

IUCN Eastern Africa Programme

Economics Programme and Marine & Coastal Programme

Economic Constraints to the Management of Marine Protected Areas: the Case of Kisite Marine Nationala



IUCN Eastern Africa Regional Office

Economics Programme and Marine & Coastal Programme

Marine Protected Areas: the Case of Kisite Marine National Park and Mpunguti Marine National Reserve, Kenya

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May 2001

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and totally chlorine free pulp.*

ACKNOWLEDGEMENTS

The case study relied heavily on the support of Dr. Rod Salm, the then IUCN EARO Marine and Coastal Programme Co-ordinator; Ms. Sue Wells, the current IUCN EARO Marine and Coastal Programme Co-ordinator; Dr. Nyawira Muthiga, KWS Head, Coastal and Wetlands Programme, Ms. Janet Kaleha, Kisite Marine National Park Warden; Mr. Simba Mwabuzi, KWS Coxswain; Mr. Etyang, Kwale District Fisheries Officer; the Assistant Chief, Elders and residents of Mkwiro, Shimoni and Wasini Villages; and the private hoteliers and tour operators of the Shimoni-Wasini area. Additional thanks go to Gordon Arara and other staff of IUCN-EARO who assisted with production of this report.

PREFACE

This document was produced in response to a growing interest by environment and wildlife agencies in Eastern Africa in addressing issues relating to the financial and economic sustainability of MPAs, and to their increasing recognition that economic and financial measures form important tools in MPA management. This study is intended to document practical lessons learned, and to highlight needs and niches for the use of economic and financial tools for MPA management in the region.

The case study was carried out as part of the *Pilot Project on Partnerships for the Management of Kisite Marine National Park and Mpunguti Marine National Reserve Complex*, implemented by the Kenya Wildlife Service and technical assistance from IUCN – The World Conservation Union. This project is part of a larger inter-regional project on *Sustainable Marine Biodiversity Conservation: Linking Tourism to Marine and Coastal Protected Areas*, involving IUCN Regional Offices in Eastern Africa and Central America, with financial support from BMZ – the German Federal Ministry for Economic Co-operation and Development. The overall goal is to contribute towards ecologically and economically sustained marine and coastal biodiversity conservation through the integration of community livelihoods, development of coastal tourism and marine protected areas. Since 1998, the pilot project in Eastern Africa has been implementing a series of activities designed to facilitate communication between Kenya Wildlife Service and KMNP/MMNR stakeholders, and to initiate a process of management partnerships.

The study also forms a component of *IUCN Eastern Africa Regional Office's Economics Programme, and Marine and Coastal Programme*. It is one in a series of case studies being carried out on the economics of biodiversity conservation in different ecosystems and countries in Eastern Africa. These case studies aim to document existing conservation efforts from an economic viewpoint, contribute to available biodiversity economics information and methodologies, and provide recommendations for the formulation of conservation policy and practice in the Eastern Africa region.

Citation: Emerton, L. and Tessema, Y. 2001. Economic Constraints to the Management of Marine Protected Areas: the Case of Kisite Marine National Park and Mpunguti Marine National Reserve, Kenya. IUCN Eastern Africa Regional Office, Nairobi, Kenya.

Cover photos: By Sam Weru, Sue Wells and Lucy Emerton

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1 Introduction: economics aspects of MPA management

1.1 Economic threats to MPAs

Eastern Africa contains an extensive network of marine protected areas (MPAs), stretching from the Red Sea states of Sudan, Eritrea and Djibouti, along the Indian Ocean coastline of Somaliland, Somalia, Kenya, Tanzania and Mozambique, and out to the Indian Ocean islands of Seychelles, Comoros, Réunion, Mauritius and Madagascar. Most of these MPAs have been gazetted because they contain species or habitats of particular interest, importance or conservation concern that are under threat in some way.

The main threats to Eastern Africa's MPAs arise from human economic activities. These include over-fishing and destructive fishing techniques (such as poison fishing, dynamite fishing and the use of small-mesh nets), the over-harvesting of other marine products (such as mangroves, shells, seabirds, turtles, marine invertebrates and mammals) and — particularly along the main coastal strip — the conversion and pollution of natural habitats resulting from land reclamation, shipping, ports, urban centres, tourist developments and industries such as prawn farming, salt production, oil and gas extraction. More recently, MPAs have also been affected by coral mortality due to the effects of El Niño and global warming.

A key question is the extent to which MPA management systems attempt to identify and overcome these threats, and their underlying economic causes. This case study is concerned with economic explanations of marine degradation and loss, with the ways in which economic forces act as a constraint to MPA management, and with how, in turn, economic measures can yield important tools for strengthening efforts at marine and coastal conservation.

1.2 Economic constraints to MPA management

With few exceptions, the agencies responsible for Eastern Africa's MPAs face a difficult task in justifying marine conservation in economic and development terms. In the face of pressing development needs, and with a dominant development imperative in the region that focuses on maximising short-term financial gains, many economic activities that result in the degradation of marine and coastal resources are seen as the most desirable course of development. MPAs are often viewed by planners and decision-makers in development and economic agencies as a wasteful use of land and sea areas, of investment funds and of other resources, as obstacles to development, and as generating few immediate economic or financial benefits. Likewise, there is perceived to be little or no economic cost to marine resource degradation.

It is hardly surprising that MPAs may be seen by macroeconomic and sectoral planners and decision-makers as having low or negligible value in Eastern Africa. Remarkably little is known about their wider economic benefits, and very little attention has been paid to maximising or capturing these benefits as tangible values. This not only makes it difficult to justify their existence; it also constrains their management. One particularly pressing management constraint is that of capturing sufficient benefits to cover the costs of MPAs and to enable them to compete on economic and financial terms with alternative, destructive, land and resource uses.

This concern includes raising sufficient revenues to finance the operation of MPAs — which are mostly managed by government wildlife and protected area agencies. MPAs in Eastern Africa have tended to operate from an extremely limited financial base — that of central government subventions, donor funds and, in some cases, tourism earnings. All of these funding sources have fallen drastically

over the last decade. Both central government and donor budgets to the wildlife and protected area sectors, always limited in amount and scope, have declined substantially in real terms. There has also been, since the mid-1990s, a significant downfall in tourism in the region. In common with many other aspects of the public sector, MPAs are increasingly being required to generate their own revenues and to recover costs.

Another concern is ensuring that MPAs generate adequate benefits to convince the people whose economic activities have the potential to impact on them that conservation is desirable — most importantly local communities and resource users. Few MPAs are completely isolated from human influence, and most co-exist with adjacent populations who depend in some way on marine and coastal resources. For many MPAs in Eastern Africa, especially those that lie within local fishing grounds or are close to human settlements, there is a high opportunity cost to conservation in terms of resource utilisation activities foregone or precluded. These perceptions of high opportunity costs tend to be exacerbated in cases where MPAs support major tourism industries, which are often controlled by outsiders. There has been a growing recognition that a wide range of stakeholder groups have an economic interest in MPAs, and have the potential to influence their status and integrity. While some of these stakeholders benefit at low cost, or freely, from MPAs, other groups have been marginalised and excluded, and are accordingly unwilling — and often economically unable — to support them.

MPAs in Eastern Africa thus typically face the combined problems of:

- ❖ Having a low perceived economic value (meaning that they tend to be seen by policy-makers and planners as an uneconomic use of land, sea and other resources, and as a hindrance to development),
- ❖ Operating from an extremely limited and insecure financial base (meaning that on-the-ground management is often weak or non-existent),
- ❖ Having high opportunity costs (meaning that local populations are often unwilling — or economically unable — to support marine conservation).

1.3 The study

All of these imbalances in economic costs and benefits translate into major constraints to MPA management. This case study of a MPA complex in Kenya — Kisite Marine National Park and Mpunguti Marine National Reserve (KMNP/MMNR) — typifies many of these issues, economic imbalances and management constraints, and can thus present useful experiences and lessons learned that are applicable to the wider Eastern Africa region.

The Kisite-Mpunguti case study, which forms the basis of this report, was carried out over a period of one month in January 1999. It involved the collection of information from a range of stakeholder groups who live in and around the MPA on the economic and financial costs and benefits of the protected area. It also involved a review of relevant literature.

Since 1999, KWS has been working to improve relations between the various stakeholders in the MPA. A series of activities have been carried out which involve both conflict resolution between different groups, and setting up new mechanisms for sharing the costs and benefits of the MPA. There is evidence that many of the issues raised in this report are beginning to be addressed; that relations between KWS, local communities and private sector operators have improved; and that communities are becoming much more involved in tourism and other MPA-based income-generating activities. The financial position of KWS Headquarters has also improved, and has been reflected in some increase in budget allocations made to KWS Shimon. Many of the innovations in MPA management that have taken place in Kisite Marine National Park since January 1999 are described in the concluding chapters to this report.

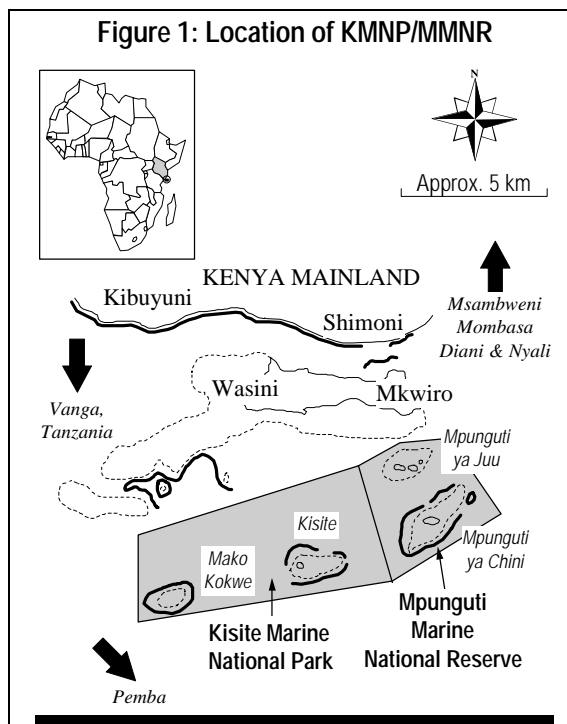
2 An overview of the Kisite-Mpunguti area

2.1 The marine protected area complex

The marine protected area complex that is the focus of this case study comprises the contiguous Kisite Marine National Park (KMNP, 28 km²) and Mpunguti Marine National Reserve (MMNR, 11 km²), located off the south coast of Kenya some 6 km from the Tanzanian border. The MPA complex contains three coral islands (Kisite, Mpunguti ya Juu and Mpunguti ya Chini), submerged reefs and their surrounding open waters (Figure 1). KMNP/MMNR lies between 3 and 8 km offshore from the southward facing Shimoni peninsula and between 0.5 and 5 km from Wasini Island on its northern side, and its western side is upwards of some 10 km offshore of the Kenyan mainland.

A Marine National Park was first created at Kisite in 1973. In 1976 the park boundaries were revised and re-demarcated, and shifted outwards. In 1978 Mpunguti was gazetted as a Marine National Reserve following local disputes over the loss of fishing grounds caused by the establishment of the strict National Park. Today KMNP/MMNR is managed by the government Kenya Wildlife Service (KWS) from a mainland headquarters at Shimoni, using an outpost on Mpunguti ya Chini as a base for patrols. Although revenues are collected at the Park level, all are remitted directly to KWS Central Headquarters, in Nairobi, who sets budgets and allocates funds to KMNP/MMNR.

Although administered as a single protected area complex, Kisite and Mpunguti are under different conservation regimes. In the larger KMNP no consumptive utilisation is allowed, while in MMNR fishing activities using traditional methods are permitted. Tourist diving and snorkelling activities take place in both KMNP and MMNR, and are concentrated in areas where there are moorings around Kisite and Mpunguti Islands.



2.2 The local socio-economy

Although KMNP/MMNR is entirely offshore, it is bordered by Shimoni and Wasini Sub-Locations. While the former is on the mainland and is centred around Shimoni rural trading centre and Kibuyuni Village to its west, the latter encompasses Wasini Island and includes Wasini Village on the west side and Mkwiwo Village on the east side. Both Sub-Locations are contained in Pongwe/Kidimu Location of Msambweni Division, Kwale District. The Shimoni-Wasini area contains approximately 900 households or just over 4,000 persons, and covers an area of some 22 km² (Table 1). The majority – just over half – of residents of Shimoni and Wasini are Digo (Mwadzaya *et al* 1995), including on Wasini Island sub-tribes of the WaVumba (Wasini Village) and Shirazi (Mkwiwo Village). These populations comprise the primary local users of the MPA and its surrounds.

Shimoni and Wasini are rural Sub-Locations. Basic social infrastructure such as health, education and water facilities are poorly developed. Transport and communications are however well provided for, at least during the

dry season. Both Wasini and Shimoni lie on local shipping routes along the Kenya coast and between Kenya and Tanzania. Although only some 15 km long, the dirt road connecting Shimoni to the main coastal highway is in extremely poor condition and can become impassable in wet seasons. Aside from fish, formal markets and trade are undeveloped, due to the proximity by road and sea of the better-developed major market centres of Kwale, Ukunda and Mombasa (MPND 1989). Shimoni is also reputed to provide an important stop-off point on cross-border smuggling routes between the Gulf States, Kenya and Tanzania.

Table 1: Population of Shimoni and Wasini Sub-Locations, 1999

	Persons	Households	Area (km ²)	Density
Shimoni	2,900	684	18	161
Wasini	1,231	225	4	308
Total	4,131	909	22	188

(Source: 1999 Census)

Few income and employment generating opportunities are available in the Shimoni- Wasini area. Very limited subsistence agriculture is carried out in small garden plots, dominated by coconuts, bananas and other fruits, and a minority of households keep smallstock and poultry. Fishing forms the basis of local livelihoods, mainly carried out at an artisanal scale using traditional fishing gear and methods. The majority of fishermen fish in inshore areas, lagoons and reefs from dugout and outrigger canoes and – less commonly – small dhows, employing handlines, gill nets and basket traps. The peak fishing season is between August and March, when seas are calm. When seas are rough, at the time of the *Kusi* south-east monsoon, fishing activity declines substantially and is supplemented by other small-scale income-generating activities such as mangrove harvesting, shell collection and handicraft production.

2.3 Tourism

KMNP/MMNR is important for tourism. Over the 1990s between 25,000 and 45,000 people visited the MPA each year. Most of these tourists came on day trips to the MPA, from hotels in and around Mombasa, in order to swim, snorkel, dive and watch dolphins.

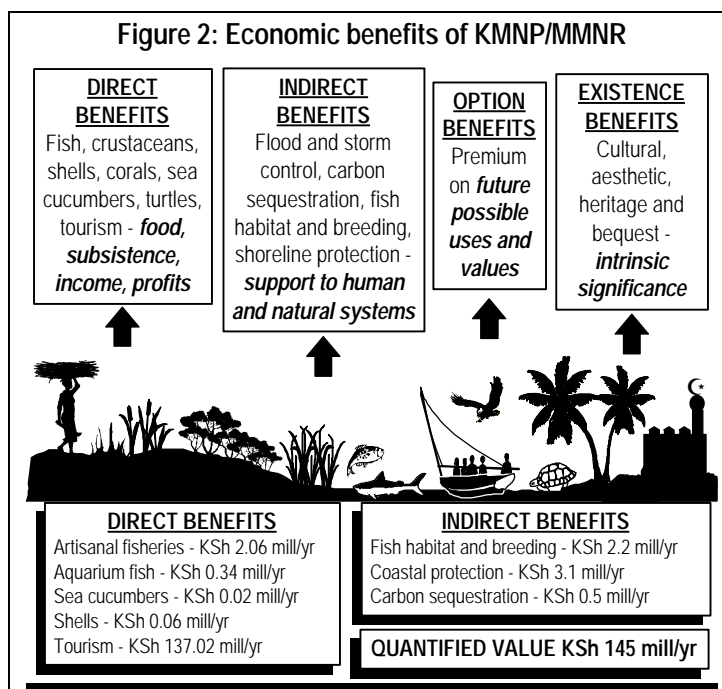
In 1999 there were a total of 11 tourist operators and hoteliers with 28 boats who operated in and around KMNP/MMNR, with the capacity to cater for more than 350 visitors a day. The tourism industry is however dominated by a relatively small number of operators, who are Shimoni-based – three large operators account for the majority of trips into the MPA. Only two tourist enterprises are locally-owned – the Kisite Private Boat Operators' Association and a guest house/restaurant on Wasini Island. At the time of the study the Kisite Private Boat Operators' Association ran 12 fishing boats, which were used on an occasional basis to take tourists into the MPA.

3 The economic value of Kisite-Mpunguti

3.1 The economic benefits of KMNP/MMNR

Kisite Marine National Park and Mpunguti Marine National Reserve have a high economic value because they support a range of production and consumption activities, and contribute to human welfare. The total economic benefit of KMNP/MMNR includes (Figure 2):

❖ **Direct benefits:** the raw materials and physical products that can be bought, sold and consumed directly or used to generate income and employment such as through fishing, marine products utilisation and tourism activities.



❖ **Indirect benefits:** the services provided by the marine ecosystem which maintain and protect natural and human systems including coastal protection, storm control, carbon sequestration and the provision of breeding grounds and habitat for marine bird, fish and mammal species.

❖ **Option benefits:** the premium placed on maintaining KMNP/MMNR and its component species for future possible uses, some of which may not even be known now, such as extractive and tourism opportunities, pharmaceutical and industrial applications.

❖ **Existence benefits:** the intrinsic value of KMNP/MMNR to people, regardless of the direct and indirect benefits they gain from it including cultural, scientific, aesthetic, heritage and bequest significance.

Some attempt can be made to quantify approximately the direct and indirect benefits associated with KMNP/MMNR. Although the total value of option and existence benefits for KMNP/MMNR is also likely to be high, it is impossible to quantify on the basis of available information.

3.1.1 Artisanal fisheries and marine resource utilisation

The KMNP/MMNR complex is one of the most productive fishing grounds in Kwale District (District Fisheries Officer *pers. comm.*) and contains a high diversity of marine resources (Erftmeijer and Mwakoyo 1995a). This high productivity is undoubtedly linked to the existence of the protected area, as discussed below. Although there is no large-scale commercial inshore fishery, the vast majority of households in Shimoni and Wasini Sub-Locations – over 80% – engage in artisanal fishing activities, using an estimated 250 boats (Table 4 in Data Annex). Snappers, rabbit fish, parrot fish, wrasse, puffer fish, emperor fish, groupers and king fish account for the bulk of catch, and lobsters, crabs and prawns are also caught.

Other marine products in addition to fish and crustaceans are also obtained from the Shimoni Fishing Area, including MMNR (although not, legally at least, from KMNP). These provide income and employment both to local fishermen and to enterprises located outside the Shimoni-Wasini area. Four aquarium fish dealers based at Mombasa and the North Coast are licensed to collect specimens in the Shimoni area. A small trade has recently developed in sea cucumbers in the Shimoni area, harvested by fishermen from Vanga to the south of KMNP/MMNR. Twenty licensed shell collectors also operate and are based in the Shimoni-Wasini area.

Although records on fisheries and marine resource utilisation are poor for the KMNP/MMNR area, some estimate of yields and value may be made. Data are available for the Shimoni Fishing Area, which extends along some 40 km of coastline south from the Ramisi River to the Tanzania border. As artisanal fishing and marine resource utilisation activities rarely extend beyond a distance of 5 km offshore, this equates to a total fishing area of approximately 200 km². Over the whole Shimoni Fishing Area fish and crustacean offtake is just over 300 tonnes overall, or in the region of 1.5 tonnes/km² (Table 2,

Table 5 in Data Annex). Assuming a slightly higher than average artisanal catch in the 11 km² MMNR of 2.5 tonnes/km², because productivity is high and fishing activities are concentrated,

gives a gross fisheries value of some US\$ 32,000 a year for MMNR. Taking the average value per square kilometre of other marine resource harvested over the whole Shimoni Fishing Area, shells, aquarium fish and sea cucumbers obtained in MMNR may be worth some US\$ 39,000 a year (Table 2, Tables 6, 7 and 8 in Data Annex).

Table 2: Value of artisanal fisheries and marine resource utilisation

	Utilisation all Shimoni	Value all Shimoni (1999 US\$ '000) ¹	Value MMNR (1999 US\$ '000)
Artisanal fisheries	304 tonnes	356.41	32.19
Aquarium fish	19,416 specimens	97.03	5.31
Shells	35,740 shells	16.41	0.94
Sea cucumbers	997 kg	4.53	0.31
Total		474.38	38.75

(Source: Kwale District Fisheries Office records)

It is worth noting that these figures for fisheries and marine resource utilisation may well underestimate total catch, because they are based on data recorded at major landing points only, and exclude unlicensed activities and illegal resource utilisation in KMNP. There is also considerable use of the Shimoni Fishing Area by fishermen from other areas, and use of these other areas by Shimoni-based fishermen (including mainland Tanzania and Pemba as well as parts of the Kenya coast which lie to the north). Thus trans-shipment both in and out of Shimoni takes place. Within Shimoni fishing catches and yields also vary widely because exploitation is concentrated in more productive reef areas. The values quoted above however probably represent a minimum estimate of the direct benefit of artisanal fisheries and marine resource utilisation in KMNP/MMNR, although they are gross values and thus exclude the costs of carrying out fishing activities.

3.1.2 Tourism

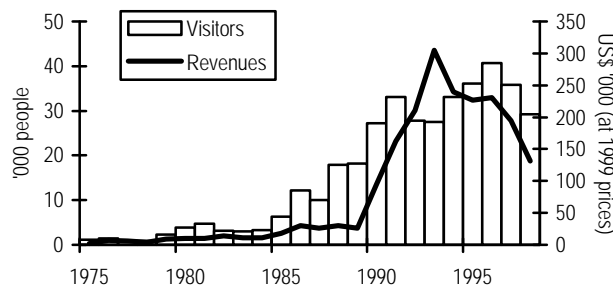
The KMNP/MMNR marine protected area complex is an important tourist destination. It ranks high in profitability among all of Kenya's National Parks and outperforms other Marine National Parks both in terms of revenues earned and operating surplus generated (Table 9 in Data Annex). In 1998 just under 30,000 paying visitors entered the marine protected area complex, paying an entry fee of US\$5, and generating over US\$ 131,000 revenues for KWS (Figure 3). In common with all of

¹ Throughout this case study all values are expressed as gross values, and have been brought to US\$ at 1999 prices so as to be directly comparable with each other. At the time of the study the US Dollar exchange rate was approximately 64 Kenya Shillings (KSh).

Kenya's National Parks, all of these revenues are remitted to central KWS coffers. Money is then returned to KMNP through annual budget allocations, issued from central funds.

Aside from two high cost lodges, one of which specialises in big game fishing and the other of which is used primarily as a transit point for travel between the Kenya mainland and Pemba, tourist operations in the Shimoni-Wasini area are based solely on activities in and around KMNP/MMNR. Visitors take dhow trips to the marine protected area complex in order to swim, snorkel and dive around the coral reef and to view wild dolphin populations. Most park entries are accounted for by these day visitors, mainly drawn from hotels on Diani and Nyali beaches around Mombasa, the main tourist areas of the Kenya Coast. The majority of tour operators are based in Shimoni or Wasini, but only two are locally owned – the Kisite Private Boat Operators' Association and a guesthouse and restaurant on Wasini Island.

Figure 3: KMNP/MMNR visitors and revenues 1975-1998²



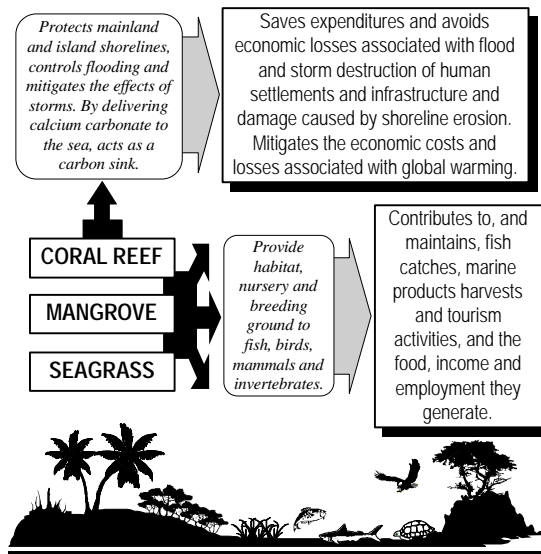
(Source: KWS Shimoni records)

Although it is impossible to gauge private operators' individual profits, gross tourist income earned from KMNP/MMNR can be estimated, based on known park entry fees, and average day trip charges. Excluding park entry fees, the total earnings from the 29,227 adult tourists who entered KMNP/MMNR in 1998 was in excess of US\$ 1.6 million, calculated as the product of visitor numbers and trip charges (an average of US\$ 55). It is important to emphasise that this figure is an estimate of gross earnings, and therefore does not include the costs of investing in, advertising and running tourist operations. Tour operators' profit, or net income, is far lower than this.

3.1.3 Marine ecosystem services

In addition to the direct income and employment yielded by marine resources, marine services associated with KMNP/MMNR's natural ecosystems also support economic benefits because they support wider production and consumption systems (such as those associated with tourism and fisheries), and avert or minimise costs because they protect and maintain economic activities (for example activities and infrastructure in coastal areas and urban settlements). These ecosystem services include habitat for rare and threatened marine fish, mammal, invertebrate and bird species, and the protection by coral reefs and mangroves of shorelines from erosion and storm damage

Figure 4: The economic benefits associated with KMNP/MMNR marine ecosystem services

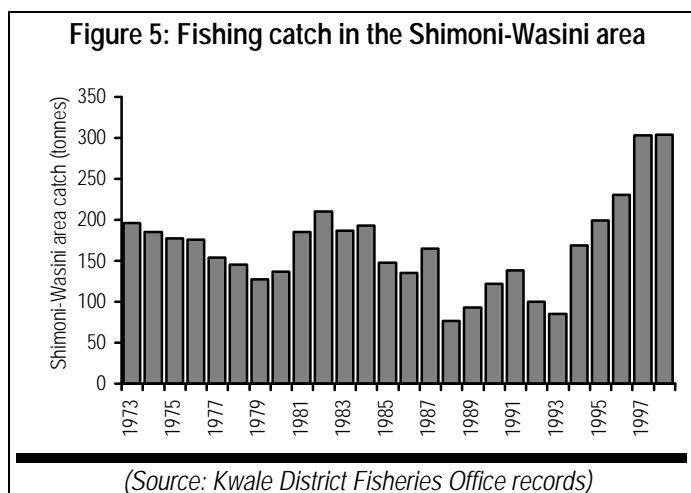


² Entry fees were introduced in KMNP in 1975. In 1993 charges for all of Kenya's National Parks were adjusted upwards substantially, accounting for the peak in revenues in this year. Reflecting the decline in tourism to Kenya generally, visitor numbers declined sharply towards the end of the 1990s.

(Figure 4).

These ecosystem services have particular economic importance in the Shimoni-Wasini area. Livelihoods are very limited in scope, and there is a high level of dependence on the continued exploitation of marine resources and tourism for local subsistence, income and employment. The area is also extremely vulnerable to coastal erosion, floods and storms as most human settlements are low lying, with houses and other infrastructure build close to or overhanging the shoreline.

The reef, mangrove and seagrass habitats in KMNP/MMNR support and maintain local fisheries and marine resource production because they provide breeding grounds, nursery and habitat. There is evidence that the existence of KMNP/MMNR contributes to improved local fish diversity and abundance, as reflected in a recent recovery of catches in the Shimoni-Wasini area as compared to the 1980s since there has been better protection of the park area (Watson *et al* 1996). For the whole Shimoni fishing area of 200 km², catches have



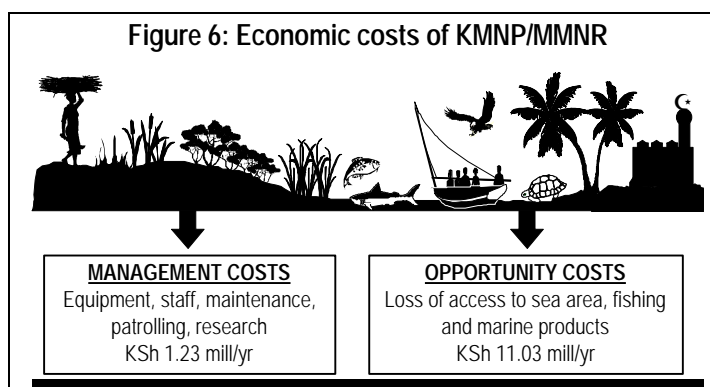
risen steadily over the 1990s, and are approximately 1.5 tonnes/km² today (Figure 5). In 1990, when the management of KMNP switched from a government department to the parastatal KWS, management and protection activities were considerably strengthened in the MPA. Thus, although a part of this increase in catch is no doubt accounted for by a rise in fishing effort, some proportion may be attributed to improved conservation of the KMNP/MMNR area. Based on the average increase in catch recorded after the establishment of KMNP/MMNR, the contribution to KMNP/MMNR to fish yields outside the marine protected area complex may be as high as 28.8 tonnes a year, to a value of US\$ 34,000.

3.2 The economic costs of KMNP

Despite yielding clear economic benefits, the presence of Kisite Marine National Park and Mpunguti Marine National Reserve also incurs a range of costs. The total economic cost of KMNP/MMNR includes (Figure 6):

- ❖ **Management costs:** direct physical expenditures on the equipment, infrastructure, and human resources required to manage and protect KMNP and MMNR.

- ❖ **Opportunity costs:** resource uses that are foregone or precluded by protecting KMNP and placing restrictions on the economic activities taking place in it.



3.2.1 Park management expenditures

KWS is mandated with the management and administration of KMNP/MMNR and is therefore responsible for covering the direct costs of running the marine protected area complex. These costs include investment and recurrent expenditures on the staff, vehicles, boats, equipment, buildings, moorings and other infrastructure associated with KMNP/MMNR as well as the allocation of funds to community benefit sharing projects in Shimoni and Wasini Sub-Locations. KWS Headquarters covers costs of salaries, uniforms, patrolling and enforcement and also allocates a budget directly to the MPAS. In 1998 an additional US\$ 19,000 was allocated as a budget to KMNP/MMNR, but this was not sufficient to run the park effectively. At that time, the Park suffered from low levels of staffing, poor state of equipment and infrastructure, and inadequate levels of routine park maintenance and patrolling.

3.2.2 Local opportunity costs

Prior to 1973 the area which is now Kisite Marine National Park formed a part of local fishing grounds. Although traditionally delimited as an area that was controlled and used primarily by Mkwiro and Wasini villages, marine resources in Kisite were also exploited at times by fishermen from as far away as Vanga, Msambweni, Pemba and mainland Tanzania, subject to local permission. At the time of its establishment as a protected area KMNP was effectively taken out of local production, as all extractive activities were curtailed. Although artisanal fisheries throughout the Shimoni area undoubtedly benefit from the protection of KMNP, this loss in production is felt as a local economic cost.

The opportunity costs of KMNP comprise the losses to production resulting from the exclusion of resource utilisation activities, including foregone fish and crustacean catches and marine product yields. At a maximum sustainable commercial yield of between 3.5-7 tonnes/km²/year³ (Universities of York and Hull 1993), this equates to a loss of a potential catch of some 147 tonnes of fish a year in the 28 km² KMNP, worth US\$ 172,000 at 1999 prices. It should be noted that, without protection, it is highly probable that fishing activities would be unsustainable in KMNP. This would be reflected in a decline in catch in the MPA. However, as no fishing at all is currently permitted in KMNP, the opportunity cost of this protection equates to the sustainable yield foregone. As MMNR permits all forms of traditional fishing subject to national law it has no such opportunity cost, and may in fact benefit from the establishment of KMNP as discussed above.

³ In total, this is above current catches in the Shimoni area – estimated to be some 1.5 tonnes/km²/year, and in MMNR – estimated to be some 2.5 tonnes/km²/year. It is however below estimates for other parts of the Kenyan coast, including around Diani reefs some 9.75 tonnes/km²/year for artisanal fishermen (Rubens 1996), for Kenyan reefs overall 8.8 tonnes/km²/year (Nzioka 1990) and for East Africa 5 tonnes/km²/year (FAO 1979).

4. How the distribution of Kisite-Mpunguti's economic benefits and costs acts as a constraint to park management

4.1 The value of KMNP/MMNR for different stakeholder groups

Analysis of the economic values associated with KMNP/MMNR provides important information for park management. The high economic benefits associated with the MPA, which extend far beyond the financial returns to KWS from tourist receipts, provide a strong — and much needed — justification for the status of KMNP/MMNR as a protected area. Analysis however also demonstrates that KMNP/MMNR gives rise to economic costs over and above direct management expenditures, most importantly the local opportunity costs of fishing activities foregone. It is also clear that the economic benefits and costs associated with KMNP/MMNR accrue unequally to different stakeholder groups.

Thus, various imbalances in economic costs and benefits exist between the different stakeholders in KMNP/MMNR. Notably, KWS Shimoni bears a considerable proportion of the management expenditures associated with the MPA (excluding salaries and enforcement costs) but remits all of its revenues, worth over US\$ 130,000 in 1998, to central coffers. These central coffers return only a proportion of these earnings to KWS Shimoni (in 1998, less than 15%). KWS revenues are far higher than the benefits that local communities gain from the utilisation of MPA resources (some US\$ 39,000 in 1998), and these local benefits are overshadowed by the opportunity cost of fishing activities foregone (some US\$ 172,000). In turn, the gross revenues accruing to tour operators far overshadow both these sets of benefits — although it must, again, be emphasised, that private tour operators do incur substantial personal costs in running and marketing their operations.

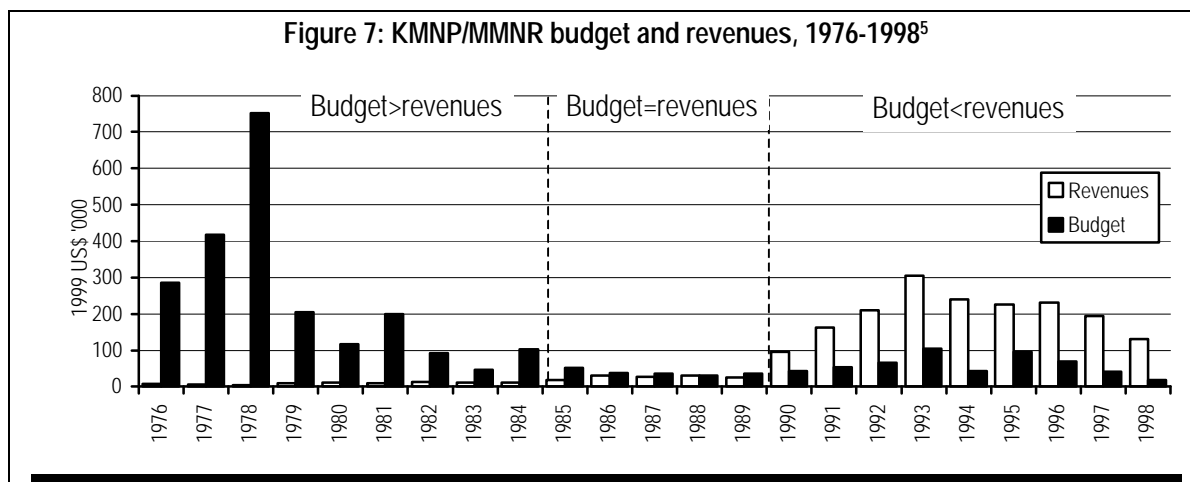
These imbalances in benefits and costs helps to explain why, despite its high economic value, support for marine conservation at the time of the study was low and park management was difficult in practice. The major economic issue in KMNP/MMNR is not whether the park generates sufficient benefits, in total or as tangible financial values, but rather that while its benefits are high, they are unequally distributed between the different groups who use and impact on the status of marine resources. Especially, the groups who bear the major direct and opportunity costs associated with KMNP/MMNR — KWS and local communities — receive a disproportionately small share of the benefits it generates.

Not only is this imbalance in costs and benefits inequitable, but it was undoubtedly hindering the management of KMNP/MMNR in 1999⁴. Of particular concern was that, for the majority of local community members, income and employment generated by park-related tourism did not outweigh the opportunity costs of fishing activities foregone in KMNP. As long as this group, whose actions have the potential to impact most negatively on marine resources, perceived that they received insufficient gain from the MPA complex they would be unwilling, and in some cases economically unable, to support its conservation. Also important is the sole responsibility of KWS Shimoni for park management, and its dependence on a very limited and small budget. As described below, imbalances in park costs and benefits between different stakeholder groups are manifested in two major economic hindrances to park management — KWS Shimoni budget constraints and low local-level support for the park. However, since the study major attempts have been made by KWS to engage and benefit local communities more fully in park management. Relationships between park authorities and local communities have improved considerably as a result.

⁴ It should be emphasised that this situation pertained at the writing of this study. Since then, major attempts have been made by KWS to engage and benefit local communities more fully in park management. Relationships between park authorities and local communities have improved considerably as a result.

4.2 KWS Shimoni budget constraints

In 1998, revenues from park entry fees were, at some US\$ 131,000, nearly seven times higher than park management expenditures but nevertheless the Park Headquarters at Shimoni faced pressing budget constraints, as tends still to be the case. This is because all revenues are remitted to Central KWS, and the budget allocations that are subsequently returned to Shimoni are too low to manage the MPA complex effectively. Central budget allocations have fallen drastically since the park was established, both in real terms and relative to revenues generated (Figure 7). Today the operations of KWS Shimoni are severely limited by a lack of funds for basic infrastructure, equipment and maintenance.



4.3 Low local-level support for KMNP/MMNR

Although the reservation of KMNP/MMNR, by protecting fish stocks, supports local economic activity, this long-term benefit is seen as being outweighed by the immediate loss of fishing income and employment in KMNP. The majority of adjacent community members lose out in economic terms from the existence of KMNP/MMNR. Local gains in tourist-related income and employment are minimal (although they have started increasing since the study was completed), and still far outweighed by the opportunity costs of fishing and marine resource utilisation activities foregone in the park area. A major problem is that community members feel that they have been excluded from tourist operations, which they see as being unfairly dominated by outsiders. In 1998, only one local group of boat owners and one local hotelier gained directly from tourism in the park, out of a total of 11 tour operators. Although efforts have been made by residents to enter into tourism activities – including boat operation, handicraft sales and the promotion of local cultural attractions, these were often unsuccessful. Local economic benefits were mainly accruing indirectly, through sales of food to, or employment in, externally owned tourism enterprises.

⁵ It is interesting to note that, since the establishment of KMNP, there have been three very clear “financial” phases. Up until the mid-1980s, the MPA received a relatively large budget which far exceeded the small revenues it generated. Between the mid and late-1980s this budget declined substantially, and was set more or less on a par with the (still small) revenues generated. Throughout the 1990s revenues increased dramatically, and have remained far higher than budget allocations – which rose initially and have subsequently showed a steady decline. This more recent “phase” is linked very clearly to the establishment of KWS as a parastatal in 1989/90, replacing the government Wildlife Conservation and Management Department, and the introduction of autonomy in financial decision-making, allocation and retention for the KWS. Financial patterns in the 1990s can also be linked to the introduction of increased park entry fees in 1993, the peaking tourist industry in the early 1990s, and its subsequent decline in the late 1990s.

In the early 1990s, a number of arrangements were set up by which both private operators and KWS contributed a proportion of tourism earnings to local communities in the Shimoni-Wasini area. These have however did little to improve direct local economic gain from the park, and are now mainly defunct. Between 1993 and 1998, KWS's Wildlife for Development Fund shared a small proportion of park revenues through the implementation of community development activities in villages around KMNP/MMNR (Figure 8). This fund and its activities, which have always been extremely limited in their scope and coverage, have now completely ceased to function. As part of the terms under which land on Wasini Island was purchased, one private operator contributes a levy of KSh 5 per tourist, which is used for community development activities. Other externally owned tourist boats which moor at Wasini Island are also supposed to pay a charge of KSh 10 per visitor landed to village authorities – but there is little evidence that these payments are in fact made.

Because of the low level of local participation in, or direct gain from, tourist operations in KMNP/MMNR, most local community members have at times perceived the MPA complex to be an economic liability, rather than an asset. The indirect form in which local benefits accrue from KMNP/MMNR does not compensate for the direct losses in fishing arising from the protection of KMNP. With little stake in the management or profits of the MPA complex, they felt that they had few incentives to co-operate either with KWS or with other users of KMNP/MMNR. Illegal and destructive utilisation of park resources continued, and there was a high level of antipathy towards both KWS and private sector tour operators. However, since the study was carried out, there are indications that the situation has improved. Involvement of local leaders in decision-making, and dialogue between KWS and local users of the MPA have resulted in a marked decline in illegal activities.

Figure 8: Community benefit sharing

KWS Wildlife for Development Fund 1993-98:

- Construction of 5 classrooms and provision of 100 desks to Kichaka-Mkwaju, Kibuyuni, Mkwiro, Shimoni, Wasini Primary Schools
- Construction of Mkwiro Nursery
- Donation of 125 desks to Majoreni Primary School
- Establishment of revolving fund for Kisite Private Boat Operators' Association
- Donation of equipment to fishermen in Kibuyuni, Mkwiro and Shimoni
- Repair of Mkunguni fish depot

Private sector commitments:

- Tourist levy
- Wasini Island mooring charges

5 The use of economic tools for sharing the benefits and costs of Kisite-Mpunguti

At the time of the study, there was little integration of economic or business concerns into the operation of KMNP/MMNR. This omission undoubtedly hindered park management. The unequal distribution between stakeholder groups of the economic benefits and costs associated with the MPA complex resulted in a situation where KMNP/MMNR was neither economically equitable nor financially sustainable. KWS Shimoni is unable to fund basic MPA management activities, and local communities have felt excluded from, and hostile towards, the way in which the area is managed and used. Economic tools can be used to help overcome these management constraints, to set in place incentives and financing mechanisms for marine conservation and to increase the level to which both the benefits and costs associated with the management and use of KMNP/MMNR are shared between different stakeholder groups.

5.1 Covering the costs of park management

The projected budget requirements for KMNP/MMNR average US\$ 135,000 a year over the period 2000-2004 (KWS 2000). This is nearly eight times the allocation that KMNP/MMNR receives from KWS central funds, and exceeds revenues generated by the park. As such it is unattainable under existing conditions. The low level of funds generated and retained by KWS Shimoni acts as a major constraint to the effective management of the park. Budgets are simply inadequate to cover the expenditures required for basic park running. Overcoming this constraint requires that greater revenues are generated, retained and allocated to park management activities. Four major economic tools can together be used to achieve these goals — improved revenue collection and charge systems, development of additional and innovative financing mechanisms, reform of financial retention and administration systems, and use of more imaginative cost-sharing arrangements.

- ❖ **Improved revenue collection and charge systems.** KMNP/MMNR already generates substantial earnings from park entry fees. Revenue collection could however be improved still further. One issue is that of pricing — unlike the differential fee structure for Kenya's terrestrial protected areas, marine parks operate on a single charge for all MPAs, US\$ 5 per adult visitor. This fee has been set somewhat arbitrarily, and is not based on any calculation of visitor willingness to pay, does not take into account the relatively higher value and popularity of parks such as KMNP/MMNR, and is infrequently revised. There would appear to be some potential and grounds for increasing the levels of park entry fees in KMNP/MMNR above existing levels.

The current charge system, which relies on daily payment being made by every visitor to the park, is also costly to administer for both KWS and private tour operators, and is easily open to misuse. A revenue collection and charge system that depends on payments for park use and entry being made by tour operators on monthly or quarterly intervals, rather than on a daily basis, would be simpler and cheaper for KWS to enforce and for tour operators to pay, because it would minimise transaction and collection costs. This could either comprise a change in the schedule of payments for park entry, or be accompanied by a new system for setting and collecting revenues which does not necessarily depend on visitor entry fees. A new charge system of this nature has been attempted in Mombasa Marine Park, but there have been some problems in implementation.

- ❖ **Additional financing mechanisms.** Park entry fees are only one means of effecting payment for the goods and services associated with KMNP/MMNR, and deal with only one type of economic benefit — direct use of the park for tourism purposes. They are not a secure source of

earnings, as evidenced by the recent fall in tourist numbers to the Kenya Coast and consequent decrease in KMNP/MMNR revenues. By relying solely on entry fees, KMNP/MMNR fails to maximise its income-earning potential. There is great scope to improve and diversify the funding base of KMNP/MMNR through the use of additional, innovative financing mechanisms, including:

- ***Tourist contributions:*** Tourists pay a relatively low entry fee for KMNP/MMNR of US\$ 5 per adult overseas visitor. This fee is usually incorporated in the payment made for day trips, and so does not appear as a direct cost to visitors. Many might be willing to make additional contributions to marine conservation activities, or to generate revenues by purchasing maps, literature, postcards or other park souvenirs from KWS Shimoni.
- ***Private investment:*** KMNP/MMNR yields direct, indirect, option and existence values to individuals and groups outside the Shimoni-Wasini area. There is potential for raising money, and attracting investment, on the basis of these benefits. Private charitable donations, as well as corporate sponsorship and advertising deals for particular park activities and facilities, could all be sought by KWS Shimoni.
- ***International finance:*** A substantial amount of international finance, aside from traditional donor grants and loans, is beginning to be made available on the world markets for environmental management and investment – from both “traditional” donors and from the corporate sector. The high environmental, option and existence values associated with KMNP/MMNR provide a strong justification, and attraction, for raising funds from international sources. Mechanisms such as debt-for-nature swaps, green funds and trust funds could all provide supplements to KMNP/MMNR’s existing funding sources. In addition to grants, voluntary contributions, donations and sponsorship, international payments can be tied to specific park goods and services which are consumed or enjoyed elsewhere.

- ❖ **Reform of financial retention and administration systems.** Under current financial and administrative arrangements a raise in revenue collection will not necessarily translate into a higher operating budget for KMNP/MMNR. Increasing the level of funds available for park management expenditures also requires a mechanism under which revenues raised can be retained at the park level. KWS Shimoni currently has no powers to raise, retain or allocate its own revenues. Although it is unrealistic to expect that KWS headquarters will grant KMNP/MMNR full financial autonomy because the park provides an important and much-needed contribution of income to central funds, there is no reason why a proportion of earnings should not be retained at the park level, especially if total funds generated increase. KMNP/MMNR’s high income-earning potential, its currently small budget as compared to revenues generated and its provision of national economic and environmental benefits all provide a justification for financial retention to improve park management.
- ❖ **Cost-sharing arrangements.** In addition to increasing revenues generated and retained, there is also potential for ameliorating KMNP/MMNR’s funding problems by addressing cost and expenditure issues. Currently KWS is the sole body responsible for managing the park. Yet there is a high economic dependence among other stakeholders, especially private sector tour operators, on the MPA. This dependence on the integrity of the marine area as the basis of business and profits, and the continuous presence of tour operators in the MPA, presents a clear niche for increasing the degree to which they share in its day-to-day management and running. To a certain extent this is happening. Private operators claim to provide some level of assistance to KWS patrol boats and on-shore operations in matters of safety and security (for

example looking out for illegal activities in the park, rescuing fishermen who have become stranded), and in the provision of fuel and other materials.

There is potential for formalising and extending these cost-sharing arrangements. A number of park management activities that are expensive or difficult for KWS to undertake could be carried out at minimum cost or inconvenience by tour operators, and some could even be used as a marketing tool to enhance the attractiveness of tours to clients. These include routine tasks such as checking and maintaining moorings, reporting on illegal utilisation activities, completion of simple checklists for monitoring marine species (for example reefs and dolphins), and the use of private boats and equipment to KWS divers. An important aspect of such arrangements should however be that they entail some direct benefit to private tour operators. A major reason why private tour operators are currently unwilling to take a greater role in park management is that they feel that they receive little in return from KWS. Cost-sharing arrangements must either be offset against fees paid by tour operators, or accompanied by an equivalent improvement in the level of services and facilities offered by KWS.

5.2 Generating local benefits and covering opportunity costs

The low level of direct economic benefit accruing to local communities from KMNP/MMNR acts as a major constraint to the effective management of the park. To overcome this constraint requires that community members be provided with economic incentives to support the park by receiving direct and tangible benefits from KMNP/MMNR, the marine environment and its associated tourist activities. Incentives are required at two levels – the better use of existing benefit-sharing mechanisms to improve community-level welfare and development, and the promotion of individual and group participation in enterprise and profit-making activities. The actions of both KWS Shimoni and private sector operators can contribute towards these goals.

- ❖ **Improving community welfare and development** – Both the level of funds allocated to community benefit-sharing activities by KWS Shimoni, and the scope and nature of these activities, although positive, have largely failed to result in any substantive improvement in local welfare around KMNP/MMNR. Although this has arisen in part because of the low level of expenditures made on benefit-sharing, it is also due to the poor planning and quality of development activities. Increasing the amount of funding available to KWS Shimoni will permit greater expenditures to be made on local development activities. If accompanied by a much greater level of community participation in defining development needs and making decisions about the use of funds, this can also improve the quality of development activities undertaken.

Although undoubtedly providing a useful tool for improving relations between KWS Shimoni and local residents and for enhancing social welfare at the whole-village level, support to community development activities is an incomplete strategy. It can never provide a mechanism for increasing the local financial or monetary gain from KMNP/MMNR or for overcoming the economic forces that cause people to degrade the marine environment, and should not be seen as such. By itself, it is unlikely to provide sufficient incentives for community members to be willing – or economically able – to support KMNP/MMNR. In addition to broad development benefits, community members must also see tangible financial benefits at the individual or household level from MPA-related activities, if they are to support KMNP/MMNR and be willing to forgo activities that harm the marine environment.

- ❖ **Improving the efficiency and sustainability of marine resource utilisation activities, and providing alternatives to destructive ones** – A number of local-level activities threaten the status and integrity of KMNP/MMNR, including illegal fishing in KMNP, and the use of destructive methods such as spear-fishing and small mesh nets. Setting in place alternative

sources of marine income, or adding local value to existing sustainable activities, may provide incentives for local fishermen to reduce or stop these destructive practices. A number of potentially profitable marine enterprises take place or have been identified as suitable for the Shimoni-Wasini area that could both supplement existing income and provide alternatives to destructive fishing activities. Activities that have already been identified include the farming or harvesting of edible marine products such as seaweed, sea cucumbers, oysters, crabs and lobsters and the collection – on a sustainable basis – of marine souvenirs such as shells and aquarium fish. A pilot project on seaweed farming is currently being initiated, supported by KWS, which would be managed by one of the women's groups on Wasini Island.

- ❖ **Enhancing direct local participation in tourist enterprises and industries** – In the past there was little direct local participation in tourist activities in KMNP/MMNR. However, in addition to an increase in tourist boat operations, a number of other locally-run tourist enterprises are being attempted or proposed around KMNP/MMNR. These include the construction of a boardwalk in the coral garden and mangrove area of Wasini Island and the production and sale of handicrafts by women's groups. Poor levels of support from more established tour operators and weak knowledge of tourist demand, business management and marketing have tended to hamper such initiatives. The scope, efficiency, and potential profit, from these operations could be increased substantially if local capacity was built in these areas. To this end, basic training courses on micro-enterprise management are now being organised for the local communities, with particular emphasis on women's groups and the tourist boat operators.
- ❖ **Increasing the flow of funds between private sector tourist operators and community members** – Two main mechanisms exist that can enhance the flow of funds between private sector operators and community members – sourcing tourist services and products locally, and enforcing agreements over the payment of fees and levies for the use of village land and sea areas. There is no reason why, if products such as village and island tours, handicrafts and other locally-sourced items were made attractive, and their quality assured, they should not be sold as a component of private tour operators' activities. Facilitation of agreements with tour operators to market local products and services could improve economic gain to both local community members and the external private sector.

Most tour operators already make use of the land and sea areas within the boundaries of Mkwiro, Shimoni and Wasini Villages for the operation of their businesses and docking of their boats. The Mpunguti Islands lie within Wasini Sub-Location, although the control and administration of MMNR has formally been handed over to KWS. However, unlike terrestrial National Reserves in Kenya, from which revenues often accrue to local County Councils, no entry fee is charged for MMNR, and local authorities have little control and no financial gain from it. As described above, at least two types of visitor levies are already charged – at least in theory – for the use of local land for tourist operations. These arrangements should be enforced, and could where possible be extended to cover all private tour operations and some proportion of MPA entry fees.

6 Economic concerns in MPA management in Eastern Africa: lessons learned from the case of Kisite-Mpunguti

6.1 Economic and financial constraints to MPA management

The issues raised by the situation of KMNP/MMNR in January 1999 are by no means unique — to Kenya, or within the Eastern Africa region as a whole. The economic values associated with MPAs are poorly understood, and rarely considered in traditional forms of park management. The unequal distribution of MPA benefits and costs between different stakeholder groups has often translated into practical management problems. Many MPAs are financially unsustainable because they depend on a single, limited, source of income that is controlled at a central level, and are economically inequitable because they incur high opportunity costs to adjacent communities while generating few tangible benefits at the local level. These economic constraints present major hindrances to the on-the-ground management of MPAs.

6.2 New approaches to using financial and economic instruments to strengthen MPAs in Eastern Africa

As is being recognised, and applied, throughout the Eastern Africa region, understanding and addressing economic and financial linkages, and attempting to factor them into decision-making, can significantly enhance the on-the-ground effectiveness of MPA management (Table 3). To these ends, a number of new approaches to MPA management, using more innovative economic and financial measures, are currently being piloted in KMNP/MMNR – as specified in the park's management plan for 2000-2004 (KWS 2000) and as part of the on-going “Pilot Project on Partnerships for the Management of Kisite Marine National Park and Mpunguti Marine National Reserve Complex”. In other parts of the region, too, approaches to MPA management are changing (Emerton 1999, Salm and Tessema 1998).

6.2.1 Community income-sharing and enterprise

All over Eastern Africa, it is becoming apparent that only by increasing the degree of local benefit sharing are MPA systems likely to become more economically equitable and sustainable over the long-term. Throughout the region economic threats to MPAs are intensifying. Among the communities who live around MPAs there is rapidly growing pressure on land and resources, and on available sources of income and employment. These communities are becoming less and less willing, and less able to afford, to support MPAs in which they have no economic stake and which yield them no tangible benefits.

A wide range of activities have been set in place to increase both the level of local participation in the tourism industry and to find alternative, and sustainable, sources of local income and employment. In KMNP/MMNR this includes support to the locally-based Kisite Private Boat Operators Association's running of tourist operations, the development of community-run eco-tourism facilities in Wasini Village, and collaboration with Mkwiwo Women Group in the initiation of seaweed farming and handicrafts production projects as sources of local income and employment. Similar initiatives are taking place in other parts of Eastern Africa. In the Bazaruto Archipelago, one of Mozambique's most valuable and yet threatened marine areas, a number of activities have been set in place to stimulate sustainable use by local communities. These focus on ecotourism and artisanal resource use activities, which are being promoted specifically to compensate villagers for the loss of land and fishing resources resulting from the establishment of a national park. Simultaneously a range of new and replacement economic activities are being introduced including permaculture and vegetable farming projects, aiming to take pressure off marine resources (Reina 1998).

Table 3: Economic measures for overcoming MPA management constraints

Economic measures	Traditional financial and management systems	Problems with traditional system	Innovative arrangements
Park entry charges	Visitor entry fees	<ul style="list-style-type: none"> - <i>Difficult and costly to administer and enforce</i> - <i>No MPA manager obligation to provide services and facilities</i> - <i>No safeguards against improper park use</i> - <i>Little flexibility in cost-sharing</i> - <i>Little support to local use</i> 	<ul style="list-style-type: none"> • Payments other than daily visitor charges, such as for: <ul style="list-style-type: none"> - Moorings - Park services - Utilisation activities - etc
Additional fund-raising	None	<ul style="list-style-type: none"> - <i>Sole reliance on single source of income</i> - <i>Earning potential not maximised</i> - <i>No flexibility for additional fund-raising</i> 	<ul style="list-style-type: none"> • Visitor purchases and donations • Private investment • Corporate sponsorship • International financial flows
Financial administration	Central budget allocations	<ul style="list-style-type: none"> - <i>No incentives to increase income</i> - <i>No flexibility for additional fund-raising</i> 	<ul style="list-style-type: none"> • Financial retention • Trust Fund
Community benefit-sharing	Social infrastructure and credit	<ul style="list-style-type: none"> - <i>Limited in amount and scope</i> - <i>No direct tangible benefits generated from park</i> 	<ul style="list-style-type: none"> • Increased development activities • Alternatives to destructive marine activities • Local participation in tourism • Private sector flows and local sourcing • Allocation of shares in moorings • Establishment of village development funds
Private sector cost-sharing	None	<ul style="list-style-type: none"> - <i>No opportunities for reduction in management costs</i> 	<ul style="list-style-type: none"> • Maintenance of moorings • Assistance in park protection and monitoring

6.2.2 Stakeholder partnerships in management and finance

Setting in place new and innovative partnerships and financing mechanisms for MPAs is likely to become increasingly necessary in the future, if marine resources are to be conserved. Government wildlife agencies continue to face intensifying shortfalls in income throughout Eastern Africa, and yet still largely rely on central budgets, donor funds and tourism revenues to finance MPAs. These financial pressures will almost certainly grow, rather than diminish, in coming years. It cannot be assumed that adequate external funds will be available in the future to subsidise the operation of MPAs — both government and donor funds are limited, and under heavy pressure from other sectors. Only a minority of MPAs in the region actually have potential for tourist development, at least over the short-term, and visitor trends are yet to recover from their slump in the mid and late 1990s. Yet a wide range of both commercial and local groups have an interest in marine conservation, and in the resources of MPAs, and some would be both willing and able to contribute towards the costs of their upkeep — in cash or in kind.

In KMNP/MMNR, much greater efforts are starting to be made to develop approaches to park financing and cost-sharing which involve the multiple stakeholders who use and rely on park resources — including local communities and private tour operators, as well as KWS. At Mombasa Marine National Park, to the north of KMNP/MMNR, KWS has reached a formal agreement with hoteliers and boat owners through its Beach Management Programme. This requires private tourism operators to charge tourists a small bednight levy that is turned over to KWS for park management. In return for this, KWS has undertaken to provide visitor information and beach security around the

park, to channel a proportion of funds raised to the Mombasa Boat Operators Association for boat maintenance, and to charge boat operators lower annual boat fees (Muthiga 1998).

In other parts of the region these ideas of multi-stakeholder management and financing of MPAs have been taken even further. Chumbe Island Coral Park, off Zanzibar, is for example managed by a private company formed for this purpose. New environmental sector legislation in Zanzibar specifically allows for this delegation of protected area management to private entities, and a lease and management contract were awarded by the government to this company. While initial investments were made possible by several small donor funds available for private investment, the running costs of the park are now mainly covered by income generated by the enterprise (Riedmiller 1998). The management of three MPAs in the Seychelles, Aldabra, Aride Special Reserve, and Cousin Island Special Reserve, has been wholly turned over to non-governmental organisations. Cousin Island, managed by the NGO BirdLife Seychelles, is now entirely self-financing (Shah 1998).

6.2.3 Mechanisms for capturing off-site funding

It is relatively straightforward to set in place innovative management, financing and partnership arrangements for protected areas such as KMNP/MMNR, which yield clear and tangible economic benefits and support high commercial values. Economic equity and financial sustainability goals are however much harder to achieve in MPAs that have no clear or immediate economic benefits. At the present time it is difficult to see how many of the MPAs that are currently planned or being established in Djibouti, Eritrea and Somalia, for example, which contain nationally and globally significant biodiversity but yet where tourism and other private sector marine operations are virtually non-existent, could be run as commercial or self-funding operations.

The wider economic values associated with MPAs in the Eastern Africa region highlight the need for deploying other more innovative mechanisms that draw on external funding sources – especially where there are few self-funding opportunities. It also underlines the fact that the responsibility for MPA management does not lie entirely with private or community stakeholders. The existence of MPAs, and the operations of government protected area agencies, fulfil a range of public service functions and help to secure a range of global benefits. This continues to present a justification for some level of external support, and domestic cross-subsidisation, for MPA management.

Multiple economic and financial instruments have potential application to MPAs in Eastern Africa. The potential for instituting direct payments for MPA goods and services extends far beyond tourist entry charges. MPAs also yield wide range of other goods (such as raw and processed marine resources, and their applications) and services (such as those related to productivity and environmental protection). Many individuals, groups and sectors consume or benefit from these goods and services at low or zero cost. Markets already exist for some of these goods and services, and could be developed for others – various forms of fees, charges and levies could be raised, or investment in these markets could be encouraged. Examples of such markets and payments include establishing new or value-added markets for marine products and services (for example in industrial and pharmaceutical applications of marine species, research and bioprospecting fees, marine souvenirs and curios, or through the establishment of leases and concessions for particular MPA utilisation or management activities), or raising international donor or non-governmental funds on the basis of the heritage and aesthetic values associated with marine ecosystems and species (for example by targeting “charismatic” species and areas about which there is high global awareness and concern).

Domestic funds for MPA management can also be raised through a variety of fiscal instruments. Fiscal instruments, operating through government budgets, are a particularly useful means of raising revenues for goods and services which accrue to other sectors of the economy or generate broader social and economic benefit. Examples include the return of a proportion of revenues from other marine-dependent government departments and ministries to MPAs (for example from fisheries

licence fees or from tourist airport departure taxes), as well as from uncommitted central funds (in support of the public service function of MPAs).

There is also scope for increasing investment and contributions to the management of MPAs aside from payments or investments that are tied to specific goods and services. A wide variety of mechanisms exist through which funds can be solicited from individuals and companies on a voluntary basis. Examples include philanthropic and charitable endowments, trusts and foundations as well as corporate and private sponsorship and advertising.

As yet there are very few examples of the more innovative use of external, donor or public funds for MPA management in Eastern Africa. Comoros is perhaps unique in its efforts to attempt to set in place a national Trust Fund, drawing on both domestic and international financial flows, as a sustainable base from which to cover the costs of running its protected areas and activities related to biodiversity conservation. This has been proposed as part of the GEF-funded project “Conservation and Sustainable Development of the Federal Islamic Republic of the Comoros”. The fund would be created after extensive consultation with the various stakeholders involved in marine management in the Comoros, including government, NGOs, community groups and the private sector. The aim would be to raise sufficient funds for that Trust that income earned from it would provide a perpetual source of funding for protected areas, to be supplemented by other financing sources. Ideally such a fund should also provide some funding for NGOs involved in biodiversity conservation, and should attempt to establish a micro-credit facility to fund revenue-generating activities beneficial to biodiversity conservation (Bayon 1999). However, the difficulty of implementing such a scheme should not be under-estimated.

6.3 Ways forward: assuring future financial and economic sustainability in Eastern Africa's MPAs

The case of KMNP/MMNR presents a useful set of experiences, with wider application in the Eastern Africa region. It illustrates how an understanding of economic values, and economic issues, can have practical relevance for MPA management. It shows that a weak appreciation of the value of MPAs, and of the unequal distribution of economic values between different stakeholder groups, makes it difficult to justify the existence of MPAs to central government decision-makers and planners, to raise secure and sustainable financing for their operation, or to set in place economic incentives for marine conservation. In turn, economic tools and measures form a useful component of MPA management strategies, and can make a significant contribution both towards overcoming the threats to MPAs and towards improving the effectiveness, and sustainability, of their management.

Existing funding initiatives are simply inadequate to assure the future financial and economic sustainability of Eastern Africa's MPAs. Of overriding concern is the fact that almost all MPAs in the region still rely on a very limited range of funding sources, which are too low to cover the costs associated with their management. Although some efforts have been made to bring a much wider range of stakeholders, including local communities and the private sector, into MPA financing and management, such experiences are still few and isolated.

A key requirement, and urgent priority, for future sustainability will be to move beyond the three sources of funds that have traditionally formed the backbone of MPA funding in the region – central government subventions, donor funds and visitor entry fees. This will require major changes in the way that MPA benefits and costs are identified, demonstrated and translated into financial terms, at both conceptual and practical levels.

Expanding and diversifying funding will be a major challenge for some MPAs in Eastern Africa. It is relatively straightforward to set in place innovative management, financing and partnership arrangements for MPAs that yield clear and tangible economic benefits and support high commercial values. Economic equity and financial sustainability goals will however be much harder to achieve in

MPAs that have no clear, immediate or “saleable” economic benefits, are inaccessible or are currently subject to local or international dispute.

Especially in these more challenging circumstances, it is important to underline the fact that although the future financial sustainability of MPAs in Eastern Africa will lie largely with involving a much greater range of private, NGO and commercial interests, the responsibility for MPA management does not lie entirely with these groups. The existence of MPAs, and the operations of their managing authorities, fulfil a range of public service functions and help to secure a range of global benefits. This continues to present a justification for some level of international support, and domestic cross-subsidisation, in MPA management. Even though these funding sources are currently small, and uncertain, efforts should continue to be made to demonstrate the wider value of MPAs to government and donor decision-makers.

Overall, one of the most important determinants of success for future MPA funding strategies will be their ability to deploy multiple and innovative economic and financial instruments. A wide range of mechanisms have successfully been used to fund MPA management in other parts of the world, and there is no reason why they should not be applied in Eastern Africa. At the level of the region, its component countries and individual MPAs, it will be necessary to tap into a wide and diverse range of funding sources. Experience has already demonstrated the dangers of relying on a single source of funding, especially where these funds are subject to unpredictable fluctuations or to externally-induced changes.

In conclusion, it is clear that as long as economic and financial issues are ignored, MPA management will be weak and ineffective in practice, and marine resources and ecosystems will continue to be degraded in Eastern Africa. An urgent priority is to take up the challenges described in this report, by demonstrating and capturing as wide a range of MPA benefits and costs as possible, among as broad a constituency as possible. Unless their future financial and economic sustainability can be assured MPAs in Eastern Africa, and their component species and ecosystems, stand little chance of survival over the long-term.

7 References

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8 Data Annex

Table 4: Employment in fishing in Shimoni and Wasini Sub-Locations

	Boats/licence holders	Local crew/employees	Total people	% households
Unlicensed dugout canoes	140	2	280	41
Licensed dugout canoes	80	2	160	23
Licensed outrigger canoes	15	4	60	9
Licensed dhows	3	6	18	3
Licensed English boats*	12	3	36	5
Total	250	17	554	81

(Source: Kwale District Fisheries Office records, 1989 Census. *Excludes full-time tourist boats)

Table 5: Shimoni artisanal fish catch, 1998

	Catch (Kg)	Total value (US\$)	Average price (US\$/kg)
Jan	30,494	30,970	1.02
Feb	44,520	47,060	1.06
Mar	24,081	23,943	1.00
Apr	24,162	30,604	1.27
May	36,856	46,434	1.27
Jun	20,451	21,908	1.08
Jul	17,853	20,974	1.17
Aug	20,344	32,466	1.59
Sep	26,697	29,523	1.11
Oct	17,631	20,198	1.14
Nov	21,294	24,509	1.16
Dec	19,600	27,744	1.42
Total	303,983	356,334	1.17

(Source: Kwale District Fisheries Office records)

Table 6: Shimoni aquarium fish trade, 1998

Type	Number
<i>Acanthurus leucosternon</i>	277
<i>Acanthurus lineatus</i>	25
<i>Acanthops</i>	4,831
<i>Amphiprion</i>	546
<i>Anampses</i>	635
<i>Anemone</i>	1,503
<i>Anthias</i>	3,292
<i>Chaetodon</i>	488
<i>Coris</i>	527
<i>Dascyllus</i>	424
<i>Escenius</i>	103
<i>Meiacanthus</i>	942
<i>Naso</i>	138
<i>Ostracion</i>	347
<i>Paracanthurus</i>	1,251
<i>Parapeneus</i>	20
<i>Palythoa</i>	240
<i>Pterois</i>	335
Sea star	248
Sponges	2,489
<i>Vallenencienia</i>	252
<i>Zebrasoma</i>	503
Total	19,416
Value (1999 US\$ '000)	97.03

(Source: Number of specimens from Kwale District Fisheries Office records)

Table 7: Shimoni sea cucumber collection, 1998

	Catch (Kg)	Value (1999 US\$)
Sept	385	2,102
Oct	474	1,838
Nov	138	525
Total	997	4,465

(Source: Kwale District Fisheries Office records)

Table 8: Shimoni shell collection, 1998

	Number	Value (1999 US\$)
Tiger cowrie	13,612	654
Bull mouth	3,907	3,302
Common spider	2,984	1,003
Harp	2,226	877
Oyster shell	1,976	210
Murex	1,893	1,545
Giant spider	1,879	2,905
Egg cowrie	1,450	553
Mixed cowrie	971	370
Giant clam	897	2,133
Frog shell	695	262
Corn shell	628	254
Silver conch	526	213
Green turban	485	1,033
Shella	210	53
King helmet	121	221
Triton	99	416
Others	1,181	325
Total	35,740	16,328

(Source: Kwale District Fisheries Office records)

Table 9: Profit ranking of major National Parks in Kenya, 1994-95

Revenues (1995 US\$ '000)		Surplus/deficit (1995 US\$ '000)		Revenues as % of costs	
Amboseli	2,446	Amboseli	2,205	Tsavo West	4,193%
Tsavo East	2,094	Tsavo West	1,760	Amboseli	1,015%
Nakuru	1,968	Nakuru	1,705	Nakuru	749%
Tsavo West	1,803	Tsavo East	1,540	Kisite	549%
Aberdares	1,013	Aberdares	705	Tsavo East	378%
Nairobi	861	Nairobi	612	Nairobi	345%
Shimba Hills	250	Shimba Hills	98	Aberdares	330%
Mount Kenya	168	Kisite	86	Malindi*	295%
Hells Gate	111	Mount Kenya	51	Mombasa*	240%
Kisite	105	Mombasa*	49	Shimba Hills	165%
Mombasa*	85	Malindi*	32	Mount Kenya	144%
Watamu*+	80	Hells Gate	-15	Hells Gate	88%
Meru	48	Saiwa Swamp	-20	Watamu*	77%
Malindi*+	48	Watamu*	-24	Saiwa Swamp	35%
Mount Elgon	22	Sibiloi	-89	Meru	17%
Marsabit	13	Marsabit	-113	Mount Elgon	14%
Saiwa Swamp	11	Mount Elgon	-130	Marsabit	10%
Sibiloi	5	Meru	-233	Sibiloi	5%

(Source: KWS data. *Marine National Parks and Reserves. +During 1994 Watamu and Malindi Marine National Park/Reserve ceased to be managed under a single budget line, separate budgets and revenues are calculated from data in Erftemeijer and Mwakoyo 1995b and 1995c)