmac roads. Constructing Murram standard design roads.	6 months	 1,478,571 2,580,189	International donors, banks and Government Agencies
4. Stormwater Drains Network	Constructing open (line) drainage to Mtopanga drain.	6 months	559,857	International donors, banks and Government Agencies, UN Agencies and NGOs
5. Liquid Waste Management **6. Solid Waste Management**	Septic tanks, soakage pits emptying, refuse collection within the entire settlement scheme.	Regular service by Municipal Council of Mombasa	Individual responsibility	-
7. Electricity Supply Network	Provision of electricity to the entire scheme; including streetlight.	4 months	542,857	International donors, banks, Government Agencies
8. Social Infrastructure	This project is to be considered in Phase II of the implementation. However, establishment of a primary school should be given priority. International donors and NGOs are potential sources of helping the community in starting the school and furnishing it as well.	-	-	
9. Socio Economic	Construction of a boundary wall for the market and 2 toilet blocks.	2 months	3192	Government Agencies, Municipal Council, NGO & UN Agencies

The onus of repayment of loans for physical infrastructure lies squarely on the Mombasa Municipal Council. Once the residents receive title deeds for their plots, they will be paying rates to the council.

Box 6
Bankable projects – proposals for action
(recommendations by Workshop participants)

The Working Group adopted the "Bankable Projects" and also recommended the following:

1. **Improved Sanitation**
   - It is recommended that recycling of solid wastes initiatives are started in the study area.
   - It is recommended that, since the Beach Hotels occur in clusters, they should pull up their resources to develop their own small scale sewage treatment plants.
   - It is recommended that a programme to disinfect and protect groundwater resources be undertaken.
   - It is recommended that areas prone to stagnant water offering breeding grounds for mosquitoes be filled up.
2. **Diversifying on Water Resources**
   - It is recommended that rain water harvesting efforts be stepped up.
3. **Land-use Policy**
   - It is recommended that land settlement schemes be initiated at an accelerated pace in order to define land ownership status.
   - A land-use map for the area should be developed so as to come up with zoning schemes that take cognisance of the different sensitivities.
4. **Institutional Arrangement for ICAM**
   - It is recommended that the Kenya Government institutionalises the ICAM process through legal arrangements for effective development of coastal areas.
5. **Specific Recommendations**
   - It is recommended that a study be undertaken in order to understand the waste management practice around the Mtwapa Creek
   - It is recommended that a sewage treatment plant be commissioned for the Shimo-La-Tewa Prison or that the institution be relocated altogether.
   - It is recommended that Bamburi Cement Company be compelled to adopt modern technologies that manage dust emission effectively.
   - It is recommended that studies be conducted to find out suitable uses for the abandoned quarries found in the study area.

5.4. Other Bankable Projects

ICAM secretariat and other stakeholders have identified the following bankable projects, listed in order of priority given by the Secretariat:

1. Towards the Mombasa Structure Plan Preparation

In order to come up with a structure plan for the Mombasa Municipality that will allow the developments to follow the ICAM approach, i.e. to provide efficient modern tools for planning and monitoring activities, as well as to ensure public and other stakeholder participation in structure plan preparation process, the equipping of the Physical Planning Department office in Mombasa is the necessary pre-requisite.

Overall Budget: US$ 21,250.

2. Study on Tourism Carrying Capacity

The study on tourism carrying capacity is necessary in order to avoid over developing of this industry. This will help arrive at the threshold level which tourism should be allowed to reach. Otherwise, serious negative impacts will be experienced on the already sensitive coastal resources if this industry is left unchecked. Hopefully, the results of the study will help in policy formulation on this sector for this region.

Budget: such a study will essentially cost between US$ 8,000 and US$ 10,000.

3. Fire Fighting Facility – Developing a Fire Station

The study on land use has proposed the putting up of a fire station in the Mainland North region in order to cope with the high incidence of fire outbreaks, particularly in the informal settlement areas.

Building costs not less than US$ 250,000, 2 Trucks US$ 180,000 or the current prices for the same on the market.

4. Industrialisation of the Region

The study on land use has proposed that small- and medium-scale industries be set up in the region using locally available resources such as coconuts, and the various types of fruits. However, before this could be implemented a cost-benefit analysis of the various individual industries has to be prepared. The list of industries is as follows:

- Coconut oil and soap industry;
- Coconut coir industry;
- Chicken feed from coconut cake base;
- Fruit processing and canning industry;
- Desiccated or dehydrated fruit industry;
- Use of coconut stem for timber or furniture;
- Other fruit industries in the manufacture of pickles and sauces;
- Use of the different coconut products for gift items and household products; and
- Use of cashewnut fruit and nut as an industry.

It is estimated that the above mentioned studies would each cost between US$ 3,000 and US$ 3,500.

5. Tourism College

The study on land use has also proposed the setting up of the Tourism College on part of the lands to be vacated by the Shimo-La-Tewa Prison. It is estimated that the costs of the three phases would be US$ 950,000.

6. Improved Sanitation

As proposed in the bankable project for waste management in the study area, implementation of the projects should be phased and implemented in an incremental approach, so that initial steps taken attract further funding for the proposed next steps, e.g.:

a) Recycling of solid wastes can initially be started in the well-established areas like the beach hotels. Feasibility study by Weidleplan Consulting GmbH for Waste Management for Coastal Hotels in Kenya already exists, and this can form the basis for initiating the project.
b) Secondly, since most beach hotels in the study area occur in clusters, the hotel owners should be encouraged to start their own small scale separate sewage treatment plants built to cater for their individual needs. This will avoid the need for constructing a large-scale centralised treatment plant, which is otherwise expensive and could take long to build.
c) Rainwater harvesting efforts should be intensified to provide an alternative source of potable water. A feasibility study is proposed so as to come up with the costs for undertaking such an activity, how it can be started and spread out. A starting fund of about US$ 100,000 is proposed.
d) The protection of wells and boreholes, and the disinfecting of the water to control the spread of water-borne diseases is another project that can easily be undertaken. This project should be implemented as outlined in the proposed bankable project for waste management. A starting fund of about US$ 50,000 is proposed.

Annex 1:
Workshop Reactions – Comments/Questions

The documents prepared by the Secretariat, with technical advice from PAP/RAC, were the basis for a discussion developed at a two-day Workshop. Each document was presented in plenary sessions, and thereafter discussed in plenary or working group meetings where proposals were given to enhance the implementation of activities identified in the studies, and questions raised which might facilitate the formulation and implementation of the third phase of the project. It was agreed that the Secretariat/DOE would take into account those proposals/questions.

Based on the presented sectoral reports, the following main topics (reactions – comments/questions) were addressed in the discussion of the workshop participants in the particular matter:

Topic 1: ICAM Status Report

1. Fishermen Loan Scheme to enable them to improve their fishing gear.
2. How do the benefit accruing from the ICAM process and activities within its jurisdiction filter down to the local communities?
3. How is the ICAM plan process reflected on upstream developments/ hinterland with regard to activities within Athi and Tana Delta?
4. General Hinterland inter-relationships with Coast area that constrain water sufficiency.

Topic 2: Land Use & Land-use Changes

1. What are the current effects of sewage disposal at the land – water interface?
2. How far has sea-use planning been achieved in relation to ICAM plan of action?
3. Has there been any move to create land banks to cater for future development need, e.g. low income housing?
4. There is an urgent need to sensitise the population on the existing physical/land-use plans as the current land-use practice by community indicates ignorance on the plans, e.g. road reserves/pavements are also grabbed.
5. What are the consequences of the current land-use practice and which mitigation strategies have been put in place?
6. There is an urgent need to enforce the existing laws, and all Kenyans should fully be supported to protect public interest.
7. There is a need to fully utilise the Maritime Zone Act and the CDA Act in planning and utilisation of the vast sea resources.

Topic 3: Effects of Urban Sprawl on the Natural Environment of Kisauni Division

1. Has there been an analysis of the impact on environment by the different age groups in the local population?
2. How far has the process achieved the mobilisation of the youth in environment management?
3. What role have the local leaders/MP planned so far in spearheading environmental management?
4. The idea of a special vehicle to remove wastewater from Swahili narrow street settlement designs should be revisited.

Topic 4: Tourism Trends and Carrying Capacity Estimates

1. Internationally packaged tourism remains a key supplier of tourist in the country. Measures should be put in place to ensure the locals reap maximum benefits from it.
2. How much has been ploughed back out of the "enlightened" self-interest type of investment to the community given the fact that 8.6% of the country's tourism revenue come from the ICAM Pilot Project areas?
3. The government can only reflect the flow back of accruing benefits from the tourism sector through improvement of the existing infrastructure.
4. In order to ensure focused development and effective contribution in participation by the tourism investor in the region, there is a need to establish a central pool for development funds to impart the living standards of the local host communities, instead of the current rampant harambee approach.
5. The Coast Development Authority should influence the use of land based on the land-use policy and should be able to advise investors and other land users accordingly.
6. There is a need to develop rural tourist accommodation facility close to key attractions to ensure that the beds available are marketable given the fact that 31000 beds exist in the region and only 80% are used annually (e.g., Wachaga Cottages in Mt. Kilimanjaro region).
7. The transit traffic growth is viewed positively as it's the established international airports.
8. The slow recovery in the tourism sector is just a process of restoring confidence to the clientele and it's bound to take time.
9. There is a need to diversify investments (e.g., Conference facilities) and marketing should be done in a civilised atmosphere and the haphazard marketing approach should be avoided.
10. The Tourism master plan now available should guide tourism development trends and should be updated to be at par with the existing ground scenario.

Topic 5: Socio-Economic Study

1. What are the immigrants doing in terms of investments in the area?
2. Who owns the different types of investments existing in the area?
3. How are the local fishermen empowered to communicate effectively with Commercial trawlers?
4. Is there a training programme for the fishermen and if so what has it achieved?
5. Currently there exists a training project according to Fisheries Department.
6. What are the root causes that led to net importation of food, capital and labour in the area?
7. If 70% of the populace of immigrants do not go back home, how come the incomes are exported?
8. What role has inter-marriage played in creating "uniformity" and ethnic dimorphism?
9. What can be listed as part of a proposed aggressive biased intervention measure to deal with the above scenario?
10. At what rate are the local communities being assimilated?
11. What makes the area/region a net importer?

Topic 6: Institutional Arrangements for ICAM in Kenya

1. In terms of institutional arrangement, we are not late in trying to inject ICAM in the environmental process.
2. Are the mandates existing as regards the regional authorities appreciated in the context of the National frame (NEAP)?
3. At a national level does CDA still have a role to play?
4. Institutional arrangement proposed should indicate how well it removes conflicts and ensures flows, by avoiding bureaucracy, duplication and conflicts and enhances grass-root participation and inter-agency collaboration.
5. How well is the proposed institutional frame in agreement with constitutional reality and orientation and what options/consequences does it entail and which is the optimum arrangement?
6. CDA should play a pivotal role at the Provincial level.
7. How can we ensure that ICAM has a political and human behaviour being a new process?
8. The environment management and co-ordination bill needs to have a central place in addressing issues raised by sectoral institutions.
9. There is a need in the second phase of ICAM to harmonize sectoral statues and create a central institution for co-ordination.

Bankable Project Proposals

Topic 7: Liquid Sewage and Solid Waste Management in Kisauni Division

1. The JICA should be approached as a potential donor to fund the proposed bankable projects.
2. Recycling of wastewater and solid waste should be emphasised and developed.

Topic 8: Infrastructure Development for Mwembe Legeza Settlement Scheme

1. The storm water resulting from rain should be used resourcefully for irrigation and other uses instead of being directed into the nearby stream to drain into the ocean.
2. The people at the settlement scheme have been given letters of offer and the land Board has stopped all land sell transactions.
3. Land Survey has been done in consultation with other sectors in adjudication.
4. An arrangement should be put in place to ensure the locals keep their ancestral lands through existing communal land arrangements.

AOB

1. Domestic tourism should be promoted and special rates are offered to locals as was reported – the KWS Parks.
2. The Hotels should provide resident rates.
3. The seawalls are used to keep off the locals at beach, apart from being used as a protection against beach erosion**.**

Working groups adopted the additional proposals discussed during separate discussions. Later on, those proposals were recognised by all the participants as a basis for further work within the frame of the ICAM third phase. Proposals and recommendations of Working groups are contained in relevant boxes of each chapter.

Annex 2:
Speeches Delivered at the Opening Ceremony of the Second National Workshop on Integrated Coastal Area Management (ICAM) Held at the Mombasa Beach Hotel, on 12-13th August 1999

1. Welcome Address (Japheth Kitti, Chairman – CDA Board of Directors)

Mr. Japhet Kitti, who chaired the opening session of the workshop, welcomed all the participants saying that he was proud that the workshop had attracted a serious audience. He informed the workshop participants that he was grateful for their attendance and that the Permanent Secretary responsible for the Ministry of Rural Development, where the Coast Development Authority and other Regional Authorities fall, had chosen to attend and participate in the deliberations of the workshop in person. This, he said, showed the interest, commitment and seriousness the Government attaches to the subject of Integrated Coastal Management for it advocates for the sustainable utilisation of the natural resources of this country.

He thanked UNEP-FAO, USAID and SIDA for their untiring financial support to the project and the much valued technical support provided by the University of Rhode Island – Coastal Resources Centre and the Priority Actions Programme Regional Activity Centre, Split, Croatia. He wished the experts, invited individuals and stakeholders a successful workshop and promised that the resolutions coming out of the workshop would be forwarded to the relevant organs of government for action.

2. Purpose of the Workshop (Nyawira Muthiga, KWS – Member ICAM Secretariat)

Dr. Nyawira Muthiga told the gathering that the purpose of the workshop was to:

- present reports of the studies carried out in the Kisauni Division of Mombasa District as they affect the Nyali-Bamburi-Shanzu Pilot site in order to beef up and enrich the ICAM Strategy document developed in the first National Workshop;
- present the need for defined Institutional Arrangements for ICAM in Kenya; and
- seek endorsement from the Stakeholders.

3. Role of UNEP-FAO in Integrated Coastal Management (Dixon Waruinge, EAF/5 Project Co-ordinator)

Dixon Waruinge, the co-ordinator of this EAF/5 Project outlined the role of UNEP-FAO in coastal Management to be as follows:

UNEP provides guidance on issues related to Integrated Coastal Management in accordance with Agenda 21, in three scales, namely: Global, Regional and National/local.

Through the Regional Seas Programme, UNEP is providing support and co-ordinating regional activities on Coastal Area Management through a network of Regional Co-ordinating Units and Activity Centres. This is being done through the framework of the Regional Seas Action Plans and Conventions on Protection of the Marine Environment and the Coastal Areas. Over 140 States and territories are participating in this programme.

UNEP is playing a catalytic role in developing the concept of ICM and institutionalising the practice. The development of the ICM practice and increased capacity among managers and practitioners has rapidly increased in the last 10 years especially in Africa.

Through the programme, there has been a steady growth in capacity and the number of projects in Eastern Africa. UNEP and FAO with financial support from SIDA and the government of Kenya are implementing through CDA the Kenyan chapter of the EAF/5 Project whose main objective is to develop in collaboration with other UN and donor agencies self reliance in planning in an integrated way the development and management of the environment along the Kenyan Coastline. The project brings together key government departments and stakeholders in a participative process of integrated management of coastal resources.

The project design recognises the need for incremental approach in its implementation. Consequently, the project is phased in three interactive components: training, planning and implementation.

Phase one of the project now completed, was interactive, participatory and basically designed as a learning process. The phase one activities proposed pilot project activities in a well-defined pilot site with clear boundaries. Nyali-Bamburi-Shanzu was selected as an area with clear representative issues, to provide practical exercise in order to build experience and a comprehensive information base from which a process towards a holistic approach to coastal management could be developed.

The main output of the first phase of the EAF/5 project was a guiding strategy document “Towards Integrated Management and Sustainable Development of Kenya’s Coast”. Findings and Recommendations for an Action Strategy in the Nyali-Bamburi-Shanzu area prepared with technical inputs from the University of Rhode Island Coast Resources Centre and adopted at the National Workshop, in Mombasa 5-7 December 1995. Among the workshop conclusions and recommendations, was the need for an EAF/5 second phase work plan.

The second phase (EAF5: Phase II) had two components, i.e. the Planning and Implementation components. These components were continuous and inter linked to the first phase. However, the second phase recognised the need for extending the profile to cover a broader pilot site and to consider more issues particularly from the immediate hinterland where most coastal environmental problems are generated. Considerable amount of effort was invested in providing information on, and identifying the causes and sources of environmental degradation (unplanned urban sprawl, and misplaced tourism development).

The process also involved the development of management strategies to mitigate the impacts of poor planning. In particular, the land-use policies and appropriate planning and management policies were reviewed and alternative strategies proposed.

The activities undertaken in the EAF/5 phase II are grouped as follows:

- preparation of the extended profile and development of ICAM strategies for the Nyali-Shanzu-Bamburi area;

- development of project proposals and bankable project ideas; and
- implementation of demonstration activities.

PAP/RAC, FAO and the URI-CRC provided technical guidance. SIDA and UNEP provided the financial support to national institutions to implement demonstration projects and preparation of bankable projects.

We, therefore, look forward eagerly to the presentations and fruitful discussions.

Thank you.

4. PAP/RAC Technical Input into Kenya's ICAM Project (Viktor Simoncic, PAP/RAC EAF/5 Project Consultant)

Mr. Viktor Simoncic, PAP/RAC Consultant on the EAF/5 Project, explained the role of PAP/RAC in Integrated Coastal Management to be as follows:

PAP/RAC and the Coast Development Authority (CDA) as counterpart institution are working together in accomplishing the Second Phase of the EAF/5 Project on the Protection and Management of the Marine and Coastal Areas in the Eastern African Region.

Within the First Phase of the EAF/5 Project a very good progress was achieved.

Present Development and Concerns

The immense importance of the coastal area and tourism for Kenya's economy should not be ignored. However, despite of the impressive Gross Domestic Product (GDP) contribution to the economy, tourism as a mono-culture can be very fragile.

E.g. a crashing incident happened at the Coast in August/September of 1997 and the resultant insecurity in the tourism industry sent the occupancy from about 70% to 20% within 4 months. The following year 1998 recorded the lowest occupancy in the recent history of industry in Mombasa.

In parallel with the economic prosperity, the coastal environment and its resources are undergoing an increasing pressure from over use. The population number will double in the next decades, but, unfortunately, the coastal environment and its resources will not increase. The present main economic resources (mangroves, fish, agriculture) will, on the contrary, decline.

About the ICAM Process

Compliments go to the Kenyan Government for establishing the Coast Development Authority (CDA) in 1990. Only very efficient management, supported by adequate institutional network and legal acts can make provision for sustainable development. There is, therefore, a need to strengthen CDA and the ICAM Secretariat to enable the day-to-day efficient cross-sectoral co-ordination that is needed. The strengthening of CDA and the ICAM Secretariat seems to me very crucial for the progress and implementation of the ICAM process.

Financial means have to be found to ensure the successful implementation of the ICAM process. It seems that even for this international financial support will be needed and it is welcome.

In the same frame the CDA, and the ICAM Secretariat, have to ensure together with other stockholders, including the international donors, that financial support is also

made available for the working groups and the CMSC, and that identified activities are implemented.

About the Work Already Done

The way of working on ICAM is very promising. Working on the NBS area has served as a good model for other areas. It has enriched and informed discussion on how to address increasingly urgent coastal management problems nation-wide.

It will be very important to start with the extending of the profile on the whole Kenya coast and in particular on the effects of hinterland activities as soon as possible. Definitely, the coast cannot be protected only from within the close coastal boundaries. The coastal area can see sustainable development only if the migration caused by economic reasons to the area is stopped and this means several goods and services have to be developed and produced far away from the coast.

About the Bankable Project and Financing

Practically each issue and the mentioned problem pointed out in the present documents can be developed into the needed format for bankable projects.

The first step would be that the bankable documents give for first time the clear picture about the needed financial means and the potential funding sources. Within the ICAM process the bankable project must emphasise the sustainability in the financing of the project once implemented. In the same way harmony between the economic activities and the environmental resources has to be guaranteed. The harmony between profit and pay back for environmental protection has to come out clearly and be realisable.

Secondly, because of the possible different donors and supporting organisations the list of projects must be modest in the financial means and realistic with local commitment so as to encourage the donors and attract the missing financial means.

The Demonstration project at the Jomo Kenyatta Public Beach is the best example. Here with relatively very small financial means serious improvement for the local groups and for the environmental resources has been achieved. The project team, sectors and the Secretariat can continuously up-date this file with new bankable projects.

The big shortcoming of the present ICAM process is the lack of the economic/financial data. One of the very important parts of the future activities has to be the estimation of the financial requirements with the proposal about the financial sources.

Probably the international community will come to support the ICAM process particularly (at least) for the financing of the (few) projects proposed through the "bankable documents" and for the technical support to the ICAM Secretariat. But, in the final analysis stable local funding sources have to be ensured by Kenyan community itself.

Cross-sectoral Co-operation

A very important aspect is that the ICAM process is organised both vertically – from local communities to national government, as well as horizontally – with the involvement of many sectors and other stakeholders on different administrative levels. The implementation and the planning process of ICAM also always requires the two way approach: bottom up and top down.

5. Keynote Address (Ambassador J. Terer, PS – Ministry of Rural Development)

The Provincial Commissioner, Coast Province,

Honourable members of Parliament,

The Chairman, Coast Development Authority,

Ladies and Gentlemen,

1. It gives me great pleasure to be here today to address this very important Workshop attended by senior managers, practitioners and the stakeholders on coastal management issues. As you are aware, the Integrated Coastal Area Management (ICAM) principles and strategies in East Africa were first mooted in 1993 in Arusha when the Kenya Government committed itself to initiate the ICAM Project in our coastal area of jurisdiction in close collaboration with other countries sharing the West Indian Ocean. The ICAM principle entails co-ordinated planning and implementation of relevant development projects by all stakeholders to ensure that there is adequate analysis of problems and practical evolutions of solutions to the problems. Consequently, the Coast Development Authority undertook to spearhead the ICAM process together with other relevant government institutions, the private sector and coastal resources stakeholders. This was in line with the mandate of Coast Development Authority (CDA) of initiating, facilitating and co-ordinating development programme in the Coast Region, Southern Garissa and the Exclusive Economic Zone (EEZ).
2. Ladies and Gentlemen, I understand this is the second of the programmed national ICAM workshops held here the first being held in 1995. In the intervening period, many experiences have been generated and shared. Two other parallel international workshops have also been held at the pilot study site. Our ICAM managers have also benefited by travelling for study tours nationally, and internationally where they articulated the experience we have so far gained. There is also evidence of triggered interest in coastal resources management by broad spectrum of people. This can be testified by the increased number of non-governmental organisations and community groups that are addressing coastal management issues as well as old and young Kenyans who are participating in sustainable utilisation of coastal resources. The ICAM Secretariat should put in place programmes that consolidate those gains especially management principles geared towards increasing awareness and initiating conservation and environmental activities like the annual beach cleaning by schools which have been quite successful, which should be made more frequently and regular
3. The resources in the coast region, like the rest of Kenya, are threatened by over exploitation as more people migrate from the rural areas to the towns. Our coastline also keeps on receiving pollutants from both the land and the sea. This coupled with increased port traffic and dwindling fish and fresh water resources are some of the dangers that most call for immediate application of ICAM. We should therefore evolve strategies geared to negating these factors to ensure that coastal residents enjoy healthy lives. As the mainstay of this region is tourism this will further encourage visitors and promote overall economic development in this country.

   Ladies and Gentlemen, I am informed that a multi-institutional Coastal Management Steering Committee chaired by the Kenya Marine and Fisheries Research Institute (KMFRI) with its secretariat housed at CDA has been constituted and are actively liasing with relevant Ministries on these issues. It is my desire that

this framework be strengthened in order for the ICAM project to evolve into a national programme.

4. Since ICAM has now been accepted internationally as an appropriate tool for sustainable coastal resources management, I would urge you to continue working hard in developing the process to a level where it can be used in the day to day tackling of coastal problems as they rise. You should strive at facilitating all agencies under the umbrella of ICAM as a foundation for a strong unit in managing our coast, the territorial sea and the exclusive economic zone. In other words we should be more and more integrated in our approach to every – day problems. Examples do exist to show that the more united we are the more successful we can be in meeting real life disasters including transboundary problems as the world has become technologically one village.
5. Ladies and gentlemen, going by the subject matter of the workshop, I am impressed to see how ICAM address the real life problems of development in the Coast area and Kenya in general. The current problems of tourism decline, rapid urbanisation without adequate social amenities, illegal land allocation, and lack of socio-economic and cultural implications in development process are but real down-to-earth problems of this country. Town cleanliness has become a big problem with our Municipalities. The issue becomes even more significant in a tourist destination like Mombasa. Kenyans are entitled to healthy lives and our visitors should enjoy healthy environments when they are in the country. I am glad to note the topic of solid and liquid waste management is featuring prominently in this workshop with a view to finding permanent solutions to the existing structures and the new settlement that are being planned. In this regard, it is my sincere hope, Ladies and Gentlemen that soon the Kibarani dumping ground menace will be a problem of the past. Land use must be planned both in the rural and urban areas.
6. Lastly, Ladies and Gentlemen, let me pass my appreciation to all our collaborators, especially the institutional collaboration between Coast Development Authority, Kenya Wildlife Service, Mombasa Municipal Council, and Fisheries Department. Kenya Marine Fisheries Research Institute, the private sector, Non-Governmental Organisation and Community groups in executing this project to this level we are seeing today. The technical inputs from the University of Rhode Island's, Coastal Resources Centre and UNEP's PAPRAC is also deeply appreciated. The financial assistance from United States of America and International Development (USAID), Food and Agriculture Organisation (FAO) and United Nations Environment Programme (UNEP) and the KWS-Netherlands Wetlands Project which has driven the project from inception is also cordially and well received. It is my hope that the technical and financial running of the project will gradually be locally centred especially by capacity building and local sponsorship of the project. This will facilitate sustainability of the project. With these few remarks let me wish you productive deliberations and a successful Workshop.

I now declare this 2nd National Workshop on ICAM officially open.

Thank you.

6. Status of the ICAM Project (B. A. J. Mwandotto, CDA – Chairman ICAM Secretariat)

The ICAM Initiative

In September 1994 an ICAM process was initiated in the Nyali-Bamburi-Shanzu area of the Kenyan Coast to start dialogue on how the Government in equal partnership with local communities and the private sector can carry out integrated planning and management for coastal resources. The project had the objective of:

- Providing a starting point for addressing the urgent coastal issues facing the study area. It is hoped that the strategy document developed through an open and participatory process of stakeholders will provide a sound basis for avoiding and resolving problems at the site.
- Informing and enriching the dialogue on how to address increasing urgent coastal management problems nation-wide. It is also hoped that the study area can serve as a model for other areas at the coast and help the country move forward on a national approach to coastal management. The evolution of a national ICAM for Kenyan coastline is the ultimate goal of the initiative including the address of transboundary issues locally, nationally and regionally.

The Study Site: The Nyali-Bamburi-Shanzu study area was chosen *a priori* as the issues that exist in the area are representative of the national coastal issues - tourism replacing traditional economic uses such as fishing and mangrove harvesting, water pollution, urbanisation, increasing degradation and over exploitation of coastal resources and increased user conflicts.

The Issues: After the on-ground survey by the appraisal planning team and consultation with village residents, resource users, Non-governmental organisations, hoteliers, local and national agencies, the coastal management issues and possible causes were profiled.

Consensus: To further confirm the pertinent issues to the area, two stakeholders' workshops were held in June 1995. Through this process, consensus was finally established as to the management objectives and strategies that address the issues. Proposed in the final strategy document is the National Coastal Management Steering Committee (CMSC) that has been put in place to oversee and execute the implementation process of the strategies. The committee executes its functions through an administrative secretariat and technical working groups that will carry out the proposed activities pertaining to individual issues.

The CMSC Agenda: The CMSC, through its secretariat, is now geared to demonstrate to stakeholders the value of ICAM as a tool for good management of coastal resources by providing logistical and technical support to the various planned activities thus:

- complete identified demonstration activities;
- circulate extensively the ICAM strategy document among national government, private sector and NGO groups;
- pursue public media programmes and newspaper articles, to highlight coastal management issues in the study area and actions being taken to solve them;
- publicise the strategy document through presentations at national and international workshops, seminars and other international fora;
- conduct public awareness meetings for various user groups;
- develop and distribute promotional items - posters, brochures, bags, etc. on specific and general ICAM issues;

- initiate the formation of working groups;
- monitor implementation of the strategy and periodically report back to stakeholders on progress being made;
- solicit and secure resources for the successful implementation of the strategies;
- ensure that working group activities are co-ordinated and carried out in an integrated manner;
- share the implementation experience with other interested parties; and
- participate in the development of a national ICAM policy and institutional arrangements for its implementation.

Demonstration Projects: To immediately solicit public confidence and continuous support, the ICAM planning team has planned the following 4 demonstration projects that would show the management conservation of resources:

- installing mooring buoys in the Mombasa Marine Park;
- producing brochures and posters on coral reefs and mangroves;
- demonstrating water conservation measures in public institutions and hotels; and
- developing and rehabilitating the fish landing, recreation and sanitary facilities at Kenyatta Public Beach.

Technical Working Groups: Based on the issues that were identified the following working groups composed of varied stakeholders are being instituted to plan and effect short and long term activities that will help resolve the respective issues:

- Marine Habitats;
- Coastal Erosion;
- Water Quality;
- Fisheries; and
- Infrastructure and public services.

The lead institutions in these groups are based on the experience in matters related to the relevant issue, their mandate and/or level of expertise available in the respective institution.

Capacity Building: For the sustenance of the ICAM programmes, four officers from the planning team have received training on ICAM programme development at the University of Rhode Island, Thailand and in Canada. One team member participated in development of ICAM initiative in Mozambique. This national and regional development process will continue in future in order to develop a critical mass of coastal management practitioners for the country and in the region. In Kenya, ICAM training courses for park wardens and hoteliers have been mounted at Malindi and recently a regional ICAM course in Eastern Africa was hosted by Kenya using the Nyali-Bamburi-Shanzu as the training ground.

Moving Forward: While continuing to undertake demonstration activities, other long-term research development and management plans are also being developed by the ICAM secretariat in conjunction with other stakeholders and collaborators. Some of the proposed projects are:

- further profiling of coastal issues and development of management strategies in the Northern and Southern part of Mombasa. These new areas are more pristine than Mombasa and have enormous tourism and development potential. The ICAM would be a very handy tool to guide the development processes of these areas;

- improvement on fishing technology – modern gear, training, modern boats, sea communication;
- environment and habitat education and awareness programmes (radio programmes, newsletter etc.);
- ground water flow and water quality assessment and evaluation;
- documentation and information systems (codes of conduct and training of trainers); and
- in Mombasa, the second phase of detailed surveys and development of institutional management plans are being developed through a logical framework process that may attract Stakeholders to invest more in the study area.

Recommendations

Based on the above experience so far, I would make the following recommendations:

- That the ICAM process that has seeded in Mombasa be expanded to a full National programme with an appropriate policy framework so that the ICAM issues can be tackled nationally;
- Capacity building be continued in ICAM process for sustainable development;
- National awareness campaigns be effected that involve the local stakeholders to be part and parcel of the effort to profile coastal problems and the evolution of respective solutions; and
- Based on the Environmental Impact Assessment requirements that have been developed, CDA should be mandated to guide and vet upcoming development structures in the coastal area to eliminate construction regulation violations that, among other things, exacerbate coastal erosion and destruction of other habitats.

Annex 3:
2nd National Workshop on Integrated Coastal Area Management (ICAM) – List of Participants

Name	Institution	Address
1. Ambassador J. Terer	Permanent Secretary, Ministry of Rural Development	P.O. Box 45958 Nairobi
2. Mr. Japheth Kitti	Chairman, CDA	P.O. Box 1322 Mombasa
3. Mr. R. Kimotho	Ministry of Rural Development	P.O. Box 45958 Nairobi
4. Prof. J.A. Lugogo	Managing Director, CDA	P.O. Box 1322 Mombasa
5. Ms. Ayuko Miyawaki	Wildlife Clubs of Kenya	P.O. Box 80591 Mombasa
6. Mr. M. Mwaisakenyi Heya	Provincial Geologist	P.O. Box 85420 Mombasa
7. Mr. Ben M. Musyoki	Head, Dept. of Tourism, Moi University	P.O. Box 3900 Eldoret
8. Mr. Simon M. Komu	Fisheries Department	P.O. Box 90423 Mombasa
9. Mrs. Josephine M. Rondo	Head, Planning Dept., CDA	P.O. Box 1322 Mombasa
10. Dr. M.A. Swazuri	University of Nairobi	P.O. Box 30197 Nairobi
11. Mr. W.M. Mwachoki	Provincial Lands Adjudication Officer	P.O. Box 81620 Mombasa
12. Mr. George O. Ogutu	G.C.D. Msa	P.O. Box 81119 Mombasa
13. Mr. W.M. Obuya	Kenya Navy	P.O. Box 95350 Mombasa
14. Mr. Bardale B. Tapata	Kenya Wildlife ServiceWarden	P.O. Box 10308 Mombasa
15. Mr. Peter W. Muchangi	Physical Planning Office	Mombasa
16. Mr. Kahaso P. Emmanuel	Coast Development Authority	P.O. Box 1322 Mombasa
17. Mr. C.K. Mwatsama	Director of Tourism	P.O. Box 30027 Nairobi
18. Mr. A.D. Mohammed	N.E.S. Marine Desk	P.O. Box 67839 Nairobi
19. Mr. Ali Abubaker	Snr. Curator, Fort Jesus Museum	P.O. Box 82412 Mombasa
20. Mr. B.S. Wasike	Provincial Planning Officer	P.O. Box 83059 Mombasa
21. Mr. B.P. Kubo	Kubo & Co. Advocates	P.O. Box 60337 Nairobi
22. Mr. P.A. Andwana	National Water Corporation	P.O. Box 1100 Mombasa
23. Mr. L.K. Biwott	Ministry of Water Resources	P.O. Box 90534 Mombasa
24. Mr. D. Matano Rimber	Director, CDA	P.O. Box 54590 Nairobi
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