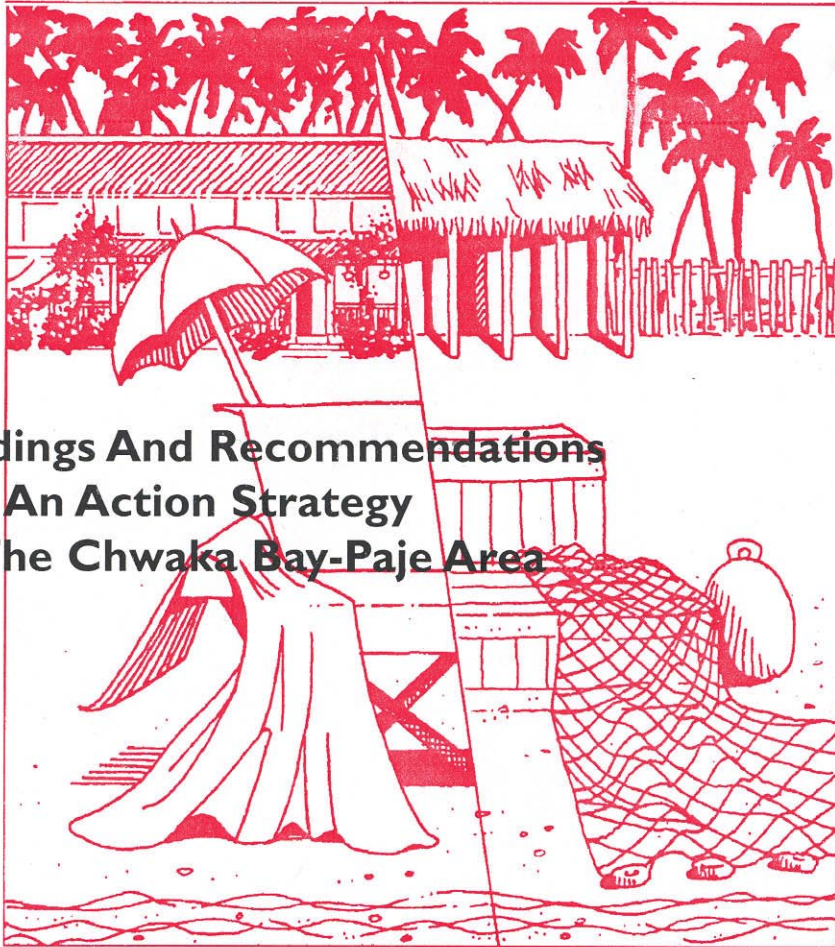


Towards Integrated Management and Sustainable Development of Zanzibar's Coast



**Findings And Recommendations
For An Action Strategy
In The Chwaka Bay-Paje Area**

ZANZIBAR

Prepared by
Department of Environment
Institute of Marine Sciences
Subcommission for Forestry
Subcommission for Fisheries
Integrated Planning Unit

TOWARDS
INTEGRATED MANAGEMENT
AND
SUSTAINABLE DEVELOPMENT
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LIST OF ACRONYMS

COLE	Commission for Lands and Environment
CNR	Commission of Natural Resources
CRMC	Coastal Resource Management Committee
DOE	Department of Environment
FAO	Food and Agricultural Organisation
GEF	Global Environmental Facility
ICAM	Integrated Coastal Management
IMS	Institute of Marine Sciences
IPU	Integrated Planning Unit
NEP	National Environmental Policy
NGO	Non-Governmental Organisation
UDSM	University of Dar es Salaam
ZANEA	Zanzibar East African Company
ZASCOL	Zanzibar Agro-Seaweed Company
ZFDP	Zanzibar Forestry Development Project
ZIPA	Zanzibar Investment Promotion Agency
ZILEM	Zanzibar Integrated Lands and Environment Management

PREFACE

The purpose of this document is to begin a dialogue in Zanzibar about how government, in partnership with local communities and the private sector, can carry out integrated planning and management for coastal resources and regions. It is meant to serve two purposes:

To provide a starting point for addressing the urgent coastal issues facing the Chwaka Bay-Paje Area. It is hoped that the strategy outlined in this document—developed through an open, participatory process—will provide a basis for avoiding and resolving problems at the site.

To enrich and inform the discussion on how to address increasingly urgent coastal management problems nationwide. It is hoped that the **Chwaka Bay-Paje Area** can serve as a model for other areas and help us move forward on a national approach to coastal management.

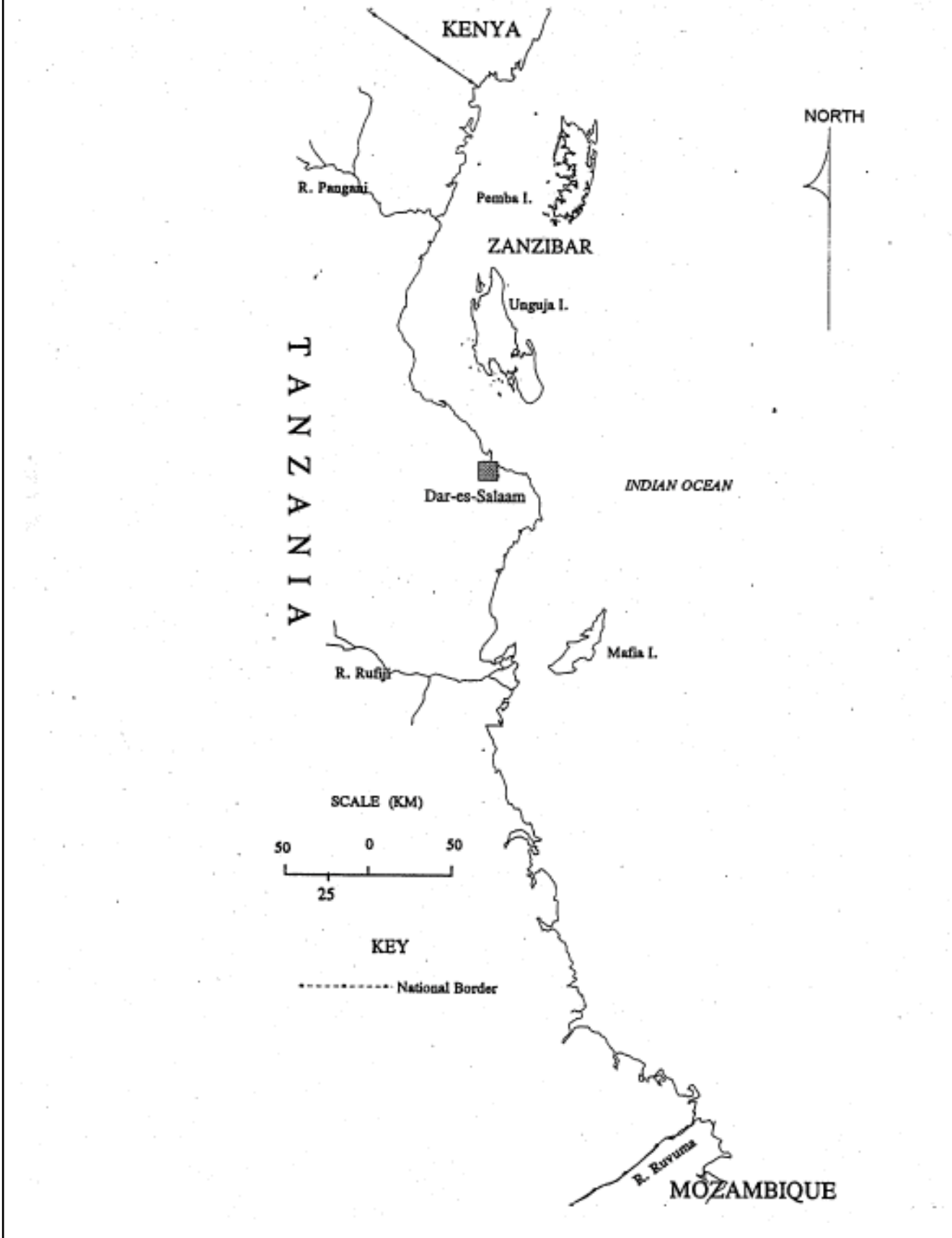
This document has been developed by an Interagency Planning Team led by the Department of Environment and consisting of individuals from the Tanzanian Subcommissions of Fisheries and Forestry, Commission of Lands and the Environment, and Institute of Marine Sciences. The planning team began work in September, 1994 and has been engaged in reviewing information and holding consultation with village residents, hoteliers, and local and national agencies to clearly identify pertinent issues, reach consensus on management objectives, and begin to develop strategies to address the issues. Key events in this process have included:

- Review of existing written materials and rapid field appraisals of the area's coastal management issues by the team.
- Preparation of a profile of the area and its coastal management issues.
- Review of the profile and discussion of management objectives and strategies at a series of stakeholder meetings with village leaders and members, government agency directors and their technical staffs.
 - The first village meeting was held in Chwaka for the area's Shehas and their councils. Two additional meetings were conducted in Chwaka and Bwejuu for local stakeholders such as fishermen, seaweed farmers, man grove cutters and hotel employees. These three meetings facilitated the participation of approximately 150 villagers.
 - Following the village meetings were two separate meetings for government stakeholders. The first meeting brought together directors from key government sectors including tourism, forestry and fisheries; women and children; and, social welfare and district officers. The second meeting provided a forum for the technical staffs of these agencies to comment on the draft document.

- Revision of the draft strategy for distribution to the stakeholders and discussion at a Zanzibar national workshop. The national workshop provided national level policymakers an opportunity to discuss the integrated coastal area management strategy for the area, outline mechanisms for implementation, and discuss next steps.

We are gratified by the participation to date of all parties. It is only through continued dialogue and a firm commitment to action and implementation that we can achieve the bright future to which we are all committed.

MAP 1A - ZANZIBAR ISLANDS



CHAPTER 1

THE NATIONAL CONTEXT

1.0 INTRODUCTION

Zanzibar's coastal region (Map 1A) is of critical importance to the nation. It is expected to make a significant contribution to the nation's future development, while continuing to sustain the traditional coastal activities that have provided the necessities of life to coastal residents for generations. While information is scarce and there are locally overused and degraded areas, Zanzibar's coastal and marine resources are regarded as largely intact and in good to excellent condition, especially when compared to the coastal resources of neighbouring countries. Coastal resources are, however, coming under increasing pressure. Recognising this situation, the government has started to move towards developing an integrated coastal area management (ICAM) strategy.

1.1 IMPORTANCE OF THE ZANZIBAR COASTAL ZONE

About 45 percent of Zanzibar's total 1993 population of 745,299 live in the 63 villages and settlements found along the coast (Map 1B). Zanzibar's current growth rate is three percent and much of this growth will be along the same coast. Zanzibar's economy is coastal-dependent, and this reliance on coastal resources is likely to increase as tourism continues to grow.

Major coastal uses include:

TRADITIONAL VILLAGES. Inhabitants largely depend on the natural resource base for their livelihoods. They engage in a combination of fishing, mangrove and coastal thicket harvesting, and subsistence agriculture and live-

stock. Traditional activities are by far the most common use of the Zanzibar coast today. The primary village-dependent uses include:

Fishing. In 1994, the total fish landings in Zanzibar totalled 11,329 metric tons. Almost all fish are caught by artisanal fishermen and provide an important food and income source for local villages. It is estimated that fishing is a source of income for about 25 percent of Zanzibar's people (Jiddawi, *et al*, 1995).

Mangrove and coastal thicket harvesting. Mangroves are primarily harvested for poles used in construction. Although estimates of total production and value are not documented, this activity provides significant income opportunities. Coastal thickets are harvested for fuelwood, charcoal making and lime burning. In addition to mangrove cutting, other activities in the mangrove areas include beekeeping and crabbing.

Seaweed farming. About 3,652 tons of dry seaweed were exported from Zanzibar in 1994 with a value of 279 million Tanzanian shillings (Tsh). Although this activity is relatively small in terms of gross value, it does provide village women with important supplemental income. There is no consensus on the current amount of income per individual per month. According to a socio-economic study done by Zainab of the Institute of Marine Sciences (*pers. comm*), the monthly income per individual is 2,210 Tsh. According to a 1995 report from the Subcommittee of Fisheries, the monthly income per individual is 1,550 Tsh. Data given by Eklund and Pettersson (1992) indicate that income ranges from 5,000 to 6,500 Tsh per household per month.

Agriculture. Many villagers maintain small plots for farming. The scale and importance of farming largely depends on soil fertility and land availability.

Rope making. Using coconut husks that have been treated with saltwater, ropes are made by women in many of the coastal villages. Before

the introduction of seaweed farming, rope making was an important source of supplemental income to village households.

A combination of these activities comprise the village household income, with the relative importance of each activity varying by village and household.

TOURISM DEVELOPMENT. By far the fastest growing sector of the economy, tourism is currently concentrated on Unguja Island and includes three sectors:

The formal sector. This includes hotels and resorts as specified in the tourism development plan and licensed through the Zanzibar Investment Promotion Agency. As of February 1994, 94 such establishments have been permitted, 54 are under construction and only a few large ones were operational.

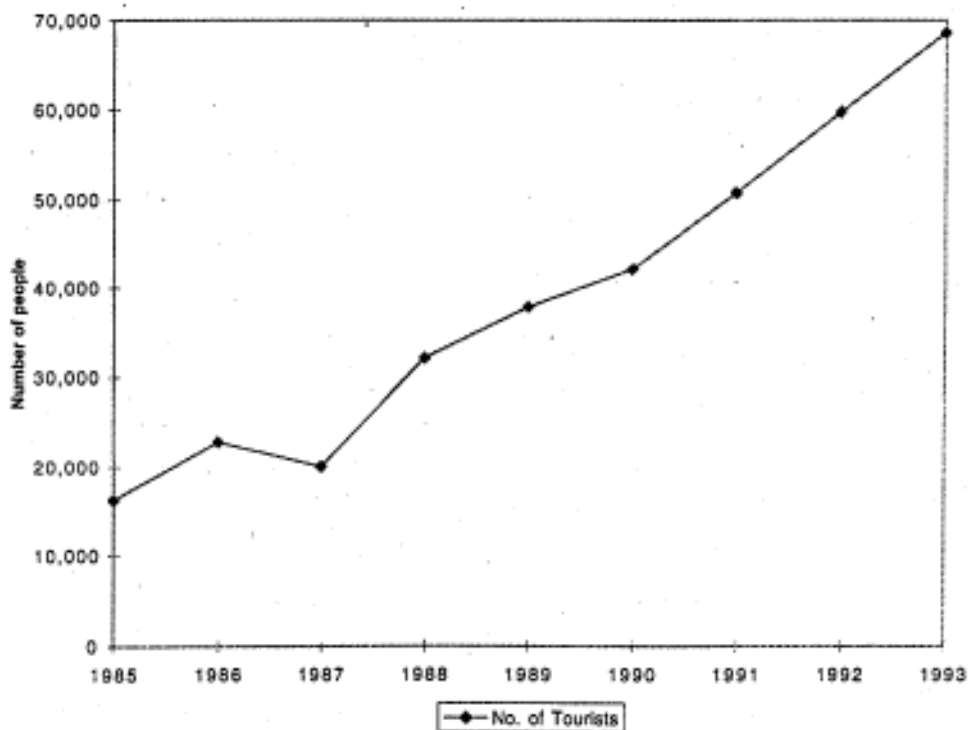
The informal sector. This includes a growing but unquantified number of small-scale guest houses and villas, spread throughout the coast of Unguja.

Day tourists. This includes visitors from cruise ships and the mainland, who are arriving in Zanzibar in increasing numbers.

Although information is incomplete, between 1982 and 1992 tourism had an average growth rate of 18.5 percent per year, with the pace of growth accelerating each year (Figure I-1). As of 1994, there were 60 hotels and guest houses open, providing 1,500 beds. By the year 2015, as many as 15,000 beds may be available (*Commission for Lands and Environment, 1993*).

The Commission for Tourism reports that tourism creates 2,600 direct jobs through hotels and tour operations. For every one direct job, it is estimated that two to three indirect jobs are created (*Department of Environment, 1994*). In addition to the job creation, the growth effect of tourism to the local economy has begun to be seen in income generation, markets for local products, improvements in infrastructure facilities and the acquisition of new skills by the labour force. Visitor access to Zanzibar is also increasing as Gulf Air and Kenya Airways now have direct routes

Figure I-1 Number of Tourist Arrivals



linking Zanzibar with Europe and Asia. Tourism growth is being encouraged by government policy that encourages high-class tourism. It is likely that Zanzibar's national tourism industry will continue to expand as international tourism continues to increase, and if Zanzibar maintains its competitive advantage over neighbouring destinations.

PORTS AND SHIPPING. Zanzibar provides an excellent deep water port facility. It provides service to both container freight and passenger traffic. Between Dar es Salaam and Zanzibar alone, over 72,000 tons of freight passed through the port in 1994. Passenger traffic through the port has also been increasing as tourism and overall business on the island increases (Figure I-2).

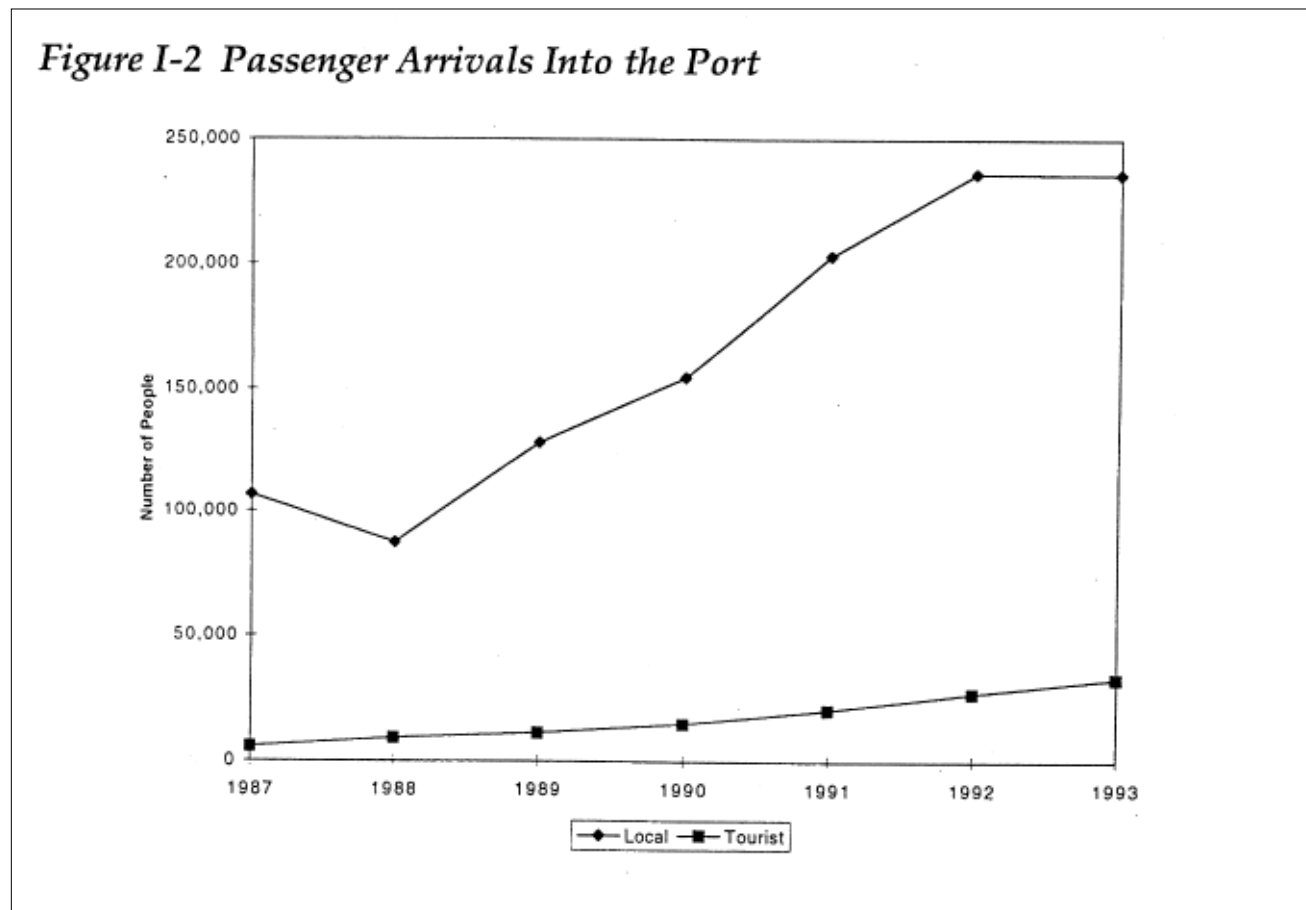
INDUSTRY. Zanzibar's coast supports a small industrial sector that is scattered throughout the country. Industrial activities include production of soap, aluminum utensils, sheet metal and coconut oil. To increase industrial capacity, Zanzibar has created an Export Zone in the Fumba area

of Unguja Island.

COMMERCIAL MARINE FISHERIES. Only one commercial fishing company operates in Zanzibar. It has four boats working the waters off Unguja and Pemba, which primarily use purse seines to target pelagic fish. In cooperation with the Food and Agriculture Organisation (FAO), Zanzibar is looking to increase the utilisation of offshore marine stocks in the future.

1.2 ZANZIBAR'S COASTAL AND MARINE RESOURCES

Zanzibar is fortunate to be endowed with a diversity of coastal and marine habitats. Although there is little documentation on the status and condition of these resources, it is widely agreed that the resource base is in good condition. Critical marine and coastal habitats include coral reefs,



mangroves, seagrass beds and beaches (Box I-1). The need for expanded information on the extent, condition and use of these habitats is crucial.

Zanzibar has started the process to protect a few of its most extraordinary marine and coastal habitats, such as Misali Island. While the idea of a conservation trust to manage these areas has been tabled, the extent of marine conservation measures to date has been quite limited.

1.3 THE INCREASING PRESSURE ON COASTAL AREAS AND RESOURCES

As coastal areas become more populated and activities become more intense, it is increasingly likely that the natural resource base will be degraded. Because of Zanzibar's high dependency on a quality coastal environment, pressures from development and over-utilisation can have significant impacts on the nation's economy and social fabric.

Box I-1 Zanzibar's Critical Coastal Habitats

Coral reefs cover an area of 218,596 sq. km. and surround much of the shoreline of both major islands, as well as the nation's many islets. Reef size ranges from very narrow on the protected west side of Unguja to reefs that are one to two km. wide on the exposed east coast. Coral reefs provide protection from the erosive force of waves, habitat for the nation's rich artisanal fisheries and an attraction for tourists. While there are few scientific surveys of Zanzibar's reefs, they are thought to be relatively pristine and to have among the highest biodiversity of reefs in East Africa. Reef degradation is limited to areas near population centers like Zanzibar Town, and on the major fishing grounds where destructive fishing gear has been used.

Mangrove forests cover about 16,000 hectares and are found on both major islands, with Pemba having the largest stands. This important habitat forms a bridge between terrestrial systems and the more ecologically fragile coastal systems. By trapping nutrients and sediments, mangroves help provide ideal environments for offshore reefs and seagrass beds. Mangroves also stabilise shorelines and decrease coastal erosion by reducing the energy of incoming waves and currents, and by holding the bottom sediments in place with their roots. The mangrove ecosystem is a nursery and spawning ground for many species of fish and crustaceans, providing food and shelter for their juveniles. There is a strong correlation between productive coastal fishing grounds and the proximity to mangrove swamps. Unlike many countries with mangroves, there has been relatively little mangrove habitat loss in Zanzibar. However, overexploitation is widespread, resulting in reduced economic opportunities, resource degradation and losses in biodiversity.

Seagrass beds are typically found in the shallow waters inside Zanzibar's fringing reefs and bays. The extent of this habitat in Zanzibar is unknown and the value of this important fish nursery and habitat is not widely recognized. There has been recent pressure in tourist areas to remove the seagrass adjacent to hotels to provide "clean" swimming areas.

Sandy beaches. Approximately 80 km. of sandy beaches are found along Zanzibar's coast. Traditionally, beaches adjacent to villages are used as fish landing and boat storage sites, for relaxation and recreation, coconut retting and for garbage disposal. Other beaches are important sea turtle nesting sites. More recently, these same beaches serve as the magnet for tourism development, with the number of hotels and beaches used by tourists and hoteliers increasing each year.

The pressure is coming from over-utilisation and intensified use caused by increasing populations; poorly sited and executed private sector coastal development; poorly coordinated sectoral government programs and activities; and from the rapid pace of development, which is proceeding at a faster rate than the effective governance structures and strategies that are needed for their management. If this situation continues, significant and widespread resource degradation and environmental destruction is likely to occur.

Currently, the population which will be most affected by coastal resource degradation and declines—the residents of traditional coastal communities—are not full partners in planning the type, amount or the conditions under which development will proceed in their areas. As degradation increases, the resources on which they depend for survival will show reduced productivity. Resource degradation will also affect the tourism industry. High-quality tourists, which Zanzibar actively seeks, demand excellent environmental quality. Damaged reefs and degraded water quality will not draw their interest.

1.4 THE NEED FOR ICAM AND GOVERNMENT POLICY COMMITMENT

Zanzibar has made a policy commitment to attempt to use an ICAM approach to work towards a new but sustainable balance of uses for the coast as development proceeds.

To address these issues, and effectively manage the coastal environment to minimise resource degradation and promote the sustainable development and human use of coastal environs, an integrated policy framework is needed. The overall objective is to provide for the best long-term sustainable use of the nation's coastal resources and to maintain Zanzibar's high quality coastal environment. ICAM provides an inter-sectoral approach to management and could provide the necessary framework to address national coastal management issues.

The National Environmental Policy, which was adopted in 1992, includes a section on coastal management. The policy's aim is to "...develop a programme of Integrated Coastal Zone Management, within the framework of the overall land use plan." The Department of Environment (DoE) has formulated environmental legislation, one component of which is coastal management.

These important first steps provide a framework and impetus for national and local coastal management initiatives. The challenge now is for government, in partnership with the people who depend on the resource base for their livelihood, to put into operation and effectively apply these broad policy guidelines both locally, in areas facing significant coastal issues; and nationally, through the national development plan.

1.5 THE CHWAKA BAY-PAJE AREA: A STEP TOWARDS ICAM IN ZANZIBAR

To build momentum towards national ICAM and to develop necessary experience in coastal management, a pilot coastal management initiative was started. This modest experiment focuses on a small part of Zanzibar's coast—the coastal strip encompassing Chwaka Bay and the Paje shoreline. It was chosen as the demonstration area for a number of reasons:

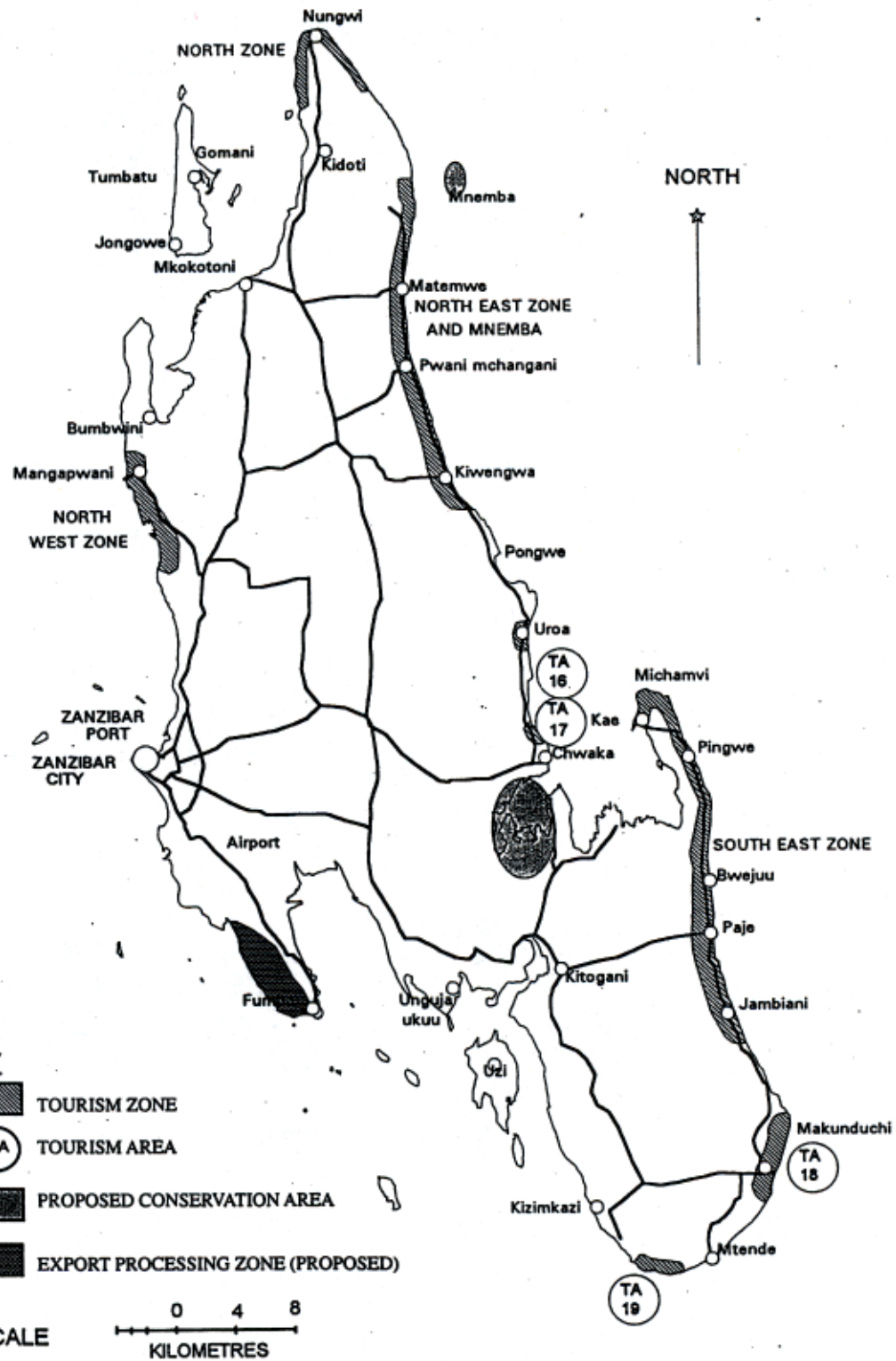
- The Chwaka Bay-Paje coastal resources are important both at the local and national level for fisheries, tourism, seaweed farming and coastal thicket and mangrove harvests.
- The area is confronted by the most critical coastal issue that is found in many other areas of Zanzibar—incorporating a rapidly expanding international tourism industry within an area comprised of traditional villages in a manner that benefits the people of the place and the nation. Management approaches and techniques developed here will be useful in other locations.

- There is local demand for the project. One major impetus in the selection of the area was that eminent local people recognised that changes were occurring and envisaged problems unless necessary actions, defined in full consultation with local people, were taken.

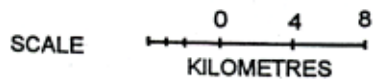
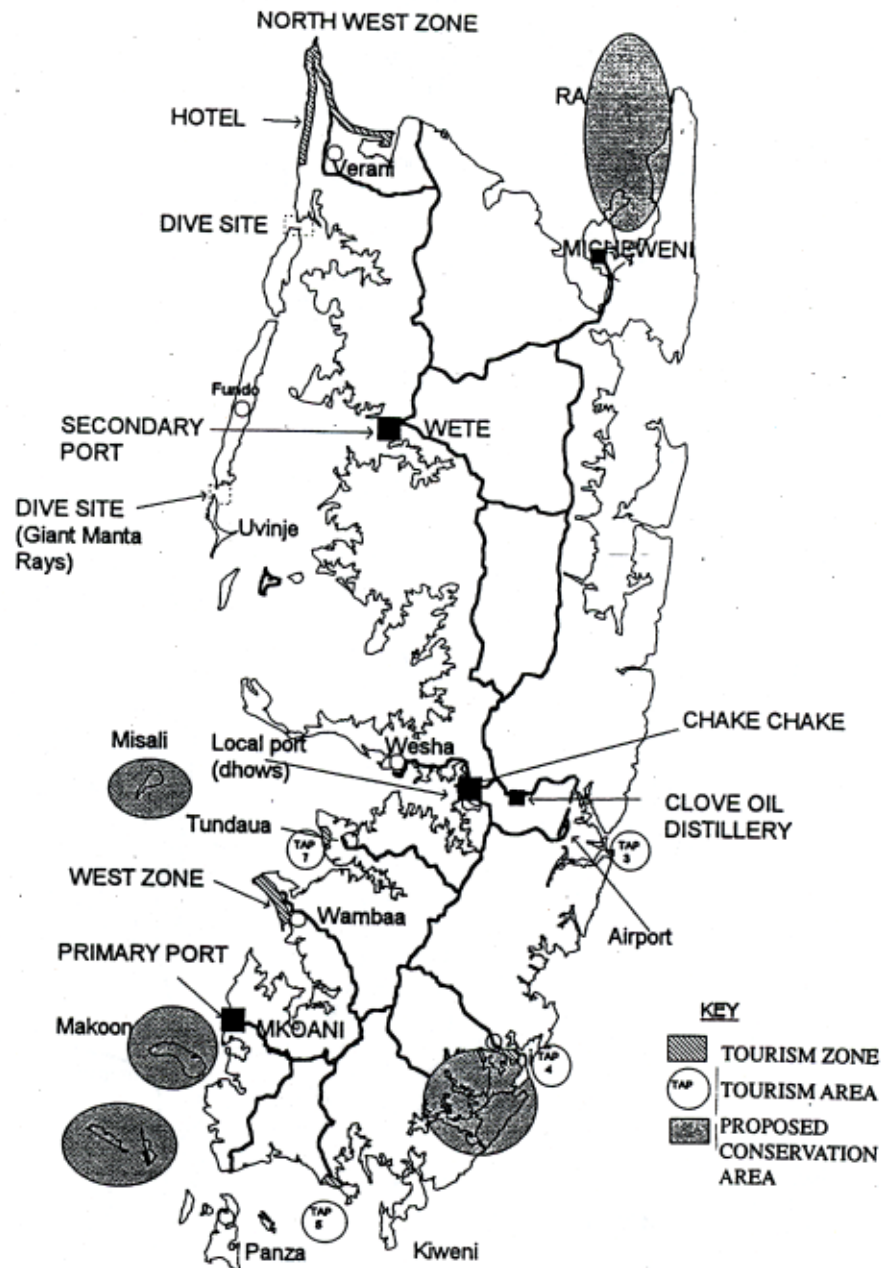
Addressing these issues in one small area allows resource managers to gain critical experience in coastal management that can, with time, be applied more broadly.

In Chapter Two of this document, the coastal situation in the demonstration area is analysed and issues identified. In Chapter Three, a strategy for addressing these issues at the area and building from this strategy to a national approach is put forward.

MAP 1B - MAJOR USES OF ZANZIBAR'S COAST - UNGUJA ISLAND



MAP 1C - MAJOR USES OF ZANZIBAR'S COAST - PEMBA ISLAND



THE CHWAKA BAY-PAJE AREA

2.1 INTRODUCTION

Zanzibar's ICAM demonstration area is located on the southeast side of Unguja Island about 20 kilometres from Zanzibar Town. It encompasses the coastal area of Chwaka Bay and the Michavi Peninsula as far south as Paje (Map 2). There are seven small villages in the area with a total resident population of about 10,300 (Figure SI-1). Basic socio-economic data on the area's residents are lacking.

The economy of Chwaka Bay and the Southeast Coast is expanding from near total reliance on fishing, mangrove and coastal thicket harvesting, and marginal agriculture to new economic activities including tourism development, seaweed farming and the expansion of small-scale business. This change presents new opportuni-

ties, as well as threats to the people and resources of the Chwaka Bay and Southeast Coast region. Both traditional and new activities depend on the region's coastal resource base.

Tourism is growing rapidly in the area. In 1994 only six hotels were operating. By the year 2000, the number could reach 19. This will provide approximately 3,500 tourist beds, which is an increase of about 90 percent above what is currently available. This rapid growth will create new opportunities, such as direct employment by hotels, new markets for fish and agriculture products, and indirect employment by tourist-dependent small businesses. Tourism growth will also place new demands on the natural resources, and compete with villagers for land, potable water and sea space. These forces will likely result in an increased role of tourism in the local economy.

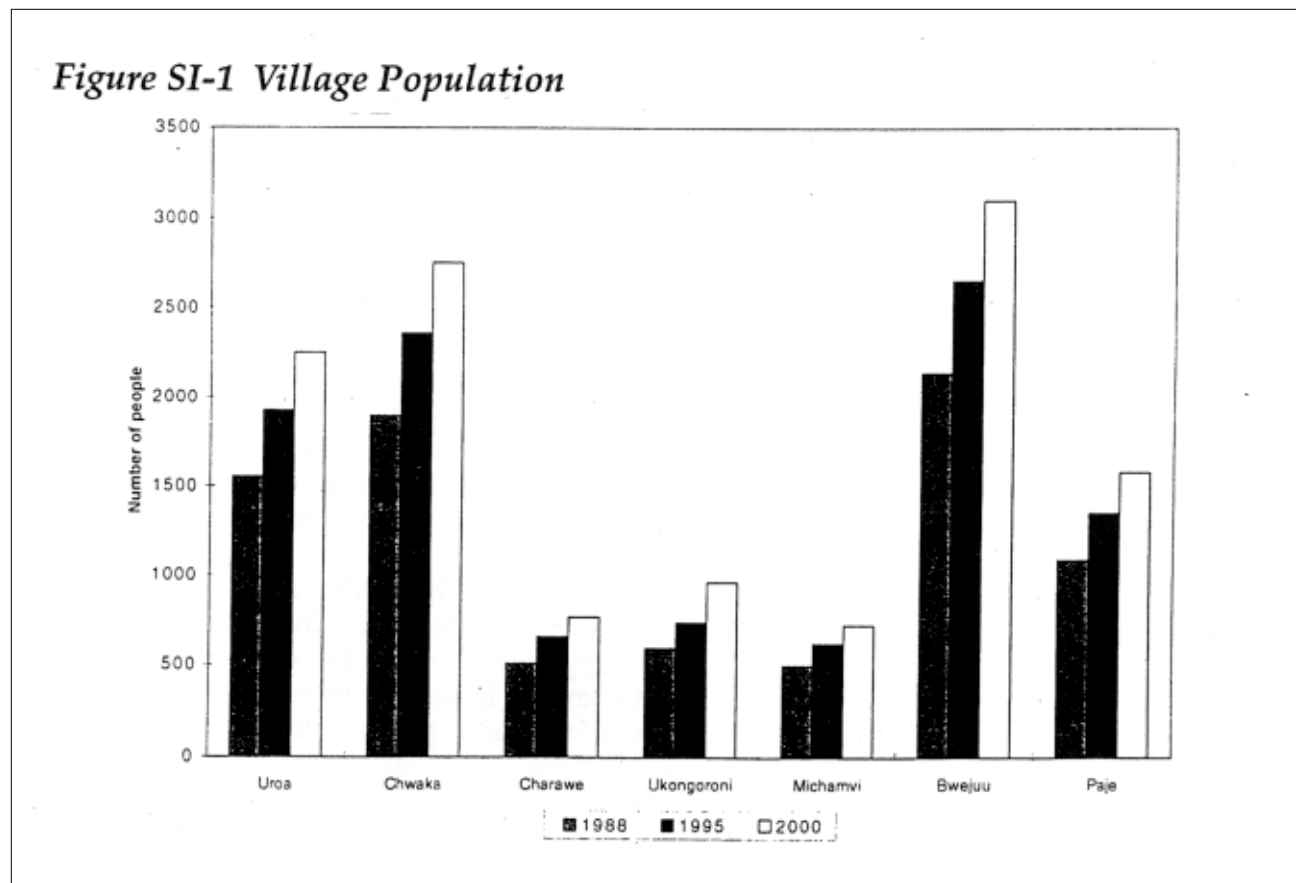


Figure SI-1 Village Population

Box SI-1

Villagers' Views About Their Future

People from different villages along the east coast seem to have similar views about their future. Many of those who were interviewed expressed concern for the lack of development in their villages. Older villagers pointed out the constant migration of young people to the capital. They attribute this to the lack of opportunities in the villages. When it was pointed out to them that new economic activities introduced to the east coast, such as seaweed farming, could lead to economic emancipation in the area, they were quick to respond that seaweed farming has done little to stem the flow of young people from the villages. This is despite the fact that seaweed farming has greatly increased the earnings of the villagers.

With regard to development of the tourism industry in the area, it is welcomed by many of the younger generation. However most youths complained that the jobs available to them in hotels are mainly menial, and they have no chance of progressing to better-paying jobs within the industry. This acceptance exists despite the fact that they are very concerned about the introduction of alien cultures to the area and the erosion of age-old traditions. Others believe that hotel development in their area has resulted in competition for resources, such as fishing areas, and has to some extent robbed them of free access to some beaches. Many villagers expressed the wish that these hotels be better regulated so as to provide direct benefit to the villages concerned.

Villagers face this new future with both optimism and concern (Box SI-1). The challenge of working towards a future for the area that benefits both the people of the place and the nation as a whole requires:

- Maintaining the resource base on which the economy depends.
- Sustaining and enhancing village economies.
- Mitigating environmental and socio-economic impacts from tourism.
- Reducing conflicts among uses and users.
- Enhancing local participation in planning and management activities.
- Acquiring and using information for good management decisions.

2.2 THE COASTAL RESOURCE BASE

2.2.1 Critical Coastal Habitats

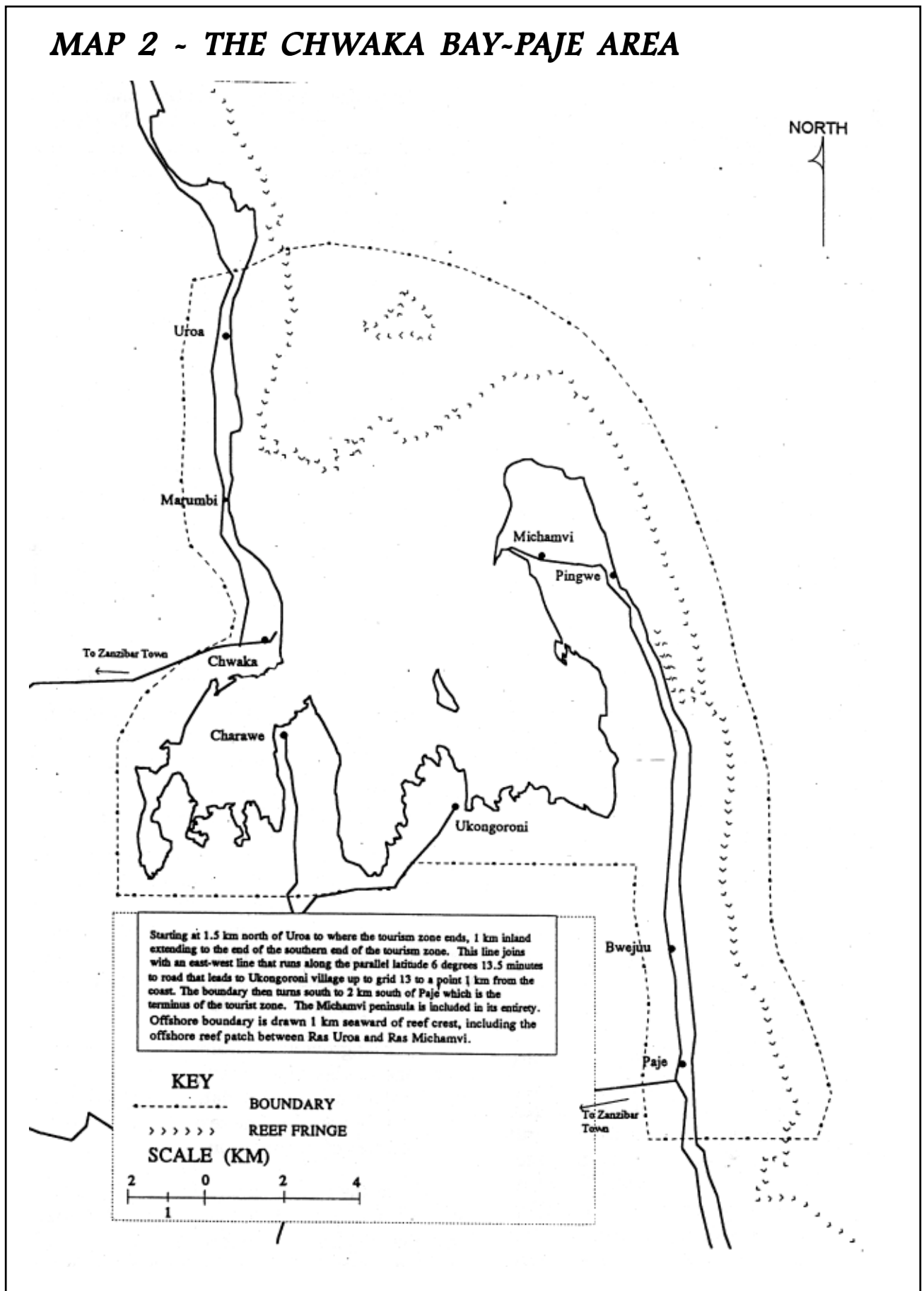
The Chwaka Bay-Paje area contains critical coastal habitats including mangroves, seagrass beds, coral reefs, beaches, coastal thickets, water sources, cultural areas and palm fringe. These habitats are closely linked and require integrated management as a single ecological unit.

The area's critical coastal habitats (Map 3) include:

Mangroves. Chwaka's mangrove forest is the largest mangrove stand on Unguja Island and is essential to the productivity of Chwaka Bay. Between mangrove-dependent fishing and other uses, about 49 percent of the area's household income is attributed to the presence of the mangrove ecosystem in Chwaka Bay (*Nasser, 1994*).

Coral reefs. The area has an extensive fringing reef along the coastline. The reef extends seaward approximately one to two kms. This reef plays several important roles. It attracts and allows for a high species diversity of flora and fauna. This is especially important to the reef-dependent fishery. The reef dissipates wave energy built up over a long fetch, thus it protects

MAP 2 - THE CHWAKA BAY-PAJE AREA



the shoreline from erosion. It also is important to the tourism business, providing opportunities for snorkelling, diving, sport fishing and sightseeing.

Sandy Beaches. The area is known for its sandy beaches, especially along the exposed east coast. One species of marine turtle—green turtle—has been reported in the area, with nesting beaches existing along much of the shore.

Seagrasses. Seagrasses cover extensive areas of Chwaka Bay intermixed with different species of algae. They are an important component of the nearshore system and provide feeding space, breeding grounds and shelter to a wide range of marine animals. Healthy seagrass beds help grip sediments together by their extensive root system, which helps prevent erosion.

Coastal thickets. Despite the continuous pressure on the coastal forest, a reasonable amount of plant and animal diversity remains. The important wild animals enjoying bush camouflage include duikers and wild pigs. Coastal thickets also provide an important source of fuel wood for villages.

Water sources. All villages in the Chwaka-Bay Paje area depend on caves and groundwater for potable drinking water. Hoteliers also depend on the same sources. There is no information on the status of the watershed in the area.

Cultural areas. The area has a number of graves, caves and shrines which are important in maintaining village culture.

Palm fringe. The area has extensive palm fringe along the coast lines. Palms provide coconuts and construction materials and also help to protect against erosion.

These habitats are found in close proximity to each other and there is a close relationship among them. Because of these natural linkages, it is essential that the habitats be viewed and managed as a system. Current habitat management is done by sector. The Forestry Subcommission is responsible for mangrove and thicket management and the Fisheries Subcommission concerns itself with coral reefs only as a fishery resource. No agency has coastal habitat manage-

ment responsibilities, nor does any agency have responsibility for coastal ecosystems as a whole. The major ecological units in the pilot area are:

- Uroa-Chwaka Bay. The area's major fishing ground, Uroa-Chwaka Bay is an integrated estuarine system characterised by fringing mangroves in the inner bay and beaches on the sides. Streams and sand banks are characteristic of the shallow areas. Seagrass beds are found throughout the Bay, and the Bay's outer edge is defined by a fringing coral reef.
- Paje-Michamvi. The Paje-Michamvi shoreline is a continuation of the Zanzibar east coast beach and reef system that runs all the way from Makunduchi to Nungwi. The shore is characterised by sandy beaches. The reef in this section is characterised by a relatively broad tidal flat and tidal lagoon. The tidal flat is mainly covered by sand and seagrasses, and it is in this area where shell collection takes place. The reef's foreshore has a steep slope which quickly drops off to deep water.

2.2.2 Resource Base Information

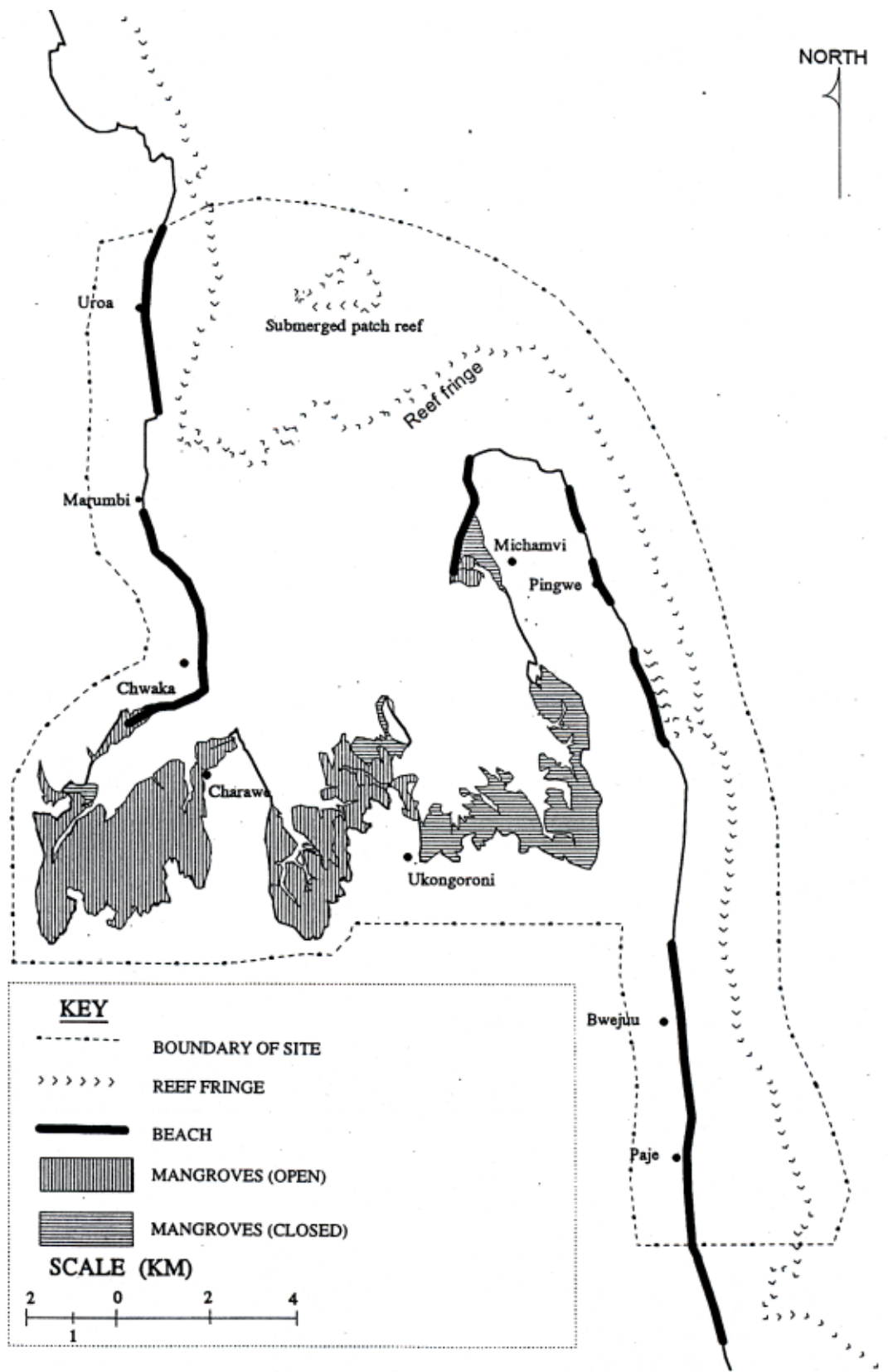
The resource base is under severe pressure. Moreover, information about these critical habitats is quite limited. Better information is needed both to assess the current situation and as a baseline from which change can be measured.

Baseline data on the region's resources is not available. In 1992, the Institute for Marine Sciences began a series of ecological studies within Chwaka Bay, focusing on nutrient dynamics. Rapid assessments of reef condition, water quality and/or other habitat status are in the earliest stages of implementation (Box R-1).

The mangrove system, although not reduced in acreage, has been degraded somewhat in quality. Coastal water quality data are not available for the study area, but the team found no obvious indicators of degradation.

Given the development pressure in the region, it is a concern that conditions will change for the worse. Experience throughout the world has shown that the prevention of damage is by far more effective and less costly than the cost of mitigation and restoration.

MAP 3 - CRITICAL COASTAL HABITATS



Box R-1 Literature Related to the Area

- Anders, I. 1995. *Environmental Factors Associated with Growth in Manufacturing of the Exotic Red Algae Eucheuma spinosum in Eastern Zanzibar*. pp. 31.
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- Msuya, F.E., T. Dickson and A. Whittick. 1994. *Community in Transition, The Impact of Seaweed Farming on the Women of Paje, Zanzibar, Tanzania*. Video production, Institute of Marine Sciences, Zanzibar, Tanzania.
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2.3 IMPROVING AND SUSTAINING VILLAGE ECONOMIES

The local economy of each village includes a mix of traditional activities such as fishing, mangrove harvesting, agriculture, beekeeping and rope making with the mix being different in each village (Table SI-1). In most of the villages, fishing is the dominant activity. The integration of the traditional village economy with the cultural and religious life of villages has been a hallmark of Zanzibari life for centuries.

2.3.1 Artisanal Fishing

2.3.1.1 Village fisheries are varied and largely reef-dependent. Fisherfolk use traditional fishing techniques, and they are localized within the rich, and nationally

important fishing grounds of Chwaka Bay and the Southeast Coast area. Most fish have been landed and sold locally, but the commercial market is expanding.

A variety of fisheries are present in each village. Men fish with nets, hand lines and traps, either on foot close to shore, or from small boats on the reefs. These are typically dugout and outrigger canoes (Figure F-1). There are very few boats with motors in the area which can fish seaward of the reef (Figure F-2).

Women are mostly collectors. They comb the nearshore for clams and other shellfish, crabs and octopus. Most villages have a common anchoring and/or landing site. The number of fishermen and the gear used by each village is summarized in Figure F-3.

The area's villagers fish to some extent throughout the ICAM demonstration area, although each village has a core fishing ground

Table SI-1 Relative Importance of Economic Sectors in Villages

Village	Coastal Thickets	Fishing	Seaweed Farming	Agriculture	Mangrove Cutting	Tourism
Chwaka	**	***	**	**	**	*
Uroa	**	***	***	*		*
Michamvi	**	***	**	*	*	*
Bwejuu	*	***	**	*	*	**
Ukogoroni	**	*		**	**	
Charawe	**	*	*	**	***	
Paje	**	**	***	*		**
Marumbi	**	***	***	*		

Legend:
 *** Most important
 ** Important
 * Less Important

Figure F-1 Primary Fisheries in the Chwaka-Paje Area

Line Fishery: Lines, fixed with one to three baited hooks, are used both by fishermen on foot and from boats in shallow water areas with sand, seagrass beds and coral bottoms. *Daa* (worms), which are dug from intertidal beach areas, are one of many types of bait used. Other baits are squid and octopus. Fish species commonly caught include emperor fish (Family: Lethrinidae), groupers and snappers (Family: Lutjanidae).

Set Gillnets: Small mesh (typically one- to three-inch) nets are commonly used in intertidal reef areas and streams to block fish passing through the streams during ebb tide, from returning to the sea. Common fish caught include Rabbit fish (Family: Siganiidae), Black-spotted emperor (*Lethrinus harak*) and silver bid (Family: Gerridae). The gear is most effective during spring tides. Large mesh gillnets (>5 in.) are used to catch sharks and rays.

Seines. Beach seines, because they disturb the bottom and harvest juvenile fish (mesh size is typically 0.5 in.), are illegal in Zanzibar. However, beach seine use occurs within the Chwaka Bay. Boat seines are allowed in non-coral areas; however, illegal use of this gear also occurs in coral reef areas of Chwaka Bay. Seines target species that move in schools, such as travelly (Family: Carangidae); fusiliers (Family: cesionidae) and barracuda (Family: Sphyrenidae).

Dema traps: These are static, baited traps typically set in sandy or algal patches within the reef. Common baits used include seaweed, crabs, octopus guts and brittle stars. Common fish caught are reef dwellers such as parrotfish (Family: scaridae), rabbitfish (Family: Siganiidae) and goatfish (Family: Mulidae).

Octopus fishing (with spears): Octopus fishing is carried out by both men and women. Women fish in the intertidal area; men skin dive for octopus in relatively shallow water.

Shell collection: Women collect a variety of shells, notably cowries, cockles, clams and oysters in the intertidal areas of reefs. The meat of the larger shellfish (e.g., cowries and clams) is eaten, and the shells sold to middlemen. Small shells, especially cowries, are dried in large piles prior to sale. These drying shells give off strong odors, and are hence placed outside of villages.

where it is most active. The region's two fishing grounds are Uroa-Chwaka Bay and Paje-Bwejuu. Uroa-Chwaka Bay is the area's major fishing ground, accounting for over 95 percent of the total catch.

Paje-Bwejuu is a continuation of the Zanzibar east coast reef that runs all the way from Makunduchi to Nungwi. This section of reef is characterized by a relatively broad tidal flat and tidal lagoon. Map 4 shows important fish and shellfish grounds, octopus collection sites and anchoring and landing areas for fishermen. Studies by the Institute of Marine Sciences, observations made by the Department of Fisheries and the ICAM team on the fish at local markets, indicate that most of the fish landed are reef-associated species.

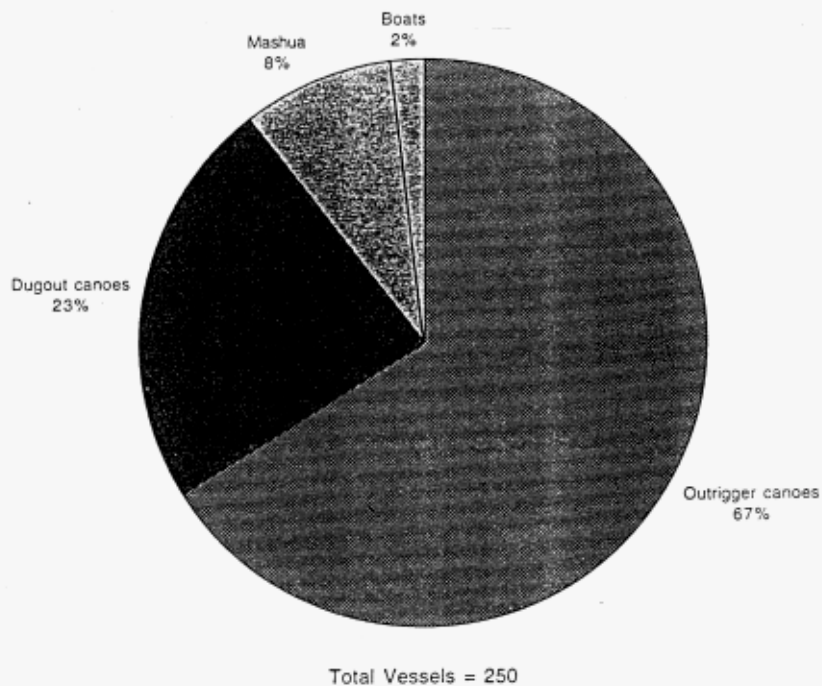
All fish caught in the region are landed and sold in these two key fishing areas. Chwaka is by far the most important landing and auction site, serving as the primary marketing point for all the other villages located in the Bay. Fish caught in Paje and Bwejuu are landed and sold locally.

2.3.1.2 Reef fish populations and catches appear to be declining. The once important sea cucumber fishery has almost disappeared due to a stock collapse. The relatively newer, though significantly less important pelagic fisheries, appear to be holding steady. The status of other fisheries, such as shellfish and crabs, is not known.

The Subcommittee of Fisheries collects statistics on fish landings throughout Zanzibar. While these data are imperfect, they support village perceptions that fish catches are declining, as is fish size and the quantity of fish per boat landed (Figure F-4). In addition, some formerly common species such as milkfish, goatfish, eagle rays, travelly fish, *mwanje* and *paramamba* have disappeared.

Fishing for pelagic fish is relatively new, and because it occurs beyond the reef crest in Chwaka

Figure F-2 Types of Fishing Vessels



Bay, participation is limited to the relatively few motorized boats that are found in Chwaka. The potential sustainable harvest of this fishery is not known.

Throughout Zanzibar, it is government policy to encourage offshore fisheries. The government is just beginning a major new marine fisheries development program in cooperation with FAO. Residents of the Chwaka-Paje area may qualify to take advantage of loan funds for boat and gear purchases for fishing in deeper water. Larger and more efficient gear has been targeted on offshore stocks. The impact of this on the already declining nearshore fishery has not been evaluated, but needs to be.

2.3.1.3 The current decline in reef fish population is thought to result from overfishing and the use of illegal gear. There is a growing concern that this problem will get worse as increasing demand for fisheries products and access to more efficient gear

will put even more pressure on the resource; and that as tourism development proceeds, habitat and water quality degradation will further contribute to fisheries declines.

Villagers and fisheries officials believe that overfishing has resulted because an increasing number of fishermen using more efficient gear continue to concentrate their effort in the same location. This concentration of effort is caused, in part, by the limited range of the small, non-motorized boats which village fishermen have. However, it is not known if there are additional unexploited stocks that would be accessible to fishermen if they had expanded their range.

The Zanzibar Fisheries Act makes it illegal to use certain gear that causes either habitat destruction or target juvenile fish. Prohibited gear includes dynamite, poisons, monofilament nets and beach seines. In addition, spear guns are only allowable under special permit; and certain legal

Figure F-3 Chwaka Bay-Paje Village Fisheries

Villages	Registered Fishermen (1993)	Primary Types of gear										
		Lines	Nets			Traps		Other				
			< 5" gill	> 5" gill	6" drift	cast	dema	weir	spears	anchovy	shells	crabs
Uroa	450	*	*	*		*		*	*	*		
Marumbi	409	*	?	*		*	*	?				
Chwaka	500	*	*			*		*		*	*	*
Charwe		*	*	*				?		*	*	*
Ukongormi		*			*	*	*	?	*	*	*	*
Michamvi		*	*			*		*	*	*		
Bwejuu	226 3	*	*					?	*		*	
Paje	330	*	*			*	*	*	*	*	*	

Key: * - present; ? - very little or nonexistent; blank - not mentioned

gear—such as dredges—cannot be used in reef areas. Within Chwaka and Uroa there is widespread, unauthorized use of spears and beach seines. Use of seine nets within coral reef areas, which is prohibited, is also common.

As tourism development proceeds, there is concern that habitat and water quality degradation will further contribute to fishing declines. Tourism-related concerns include physical damage to reefs from the recreational activities of visitors, and water quality degradation from the disposal of improperly treated sewage from tourist hotels and residential villas.

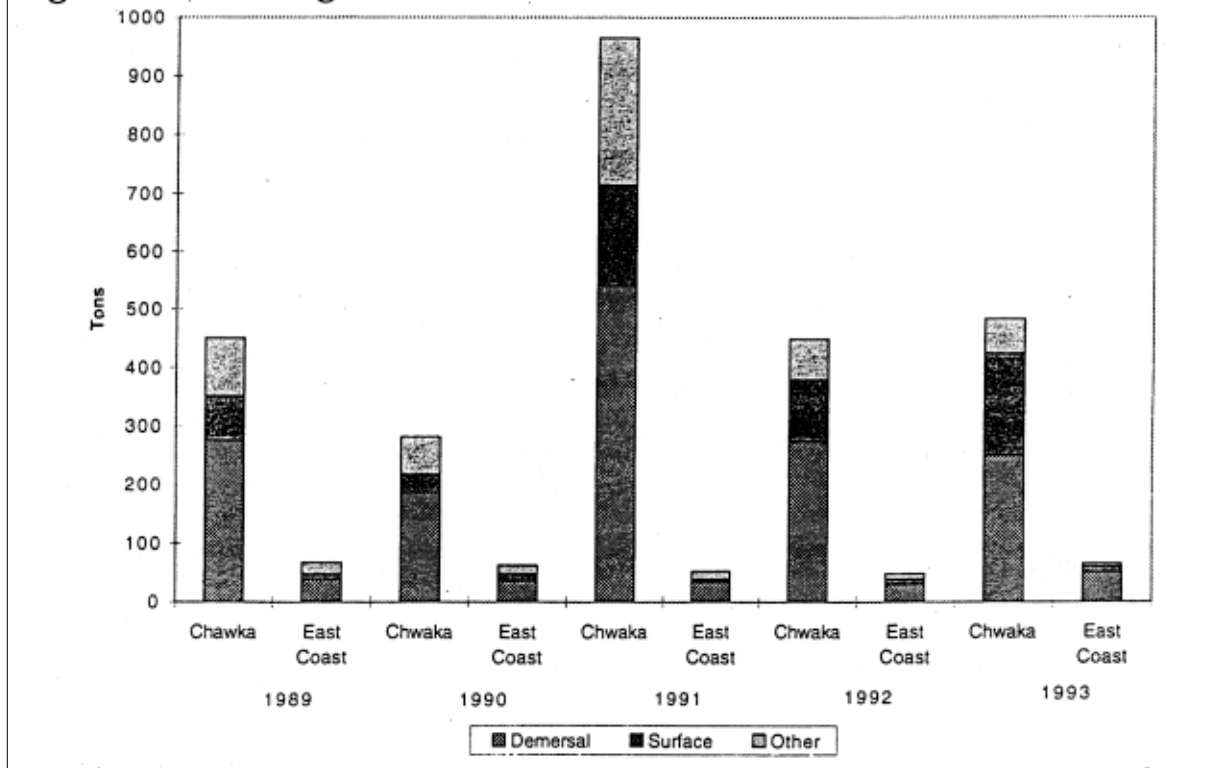
2.3.1.4 Demand for locally harvested fish is rising.

Historically, fish caught in the area are sold at auction, primarily for local consumption. Since road access between Zanzibar Town and Chwaka was improved in 1992/93, the sale of fish to fish mongers for consumption outside the region has

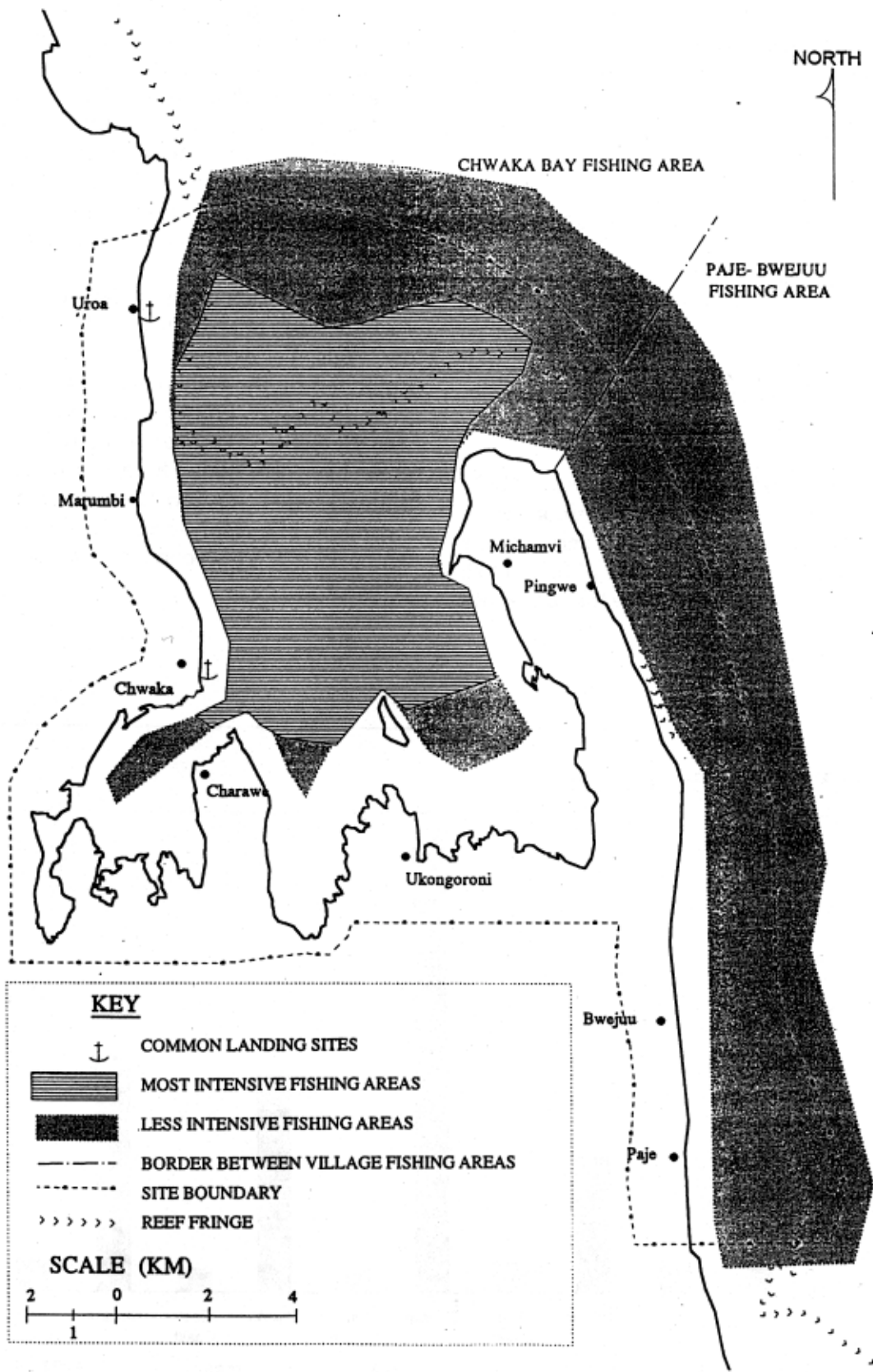
increased significantly. This has been accompanied by an increase in fish prices, resulting in both higher income to fishermen and higher costs to local buyers. Hotels and guest houses are also providing a new market for locally caught, high-value species such as squid, octopus, crabs and kingfish. Hoteliers may buy directly from fishermen rather than at auction. In one case, a hotelier operates his own boat. The impact of this expanding commercial market on either the price or the availability of fish is not known.

New markets are also developing for species previously not harvested or harvested at very low levels. For example, coral harvest (which is prohibited by the Fisheries Act) is beginning to occur. In Bwejuu, limited harvests of coral blocks from the reef crest for use in constructions of coral blocks have occurred. There is also beginning to be small-scale collection of ornamental coral for decoration of guest houses and villas, and souvenir sale. Shell collection, also for souvenirs, is increasing.

Figure F-4 Landings in Site



MAP 4 - MAJOR FISHING AREAS



2.3.1.5 The legal authority for the management of fisheries in Zanzibar rests with the Subcommission of Fisheries. Although rules and regulations exist, government enforcement has been minimal. There is interest both within government and the villages to explore how community-based management approaches, which build from customary practices, can be effectively used to address a variety of fisheries and habitat issues.

There is broad consensus within Zanzibar that the current approach to fisheries management requires modification. Given the lack of compliance to existing fisheries rules and regulations, and the nation's limited financial resources, expanding resources for enforcement is not practical. Community-based management, where fishermen actively participate in defining and implementing management measures, is seen as a promising approach for addressing a number of the fisheries issues which exist in the demonstration area.

There are a number of customary, village-based fisheries management practices which exist within the area. These include:

Some control of access to fishing grounds.

Non-residents who travel to Chwaka Bay to fish must obtain permission from the village to camp. Outside fishermen include individuals from Matemwe, Pwani and Mchangani to the north, and from Bwejuu and Makunduchi to the south. Visits range from two weeks to three months depending on wind and fishing success.

Open and closed seasons for octopus and prawns. Limited attempts at closed seasons for octopus were made in Paje and Bwejuu. However, closing and opening times were not uniform between the villages, resulting in increased fishing effort in the open village and conflicts between the villages.

2.3.2 Seaweed Farming

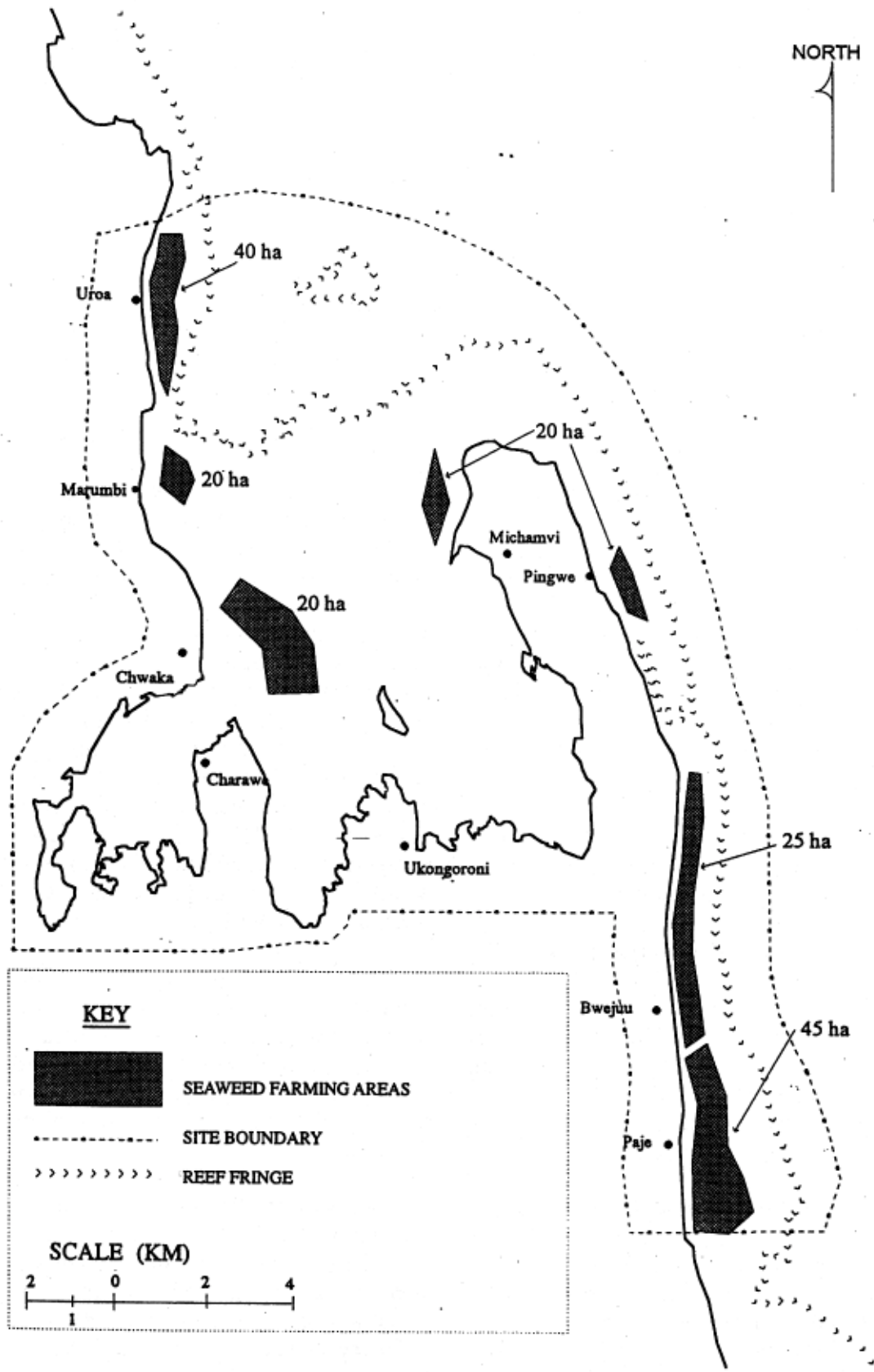
2.3.2.1 Experimental seaweed farming was first introduced to Zanzibar in 1983 and commercial production in the Chwaka Bay-Southeast Coast area in 1989. There are currently about 170 hectares of seaweed plots adjacent to most villages. Although the total value of the harvest is small, it provides regular cash income to farmers (chiefly women), and has a relatively large impact on household incomes.

Seaweed (*Euchema spinosum* and *E. cottonii*) is grown in intertidal areas off beaches and in shallow lagoons. Because of the labour-intensive nature of seaweed farming, plots must be located as close to villages as possible. While seaweed farming takes place year-round, farmers experience problems during the high wave period of the southeast monsoons (July and August) because seaweed is uprooted; the hot season (December through February); and during the heavy rain season (March through May), when salinity changes occur in the shallow ponds and bleach the seaweed. The most extensive seaweed grounds are found in Paje, Bwejuu and Uroa, with smaller areas under cultivation in all Chwaka Bay villages except Michamvi (Map 5).

While registered seaweed farmers include men and women, most of the seaweed farming activities are carried out by women. Men help with certain activities, and in Paje and Bwejuu sometimes become more fully involved in the industry, depending on its profitability relative to fishing.

All seaweed harvested in the area is sold to either Zanzibar Agro-Seaweed Company or Zanzibar East African Company. Information on the current value of the seaweed harvest to the area is not available. However, a 1991 study of the industry in Paje (*Eklund and Pettersson, 1992*) found that income from seaweed farming in 1991

MAP 5 - SEAWEED FARMS



in Paje (purchase price of 60 Tsh/kg) ranged from about 5,000 to 6,500 Tsh per household per month. The 1995 price to the producer was about 75 Tsh/kg, which is the highest since seaweed farming was introduced. While villagers believe the price is low compared to the labour involved, the income derived, which remains largely under the control of the women, is typically used to supplement purchases for the household and children, and is highly valued.

2.3.2.2 It is government policy to encourage seaweed farming; however neither seaweed areas nor individual plots are designated. The future expansion of the industry depends both on price and the availability of secure, suitable sites.

Current practice is that individuals simply occupy seaweed farm sites on a first-come, first-used basis. The size of individual plots varies from place to place, but plot size and the number of plots cultivated by an individual or family is typically limited by the number of lines that an individual farmer or family can maintain. In Uroa, however, the expansion of the industry is limited by availability of suitable sites. Conflicts about the use of sites adjacent to hotels has been a problem in the past, which can be expected to increase. It is difficult to predict the potential growth of seaweed farming. The industry is very price-sensitive, with both the extent of plots and the number of individuals engaged in farming shifting as prices rise and fall.

The government has no program to either officially designate seaweed farming zones or recognize individual use rights for specific plots. This situation makes tenure on specific plots insecure. Given other development in the region, expansion may be precluded by other uses. There is also potential to displace seaweed farming with other activities without villagers having any legal recourse.

2.3.2.3 Although seaweed farming is small-scale, it may be having some environmental impacts on the area.

According to an environmental impact study conducted by Msuya in 1995, seaweed farming has the following impacts:

- Causes decrease in amount of sea urchins in the areas. This may be due to:
 - Killing of the urchins by farmers who are afraid of them.
 - Escape of urchins because of possible harmful chemicals produced by farmed seaweeds and disturbances by the farmers.
 - Removal of the urchins by the farmers as they are grazers of their seaweed plots.
- Causes decrease in amount of seagrasses. This may be due to:
 - Uprooting of the plants by the farmers during planting and weeding of the seaweed farm.
 - Death caused by chemicals produced by the farmed seaweed.
 - Death due to shading by farmed seaweed.
- Causes accumulation of toxic substances, such as haloamines, in the sediment directly under the seaweed farms, resulting in reduced meiobenthos population densities.

2.3.3 Managing Use of Mangroves and Coastal Thickets

2.3.3.1 Chwaka mangrove forest, the largest on Unguja Island, provides the primary source of income for two of the six Chwaka Bay villages. For the remaining four villages, the mangrove forest provides an important source of supplemental income.

The Chwaka Bay mangrove forest is 1,624 hectares and represents about 47 percent of the mangroves on Unguja Island. It largely occupies the Central District, with a small area located in the South District. Although data are scarce, it is commonly agreed that many area residents are either partly or fully dependent on mangrove resource exploitation for their subsistence and income needs. Uses include wood cutting for poles and fuel wood, mangrove fishing, beekeeping and tanning production (Table M-1).

2.3.3.2 While Chwaka mangrove forest has remained constant in size, the quality of the mangrove trees, and hence the relative value of the harvested products, is declining.

The major harvesting technique in Chwaka is selective felling, which does not decrease the amount of area of mangrove forest, but does affect the quantity of good quality mangrove trees produced. Observations show that when a mangrove stand is opened for harvesting, the high-quality trees are removed rapidly for poles and rafters (Box M-2). In the Chwaka Bay mangrove forest, the high-quality trees were removed within four years of its opening in 1990. When an area is first opened for harvesting, many people are attracted as poles can be harvested with relatively low labour input. This creates a situation where the area can be worked only for few years before it is exhausted. Once depleted, many wood harvesters may shift to other activities (Box M-1).

Table M-1 Human Uses of Chwaka Bay Mangroves

Wood cutting: for poles and fuelwood	Most of the residents near mangrove forests are heavily engaged in mangrove cutting for either household use or commercial purposes. An increase in demand (and price) from villages around Chwaka Bay and Zanzibar Town has made year-round mangrove cutting a profitable venture.
Mangrove fishery	Most women in Charawe and some in Chwaka, Ukongoroni and Bwejuu are engaged in crab and cockle harvesting in mangrove swamps. Mangrove fishing is becoming increasingly important because growth of the tourism industry has raised the demand for products such as crab. Nevertheless, villagers commented that indiscriminate cutting of mangrove vegetation has caused the acute decline of crabs and has also disturbed fish breeding within the mangrove creeks.
Beekeeping	Beekeeping is an emerging vocation because of an increasing awareness of the potential of mangrove trees to bear flowers throughout most of the year. In the Chwaka bay area, beekeeping is most common in the towns of Bwejuu and Ukongoroni. In Charawe it has just recently started.
Medicine	<i>Xylocarpus granatum</i> is known to have medicinal value for treating stomach pain, yet the effectiveness of this medicine in treating various other diseases has not been investigated.
Tannin	Commercial bark production of tannin and dyes was very common in the period between the 1930's and 1940's for export to America and Europe. Today the practice is rare except for small scale production for leather tanning at the local shoe factory.

Overcutting causes changes in both genetic and species composition. As trees that are good for poles are rapidly removed, the deformed trees and species only desirable for fuel wood remain to repopulate the area. Those trees with less desirable characteristics have a greater chance to produce seeds and eventually dominate the area. Most of the villagers interviewed mentioned that they leave “mother” trees for seeding, but a thorough observation revealed that trees which are left for seed production are actually large-sized, crooked trees.

2.3.3.3 The adopted management strategy for mangroves is ineffective in halting a decline in mangrove tree quantity and quality. Factors contributing to this include: poor enforcement by the government; lack of community participation; a low carrying capacity of the resource; and a lack of site-specific knowledge on mangrove regeneration.

The Chwaka mangrove forest is designated a forest reserve under Chapter 120 of the “Forest Reserve Decree of 1950.” Under this decree, the Commission of Natural Resources has a mandate to exercise control over the exploitation, management and development of mangrove resources in Zanzibar. This is exercised through the use of a number of management techniques:

- Closing and opening the areas on 10-year rotations, regardless of the quantity of poles that the forest can produce (allowable cut). The purpose of opening the forest for 10 years was to confine cutting to one area while the closed area regenerates.
- Issuing of cutting licences to tree planting cooperatives for access to harvest mangrove poles from the forest. This strategy attempts to reduce haphazard cutting by individuals.
- Restrictions on use of mangrove wood for lime burning and bark collection.

MANGROVE SALES

Due to the poor quality of mangrove poles currently harvested from Chwaka Bay, prices for poles are low compared to imported poles. For example, a score of building poles from Chwaka Bay are sold between 4,000 and 5,000 Tsh, as compared to 9,000 and 10,000 Tsh for poles imported from the mainland. In places like Michamvi, Bwejuu and Paje, hoteliers are seeking alternate sources of building poles, such as Casuarina, largely because the existing tree stock cannot produce poles that meet their requirements.

- Field patrolling to enforce the rules.

These measures have not been sufficient to halt resource degradation. The reasons for this include:

POOR ENFORCEMENT BY THE GOVERNMENT DUE TO:

Licencing practices. Observation and discussions with local cutters indicate that the mangrove cutting business is not operating as cooperatives but as an “employer and employee” system. The so-called mangrove cooperatives at Chwaka and Charawe simply employ people to cut and extract mangrove poles from the forest, instead of the licence-holders themselves doing the job. This results in all the mangrove cutters employed by the cooperative being considered members of the cooperative. This makes it impossible for enforcement officers to differentiate legal cutters that belong to cooperatives from those that do not. Villages suggest that the current licencing system be revised to issue licences to individuals, rather than to cooperatives.

Inadequate patrolling. There is a single mangrove enforcement officer working at Chwaka and no field patrol officers. Meaningful monitoring and enforcement is simply not possible. One boat was purchased by the Zanzibar Forestry Development Project to assist patrol activities, especially in closed areas, to minimise

encroachment. This boat is not in good working condition and is not operating. Recently, a new boat was offered by the GEF Biodiversity Project to carry out fisheries conservation and mangrove patrol at Chwaka Bay.

Outdated legislation. The penalties called for in the Forest Reserve legislation are not in relation to the current economic benefit to be gained by illegal cutting. The penalties are outdated. Maximum penalties are 2,000 Tsh or imprisonment for a term not exceeding six months.

Improper resource management. Restrictions over the use of mangrove for firewood, charcoal burning and bark extraction has changed the mangrove forest species' composition, through allowing colonization by *Xylocarpus granatum* and *Rhizophora mucranata*.

CARRYING CAPACITY OF THE RESOURCES IS LOW. The harvesting area currently open is Mapopwe (Map 6), which has been open since 1990. In the four years after the area's opening, there was intense cutting, leading to rapid depletion of the resource. This is due to higher demand for mangrove poles beyond what the forest could produce. Today, the number of cutters has declined from 1990 because the resource has been quickly overexploited. Most of the trees that remain standing are of low economic value.

SCIENTIFIC KNOWLEDGE OF MANGROVE REGENERATION IS MISSING. There is very limited information about the ecology of the Chwaka Bay mangrove system. This lack of knowledge inhibits the ability of decisionmakers to base new management policy on sound scientific understanding of the area. Although Chwaka

Box M-1 Observations from the Field

Some elders of Charawe and Ukongoroni said that the quantity of wood harvested per day was relatively higher in the past than now. This was being facilitated by the concentration of high-quality mangrove per unit area, which made cutting and extraction activities much easier.

The villagers of Chwaka, Ukongoroni and Charawe had the opinion that colonisation of *Xylocarpus granatum* has contributed much to the decline in the quantity of suitable mangrove for poles.

According to the past experience of villagers, there was a general consensus that mangrove quality has declined over years.

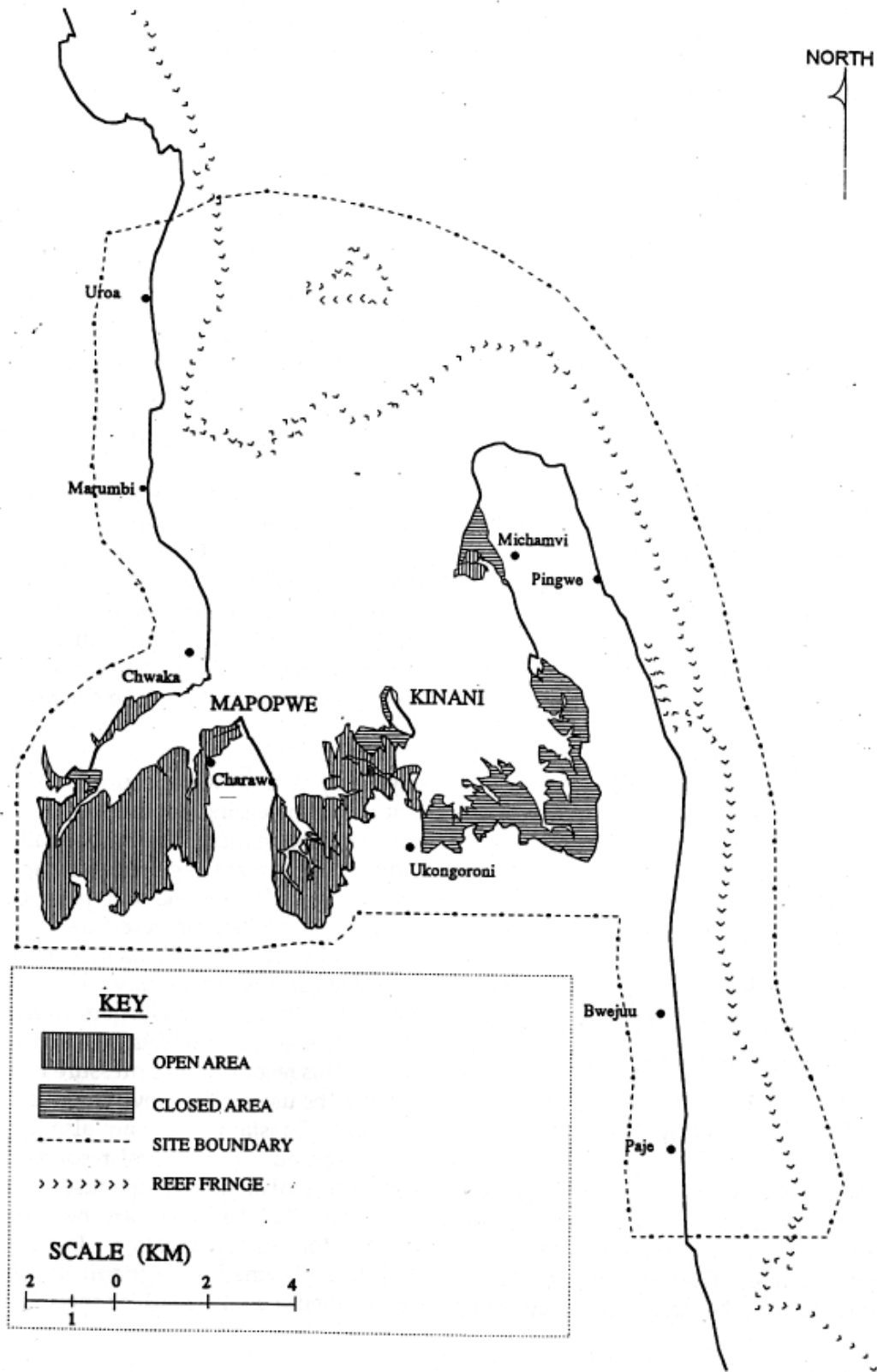
Some respondents from Bwejuu mentioned that the diameter of rafters (*boriti*) is smaller compared to the past.

Observers at Ukongoroni, Charawe and Chwaka note that the quality of the mangrove harvested is very low in terms of crookedness and size compared to Simbouranga poles, which are imported from mainland Tanzania. Despite the low quality of poles, the wood sellers at Chwaka said that they have no problem with the existing market demand.

Field observation revealed that mangrove poles at Chwaka landing are generally of poor quality compared to poles seen in Zanzibar Town. The explanation given by wood cutters is that there are many more pole harvesters now as compared to the past.

According to the past experience of the respondents, the quality of mangrove poles has decreased tremendously. In the past, villagers used to harvest good quality straight and large poles. Now, due to overharvesting, they are no longer getting good quality poles.

MAP 6 - MANGROVE AREAS



Bay has been selected as a site for scientific study by the Institute of Marine Science and Stockholm University, research on mangrove regeneration has not yet been conducted.

2.3.3.4 The right of specific villages to harvest exclusively within portions of the Chwaka mangrove forest is generally recognized by mangrove cutters, however there is neither consensus on the precise boundaries of village tenure nor do current management practices build on the village tenure system.

All six villages in Chwaka Bay believe that they have village “rights” to certain mangrove areas near their village. However, there is not consensus among villages on where the boundaries are (Map 7). When all mangrove forests were designated as forest reserves in 1965, the villages were relieved of any official management authority. This eliminates the ability of the villages to implement traditional management initiatives, although some village management does occur. An example is in Michamvi, which restricts commercial exploitation from its mangrove patch of forests (Box M-2). Yet permits are issued by government officers without prior consultation with villagers. This negates the effect of the local restriction. Furthermore, as the Chwaka Bay mangrove forest is the only legally open mangrove forest in Zanzibar, permits are issued to outsiders to harvest in the area without the villages’ consent.

2.3.3.5 Potential new opportunities are not yet recognized for economic, non-consumptive uses of the mangrove forest, related to the developing tourism industry.

Currently, the only uses of the mangrove forest are consumptive. There has been no discussion about using the mangrove forest for non-consumptive activities. The interesting and unusual flora and fauna of the mangrove community,

particularly the birds which feed or shelter in them, provide opportunities for tourism, scientific studies and education. This opportunity is enhanced by the mangrove creeks opened by the loggers to transport poles and other products which could provide attractive sites for canoeing by tourists.

2.3.3.6 Coastal thickets are being increasingly cut. While the only allowable use of coastal thickets is for agriculture, in practice, significant areas of coastal thickets are being cut for fuel wood for lime burning, for building material and to mark land that has been bought for development.

The only legal means for cutting coastal thickets is to receive a permit. The most common agricultural techniques used in the coastal thicket are crop rotation and land-clearing by the use of fire. Increased population in the area means that more agricultural land will be needed for crop production. For that to occur, a considerable amount of forest must be cleared.

The clearing of land has contributed to the drying up of local water sources. Also, as a result of the increasing population, the fallow period has been reduced. The limited fallow period reduces the forest’s regenerative capacity. Although agriculture is the only permitted use of the coastal thicket, increased demand for fuel wood in Zanzibar Town has increased the market price for this commodity. The rise in price makes it profitable for villagers to harvest fuel wood from coastal thickets, placing more pressure on this resource. The pressure is intensified because the use of mangrove wood for firewood is illegal. Coastal thickets are also being cut to gain access to other natural resources, such as sand and coral limestone for house and road construction. Thicket areas are now also being claimed for land speculation. In these cases a permit is obtained for agriculture, the plot is cleared, and then it is held for speculation.

2.3.3.7. A new project has been established to manage a portion of the Chwaka Bay mangrove forest and the adjacent coastal forest as a conservation area.

In April of 1995, the new Jozani-Chwaka Bay Conservation Project was established, aimed at improving the conservation capabilities of the Forestry Subcommittee in the area. The project, which is under the Ministry of Agriculture, Livestock and Natural Resources, is supported technically and financially by CARE Austria. Management of project activities is directed by the multidisciplinary management team which involves the technical staff from Forestry, Fisheries, DoE and the Commission for Tourism. This team was formed to facilitate integration of management activities and effect proper coordination among the key institutions working in the area.

Major components of this project are:

- To upgrade the current status of the Jozani Forest Reserve into a conservation area, accompanied by extending the conservation area to include part of the Chwaka Bay mangrove forest and the coastal forest in between.
- To boost the low impact uses of the area with particular focus on ecotourism

activities. This necessitates improving the infrastructure, as well as the visitor handling facilities such as the information centre and improved nature trails, and strengthening the education and information base at the station. At the moment, a temporary information centre has been constructed and new site plans to improve the entire station have been prepared.

- To promote community participation in management and decisionmaking as directed by the new Forestry Policy.

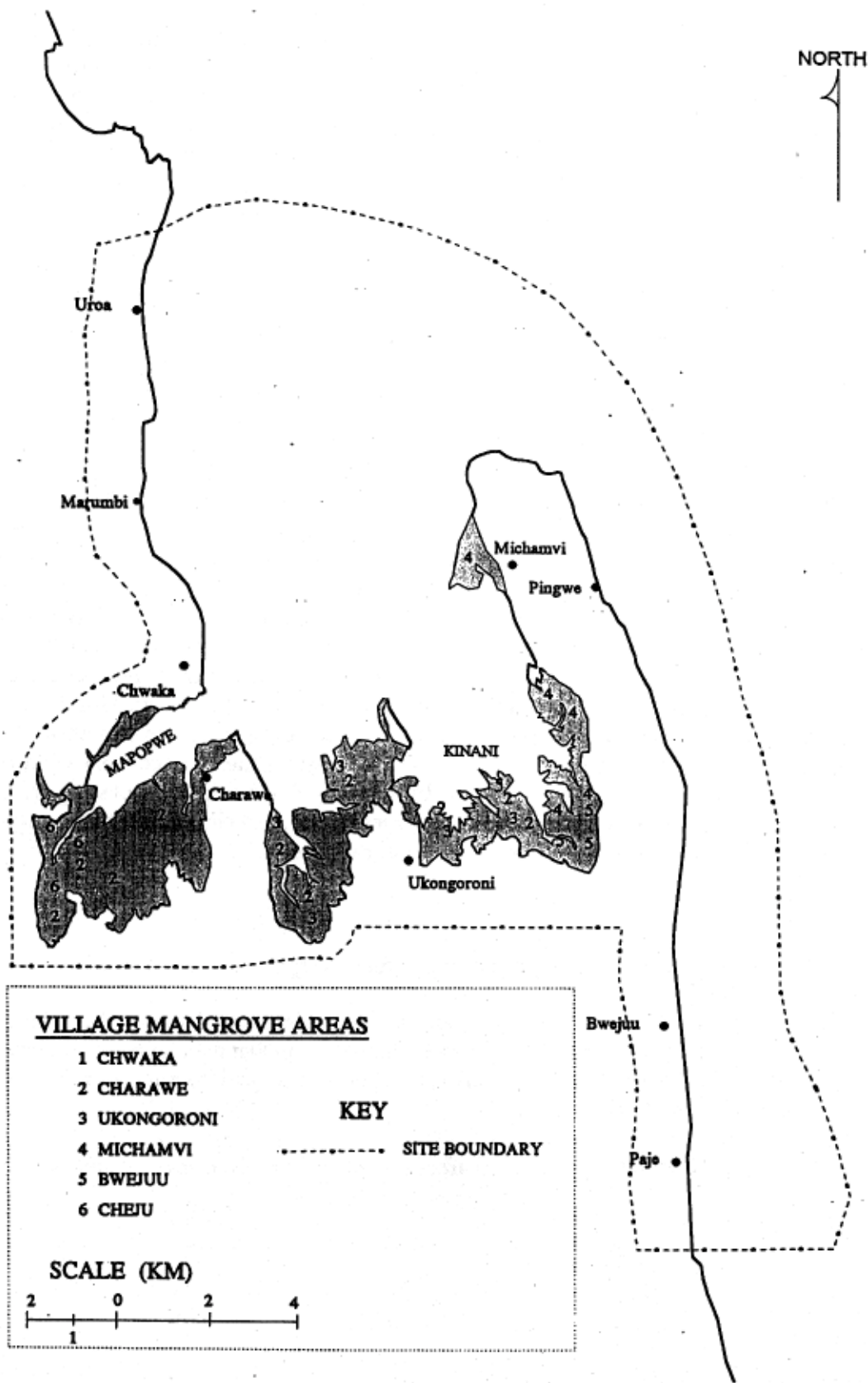
Seven villages around Jozani and Chwaka Bay have at this initial stage been able to form conservation committees. The villages are Jozani/Pete, Unguja, Ukuu, Charawe, Ukongoroni, Cheju and Chwaka. Bwejuu village, which is considered a support zone to this conservation area, has also been included in the programme although the committee is not in full operation. The idea is to allow each of these villages to produce local forest management plans which will specify the management regimes, resource use regulations and the allocation of land for different types of uses, including forest conservation. This is expected to strengthen the conservation of Jozani by allowing the multiple use of support areas and reduce haphazard clearing of the mangrove and coral rag forests.

Box M-2 Examples of Informal Mangrove Management

At **Charawe**, outsiders are not allowed to carry out any commercial exploitation apart from taking two to three scores for home consumption. Since Charawe villagers claim that the Mapopwe mangrove is traditionally theirs, they have even managed to restrict people from Mkwajuni from assisting the Chwaka co-operative in harvesting the poles for them.

At **Michamvi**, no one is allowed to cut mangrove trees for sale because the mangrove area is so small that the villagers resist commercial exploitation

MAP 7 - MANGROVE CONFLICT AREAS



2.4 MANAGING THE GROWTH OF TOURISM

2.4.1 Tourism, which has existed intermittently in the region at a low level since the 1950s, is now rapidly expanding, bringing unprecedented change to the Chwaka Bay-Paje area. Changes today are small compared to what will be occurring in the next two to five years when the large resort hotels currently under construction begin operation. There are three types of tourism development in the area: resort hotels, guest houses and villas.

The Chwaka Bay-Paje area has played host to tourists, both weekend visitors and holiday-makers, for decades. In Chwaka, Bwejuu and

Uroa there are still remains of Government guest houses built during the colonial period. As the country began opening up in the late 1980s, small-scale guest houses and villas of wealthy Zanzibaris began to be built. Since then tourism has grown rapidly, but in an unplanned, *ad hoc* manner. This area is now particularly attractive for tourism development because it is less than two hours by car on an improved road from Zanzibar Town, and infrastructure improvements are continuing.

In 1993, the government prepared a Tourism Zoning Plan to guide the growth of tourism throughout the nation. Bwejuu and Paje are part of the Southeast Development Zone which is designated for development during Phase I (1993-1998) of the plan. Uroa and Chwaka are also designated as Tourism Areas. The existing and planned levels of development are shown in Table T-1 and Figure T-1. The difference between tourism today, and tourism when all hotels under construction are completed will be huge. With the expected average occupancy rate of 60 percent, by the year 2000, there will be over 2,100

Table T-1 Tourism Zoning Plan

Village	District	Locality	No. Of Hotels	Planned Capacity	Types of Hotels
Michamvi	Unguja - Central	Michamvi Kae	3	820	High class, village type
Bwejuu	Unguja - South	Dongwe Bwejuu	8	1,250	Resort enclaves
Bwejuu	Unguja-South	Bwejuu South, Kiganga	4	580	Small-sized, high-rise hotel
Paje	Unguja-South	Paje South	4	580	Medium-sized
Uroa	Unguja-Central	Dikoni	3	200	Medium-sized
Chwaka	Unguja - Central	Shahaji	1	100	Village type (existing)

visitors per day in the area from hotel guests alone. Given that the entire resident population is anticipated to only be 10,400, the impact of this many outsiders will be enormous.

The location of existing tourism developments and those under construction are shown on Map 8. Guest houses are concentrated in Paje and Bwejuu, while hotels are concentrated in the Bwejuu to Dongwe area, and in Uroa, Paje and Chwaka. Villas are concentrated in Paje and Bwejuu, with a few near Uroa. In late 1995 there were 287 beds available in hotels, villas and guest houses. This number is expected to reach 765 by the end of the year 1996.

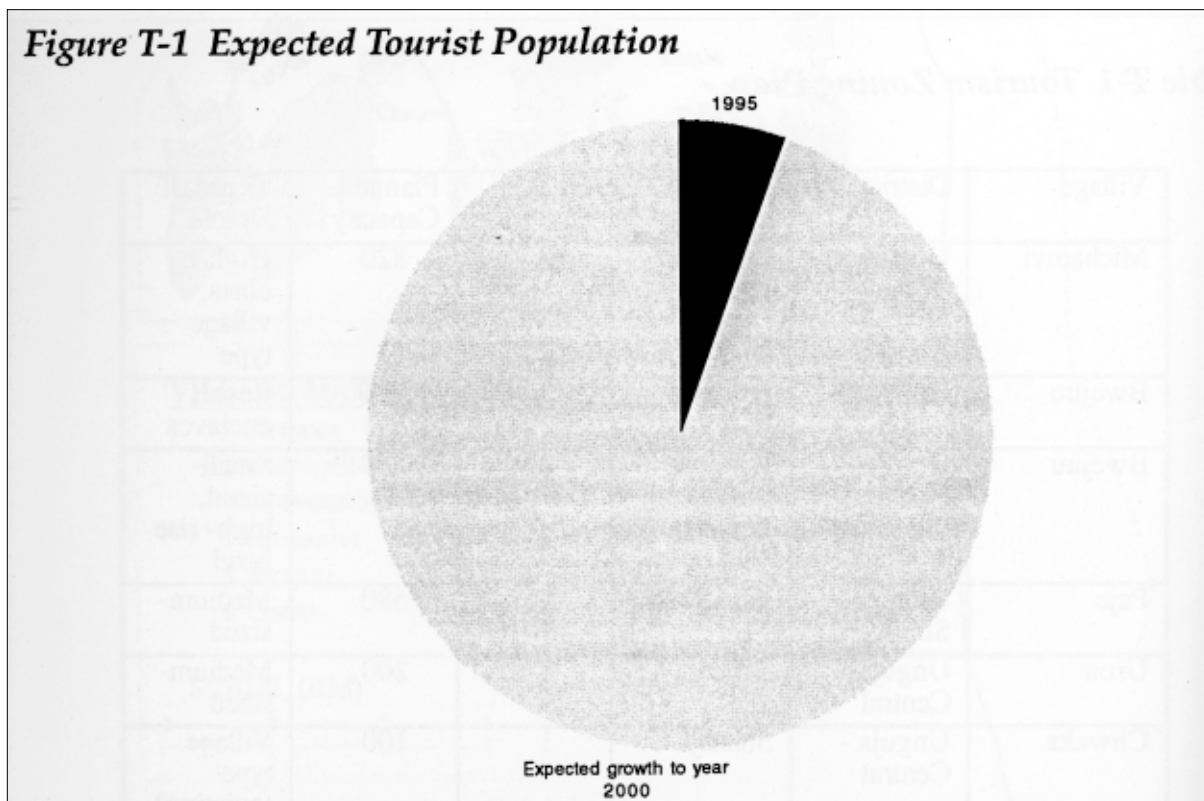
2.4.2 Current management practices are not effective in controlling the pace or location of either large- or small-scale development. Similarly, current measures do not adequately mitigate the environmental and social impacts of the developments.

Unless measures become effective, significantly larger impacts can be expected as tourism development expands.

The Zanzibar Commission on Tourism was established in 1992 to formulate and implement a national tourism policy. While this policy has not yet been formalised, many steps have been taken. One of the first steps was the completion of a Tourism Zoning Plan in 1993. The plan:

- Designates geographic areas for phased development (both hotels and infrastructure).
- Provides a framework for both regulatory control of tourism development and detailed physical planning.
- Establishes guidelines for hotel siting and construction.

The plan also addresses small-scale tourism development. At the same time, guest houses and



villas will be accommodated in the detailed land use plan. The DOE has also adopted Land and Environmental Guidelines for Investors in Tourism. The guidelines apply to both resort hotels and guest houses.

RESORT HOTELS are required to receive a land permit from the Commission for Lands and Environment (COLE) prior to getting approval from the Zanzibar Investment Promotion Agency. Environmental guidelines have been prepared by DOE for incorporation in the hotel review and permitting process (Table B -1). Currently, guidelines are seldom followed and permit stipulations are rarely enforced. There are no sanctions for illegal construction or noncompliance with lease/permit stipulations.

GUEST HOUSES are permitted by the Commission for Tourism. These permits are discussed at the District level, including consultation with the Sheha. If approved at this level, permits go directly to the Commission for Tourism, with no COLE involvement. Therefore, no conditions are placed on the building permit. The only other control for small-scale tourist facilities is zoning intended to limit the placement of villas within existing villages. However, the villa zoning map is not being adequately adhered to and villas are frequently being built within the village proper at Paje and Bwejuu. The Integrated Planning Unit is exploring options for effective control of such developments, but the process has not been brought to closure.

There is no formal process to establish clear and positive relationships between local villages and neighbouring large- or small-scale tourist developments. A limited number of individuals are benefiting from employment, new markets or specific compensation claims. The villages, in some instances, have been benefiting from the construction of new infrastructure. However many individuals and villages are not benefiting from tourism development. For example, some villagers are selling their coconut plots to hotel investors, only to realise that they have lost an important source of renewable materials to continue their way of life: resources for building thatch, making twine fibre, producing cooking oil and harvesting coconuts. Direct development

activities do not always benefit villages and often reduce the amount of resources available for their use.

In return for giving over use of resources to developers, villagers believe that investors should be required to make a contribution to the entire community, such as improving infrastructure or providing such services as building playgrounds or renovating village schools, dispensaries, or mosques. Some agreements are being made between the villagers or village leaders and the investors. However they are almost always only verbal agreements. There have been some complaints that the investors go back on their attractive promises once they have secured a land lease. It has been claimed that hotel investors do not respect the authority of the local village unless they need something from them, such as access to fresh water supplies. As a result, antagonistic relationships are sometimes created between the investors and the villagers.

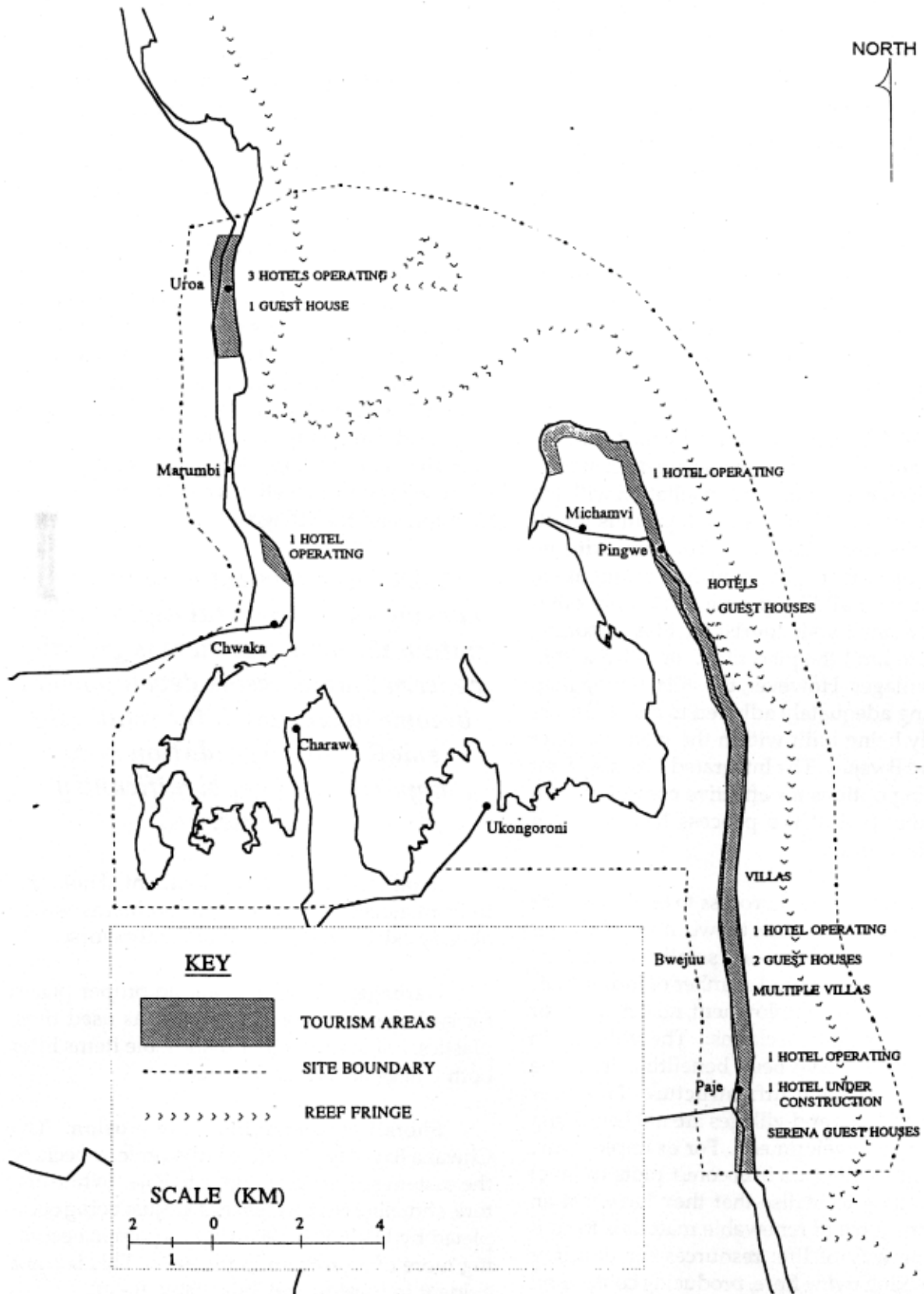
2.4.3 Development is currently causing environmental degradation within the area and there is growing concern that as resort developments become operational, the relatively small-scale degradation now apparent will get significantly worse.

Expanded tourism development, if not carefully managed, will make the problems which already exist in the area significantly worse.

Garbage. Since there are no proper places for garbage collection, items such as used tires, plastics, bottles and other disposable items litter both village areas and the beach.

Shoreline modification and erosion. The Chwaka Bay-Paje shoreline is dynamic, especially the eastern strip from Pingwe to Paje. While historic shoreline change surveys are just being completed by DOE, it is clear that erosion is becoming more of a problem in the area. This is most evident in Bwejuu and Paje (Table B - 2).

MAP 8 - TOURISM AREAS



Sand mining. This industry, and to a much lesser extent coral mining, is increasing as construction proceeds. Sand mining is currently unregulated and typically occurs adjacent to the construction site on the beach, causing downcurrent erosion. Both sand and coral mining are becoming problems in Michamvi village.

Recreation-associated impacts. Uses that impact on coral reefs, such as anchor damage, trampling and souvenir collection, are not yet problems in the area, but could become significant as scuba diving and snorkelling expand as activities.

Groundwater. Water shortages are a major problem in the region. The area is short of groundwater and the sources which exist—shallow underground aquifers—easily become salinized when over-pumped. This is already a problem in Uroa.

Sewage disposal. Most of the hotels are using, or plan to use, soak pits for sewage disposal. Because of the porous limestone soils, inadequately treated sewage can proceed into the groundwater and into the sea.

Increased beach activities. These are occurring throughout the region—from hotel construction, to cars and buses driving along the beach.

2.4.4 Existing levels of tourism are already causing social and economic changes that have resulted in cultural conflicts, shifts in the economic base of the area and changes in land ownership patterns.

Tourism can create opportunities for cross-cultural exchange in which both residents and visitors learn from and about each other. Unfortunately, the more typical result is cultural conflict because visitors do not understand the local culture and/or behave inappropriately. The most common problem has been tourists walking around villages without being properly dressed. While this problem appears to be under control for the moment, other, even more serious conflicts have started to arise. Cultural areas are being lost

Table B-1 Department of Environment Environmental Guidelines for Investors

Topics Address:

- The Area
- The Social Environment
- Water Supply
- Energy Supply
- Sewage Disposal
- Solid Waste Disposal
- Construction Materials
- Tourism Activities
- Workers' Accomodations
- Monitoring

or degraded by the influx of tourist facilities. Examples include the destruction of grave sites, blockage of access to the coast for ritual and cultural activities, and the invasion of the Chwaka-Zanswede area. Other conflicts can be expected to occur as tourism expands.

Tourism has created a new economic opportunity. A significant and growing number of villagers are taking advantage of new employment opportunities. Local residents are being employed for both hotel construction and operation. For example, in the Tamarine Beach Hotel in Uroa, there are about 50 workers, 48 of whom are from Zanzibar, including 20 from Uroa. Local residents typically have low literacy rates and skill levels. Without training, they will not be able to take full advantage of increasing employment opportunities. It is likely that Zanzibaris from outside the area will be attracted to the area as tourism-related job opportunities expand. There is also growing concern that the cost of goods in the area is increasing due to the high demand for commodities.

2.4.5 The expanding tourism industry is creating increased demand for infrastructure. There is pressure on the area's natural

resources, potable water and land. This is beginning to result in resource depletion, and competition and use conflicts between the villagers and hoteliers.

The onset of tourism is creating a good market for commodities such as shells, high-quality seafood such as octopus and lobster, and building materials such as poles, sand and coral. However, this new market is adding to the overfishing problem, and putting additional pressure on both the Chwaka mangrove forest and the area's coastal thickets.

In this coastal area, freshwater is scarce. Bwejuu already has a potable water shortage. Tourists use far more water than village residents so shortages are likely to get worse. New supplies need to be developed to supply both village residents and the expanding hotel sector. Disputes over potable water have already been reported in Uroa, where there is a conflict between the villagers and a hotelier.

Some village residents have sold their land below market value and without fully understanding the future consequences. Frequently, former land owners regret the sale of their land when they find themselves no longer able to get coconuts for consumption or thatch for their roofs.

2.5 ADDRESSING USE CONFLICTS

2.5.1 Conflicts among uses exist in a number of locations in the Chwaka Bay and Paje Coast area. Largely these are conflicts over the use of space and resources. The number and intensity of such conflicts can be expected to increase dramatically in the future as the tourism industry expands.

During the last three years the number, intensity and variety of marine and beach users has increased and use conflicts have arisen in many areas throughout the site (Map 9). This trend is likely to continue as the number of hotels and size of the local population continues to grow. Already observers report that use conflicts are on the rise.

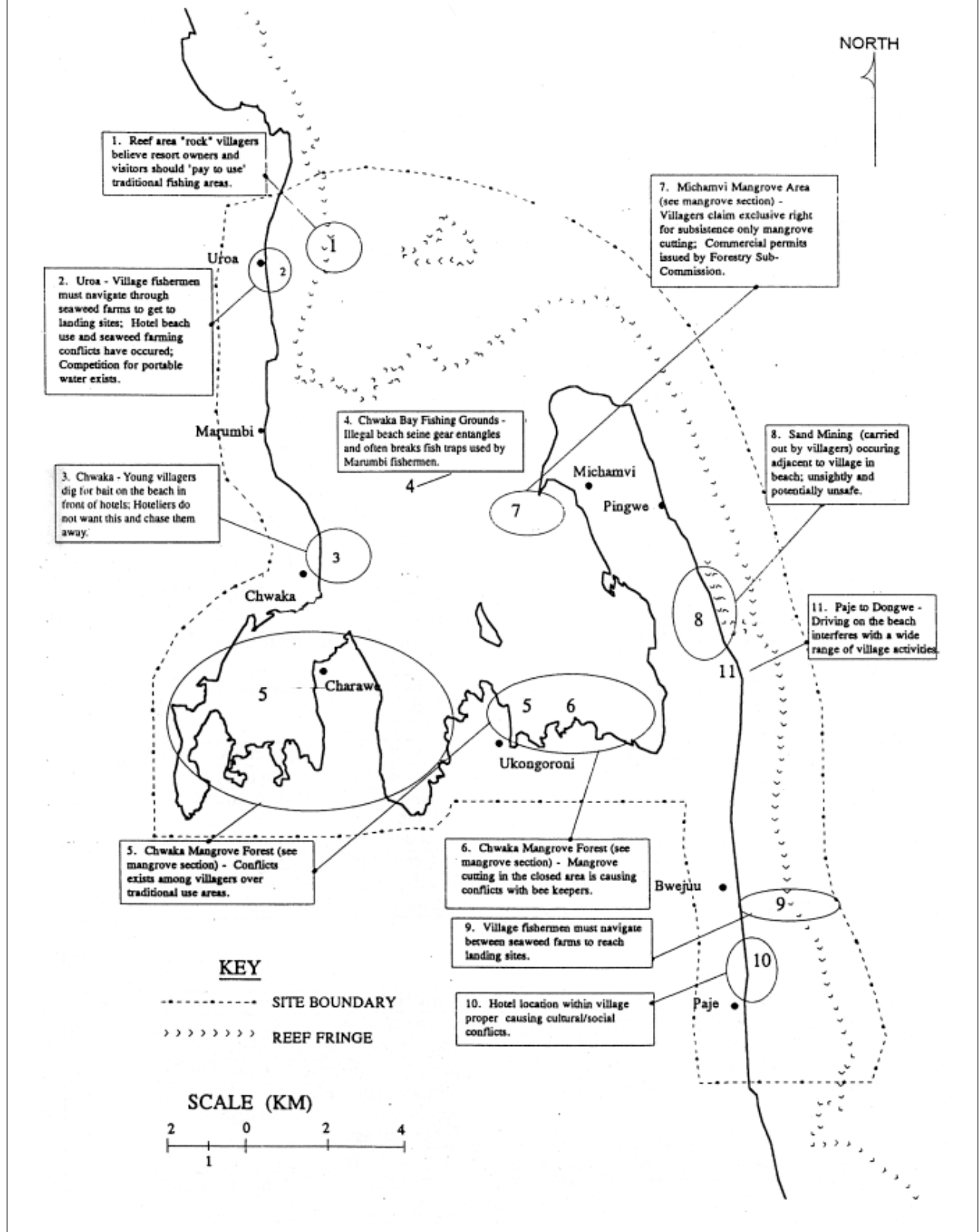
Conflicts most often occur between hotel operations and traditional village activities. As the interaction between these two different users continues to increase, so will the number and intensity of the use conflicts. The types of conflicts which occur between these groups are summarised in Table C-1.

Table B-2

Shorefront erosion, development and setbacks

Erosion is a natural phenomena which can be made worse by human activities such as shoreline modifications, construction of piers, seawalls and jetties, and sand or coral mining. Erosion becomes a problem when buildings and infrastructure are sited too close to the shore and then becomes threatened by the sea. Zanzibar, like other modern-thinking countries, has recognized this fact and the consequent need for adequate setbacks for shorefront construction. The resort development guidelines require a 30-m. setback on sandy shores; and a 10-m. setback on rocky shores. These setbacks have frequently not been observed in either guest house or hotel construction and has resulted in erosion problems.

MAP 9 - USE CONFLICTS



There are three locations where use conflicts tend to arise.

Fishing grounds. Five years ago, the only use of the nearshore reef was for fishing. Today this same area is being used for fishing and recreational activities. Recreational activities such as diving are offered by many of the resort hotels for their customers. Some of the desired dive sites are the same as those used by the village fishermen. This has created conflict between the fishermen and the hotels about uses of those areas.

Beach areas. Traditionally, villagers have had near-exclusive use of the beach. Because of the increased number of tourists using the area, conflicts are arising between villagers who want

to continue using the beach for traditional activities—such as fish landing and coconut husk fermentation for rope making—and the tourists who require an open beach for sunbathing and other recreational activities. These activities are often incompatible and cannot easily coexist on the same beach area.

Intertidal areas. The intertidal area is important both for village use and for hotel activities. Villagers use intertidal areas for seaweed farming, boat mooring and reef gleaning. Hotel activities include a growing number of recreational uses such as sailing, jet skiing, snorkelling and swimming. These activities will increase as the number of tourists visiting the beach hotels continues to rise. This will result in more intense

Table C-1 Conflicts Between Villages and Tourism

Conflicts Between Villages and Tourism		
Village	Tourism	Conflict
Fishing	Diving	Villagers want compensation for use of fishing area
Bait collection	Beach use	Digging holes makes beach unattractive
Traditional beach uses	Driving on beach	Safety and habitat destruction
Fermenting coconut husks for rope making	Beach/water use	Sticks placed on beach and in water
Shell drying	General use	Odor from decaying animals
Cultural areas	Tourism	Cultural areas are being lost or degraded by the influx of tourists and the construction of tourist facilities.
Sand mining	Sand mining	Collection of sand along the beaches for construction disturbs the quality of the beaches
Conflicts Among Villages		
Activities		Conflict
Fishing	Seaweed farming	Channels to landing site
Mangrove cutting*	Mangrove cutting	Customary village use areas
Mangrove cutting*	Beekeeping	mangrove cutting in closed areas
Fishing	Fishing	Dispute between villagers about location of traditionally closed fishing areas.
Fishing *	Fishing	Gear conflicts

* These sectoral conflicts are discussed in their respective sections of this document

pressure between the villages and the hotel operators for use of the intertidal areas.

There is also conflict between different sectors of a village and between villages. For example, as seaweed farming grows, the amount of intertidal zone that is cultivated increases. In some instances, growing seaweed beds have encroached on existing fishing boat channels.

Conflicts also exist within sectors, such as between fishing and mangrove harvesting. These specific sectoral conflicts are discussed within their respective sections of this document.

2.5.2 While district officials attempt to resolve conflicts on a case by case basis, no management process exists for collectively addressing existing conflicts or avoiding new ones.

As conflicts arise they are dealt with on a case-by-case basis. Several government agencies (e.g., district and regional officers, Commission for Tourism, Commission for Lands and Development) are involved in attempting to resolve use conflicts. Depending upon the specific situation, a district officer is asked to intervene. Some conflicts have been resolved, others have not. The existing process does not provide a mechanism for avoiding conflicts before they occur. The district officer acts in a reactive manner and each conflict is reviewed and decided separately. Other conflicts may remain unresolved.

2.6 INSTITUTIONAL AND LEGAL FRAMEWORK

2.6.1 Zanzibar has limited institutional capacity and inadequate structure for initiating and coordinating an ICAM programme.

Zanzibar's existing institutional framework is largely centralised and sectoral in nature. These institutions and policies have recently been reviewed as part of the process for formulating environmental legislation for Zanzibar (*Bensted-Smith, 1995*). The current situation is as follows.

NATIONAL LEVEL. At the national, central government level, the activities of nearly all institutions affect the coastal area and its environment. While sectoral agencies recognise the importance of coastal areas, few have adopted policies that can be used to enhance ICAM. There are, however, a number of notable exceptions. The forestry policy, which is still under preparation, and the National Environmental Policy adopted in 1992 both take an integrated approach to resources management. They call for the development of ICAM programmes within the framework of the overall land use plan. In pursuing this policy, DOE has initiated this ICAM programme and is taking a coordinating role. However, neither DOE nor other institutions at the national level have adequate capacity to undertake such an exercise on their own. To make initial progress, a multi-sectoral and disciplinary team has been set up to begin the process of ICAM in the area.

REGIONAL AND DISTRICT LEVEL. Sustainable management of the coastal area to balance environmental, social and development needs depends on having well-trained and well-equipped resource managers at lower levels of the management hierarchy, particularly at district levels. There is currently a lack of personnel with the training or experience in coastal area management. Some natural resource management sectors—such as fisheries, forestry and agriculture—have district officers. However, these officers are not trained to deal with complex issues addressed by ICAM. In addition to the lack of capacity, there is no mandate for managers at the regional or district level to use ICAM as a tool in resource management.

COMMUNITY LEVEL. At the community level, there are government-administered councils that are charged with formulating and implementing their local developments plans. In many cases, experience has shown that community involve-

ment is very important for a successful ICAM programme. In Zanzibar, management structures at the community level are new, and the staff lack the necessary skills and experience to adequately prepare local plans. However, in most villages, Elders Councils have traditionally been used to resolve conflicts within and between villages. But this system is beginning to break down. In addition, Zanzibar lacks well-designed institutions and processes that ensure that civic traditions are part of management regimes. Community involvement and serious participation in the development of local plans is critical but as yet unfacilitated. Very few non-governmental organisations (NGOs) have been established and most that have are mainly in the urban areas for religious, charitable and educational purposes. There are only a few NGOs related to environment in general and none for coastal issues in particular.

2.6.2 Overlapping jurisdictions of various government agencies on the coast has caused confusion about channels of authority among them. This often leads to competition with one another, diminishing their capability to deal with the problems and preventing coordinated action.

In Zanzibar, the government manages coastal resources sectorally, through different institutions (Box L-1). The pilot area has a large mangrove forest which was declared a forest reserve in 1965, and is managed by the Subcommittee for Forestry. The management regime consists of closing and opening the forest for cutting on a rotation cycle of about 10 years. Fisheries and marine resources are managed by the Subcommittee for Fisheries, which registers and licences fishing vessels. In some villages some traditional forms of management are used, such as the closing and opening of fishing for some species, such as octopus.

The Commission for Lands and Environment manages land use planning and land distribution to various users and investors. It also guides environmental protection and resource conservation. The Commission for Tourism pro-

vides standards for tourism development in the area. Many other institutions, such as the Zanzibar Investment Promotion Agency, Regional and District Councils and the Water Department, play different and important roles in the development of the region.

Most of the institutions operate in their traditionally sectoral fashion, often with limited coordination among them and inadequate integration of their activities in the field. No agency is responsible for taking a holistic view of resource management. This has led to limited development control on fast-growing activities, particularly tourism.

2.6.3 The existing legislation for the sectoral agencies that have an affect on coastal areas does not provide for ICAM. Legislation for ICAM is in its final stages of preparation as part of the Act to Manage the Environment for Sustainable Development of Zanzibar.

As there is no legal framework for ICAM, there is no overall authority responsible for coastal area development and management. The DOE, using its mandate as the advisory and coordinating agency for environmental protection, has led a year-long process to prepare Environmental Legislation for Zanzibar. Within this legislation, Section 36 provides a clear legal basis for ICAM planning and implementation. Other current legislation that effect coastal zone management are shown in Box L-2.

2.6.4 Initiatives by community and non-governmental groups are not formally recognised by current legislation. Therefore, such groups currently cannot be delegated authority to manage resources directly.

There is limited consultation between government institutions and community groups in

developing and enforcing different formal management regimes for coastal resource use and development. The traditional fisheries management that is practised by local communities is not incorporated in government regulations. While existing forest regulations do not specifically allow community involvement, the forestry policy which is now being prepared recognises the importance of community involvement and provides for it in a new policy focus. The government process for managing the rapidly expand-

ing tourism sector does not address the need for involving the people living or having an interest in the area in the decisionmaking or management process. Such groups have no power to negotiate conditions under which tourism development should be permitted and operated in order to promote sustainable development, protect resources and minimise social impacts on the communities.

Box L-1 Sectoral Management of Coastal Resources

<u>INSTITUTION</u>	<u>RESPONSIBILITIES</u>
1 Sub-Commission For Fisheries	Fisheries policy, regulations, permits, promote seaweed farming, declare marine conservation
2 Sub-Commission For Forestry	Forestry policy, regulation harvesting permits, mangrove reserve management
3 Commission For Tourism	Tourism policy and standards, hotel permits infrastructure
4 Department of Lands	Land leasing, land allocation transfers and compensation
5 Department of Surveying and Urban Planning	Land surveying, land use planning, development control and physical standards
6 Department of Agriculture	Agricultural inputs, extension services, products marketing
7 Department of Water	Water sources protection, water supply
8 Zanzibar Investment Promotion Agency	Promotion of investment opportunities, approval of all investment projects with value greater than \$4 million.
9 District Councils	Enforcement on law and order, management on general social, economic and political development in the districts
10 Ministry of Education	Development and management of schools
11 Ministry of Health	In charge of dispensaries, clinics and health education
12 Department of Environment	Environmental policy, EIA Environmental education, research co-ordination for sustainable development and coastal management
13 Villages and Local Government	Enforcing law and order, traditional management of resources

Box L-2 Current Legislation that Affects Coastal Zone Management

The Fisheries Regulation of 1993, issued under the Fisheries Act of 1988 which regulates utilisation and conservation of marine resources.

Forest Reserve Decree of 1950, Chapter 120, of the Zanzibar laws, which regulates utilisation and conservation of the forest.

The current legal basis for tourism development control consists of four laws:

- I.** The Town and Country Planning Act (Chapter 85) of 1955. The Act gives comprehensive directives. It includes provisions for:
 - “Designation for planning areas, appointment of planning authorities and guidelines for the planning process.”
 - “Control of development via permit system in accordance with the relevant plan.”
 - “Enforcement of plans, including alteration or demolition of buildings constructed in contravention of the plan.”
- II.** Zanzibar Investment Promotion Act Number 2 of 1986, which regulates the incentive protection.
- III.** The Commission for Lands and Environment Act of 1989, which deal with all matters related to land use and conservation of the environment.
- IV.** The establishment of the District and Town Councils Act of 1994. This act specifies the functions of the District Councils:
 - “To formulate, coordinate and supervise the implementation of the plans for the economic, commercial, industrial and social development.”
 - “To make by-laws applicable throughout its area of jurisdiction.”
 - “To consider, regulate and coordinate developments plans, projects and programs of villages and township councils within its area of jurisdiction.”

CHAPTER 3

TOWARDS INTEGRATED COASTAL AREA MANAGEMENT IN THE CHWAKA BAY-PAJE DEMONSTRATION AREA

3.1 INTRODUCTION

This chapter outlines an institutional framework and recommends management strategies which, when implemented, will make substantial progress towards solving the coastal management issues in the Chwaka Bay-Paje area. By testing the proposed framework and strategies in the area, valuable experience and lessons can also be learned, then adapted and applied at the national level.

MANAGEMENT GOALS AND OBJECTIVES

- Maintain the coastal resource base on which the economy depends.
 - Foster the sustainable use and conservation of critical coastal ecosystems and habitats such as mangroves, coral reefs, seagrass beds, beaches, coastal thickets, water resources, palm fringe and cultural areas.
- Sustain and enhance village economies.
 - Halt the decline of fish populations and maintain catches at sustainable levels in order to maintain fishing as a viable livelihood for village residents.
 - Formally establish seaweed farming as a protected use of coastal waters to ensure its viability and sustain its contribution to village economies.
 - Achieve sustainable harvest of Chwaka mangrove forest for the villages that maintain a high dependency on the forest
- Encourage non-consumptive uses of the resource base.
- Encourage environmentally and culturally sensitive tourism development within the area which benefits both the local residents and the nation.
 - Maintain a tourism industry within the limits of the area's environmental carrying capacity.
 - Mitigate environmental and cultural impacts from tourism.
 - Ensure that local residents benefit from tourism development.
- Foster harmonious relationships between and among non-traditional and traditional activities.
 - Enhance local participation in planning and management activities.
 - Create and support institutional mechanisms that will fully incorporate local goals and concerns into decisionmaking.
 - Increase awareness within villages of coastal issues and their consequences.
 - Encourage dialogue between resource users to resolve conflicts.

- Acquire and use the best possible information for management decisions.
 - Support research studies relevant to management of the area.
- Utilise and build upon existing laws, policies, regulations, institutions and experience to achieve ICAM goals and objectives.
 - Enforce existing laws which protect the resource base.
 - Coordinate ICAM activities with ongoing projects and activities at the area.
 - Regularly exchange information with similar projects in Zanzibar and elsewhere to gain and apply lessons.

3.2 INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION

To achieve the above goals and objectives, coordinated action is required by government, village residents and the private sector. No group currently exists which includes the necessary representation nor has the geographic mandate to address the set of problems existing at the area in an integrated manner. Therefore, the following recommendations are proposed.

3.2.1. Area Designation

The Chwaka Bay-Paje area should be designated as a coastal area for integrated multi-sectoral planning with boundaries as shown on Map 2. This area is not a legal definition but a general delineation which is being used for planning purposes. The Chwaka Bay-Paje area is considered an important coastal area for integrated multi-sectoral planning because it has:

- Significant environmental value.
- Intensive human activity of significant economic and social value.

This area also experiences many of the critical coastal issues faced in many other areas of Zanzibar—incorporating a rapidly expanding international tourism industry within an area comprised of traditional villages in a manner that benefits the local people and the nation. Management approaches and techniques developed here will be useful in other locations.

3.2.2. Planning and Management Committee

A Coastal Resource Management Committee (CRMC) for the Chwaka Bay-Paje area should be established. The CRMC should include representatives from local and national government, village stakeholders and private interests (Box 1). The CRMC will guide all coastal management activities within the area in cooperation with local governments, national agencies and private sector stakeholders. The CRMC, with the assistance of the Secretariat and appointed subcommittees, will be responsible for completing the planning and action strategies outlined in this report. Participation on the CRMC and any appointed subcommittees should be without remuneration.

Subcommittees. The CRMC chair shall appoint subcommittees as needed to complete the ICAM plan as described in 3.3.1. At a minimum, it is recommended that subcommittees be formed for:

- Critical habitats
- Fisheries
- Seaweed farming
- Mangrove management
- Tourism

The proposed subcommittees correspond to the elements of the proposed ICAM strategy. Each subcommittee should include local representatives from the relevant economic sectors of each affected village; appropriate representation from national, regional and district governments agencies such as Subcommission of Fisheries, Subcommission of Forestry; and members of other relevant CRMC subcommittees. The subcommittee members will select one local member to represent them on the full committee.

Box C-1 Recommended Members for the Coastal Resources Management Committee

- Regional Administrative Officer
- Regional Planning Officer
- District Officers, Central and Southern District
- DoE (Director or designee)
- IMS (Director or designee)
- Subcommission for Forestry (Director or designee)
- Subcommission for Fisheries (Director or designee)
- Integrated Planning Unit of COLE (Chief Regional Planner)
- Representative of the hotel industry in the Chwaka Bay-Paje Area
- Shehas and one village elder from Chwaka, Uroa, Michamvi, Bwejuu, Ukongoroni, Charawe, Paje and Marumbi
- Local representative from the fishing industry
- Local representative from the seaweed farmer industry (woman)
- Local representative from the mangrove cutters
- District Officers representing women and youth
- Other public or private sector members as deemed appropriate by the CRMC

Chairmanship and Secretariat. The CRMC will be chaired by a member elected by the members in the first meeting. DOE will provide interim Secretariat support to the CRMC. Within the first year, the CRMC will select a permanent Secretariat which DOE will support. The chairman will call and conduct a meeting at least bi-monthly, and more frequently if deemed necessary. The chair is responsible for committee meetings, and ensuring that the necessary action is completed in a satisfactorily and timely manner. The secretariat—including a full time DOE representative located at the area—will provide support to the CRMC. Support will include the coordination of meetings, technical assistance to the CRMC and subcommittee members during the implementation of assigned actions.

3.3 STRATEGIES FOR ADDRESSING COASTAL MANAGEMENT ISSUES IN THE AREA

3.3.1 The Chwaka Bay-Paje ICAM Plan

Building from this ICAM strategy, the ICAM plan will provide a coordinated approach to managing the Chwaka Bay-Paje ecosystem that addresses the dominant land and water use issues affecting the local population. In developing the ICAM plan, the CRMC should ensure that the plan:

- Is prepared through appropriate public consultation and in collaboration with other responsible institutions.
- Is built from existing plans and takes into account other relevant national plans, especially those which apply to natural resources in the coastal area.
- Allocates the costs and benefits of integrated coastal area management in a manner considered equitable by the resident and non-resident users of the coastal environment or their representatives.
- Reconciles existing uses of the coastal environment.
- Is reviewed on a continual basis.

The plan will include the following elements.

Sustaining and Enhancing the Quality of Village Life. Formulate an element which addresses how development and management activities as defined through other plan elements, will be applied to maintain and enhance village life including:

- Infrastructure
- Livelihood and opportunities
- Education and culture

Conservation of Critical Habitats. Formulate a conservation scheme for critical habitats which promotes the non-consumptive use of coastal and marine resources by:

- Establishing guidelines and a framework for designating and managing conservation areas.
- Using the established framework and guidelines to create and manage a pilot nature conservation area which obtains sufficient revenue to be self-sustaining and provide benefits to the community.

Fisheries Management. Formulate a fisheries management and development element for Chwaka Bay-Paje area that addresses topics such as:

- Inshore and offshore stock assessment and management, including ongoing monitoring.
- Traditional village use areas/conflicts between villages.
- Exploitation issues, including seasonal fishing, illegal gear and separation of different fishing activities that result in habitat destruction and conflicts.
- The need for improved Extension Services and education to fishing communities.
- Realistic enforcement schemes, including the potential role of community-based enforcement.
- Utilising community-based management strategies as a mechanism for addressing multiple fisheries and habitat issues.
- Feasibility of exploiting offshore fisheries, and the potential impact of introducing more efficient gear to the inshore fishery.
- The need to improve seaworthiness of fishing vessels through credit programs or use of import duties, and the impact a program such as this will have on future fishing effort and stocks.
- Facilitate the introduction and control of new fishing techniques (e.g., mariculture).
- Management of endangered species such as sea turtles.

Seaweed Farming, Zoning and Management. Formulate a pilot seaweed management element and zoning scheme. The planning process will:

- Involve villagers and hoteliers in identifying and designating seaweed farming zones.
- Establish seaweed farming zones that are recognised by farmers, fishermen, hoteliers and other coastal users.
- Establish and implement “most appropriate” farming practices for activities that occur within these zones to minimise known environmental impacts.
- Actively involve villagers in management of seaweed farming activities including allocation of plots.
- Investigate how to give legal rights to seaweed farmers for their plots.
- Improve profitability of seaweed farming by identifying intermediate products that villagers can produce.

Mangrove Forest and Coastal Thicket Management. Formulate a comprehensive forest management element that will:

- Inventory the standing stock of mangroves and determine appropriate levels of allowable cut.
- Increase community awareness of the issues pertaining to mangrove use.
- Involve communities in mangrove management, perhaps building upon traditional management activities.
- Improve effectiveness of law enforcement for illegal cutting.
- Promote non-timber uses of mangroves.
- Consider how to reduce demand for mangrove products from the area.
- Address how economic, non-consumptive uses of mangroves can be encour-

aged, including ecotourism developments designed to benefit local communities.

- Halt degradation of coastal thickets.

Sustainable Tourism Management. Develop a management system which will guide sustainable tourism in the area. Components should include:

- Specific development guidelines which define and require best management and mitigation practices to address potential tourism impacts including:
 - Water supply (quality and quantity)
 - Waste management
 - Rehabilitation of degraded habitats
 - Erosion control
- A review of the potential of a tax incentive system for “environmentally friendly” hotel and other tourist operations.
- Local regulations to properly manage tourist behaviour. The regulations should include mechanisms that ensure activities that are not compatible with tourist and/or village activities are located in mutually agreeable locations, and also minimise environmental degradation.
- A “user pays” revenue generation system wherein revenues generated from the tourism industry are used in part to help meet village needs.
- Recommendations for strengthening DOE and other governmental agencies’ capacity to review and impose conditions on tourism developments.
- Local plans for all villages that address the opportunities and potential impacts of tourism growth on the village.

Land Use Plan and Zoning. Create a zoning scheme for the area that:

- Establishes uses zones that allow for the coexistence of different activities.
- Designates specific areas for traditional and non-traditional activities (e.g., rope making, sunbathing and seaweed farming).
- Marks transit areas for fishermen to use while operating between landing sites and fishing grounds.
- Develops mechanisms for marking seaweed farming plots.
- Develops mechanisms for marking village boundaries.

3.3.2 Short- and Medium-Term Action Strategies.

The problems of Chwaka Bay-Paje are rapidly getting more severe. While more detailed planning is essential for creating sustainable solutions to problems, there are essential short-term actions that can and must be taken now. The following actions have been identified through interaction with the local and national stakeholders during the process of identifying the coastal management issues in the demonstration area. Initial actions are already in the process of being implemented by the ICAM project planning team led by DOE.

PUBLIC AWARENESS. Reduce environmental degradation by improving awareness among villagers, tourists, hoteliers and government officials about the importance and fragility of critical habitat systems in the demonstration area.

Action A. A video about the Chwaka Bay-Paje area is being produced that emphasises the connection between the natural resource base and the sustainable development of the area.

Lead Organisation: Department of Environment
Cooperating Organisations: Institute of Marine Science, Commission for Natural Resources, Department of Information, Local Commission

Action B. Create a sustained education campaign that will increase the awareness of tourists about local culture and traditions. It should also be designed to increase awareness of villagers about the impact of tourism on their social and economic status, and on the importance of a good environment for tourism.

Lead Organisation: Commission for Tourism
Cooperating Organisations: Hoteliers, Tour Operators, Local Government, Commission for Lands and Environment

IMPROVED INFORMATION ABOUT THE AREA. Establish a baseline and monitor information on the coastal habitats using indicators/protocols that: are rapid to assess and salient to key stakeholders; utilise resource users for data acquisition; can be easily repeated; and, can be used to measure change and on which future management decisions can be based. Any new monitoring programme should seek to utilise or enhance existing monitoring programs.

Initial Action A. A pilot, participatory monitoring protocol for environmental, economic and social parameters is being developed and tested in the pilot area.

Lead Organisation: Planning Commission
Cooperating Organisations: Departments of Environment and Forestry, Local Government, Social Welfare, Institute of Marine Science, Subcommittee for Agriculture

Action B. Focus the efforts of existing or proposed monitoring projects on the demonstration area to elicit and record feedback from all stakeholders on the area's condition and use, and the effects of management.

Lead Organisations: Department of Environment and COLE
Cooperating Organisations: Subcommittee for Agriculture, Subcommittee for Forestry, Institute of Marine Science, Ministry of Information Culture Tourism and Youth, Department of Lands and Urban Planning

Action C. Complete a study of the area that details the area's carrying capacity in terms of water supply, infrastructure support and environmental constraints.

Lead Organisations: Department of Environment and COLE

Cooperating Organisations: Department of Water, Department of Energy, Department of Communication, Department of Tourism, Institute of Marine Science, Department of Agriculture, Integrated Planning Unit

IMPROVE COMMUNITY INVOLVEMENT IN PLANNING AND DECISIONMAKING. As the tourism industry expands in the area, ensure community involvement in the decisionmaking process.

Action A. Increase local input, specifically the Shehas, into the planning and development of tourism facilities by providing Sheha training and technical support to local governments on the proper design, siting and management of tourist facilities.

Lead Organisation: Local Government
Cooperating Organisations: Commission for Tourism, Hoteliers, Department of Lands, Planning Commission, Department of Environment, Subcommittee for Agriculture, Integrated Planning Unit

Action B. A DOE officer, in conjunction with the CRMC, should connect with other relevant agencies/communities and monitor tourism developments.

Lead Organisation: Department of Environment
Cooperating Organisations: Commission for Tourism, Local Government, Commission for Natural Resources, Communities

MEET THE COMMUNITIES' BASIC NEEDS AND INCREASE THEIR ECONOMIC BENEFITS FROM TOURISM. As the tourism industry expands in the area, ensure that village needs for basic services and infrastructure are met, and that villagers directly benefit from economic growth.

Action A. Promote village participation in economic activities associated with the tourism industry (e.g., institute an education program for fishermen about profitable involvement in tourism activities).

Lead Organisation: Local Government

Cooperating Organisations: Department of Environment, Commission for Tourism, Planning, Ministry of Agriculture and Livestock, Department of Culture

Action B. Expand efforts to provide basic infrastructure, especially for village use.

Lead Organisation: Ministry of State Planning
Cooperating Organisations: State Fuel and Power Cooperation, Communication, Local Government, Department of Water, Department of Lands, Department of Environment, Commission for Tourism

Action C. Support and strengthen the Environmental Impact Assessment process for tourism resorts that will protect the area from activities which are likely to have a significant impact on the environment and the local communities.

Lead Organisation: Department of Environment
Cooperating Organisations: Commission for Tourism, Local Government, Institute of Marine Science, Zanzibar Investors Promotion Agency, Department of Environment, Commission for Natural Resources

INCREASE DIALOGUE AMONG CONFLICTING USERS TO FOSTER COOPERATION. As the number of users continues to rise in the demonstration area, cooperative efforts for minimising user conflicts must be developed and implemented.

Action A. Conduct regular meetings among:

- Hoteliers, seaweed farmers and fishermen to address their specific concerns.
- Hoteliers and villagers that leads to a process for formulating agreements over resource use and compensation.
- Hoteliers and seaweed farmers to address their specific concerns.

Lead Organisation: Local Governments
Cooperating Organisations: Attorney General's Chamber, Commission for Natural Resources, Hoteliers, Commission for Tourism, Subcommittee for Agriculture, Seaweed Companies, Department of Environment, Zanzibar Investors Promotion Agency

ANNEX

TOWARDS INTEGRATED MANAGEMENT AND SUSTAINABLE DEVELOPMENT OF ZANZIBAR'S COAST: NATIONAL WORKSHOP REEF HOTEL; MARCH 11-13, 1996

BACKGROUND

Over one hundred participants from national government agencies, local government, local villages, research institutes and the private sector, along with international representatives, attended the national workshop, *Towards Integrated Management and Sustainable Development of Zanzibar's Coast*.

The Workshop was convened by and a draft document, *Towards Integrated Management and Sustainable Development of Zanzibar's Coast: Initial Findings and Recommendations for an Action Strategy in the Chwaka Bay-Paje Area*, developed by an Interagency Planning Team led by the Department of Environment, and consisting of individuals from the Subcommissions of Fisheries and Forestry, Commission of Lands and the Environment, and Institute of Marine Sciences. The planning team began work in September, 1994, and has been engaged in reviewing information and holding consultations with village residents, hoteliers and local and national agencies to clearly identify pertinent issues, reach consensus on management objectives and begin to develop strategies to address the coastal management issues in the Chwaka Bay-Paje Area.

PURPOSE

The purpose of the National Workshop was to:

Raise awareness and contribute to a dialogue in Zanzibar about how government, in partnership with local communities and the private sector, can carry out integrated planning and management for coastal resources and regions.

Review the draft document.

Reach consensus on next steps for ICAM at the demonstration area.

ACTIONS

The National Workshop on Integrated Coastal Area Management:

Reviewed the draft document, and further:

Considered the presentations, remarks and views expressed at the seminar;

Discussed the recommendations in the *Action Strategy in the Chwaka-Paje Area* ;

Found there is a need for Integrated Coastal Management (ICAM) at the area; and,

Endorsed creation of a Coastal Resource Management Committee (CRMC) for Chwaka Bay-Paje area with membership as listed in Box 1.

The National Workshop also recommended that:

The first meeting of the CRMC be conducted as soon as possible and be held in the area.

The CRMC Chairman be elected by the members at the first meeting.

Terms of reference, elaborating on the action agenda included in the document (Box 2), and specifying CRMC operating procedures, be prepared.

Department of Environment serve as the CRMC's Secretariat.

Lead and cooperating agency assignments be developed for each endorsed action item.

The CRMC seek Zanzibar Government support for implementation.

The CRMC and their Secretariat continue to use and share ICAM experience with other countries.

The ICAM process at the area be evaluated within three years and the experience and the outcomes applied at the national level.

Box 1 Recommended Members for the Coastal Resources Management Committee

- Regional Administrative Officer
- Regional Planning Officer
- District Officers, Central and Southern District
- DOE (Director or designee)
- IMS (Director or designee)
- Subcommission for Forestry (Director or designee)
- Subcommission for Fisheries (Director or designee)
- Integrated Planning Unit of COLE (Chief Regional Planner)
- Representative of the hotel industry in the Chwaka Bay-Paje Area
- Shehas and one village elder from Chwaka, Uroa, Michamvi, Bwejuu, Ukongoroni, Charawe, Paje and Marumbi
- Local representative from the fishing industry
- Local representative from the seaweed farmer industry (woman)
- Local representative from the mangrove cutters
- District Officers representing women and youth
- Other public or private sector members as deemed appropriate by the CRMC

Box 2 Implementation Activities to be Completed by the CRMC

Chwaka Bay-Paje Integrated Coastal Management Plan. Building from the strategy document, an ICAM plan, which provides a coordinated approach to managing the Chwaka Bay-Paje ecosystem and addresses the dominant land and water use issues affecting the local population, will be prepared, and will include the following planning elements:

- Sustaining and Enhancing Village Quality of Life
- Conservation of Critical Habitats
- Fisheries Management
- Seaweed Farming Zoning and Management
- Coastal Forest Management
- Sustainable Tourism Management
- Land Use Management

Short- and Medium-Term Action Strategies

The problems of Chwaka Bay-Paje are rapidly getting more severe. While more detailed planning is essential for creating sustainable solutions to problems, there are essential short term actions that can and must be taken now. These include:

Public Awareness. Reduce environmental degradation by improving awareness among villagers, tourists, hotel operators and government officials about the importance and fragility of critical habitat systems in the demonstration area.

Improved information about the area. Establish a baseline and monitor information on the coastal habitats using indicators/protocols from which change can be measured and future management decisions can be based. The indicators and protocols must provide rapid assessment, be important to key stakeholders, employ resource users for data acquisition and be easily repeated. Any monitoring should seek to utilise or enhance existing monitoring programs.

Improve Community Involvement in Planning and Decisionmaking. As the tourism industry expands in the area, ensure community involvement in the decisionmaking process.

Meet the Communities' Basic Needs and Increase their Economic Benefits from Tourism. As the tourism industry expands in the area, ensure that village needs for basic services and infrastructure are met, and that villagers directly benefit from economic growth.

Increase Dialogue Among Conflicting Users to Foster Cooperation. As the number of users continues to rise in the demonstration area, cooperative efforts for minimising user conflicts must be developed and implemented.

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