

**LOCAL PEOPLE'S PERCEPTIONS OF MARINE PROTECTED AREAS:
A CASE STUDY OF PONTA DO OURO, MOZAMBIQUE.**

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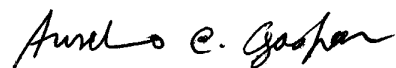
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COMPONENT A

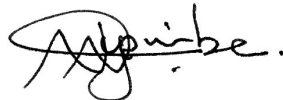
PREFACE

The study described in this dissertation was carried out in the School of Applied Environmental Science, Centre for Environment, Agriculture, and Development, University of KwaZulu-Natal, Pietermaritzburg, from September 2005 to December 2005, under supervision of Dr. Nyambe Nyambe and co-supervision of Professor Robert Fincham.

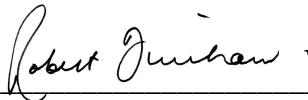
This study represents original work by the author and has not otherwise been submitted in any form for any degree or diploma to any University. Where use has been made of the work of others it is duly acknowledged in the text.



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LIST OF ACRONYMS

APAI	African Protected Areas Initiative
CEAD	Centre for Environment, Agriculture and Development
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS or Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals
CTIIGC	Coastal Zone Management Inter-Institutional Committee
CZMC	The Coastal Zone Management Centre of the Netherlands.
EAME	Eastern African Marine Eco-region
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization
GoM	Government of Mozambique
ICM	Integrated Coastal Management
ICRAN	International Coral Reef Action Network
ICRI	International Coral Reef Initiative
INE	Instituto Nacional de Estatística, i.e., National Statistic Institute
IUCN	World Conservation Union
IUCN's-EARP	IUCN's Eastern Africa Regional Programme
LSDI	Lubombo Spatial Development Initiative
MAB	UNESCO Man and the Biosphere Programme
MICOA	Ministry for the Coordination of the Environmental Affairs
MPA	Marine Protected Area
NEMP	National Environmental Management Programme
Mt	Metical (Mozambican currency)
NGOs	Non-Governmental organisations
NORAD	A Norwegian Agency for Development Co-operation
ORI	Oceanographic Research Institute
PNUD	Programa das Nações Unidas para o Desenvolvimento, i.e., United Nations for Development Programme
PRA	Participatory Rural Appraisal
PSSAs	Particularly Sensitive Sea Areas
SEACAM	Secretariat For Eastern African Coastal area Management
TFCA	Trans-frontier Conservation Areas
UKZN	University of KwaZulu Natal
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
WIO	West Indian Ocean
WIOMSA	West Indian Ocean Marine Scientists Association
WPC	World Parks Congress
WCPA	World Commission on Protected Areas
WWF	World Wild Life Foundation
WWF-EAME	WWF Eastern African Marine Eco-region Programme

ABSTRACT

Marine protected areas (MPAs) cannot be managed outside the context of human societies that are dependent on their associated ecosystems and resources. This means that local people's perceptions need to be considered in the establishment of MPAs as well as their subsequent management, planning and decision making processes.

Accordingly, this study investigated respondents' perceptions of the Ponta do Ouro – Kosi Bay MPA. The MPA is part of the now proclaimed Lubombo Trans-frontier Conservation Area (TFCA). An interviewer - administered questionnaire was used to obtain primary data from 35 respondents, all resident in the study area and who are involved in various activities based on the coastal area and its marine resources. The focus of the study was on awareness regarding the establishment, impacts of the MPA, the setting of priorities for the MPA and lastly, respondents' roles and responsibilities

The findings from the study reveal low levels of awareness of the establishment of the MPA among respondents, although there was acknowledgement of its potential contribution to biodiversity conservation. Various types of impacts of the establishment of the MPA were noted. The establishment of the MPA was perceived to negatively impact on the access to, and use of, marine resources. It was also felt that the MPA would impact on the exercise of traditional authority. Concerning the setting of future priorities for the MPA, socio-economic considerations, particularly job creation rated highest. Biodiversity conservation ranked highest in terms of factors that should shape the current priorities of the MPA. Overall, tourism and related job creation and biodiversity conservation were identified as the main opportunities associated with the establishment of the MPA. Controlling access to the area, curbing inappropriate resource use, controlling development

and ensuring that local people benefit were highlighted as major opportunity benefits. Constraints were mainly considered in relation to the exercise of traditional leadership, access to the area and restrictions in selling of harvested marine resources. Regarding how to collaborate in the MPA, various skills among the respondents were mentioned, with respect to the following areas: enforcement (control, patrols and security) and community relations and awareness (including communication and the translation of documents).

Lastly, while the respondents displayed both supportive and unsupportive attitudes as results of perceptions of the intended MPA, in an overall sense, the MPA was considered as a positive development. This was in spite of the perceived weak communications that exist at present between the authorities and local people. Enhanced, communication between authorities in charge of the MPA and local people could help to provide a more positive sentiment towards the MPA. This is particularly true of the local people who, if they understood the rationale for the MPA more fully and how it would impact on their use of the resources of the MPA, would be more likely to support its establishment and existence.

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CHAPTER 1

INTRODUCTION

1.1 Background to the study

Marine and coastal areas are associated with a wide spectrum of values, not just ecological ones. Effective management of these areas is therefore important for other considerations such as socio-economic development (Lindén and Lundin 1997). Tourism, recreation, resource harvesting, and other activities dependent on a functional marine and coastal ecosystem are likely to be beneficial to both the government and the general public.

Marine and coastal areas are increasingly considered as deserving of formal conservation (Lundin and Lindén 1996; Lindén and Lundin 1997; WCPA 2003). Arguably, this has come in the light of a disproportionate focus of past conservation efforts on terrestrial areas and resources and under-representation of marine protected areas (Chape *et al.* 2003). Furthermore, advancement in science has revealed two critical aspects: the ecological richness of marine and coastal areas and the deep seas¹ and the seriousness levels of degradation they face (WCPA 2003). As a result, marine protected areas are gaining support because they are seen as supportive of ecosystem management hence encouraging the conservation of critical habitats, fostering the recovery of overexploited and endangered species, maintaining marine communities, and promoting their sustainable use.

¹ The parts of oceans for over which there is no jurisdiction by sovereign states (WCPA 2003).

One way of redressing the paucity of attention to marine and coastal resources, lies in the establishment of marine protected areas. A protected area is

“an area of land and/sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means” (IUCN 1994:7).

More specifically, a marine protected area is defined as

“any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part, or all, of the enclosed environment” (Fennessy and van der Elst 2004:10).

To be an effective means to support biodiversity conservation and ecologically and economically sustainable fisheries marine areas should be managed in the context of human societies that are dependent on those resources (WCPA 2003). MPAs should include the full range of IUCN categories (including highly protected marine reserves and areas managed for multiple uses). Which category is applicable in a particular situation needs to be carefully considered. In many aspects of the establishment and subsequent management of such areas, the perceptions of local people are likely to be important.

Nevertheless, in many cases, the establishment of a marine protected area has approval from the government without the necessary baseline information, including consultation with local people (Reid *at al.* 1999). Hence, this study investigated local respondents' perceptions of the Ponta do Ouro – Kosi Bay marine protected area. It is part of both South Africa's and Mozambique's joint demonstration of commitments and contributions toward global efforts to building a system of marine and coastal protected area networks (WCPA 2003).

1.2 Problem statement

Mozambique's coast between Ponta do Ouro and Machangulo Peninsula is now a protected area within the proclaimed Lubombo Trans-frontier Conservation Area (TFCA) (Figure 2, p 33). The Lubombo TFCA includes Ponta do Ouro/Kosi Bay TFCA, Tembe-Ndumo/Futi TFCA, and Goba/Mlawula TFCA and involves three countries: Mozambique, South Africa, and Swaziland (Robertson *et al.* 1996). It was conceptualised under the Lubombo Spatial Development Initiative (LSDI) – an initiative involving the three countries aimed at promoting cooperation in conservation and development in the Lubombo region (Robertson *et al.* 1996). A primary aim of the Lubombo TFCA is to link Maputo Special Reserve in Mozambique with South Africa's Ndumu Game Reserve and Tembe Elephant Reserve as an integrated biodiversity and wildlife conservation area (Robford Tourism 2004). The Lubombo region is internationally renowned for its biodiversity. It also has considerable tourism potential that promises to revitalize the region's economy (Robford Tourism 2004).

However, the survival and future success of Ponta do Ouro – Kosi Bay Marine Protected Area hinges on many factors. There are numerous challenges lying ahead of its establishment. One of these challenges, which is also the focus of this study, relates to the support from local people, such as tourist operators. Such support needs to be underpinned by access to information – whether there has been adequate and timely access to information or not, and transparency – whether all stages of the activities are publicly visible, including the decision making process. Access to information and transparency can raise the awareness levels about the initiative. In turn, awareness levels have implications on perceptions of the impact of the MPA and what should constitute its priorities. Similarly, it becomes possible to identify opportunities and constraints associated with the

marine protected area as well as reaching some level of understanding about what roles local people can play.

The notable attributes of the study area (Fennessy and van der Elst 2004) and the Mozambican Government's willingness to contribute to the national, regional and global protection of marine zone are undoubted (MICOA and Ministry of Tourism 2002). However, these factors should not constitute motive for substituting the need of follow the bottom-up approach, which is characterised by stakeholders' participation and consultation in the process (Nuttall 1999).

The Governmental agencies will not form a key focus of this research as they were targeted in earlier research conducted in relation to this area by the Oceanic Research Institute (ORI) (Fennessy and van der Elst 2004). Fennessy and van der Elst's (2004) work did not investigate the perceptions of local people, essentially because of time constraints to undertake this kind of fieldwork.

So, in conclusion, the present research will be answering the following four questions:

1. What are the possible socio-economic impacts of the establishment of MPA on local people?
2. To what extent is the MPA likely to change the current livelihoods of the local people?
3. What are the opportunities and constraints associated with the MPA?
4. What is the preferable category of MPA to be implemented in this case?

1.3 Study justification

Support for protected areas – marine or terrestrial – from local people is critical, as stated above, because without that support the notion of sustainable use will not materialise. An understanding of factors influencing support towards protected areas is therefore essential to effective protected area management (Barrow 1998). Benefits from understanding the existence or non-existence of stakeholder support and factors influencing such support can be immeasurable (Barrow 1998; Walls 1998).

On the one hand, support of local people would minimize antagonism; poaching and inappropriate resource use practices; unnecessary costs and conflicts can be avoided and replaced with collaboration between the protected area staff and local people (Phillips 2002). On the other hand, the lack of support can undermine protected area management goals and aspirations as operations can be disrupted leading to significant delays in implementation and realisation of desired goals (Obura, Wanyonyi and Mwaura 2002). Consequences of a lack of support can be detrimental in the short and long term as some of the negative effects can take a very long time to address (Barrow 1998; Walls 1998). Similar trends can be avoided in the case of marine protected areas by taking the collaborative approach.

Collaboration with stakeholders at all levels – from planning to implementation – in the establishment and management of a protected area is therefore crucial. Among others, it presents opportunities for all parties involved to express their ideas and provides a feeling of ownership and responsibility (Barrow 1998; Phillips 2002). It is important to understand stakeholder participation as an integral process of effective management of a protected area. Importantly, participation is not a once-off activity. Rather, it is a process because it

has to occur over time and cannot be created quickly when convenient to certain persons or groups of individuals (Massinga and dos Santos 1998).

1.4 Aim and objectives

The aim of this study was to assess the level of support of local people for the Ponta do Ouro / Kosi Bay marine protected area. The specific objectives were to:

1. understand the perceived impact of the establishment of the marine protected area on access to coastal and marine resources by local people;
2. outline and examine the factors that local people perceive should be the basis for determining the priorities of the marine protected area;
3. document the perceived opportunities and constraints associated with the marine protected area; and
4. capture the perceptions about the roles and responsibilities that the local people consider themselves playing in the marine protected area.

1.5 Methodology

The east African coastal region is culturally, politically, and ecologically heterogeneous, which calls for case-by-case analysis (Lindén and Lundin 1997). Hence, this study adopted the case study approach focusing on the Mozambican side of the marine protected area. Data were collected using interviewer-administered questionnaires. Study participants were all drawn from the study area (Ponta do Ouro) and are involved in various activities based on the coastal area and marine resources. A review of literature played an important part in developing an understanding of the study area and issues to address. More on the methodology is outlined in chapter 3.

1.6 Limitations

The Ponta do Ouro/ Kosi Bay marine protected area extends way beyond the study area that is the focus of this particular dissertation and as is outlined more fully in chapter 3. As such, the geographical focus is on a single case study site. Considering the limited time and funding, it would have been impossible to cover the many projects that are embraced within the Ponta do Ouro/Kosi Bay Marine Protected Area.

1.7 Structure of dissertation

Two independent components make up this dissertation. This chapter and the following two chapters constitute component A. Together, these three chapters introduce the study giving the necessary background information, the literature review, and an overview of the research approach and methods followed in the study. Component B is written according to the criteria of a research paper presenting the findings of the study and their implications. As Component B must be able to stand alone as a publishable journal article, appropriate material from Component A, such as aspects of the literature review, have been included in Component B.

CHAPTER 2

MARINE AND COASTAL AREAS CONSERVATION: A REVIEW OF LITERATURE

2.1 Introduction

This chapter reviews literature relevant to understanding the rationale behind marine and coastal resources conservation. The general inclination of this review is to provide a basis for the assessment of how local communities and tour operators perceive the creation of the marine protected area – increasingly considered a very important tool for the replenishment and regeneration of threatened marine resources or destroyed over-exploited habitats and species (WWF/IUCN 1998; Salm and Clark 2000). The chapter begins with a discussion of marine and coastal resources. Within the section, three further issues are considered: growing pressures on coastal and marine areas; global efforts towards marine and coastal areas conservation and challenges and opportunities in marine protected areas management. The next section considers African initiatives of coastal and marine resources conservation, specifically focussing on the Western Indian Ocean (WIO) which includes a coastline of more than 11 000 Km (Voabil and Engdahl 2001). A country-specific discussion is provided focusing on Mozambique's efforts in coastal and marine conservation. Mention is also made of conservation efforts in South Africa, along the coastline immediately to the south of Mozambique.

2.2 Conservation of marine and coastal resources

The ecological richness of the coastal and marine areas and, often, their vulnerability to unplanned developments, unsustainable resource use, inappropriate land uses and settlements, justify the need for their management as protected areas (Salm and Clark 2000). As of 2003, a total of 102 102 protected areas constituting approximately 18.8 million km² were listed by the United Nations (Chape *et al.* 2003). However, from the

currently existing 4 459 marine protected areas covering 4.2 million km², only approximately 1.7 million km², that is equivalent to 9.1 percent of the global total or 0.5 percent of the total surface of the oceans are formally designated as marine protected areas. At the Fifth World Parks Congress in Durban in 2003, two recommendations relating to marine and coastal areas conservation were made². This suggests that there is a dire need to protect a significant proportion of the coastline to adequately conserve the associated marine and coastal resources.

Marine protected areas are increasingly seen as indispensable tools in the conservation of marine heritage and its rich biodiversity (Fennessy and van der Elst 2004). They offer opportunities for integrated management compared with simple and individual measures used on an *ad hoc* basis such as permits, quotas, size limits, and gear restrictions (Alcala and Russ 1990; Polunin and Roberts 1993 cited in Fennessy and van der Elst 2004). The reasoning behind marine protected area is partly encapsulated below:

“Marine protected areas, which cover the full range of IUCN protected area management categories, are widely recognised by coastal nations as flexible tools (including non-extractive areas and zoned areas managed for multiple uses) that help to ensure conservation and sustainable use through integrated area-based management. Also, beyond national jurisdictions marine protected areas can be a key mechanism for securing protection from immediate threats while promoting integrated and ecosystem-based oceans management” (WCPA, 2003: 58-59).

Numerous benefits can be associated with marine protected areas. They:

- contribute greatly to the global protection of the marine ecosystems in terms of their *economic and social importance* (providing a basis for education and research; they also provide direct or indirect social and economic benefits, such as sustainable tourism development);

² Recommendations 5.22 and 5.23 called for the building of a global system of marine and coastal protected area networks and protecting marine biodiversity and ecosystem processes through marine protected areas beyond national jurisdiction respectively (WCPA 2003).

- carry out important *functions* (protection of such important ecosystems and their functioning, protection of critical habitats; sustaining areas of high species diversity; and contribute to the sustainable uses of marine organisms); and
- have critical *attributes* (they are associated with religious and cosmic beliefs, they constitute a source of artistic inspiration, they provide sanctuary for the marine fauna and they form the base of important local traditions) (IUCN 2000 cited in Fennessy and van der Elst 2004).

Notwithstanding the aforementioned benefits, the reality is that while considerable progress has been made in expanding terrestrial protected areas coverage over the past several decades, marine ecosystems remain poorly represented in global conservation efforts (Salm and Clark 2000; Phillips 2002; Fennessy and van der Elst 2004). And yet, for a long time, the marine and coastal areas have been under serious degradation partly due to a lack of concerted global efforts to mitigate pollution, over fishing, habitat destruction, and other long-term threats to marine and coastal biodiversity. Efforts to promote marine and coastal areas' conservation have historically been regional and dissipated.

The establishment of marine protected areas is increasingly being promoted all over the world against the background of continuing threats of collapsed fisheries, loss of marine, estuarine and other aquatic habitats (Salm and Clark 2000). These coupled with the growing human population on coastal areas (WCPA 2003) expose marine and coastal biodiversity to serious pressures and degradation. Socio-economic implications of the loss of biodiversity are also enormous as coastal and marine resources form the bedrock of coastal economies (WCPA 2003).

2.2.1 Growing pressures on coastal and marine areas

Marine and coastal areas face growing pressures emanating from a number of factors: social, economic, and technological, among others. Poverty, a good example of social factors, has led to over-harvesting of mangroves for charcoal and fuel wood, aquaculture, conversion for salt farming and agriculture and construction material and other rapid urban and industrial development (Hambrey, Phillips, Chowdhury, and Ragnath 1999). Economic factors are associated with growing trade in marine resources such as marine fishery products. Technology has led to increasing activities like wanton deep-sea trawling and illegal whaling (Salm and Clark 2000).

Uncontrolled harvesting of marine resources is growing significantly, posing serious threats to the biodiversity and ecological status of the coastal areas and deep seas. Estimates suggest that 75 percent of the fisheries stocks all over the world are already fished at their maximum capacity or over-fished and nearly 100 marine species are “Red Listed” (a list of endangered species, created by the World Conservation Monitoring Center), in a critical state, in danger or vulnerable (WWF/IUCN 1998). It is as a result of these issues that there are increasing concerns about protecting marine biodiversity, and ecosystem processes through marine protected areas beyond national jurisdiction (WCPA 2003).

In addition to depleting fish, crustacean, and mollusc stocks, over-fishing from deliberate exploitation as well as incidental (no-target species) has diminished certain species of whales, sea cows, and sea turtles (Salm and Clark 2000). In Africa, artisanal fisheries provide sustenance means for local people, but these fisheries are being exploited further than the level of sustainability and consequently that is likely to lead to the diminution of their contribution to national diets and incomes (Salm and Clark 2000). Undisturbed

coastal areas also play other functions. Fringing coral reefs, tide flats, coastal wetlands, and shallows provide food and shelter for many animal species and coastal communities (Salm and Clark 2000). Coastal wetlands and coral reefs are especially crucial for protecting shorelines and coastal villages against disasters (Salm and Clark 2000).

2.2.2 Global efforts towards marine and coastal areas conservation

Concerns for stepping up efforts in the conservation of marine and coastal areas have been expressed for a very long time. In the recent decades, there have been growing global efforts to ensure the ecological sustainability of highly valuable non-living and living marine resources (Kelleher 1999; Kimball 2001; Chape *et al.* 2003). The message from all these developments is simple: there is a need to strengthen marine and coastal protected areas as key contribution to coastal sustainable development. It also means that all countries with coastal zones need to develop national capacity for sustainable coastal development. Alongside the protection of coastal zones, there is an urgent need to stretch conservation efforts to include the deep seas (WCPA 2003).

Worldwide concerns about coastal and marine conservation can be illustrated by appearance of multiple conventions relevant to marine and coastal resources conservation in the last four decades (Box 1). In addition there are also non-binding programmes and initiatives supportive of marine protected areas (Kimball 2001; IUCN 2004):

- UNESCO Man and the Biosphere Programme (MAB).
- FAO Code of Conduct for Responsible Fisheries.
- International Coral Reef Initiative (ICRI).
- International Coral Reef Action Network (ICRAN).

There are also numerous conventions and programmes, not directly related to marine protected areas, but clearly relevant for biodiversity conservation in general and therefore relevant to marine and coastal resources conservation (Kimball 2001). These include the following:

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1975) and
- Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention 1983), including Indian Ocean Marine Turtle Conservation Agreement.

1. **The Ramsar Convention on Wetlands 1971** – deal with conservation and wise use of wetlands (including marine) of global importance according to representativeness, rareness, and uniqueness criteria. The Ramsar sites do not have to be formally protected areas as long as they meet the Ramsar criteria.
2. **World Heritage Convention 1972** – relate to nominate formal protected areas with exceptional global cultural and natural inheritance value or characteristics according to specific criteria of the convention.
3. **International Convention for the Prevention of Marine Pollution from Ships (MARPOL 1973/78)** – refers to marine environment pollution by ships from functioning or involuntary causes according to the Particularly Sensitive Sea Areas (PSSAs) regulation.
4. **Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention 1985)** - a UNEP convention, covering protection of the marine and coastal environment in the Eastern Africa Region including the creation of a network of marine protected areas.
5. **Convention on Biological Diversity 1992** and the **Jakarta Mandate 1995** - it relates to measures to be taken by Parties for conservation and sustainable use of biodiversity and establishment of a system of areas protected, or areas needing special approaches to conserve biodiversity. Jakarta Mandate is an associated instrument dealing with specific aspects of marine biodiversity conservation, namely: Integrated Coastal Management (ICM), sustainable use of living resources, marine protected areas, mariculture and alien species.
6. **United Nations Convention on the Law of the Sea (UNCLOS 1994)** – provide coastal States authority over their inland waters, territorial seas (out to 12 nm or 22.2 Km from the coast) and Exclusive Economic Zone (EEZ) (200 nm or 370 km from the coast). This convention asks for respects to the right of innocent passage by foreign ships.

(Source: Kimbal, 2001)

Box 1: Global conventions related to marine and coastal conservation

Further efforts have been demonstrated by the IUCN General Assemblies and World Parks Congresses in the last two decades. At the 17th IUCN General Assembly (San Jose, Costa

Rica), Recommendation 17.38 (*protection of the marine and coastal environment*) that called the global community to establish a global representative system of marine protected areas to provide for the protection, restoration, wise use, understanding and enjoyment of the marine environment was adopted. The need to establish a global network of marine protected areas was endorsed at the IUCN's 19th General Assembly (Bueno Aires, Argentina) when Recommendation 19.46 (*Marine and Coastal Area Conservation*) was adopted. The IUCN IVth World Parks Congress (Caracas, 1992) Recommendation 11 (*Marine Protected Areas*) called for the establishment of a global network of marine protected areas.

By early 2003, the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biodiversity noted that based on the available data, the marine and coastal protected areas were severely deficient (WCPA 2003). The same group of experts speculated that probably the data only covered a small proportion of marine and coastal environments. The above concerns and need for concerted efforts towards marine and coastal areas conservation were echoed at the Fifth World Parks Congress where two recommendations were made in this regard: 5.22 and 5.23. The former recommendation called for the building of a global system of marine and protected area networks and while the latter recommendation called on the global community to protect biodiversity and ecosystem processes through marine protected areas that went beyond national jurisdictions. The latter formed part of the message, which was sent to the Congress of the Parties (7) of the Convention of Biodiversity.

Earlier in 2002 at the World Summit on Sustainable Development (Johannesburg, South Africa), attention was called to the need to maintain the productivity and biodiversity of

critical marine and coastal areas (WCPA 2003). An Implementation Plan was developed specifying three targets:

- ◆ 2010: application of the ecosystem approach to ocean and fisheries management.
- ◆ 2012: the establishment of representative MPA networks based on scientific information and consistent with international law.
- ◆ 2015: restoration of depleted fish stocks.

Meeting the above targets means that not only is there a need to establish marine protected areas, but also their management will need to invoke innovations consistent with the times and challenges. Such innovations will need to position marine protected areas as a key contributor to sustainable coastal and marine development and conservation. Qualities expected of marine protected areas will include recognizing and supporting a diversity of governance types; addressing issues of communities and equity, recognizing the linkages between poverty and conservation and the promotion of tourism as a tool for conservation and support of protected areas. As the world mobilizes resources and expertise in pursuit of enhanced conservation of marine and coastal areas, it is prudent to reflect on the challenges from earlier efforts as well as what opportunities at the moment.

2.2.3 Challenges and opportunities in marine protected areas management

Marine and coastal areas are highly productive ecosystems, and with this status come many challenges. Regionally and globally, coastal and marine protected areas networks are very weak and inadequate. They protect only a very small portion of coastal and marine environments (WPCA 2003). Thus, the efforts in protecting the rich biodiversity from the diverse forms of degradation are still recognised as deficient (Lundin and Lindén 1996 and Lindén and Lundin 1997). For example, with specific reference to the east coast of Africa,

the apparent incapacity to improve the present situation is linked to the following challenges:

- ◆ The lack of expertise to develop national and international management initiatives.
- ◆ Inadequate understanding of ecological and economic dynamics in the marine and coastal areas.
- ◆ Compartmentalised and uncoordinated initiatives, which are challenged by new approaches to management.
- ◆ The variety of issues and priorities of agendas within and between countries make the national and international initiatives even more complicated (Lindén and Lundin 1997).

A common response in dealing with the numerous challenges faced in coastal and marine resources management has been the establishment of marine protected areas. But the challenges of marine protected areas go beyond the immediate response of designating and setting up marine protected areas. There are bigger challenges that come after the establishment of a marine protected area. The challenges include how to integrate and accommodate the different cultural, land and sea-use practices, and the legal and governance frameworks of each country concerned (Fennessy and van der Elst 2004).

Human settlement is also a challenge for marine and coastal conservation efforts (Reid, Sindiga, Evans and Ongaro 1999). Nearly 60 percent of the global population lives along coastal areas, and their livelihoods are intricately intertwined with marine resources (WCPA 2003). The deep seas face other diverse pressures including those from trawling and sea-based transportation. A further sense of the challenges is provided from a

compilation of different experiences of implementation of marine protected areas in the eastern African region (Box 2).

1. Persistent suspicions and fear between local communities, the project managers, and the government.
2. Local communities have had unrestricted access to the natural resources.
3. Reservation about the participation approaches adopted.
4. Ignorance and limited planning at all levels.
5. Local villages assume that support is permanent and NGOs and other agencies involved in implementation issues are there permanently to develop the area.
6. Not all the local communities adopted the concept.
7. There are conflicts between local people and government institutions.
8. There is a lack of institutional coordination, such as that between fisheries departments and forestry departments.
9. Conservation objectives are affected by national and regional level politics.
10. Lack of formal legislation and of traditional management systems.
11. There are no legal mechanisms for returning tourism revenue to local communities.
12. Conflict and confusion over land ownership.
13. The marine protected areas are dependent on donor financing.

(Source: Moffat and Kyewalyanga 1998)

Box 2: Lessons from the Implementation of marine protected areas in the Eastern Africa Region

Differently to terrestrial protected areas, people cannot live in marine protected areas. This suggests different sets of relationships between people and the environment and clearly increased philosophical changes in the ways to manage marine protected areas (Hockings *et al.* 2000). For example, the plight of deep sea waters and their biodiversity calls for global efforts, perhaps much more than witnessed so far given their location in areas where national jurisdiction does not apply.

In spite of the concerns highlighted above, there are still large coastal and marine areas exhibiting wealthier ecological status, making this a good opportunity to protect them in sustainable ways important to both natural and cultural heritage (Lindén and Lundin 1997). In this regard, marine protected areas, especially those that are just being established,

present opportunities for better stakeholders' involvement and collaboration compared with past terrestrial parks (Chape *et al.* 2003). The most recent initiatives in creating marine protected areas try to avoid major failures by implementing a wider range of initiatives such as the reinforcement of zoning schemes that allow for the designation of multiple use purpose areas. Such zonation allows for parallel utilization of marine protected areas for stakeholders with conservation and sustainability use in mind (Thomas, and Middleton 2003; Fennessy and van der Elst 2004). Achieving multiple-use purposes of marine protected areas through zoning has proven to be a good approach because it tries to accommodate and compromise the interest of all the parties (Borrini-Feyerabend *et al.* 2004). There are also opportunities in terms of considering stakeholder views and sentiments and keeping track of their evolution over time will become one of the major activities that MPA managers have to play (Barrow 1998; Govan and Hambrey 2002).

2.3 African initiatives towards coastal and marine resources conservation

The history of formal marine protected area management in the western Indian Ocean (WIO) can be traced from 1964 with the proclamation of the Tsitsikamma National Park in the Eastern Cape of South Africa. The Malindi and Watamu Marine Parks and Reserves in Kenya in 1968 and others totalling today some 78 marine protected areas followed the establishment of the Tsitsikamma National Park. Currently, marine protected areas cover an estimated 22 000 km² and are to be found from Somalia to South Africa and the Islands states (Wells 2002, 2004 cited in Fennessy and van der Elst 2004). In addition to the global proclamations and initiatives, there are programmes and initiatives specific to Africa, for example:

- ♦ African Convention on the Conservation of Nature and Natural Resources (1968).

- ◆ African Protected Areas Initiative (APAI).
- ◆ WWF Eastern African Marine Eco-region (EAME) Programme.

Specifically in the WIO region, a major contributor for the expansion of marine protected areas was the revitalization of the Convention for the Protection, Management, and Development of the Marine and Coastal Environment in Eastern Africa (Nairobi Convention 1985) which established the Group of Experts on Marine Protected Areas in Eastern Africa (GEMPA-EA), hosted jointly by the United Nations Environment Programme (UNEP) in Nairobi and West Indian Ocean Marine Scientists Association (WIOMSA) in Zanzibar (IUCN 2004). Other important initiatives to address the marine and coastal issues on the eastern coast of Africa include the adoption of the Nairobi Convention and the Arusha Resolutions. The Arusha Resolutions constituted the Ministers' and experts' recommendations at the Policy Conference on Integrated Coastal Zone Management in Eastern Africa and Island States held in Arusha, Tanzania, 1993. This meeting was a follow up of the 1992 UN Conference on Environment and Development, which recommended that emphasis, should be placed on a local action agenda (Agenda 21) integrating environmental protection into local economic development (Lindén and Lundin 1997).

2.4 Mozambique's efforts in coastal areas and marine resources conservation

The main aim of this section is provide an overview of government efforts in managing coastal areas and marine resources in Mozambique. However, it is necessary to first provide some remarks about the country's history and socio-economic situation as these have important implications for natural resources management in general and marine resources in particular.

2.4.1 Introductory overview of Mozambique

Mozambique is a former colony of Portugal. It gained political independence in 1975, shortly after which it was affected by a devastating civil war, which disturbed its development and economic growth opportunities (Arnaldo 2004). Mozambique is situated on the east coast of southern Africa with an area of 799,388 km² and 13,000 km² of inland water (Figure 1) (Dejene and Olivares 1991). Its coastal location and long stretch of coastline make it one of the most strategically situated countries in southern Africa as a gateway to six hinterland countries. Mozambique's neighbours are Tanzania in the north, Malawi and Zambia to the northwest, Zimbabwe in the west and Swaziland and South Africa in the southwest and south respectively. In the east it is entirely bordered by the Indian Ocean along a 2700km coastline, making it one of the longest national coastlines in east Africa (Dejene and Olivares 1991; Massinga and Hatton 1996).

By mid-1996, Mozambique's per capita annual income level was estimated by the World Bank at \$US 120 - \$US 150, which at the time was the lowest in the world (Christie 1996). Towards the late 1990s, the annual infant mortality was the second highest in the world, with one out of every three children dying before reaching the age of five (Abrahamsson and Nilsson 1998). In 1997, the human population was an estimated 18 million with a projected growth to nearly 20 million by 2000 (INE 1999). The agriculture sector contributes approximately 23 percent of the Gross National Product (GNP), employing about 70 percent of the active labour force (INE 1996; UNDP 2006).

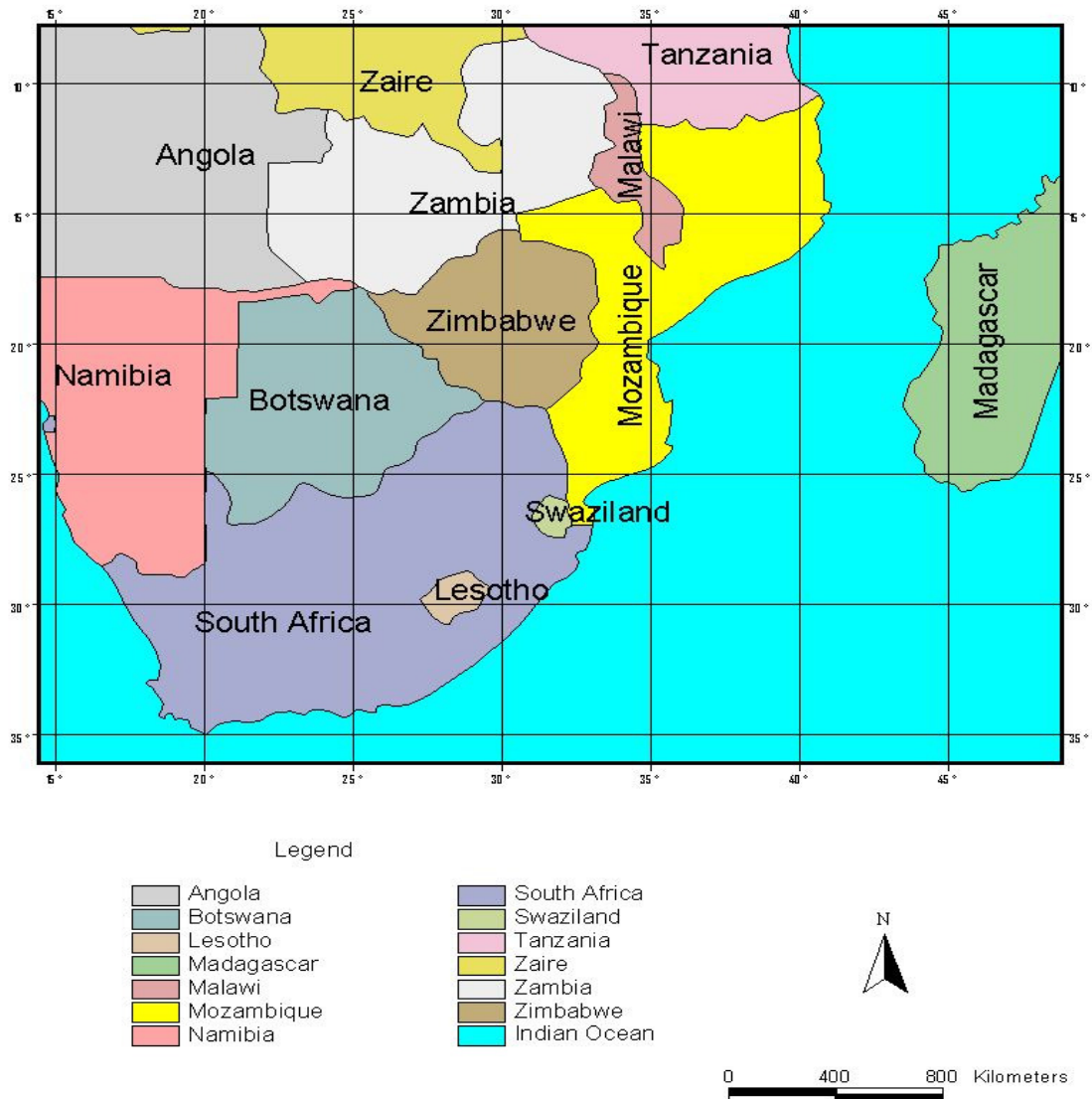


Figure 1: Mozambique in the Regional Context
 (Source: ESRI 1992)

2.4.2 Natural resources management and conservation

Mozambique is richly endowed with natural resources. They include vast grasslands and indigenous forests covering approximately 40 million hectares (Matakala and Mushove 2001). Other natural resources include wildlife, fisheries (inland and coastal) and minerals scattered throughout the country (CTIIGC e UICN Moçambique 1998). The country's productive and administrative capacities, which were negatively impacted by the civil war, also placed limitations on the management of natural resources. Millions of people

relocated to coastal regions, along major transport corridors, at administrative posts and other areas deemed safe from rebel attacks. This mass relocation left much of the hinterland relatively unpopulated. This movement was beneficial to the abandoned areas by providing an opportunity for the natural resources like grasslands and forests to regenerate. Conversely, the newly settled or newly established settlements, often characterized by high population concentrations, created localised demands for natural resources (CTIIGC e UICN Moçambique 1998). The resultant concentration of people in particular areas increased pressure on available resources and created difficulties to manage such resources in sustainable way.

The Mozambican government, at the highest level, is committed to the conservation of national resources as demonstrated by the following strategic objectives:

- ◆ To prioritise the preservation of the quality and sustainability of biodiversity,
- ◆ To promote a proactive stakeholders' participation approach,
- ◆ To contribute to the rehabilitation, conservation and protection of ecosystems and natural heritage, and
- ◆ To promote the development of natural resources, especially those that possess an ecological and historical value in a recreational, aesthetic, and/or socio-cultural way (Ministry of Tourism 2003).

Managing natural resources in such a vast country with a poor economy and still recovering from the effects of a prolonged civil war, is a challenge and it has as yet to fully develop its environment and development agenda. Consequently, government institutions and traditional authorities have had little effective control over a major part of the natural resources; a situation, which has in some situations, has led to open access to resources

(Mansur and Karlberg 1986). For reasons outlined above, initiatives to effectively manage environmental matters alongside other developmental challenges are still in their very formative stages. One of the environmental sustainability challenges facing Mozambique is the management of coastal areas and marine resources.

2.4.3 Coastal areas and marine resources conservation

The situation regarding marine resources and coastal areas conservation in Mozambique is perhaps a reflection of the global situation. Mozambique's portion dedicated to marine and coastal management is very small compared to its terrestrial protected areas. Out of an estimated 137 700 km² of the total coverage of protected areas, only 8 950 km², i.e., 6.5 percent or one percent of total surface of Mozambique, is dedicated to coastal and marine protected areas (MICOA and Ministry of Tourism 2002; Ansley 2005). However, the areas designated as marine protected areas (Table 1) include bigger portions of terrestrial areas (Ansley 2005).

Table 1: Marine protected areas in Mozambique

Name	Protection status	Year of establishment	IUCN category	Area (km ²)
Bazaruto Archipelago	National Park	1971/2001 ³	II	1,430.00
Inhaca and Portugueses Islands	Faunal Reserve	1965	VI	20.00
Quirimbas Archipelago	National Park	2002	Unknown	7,500.00

(Source: MICOA and Ministry of Tourism 2002; Ansley 2005)

The Mozambican coast is a paradox: it is the country's most valuable natural resource but it is also the most vulnerable part of the country (Robertson *et al.*, 1996). The different activities such as fisheries, agriculture, tourism, and forestry practiced in coastal areas, which include land and marine resources, contribute significantly to the national income

³ Bazaruto Archipelago National Park was expanded to cover the entire archipelago in 2001 (MICOA and Ministry of Tourism 2002; Ansley 2005).

and provide socio-economic benefits to approximately two-thirds of the population (Fennessy and van der Elst 2004; Massinga and Hatton 1996; Robertson *et al.* 1996).

Some coastal areas are ancestral homes to local communities who have established strong cultural ties with the areas and have developed livelihoods based on the use of coastal marine resources. Thus, the importance of sustainable management of this important resource cannot be over-emphasized. Without such management, overutilization is an ever present danger.

Table 2: Coastal zone issues and problems identified in the NEMP Draft Report

ISSUES	PROBLEMS
Fishing	No reliable register of fish catches. Possible over exploitation of stocks in littoral waters.
Marine Parks	Lack of information to guide planners. Lack of adequate or sufficiently detailed legislation. Lack of trained staff.
Coastal/Marine Ecosystems	Degradation of mangrove, sea grasses beds and corals.
Tourism	Uncontrolled development. Lack of inter-sectoral coordination. Lack of master plans for strategic areas.
Marine Pollution	Land based sources of pollution including agriculture, industry, municipal effluents, and ports. Emissions from marine transport.

(Source: MICOA 1994)

The Mozambican government recognizes the various issues and challenges it faces in coastal zone and marine conservation (Table 2). Over-fishing of stocks already fully utilized and habitat destruction are some of the major challenges. Unplanned developments on coastal areas for tourism purposes are also a growing challenge, especially in the wake of the end of the civil war and as more tourists seek to access the country's coastal regions (MICOA 1994). Coastal and marine resources are also seriously threatened by rapid population growth, partly arising from the influx of people during the civil war, which has resulted in increasing resource exploitation due to growing demand of coastal resources for subsistence and commercial purposes. Escalating levels of marine resource consumption

have caused intensified harvesting, and in some case, poor or inappropriate harvesting practices. Continuation of these practices will have long-term detrimental effects on marine biodiversity and the welfare of coastal communities in Mozambique. Some of the ecological impacts of unsustainable harvesting of coastal and marine resources include the deterioration of habitat and food sources for native species; reduced productivity and increased food shortages and poverty (MICOA and Ministry of Tourism 2002).

2.4.4 Government efforts to manage coastal areas and marine resources

The Mozambican government has taken some important steps in an effort to address the challenges of managing coastal areas and marine resources. These include:

- ◆ reaffirmation and commitment to international agreements on sustainable management coastal areas and marine resources and broad conservation initiatives; and
- ◆ the drafting of new legislation and the amendment of existing with a focus on the coastal areas management and marine resource conservation.

Regarding international agreements, Mozambique is already party to the majority of various agreements, initiatives, and programmes which shows the commitment of the Mozambican government on environmental protection in general, and coastal and marine in particular (MICOA and Ministry of Tourism 2002). Mozambique has translated some of these international commitments and initiatives into domestic policy. For example, in order to contribute to the global vision of establishing a network of protected areas where all ecosystems are represented and to reach the consented ten percent IUCN target, the Mozambican government declared the area between Santa Maria Cape at the tip of the Machangulo Peninsula and Ponta do Ouro a marine protected area (MICOA and Ministry

of Tourism 2002). This addition of five percent Mozambican MPAs is also part of transfrontier conservation efforts between Mozambique and South Africa.

On the domestic legislative front, Mozambique is in the process of developing new legislation to enhance the management of coastal and marine areas. An important piece of legislation in this regard has been the National Coastal Zone Policy (MICOA 1998). The policy is regarded as setting out the country's direction in the management of coastal areas and marine resources by stipulating wide ranging provisions (Box 3). The management of marine and coastal resources was previously not very well defined and there was an emphasis on policing as the regulatory instrument (Massinga and Hatton 1996).

- ◆ It goes further than the traditional sectoral and fragmented approaches and adopts a holistic coastal zone management approach.
- ◆ It is an analytical process that advises the government in terms of the priorities, trade-off, problems and solutions
- ◆ It is a dynamic and continues processes of administering the use, development, and protection of coastal areas and their resources with intending to achieve objectives democratically agreed.
- ◆ It uses multidisciplinary and holistic perspectives that interlink coastal systems and development.
- ◆ It maintains a balance between the ecosystems protection and the economic development.
- ◆ It operates within the limits geographically established for the governmental organs.
- ◆ It seeks contribution from all the affected and interested parts in the establishment of politics regarding to equal space and resources allocation in the coastal areas.
- ◆ It integrates sectoral and environmental needs. The concept of coastal management should be implemented through specific legal and institutional framework and at appropriate levels of government and communities
- ◆ It provides mechanisms for the conflicts reduction in relation to allocation of resources or use of specific places.
- ◆ It promotes the awareness at all levels of the governance and community on the concepts of sustainable development and the importance of environmental protection
- ◆ It is a proactive concept (it incorporates the concept of development planning) and not reactive (it depend for development proposals to take an action).

(Source: MICOA 1998)

Box 3: A summary of the provisions and nature of Mozambique's coastal zone policy

It is envisaged that once old legislation is amended and new legislation in place, Mozambique will be better placed to address key issues such as the promotion of public awareness, community participation and partnership enhancement. It should result in improved relationships between the relevant authorities and civil society, including that

between communities and conservation agencies (Ministry of Tourism 2003). The legislation is anticipated to spell out explicitly appropriate resource rights and uses, with implications for people throughout the country. The legislation will also set out specific guidelines regarding the control, management, utilisation and conservation of Mozambique's coastal areas and marine resources, with sustainability and equity expected to be central guiding principles (Ministry of Tourism 2003).

2.5 South Africa's efforts in coastal areas and marine resources conservation

Both sides of the coastal strip, namely in Mocambique and in KwaZulu-Natal, South Africa belong to the proposed 26 734 Km² Maputaland Centre of Endemism (Wyk 1994 cited in Robertson et al. 1996). On the South African side, the Maputaland Centre of Endemism contains extensive wetlands and associated lakes, of which Lake St. Lucia, Lake Sibaya and the Kosi Lake System are most prominent (Robertson *et al.* 1996).

The area to the south of the Mozambique border is known as the iSimangaliso Wetland Park. It was formerly known as the Greater St Lucia Wetlands Park until November 2007 (<http://www.southafrica.info>). The Park was the first in South Africa to be granted World Heritage status. Under the Convention on Wetlands, South Africa has 19 Ramsar designated sites which are wetlands of international importance. Kosi Bay, Lake Sibaya and the St Lucia System are part of the Ramsar list of sites (<http://www.ramsar.org>).

The Park as a whole is characterized by a number of ecosystems, such as lakes, beaches, coral reefs, costal forest and grasslands. These all have a rich diversity of bird, animal and marine life (<http://www.southafrica.info>, *ibid*)

2.6 Summary

This chapter has reviewed literature on the growing pressures on coastal areas and marine resources, global efforts towards marine and coastal areas conservation and challenges and opportunities in marine protected areas management. African initiatives on the east coast in coastal and marine resources conservation were outlined too. Mozambique's efforts in coastal areas management and marine resources conservation were discussed, highlighting among others, legislative responses to coastal areas and marine resources management. Lastly, the South African area to the south of the Mozambique border is mentioned to provide an overall context for marine protection on this stretch of the east coast of southern Africa. The next chapter discusses the approach and methods followed in conducting this study.

CHAPTER 3

RESEARCH APPROACH AND METHODS

3.1 Introduction

The purpose of this chapter is to outline the research approach and methods employed in this study. The first section defines who the respondents are in this study and also provides insight into the way in which the concept of perception is articulated. Subsequently, follows a description of the preliminary preparations undertaken for the study followed by a discussion of the study area. Next is an explanation of the rationale of the approach taken to conduct this study, and within that context an elaboration of the case study approach and data collection methods is provided. Limitations of the study are also provided.

3.2 Respondents and Perceptions

3.2.1 Respondents

In relation to this research, the local community with their traditional leadership and tourism operators both of whom depend on coastal and marine resources for work and subsistence (Robertson *at al.* 1996), will be referred to as ‘local people’ and this term is used in the study. It follows that the term “*respondents*” is an appropriate nomenclature to use when referring to those interviewed in the field work. Robertson *at al.* (*ibid*), referring to this area covered by the MPA, characterise the communities as mainly fishermen and fisherwomen, who are involved in the activity for consumption purposes, at a subsistence level.

The coastal and marine areas have been attractive for the development of fishing activities and private business interests (Robertson *at al.* 1996). Tourist facilities, especially those of accommodation, have been developed over many years. Poverty levels in the area are high and the private lodges and other establishments have been a source of employment for the local people (Fennessy and van der Elst 2004).

As pointed by Reid, Sindiga, Evans and Ongaro (1999), the frequent displacement and exclusion from the natural resource of indigenous communities when protected areas are established is not restricted to isolated cases, but occurs worldwide and most specifically in many African countries. So, there is a need to involve all primary stakeholders in the feasibility study phase with the objective of collaboratively managing the coastal and marine resources of the area in a sustainable manner (Sayer and Campbell 2004).

Challenges of establishing and managing protected areas include how to integrate and accommodate the different cultural, land- and sea-use practices, and the legal and governance frameworks of each country concerned (Fennessy and van der Elst 2004). In many cases, the establishment of a protected area has approval from the government without the necessary baseline information, including the consultation with the local people (Reid *at al.* 1999).

Surveying the perceptions of the primary stakeholders, namely, communities and tourism operators should certainly contribute to determine the best categories of MPA and at the same time avoid conflict in this matter (Reid *at al.* 1999). Indeed, involvement of all sectors affected and interested in a given area from early stages can help in the understanding of their specific viewpoints and potential future responsibilities and so prevent future misunderstandings (Reid *at al.* 1999; Burke 1999; and Frimpong 2000).

3.2.2 Perceptions

Defining perceptions is not an easy task and the meaning of the term sometimes overlaps with that of attitudes. The following discussion provides a foundation for the way in which the term is conceived of in this dissertation.

Perceptions are the materialization of what our senses distinguish and are capable of interpreting from diverse external stimuli or environmental phenomena (Freeman 2003). Attitudes are negative or positive manifestations or the behaviour of individuals or collective reactions with respect to a given action (Kuper and Kuper 1989).

To understand the individuals and groups' attitudes and perceptions towards the environment both in terms of what it is and what it is taken to be is important in decision-making process (Romann 1989). According to Romann (1989), the behavioural environment of the individual or group is associated with the familiarity with the area, daily activity patterns and differences of socio-economic status. Romann (1989), demonstrate in empirical research that minority groups with higher socio-economic status are only comfortable in their worlds, and are less so when coming into contact with lower income groups and the contrary holds. This means that in order to avoid bias, any surveys related to attitudes and environmental perceptions of the respondents must be done within their usual habitats (Guelke 1989).

Understanding the attitudes and perceptions that stakeholders have about any proposal is critical to any development initiative (Fennessy and van der Elst 2004). Awareness and perceptions are both critical to determining how stakeholders interact with any initiative. Formation of MPA cannot be an exception to this observation. The levels of awareness of stakeholders and their perceptions are important to appreciating their support and or lack of support to any program (Reid *at al.* 1999).

3.3 Preliminary preparations

An important component of this study was the preliminary tasks undertaken to prepare the research proposal. Initial consultations were held with relevant institution and individuals, essentially within the University of KwaZulu Natal (UKZN), Centre for Environment,

Agriculture and Development (CEAD) and Oceanographic Research Institute (ORI). These consultations were ‘brainstorming’ sessions, which were used in developing the research proposal. Furthermore, as an employee of MICOA, I was exposed to the issue of establishing the marine protected area, but I was concerned at the scant details about stakeholder perceptions. This marked the beginning of my interest in the study and initial consultation processes.

3.4 Study area

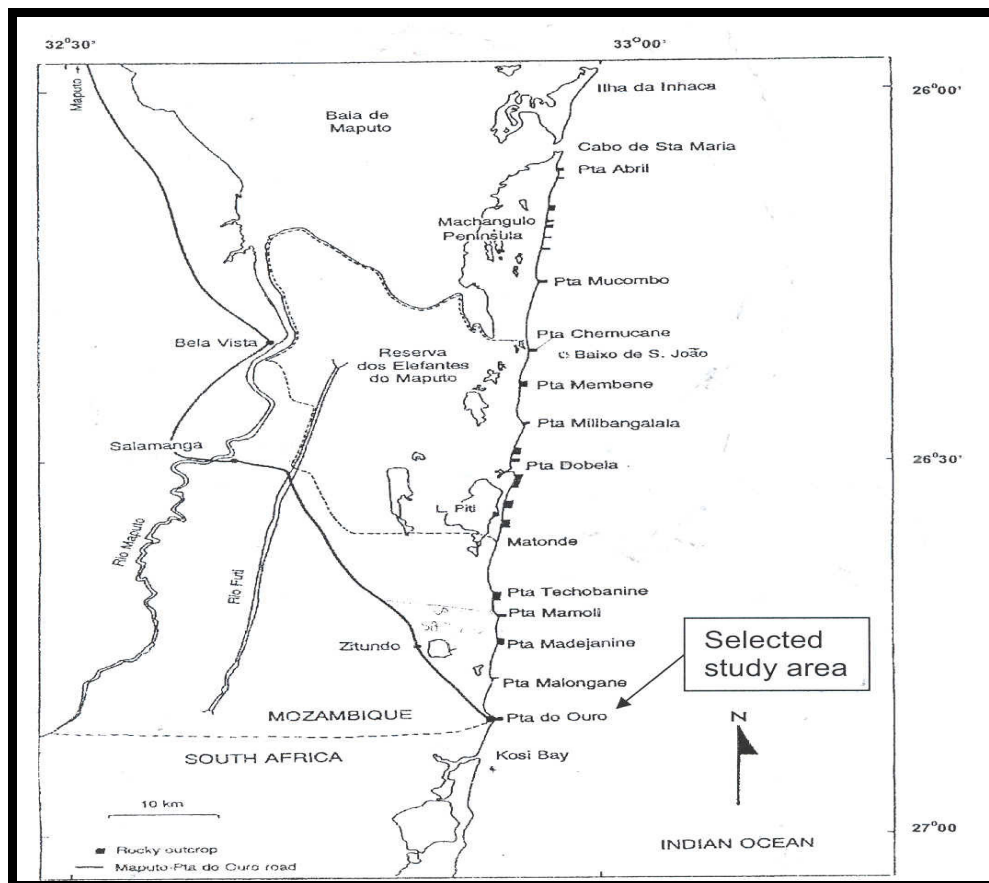
The study was conducted in the village of Ponta do Ouro. This village is part Ponta do Ouro/Kosi Bay marine protected area within the proclaimed Lubombo Trans-frontier Conservation Area (TFCA) (Robertson *et al.* 1996). Various factors have favoured the notion of a marine protected area in this area (Box 4). The marine protected area extends into the Mozambican side - North-South - from Cabo de Santa Maria (26°05’S, 32°58’E) at the tip of the Machangulo Peninsula to Ponta do Ouro (26°51’S, 32°58’E) (Hatton 1995).

- ◆ High biodiversity (marine mammals, sea turtles, and constitute part of a global endemic spot – the Maputaland – Pondoland regional mosaic.).
- ◆ Diverse habitats (high parabolic coastal dunes – up 120m, coastal zone, beaches, rocky shores, deep reefs, coral reefs, open ocean, estuarine, sea-grass, mangroves).
- ◆ Vulnerable ecosystems (corals, mangroves).
- ◆ Rare species (sea turtles nesting, coelacanth, endemic fishes).
- ◆ Spawning refuge (for depleted line-fish species).
- ◆ Exceptional tourist potential (angling, diving, boating, swimming, spear fishing, whale watching).
- ◆ Relatively unspoilt (low pollution - is still urban area localised problem, little development).
- ◆ Low levels of dependence for food security (low population density, inadequate biomass for large scale fishing).
- ◆ Potential to contribute to MPAs target (can add up to 5% towards Mozambique’s MPAs target of 20%) and adjacent terrestrial area of high conservation value.

(Source: Hatton 1995; Massinga and Hatton 1996; Robertson *et al.*, 1996 and Fennessy and van der Elst 2004.)

Box 4: Some of the factors favouring the establishment of a marine protected area in the southeast African coastal region

Ponta do Ouro Village is located in Maputo Province, in the Matutuine district (Figure 2). To the north, the Ponta do Ouro is bounded by Maputo Bay, from the Maputo River estuary to an extension of Machangulo Peninsula to the Indian Ocean. To the south, it follows the Maputo River to Ponta do Ouro on the Indian Ocean coast, which forms the eastern boundary (Guissamulo and Bento 2002). Matutuine district is composed of five *Postos Administrativos* (Administrative Posts⁴): Catembe, Catuane, Machangulo, Zitundo and Bela Vista (capital of the district). The extent of the district is 5 403 km² while the population is estimated at just over 49,000 people, giving the district a population density of nine inhabitants per km² (ACNUR and PNUD 1997).



(Source: Robford Tourism 2004)

Figure 2: A map illustrating a portion of the southeast African coastal area and the study area

⁴ Land under district and bigger than village when compared to the South African structure.

The coastline of Matutuine district, as in the rest of the marine protected area is linear and full of sandy beaches mainly with well-vegetated sand dunes. Behind the sand dunes, lies a series of permanent and semi-permanent coastal lakes, the largest one being Lake Piti. The sandy benches are alternated by occasional rocky headlands and subtidal rocky reefs encrusted with corals and associated organisms (Hatton 1995; Massinga and Hatton 1996; Robertson *et al.* 1996 and Fennessy and van der Elst 2004). These coastal features, availability of marine resources and easy accessibility from the urban areas, especially the city of Maputo, has made the area susceptible to an influx of holiday makers, tourists and their presence has contributed to environmental pressures and threats of environmental degradation in the area.

The marine protected area covers a considerable length of coastline and sections of it stretch are characterised by low population density. However, Ponta do Ouro, relatively speaking, has a high population (2 500 inhabitants). Ponta do Ouro's population includes local villagers and business people involved in enterprises relying on the coastal area and marine resources as well as local labour. These factors were especially useful in meeting the purposes of this study, hence the decision to choose the site for the study.

Other reasons for conducting the study at Ponta do Ouro include the fact that Matutuine district in general, and the Ponta do Ouro area in particular, has been targeted for development projects in the past which can conflict with the current conservation agenda. There is also existence of information from previous studies including the recent one from Fennessy and van der Elst (2004). Logistical considerations also played a part since the area is close to both the South African (where the researcher was studying at the University of KwaZulu-Natal) and the Mozambican (place of employment) sides.

3.4 Rationale for the approach chosen

3.4.1 Research methodology

The nature of the proposed investigation – to assess the respondents’ perceptions of a marine environment – suggests a qualitative research design and therefore falls into what may be termed an interpretivist approach (Neuman 2000). This implies a focus on the subjective interpretation by the participants of the issues pertinent to this study. The survey instrument will be a questionnaire which will be used to gain insight into peoples’ perceptions. Face-to-face interviews with respondents and focus groups discussions with key members of the communities will be undertaken.

Furthermore, the methodology used can be considered qualitative because the assessment of perceptions involves verbal and explanatory or descriptive data and not numerical or statistical data, which characterises the quantitative methodology (Neuman 2000; le Roux 2005).

3.4.2 The use of a case study

Several reasons motivated the use of the case study approach. First, a case study allows the researcher to place an emphasis on “understanding and tacit knowledge, rather than formal method and explicit theorising” (Platt 1988: 4). It was thus useful in this research to allow an understanding to be gained of the respondents and their perceptions of the marine protected area in a flexible and semi-structured manner. Although often producing information that is useful only in describing the specific characteristics of the system, entity, or event under study, case studies can be used to generate broader policy conclusions (Platt 1988). However, generalisation must be done with caution and its plausibility will depend on the adequacy of the theory being proposed and the extent of the body of knowledge available to support it (*ibid*: 18). If generalisation is not possible, a

case study, however, remains a valid method of analysis on condition that “no statement within the explanation need be generalised” if this is not appropriate (*ibid*: 19).

The case study approach was thus suitable as it was decided from the outset that the perceptions of the marine protected areas by the respondents would be established, as would their circumstances that influenced the perceptions.

Another problem commonly associated with case studies is the question of gaining access, both to individuals and institutions. In order to gain access to the study area, a letter of introduction from the Centre of Environment, Agriculture, and Development (CEAD) of the University of KwaZulu Natal (UKZN) was submitted to the local authorities. The same letter was used to introduce myself to respondents. Most of the respondents were, however, willing to meet with me even without me establishing my credentials – perhaps indicative of their interest in the issues the study was addressing.

3.5 Respondents and data collection

A total of 35 respondents above 18 years of age were involved in the study. They were all residents of the study area, predominantly local community members and local businessmen in the tourism sector. Data collection sessions were preceded by a brief introduction and explanation of the purpose of the study. Thereafter, ethical issues were raised, including the respondents’ availability and willingness to participate in the study.

A semi-structured questionnaire (Appendix 1), comprising open-ended and closed-ended questions, was the main instrument for collecting primary data. Due to time constraints the questionnaire was interviewer administered. This way, the prospect of lack of misunderstanding was completely avoided as face-face interactions made it possible to

counter check. Also, it was possible to provide prompt clarifications during the session with the interviewee.

Although the use of a semi-structured questionnaire could be criticised as being less robust and more subjective than quantitative approaches (Neuman 2000; Bless and Higson-Smith 2000), the positive features of the approach outlined above and the suitability of the semi-structured questionnaire approach for this study, outweighed these concerns. Realising possible limitations of using a semi-structured questionnaire, a lot of care was taken to develop an elaborate questionnaire. For example, room was provided for additional explanations to some closed-ended questions, thus making them in reality open-ended questions. Also, during the sessions with the respondents, an interactive approach was followed. This allowed the examination of responses in depth, to probe for explanations and to improvise and react to themes that were not anticipated. In this way, the semi-structured questionnaire served as a semi-structured interview, although it was not an interview in the strict sense. A systematic approach was employed when meeting with the respondents to try to ensure a standardised approach to the gathering of data.

In addition to primary data, which were collected using the semi-structured questionnaire, secondary data was obtained from sources that included published and unpublished materials relevant to the study.

3.6 Data analysis

Data analysis is “the process of bringing order, structure and meaning to the mass of collected data” (Marshall and Rossman 1989: 112). Once the questionnaires were completed, time was spent going through each questionnaire in detail and also with a view to gain an oversight of the results. This enabled the identification of common

themes and patterns in the data which led onto a process of coding the data. In this way data reduction was possible, leading to the organization and compression of the data.

Coding has involved disaggregating the data according to emerging themes. Thereafter, the data coded were entered into a spreadsheet where it was possible to generate tables and other figures. Thus, the approach followed in this study-involved reduction and displays of the data so that the researcher could highlight specific elements he considered important for the study (Miles and Huberman 1994).

3.7 Limitations

The sample size of this study might be a source of concern, especially that the marine protected area in question extends far beyond the site where the study was conducted. However, it is important to note that this study was qualitative. Unlike quantitative research, qualitative research is more concentrated on how the sample or small collection of cases, units, or activities illuminates social life. It is this concern that predominates instead of a sample's representativeness or reliance on mathematical techniques for drawing a probability sample which is the main focus of quantitative research (Neuman 2000).

For this particular study, an acknowledged disadvantage of studying a single case study is the fact that in a short space of time, only a relatively superficial understanding was possible. Also, there is no room for comparative analyses whereas greater insight may have been gained through studying different case study sites. However, logistical and time limitations influenced the decision to limit the study to one site.

During the process of data collection, I was forced by the nature of the respondents' to use three languages: Portuguese, English, and the local language used in the area – Tsonga. This process of translating was difficult and could, unintentionally, have affected the study.

3.8 Summary

This chapter marks the end of Component A. It has described the research approach and methods used in the study. In particular, it has described the preliminary work undertaken prior to developing the research proposal, the study area, and the rationale for the research approach and methods. Data collection and analysis have been discussed as well as the study limitations.

REFERENCES

- Abrahamsson, H. and Nilsson, A. 1998. *Moçambique em transição: um estudo da história de desenvolvimento durante o período 1974-1992*. Gotemburgo. PADRIGU: CEEI-ISRI.
- ACNUR and PNUD 1997. *Perfil de Desenvolvimento Distrital: Distrito de Matutuine, Província de Maputo*. Maputo.
- Ansley, S. 2005. A CBNRM Study of Communities and Resources in Northern Mozambique. In: Dzingirai, V. and Breen, C. *Confronting the crisis in Conservation - Case Studies from Southern Africa*. CEAD, UKZN, pp. 130-193.
- Arnaldo, C. 2004. Regional Fertility Trends in Mozambique. *Journal of Population Research* 21(2), 2004. Eduardo Mondlane University. Maputo, pp. 177-197.
- Barrow, E. 1998. Community Conservation in East Africa and Further: Some Lesson from Practice. In: Moffat, D. and Kyewalyanga, M. (Eds.). *Local Community Integrated Coastal Zone Management: Experiences from Eastern Africa. Proceedings of the Regional Workshop: Experiences in Local and Community Integrated Coastal Zone Management – Lesson to Date*. Zanzibar. SEACAM and WIOMSA, pp. 23-42.
- Bless, C. and Higson-Smith, C. 2000. *Fundamentals of social research methods, an African perspective* (3rd Ed.). South Africa Lansdowne, Juta.
- Borrini-Feyerabend, G., Pimbert, M., Farvar, M.F., Kothari, A., and Renard, Y. 2004. *Shared Power, Learning by Doing in co-management of natural resources throughout the world*. IIED and IUCN/CEESP/CMWG. Tehran Cenesta.
- Chape, S., Blyth, S., Fish, L., Fox, P. and Spalding M. (compilers) 2003. *2003 United Nations List of Protected Areas*. UK. IUCN, Gland, Switzerland and Cambridge, UK and UNEP-WCMC, Cambridge.
- Christie, I. 1996: *Mozambique: Land of Peace and Promise*. Maputo, Mozambique. Bureau de informação pública.
- Country Operations Department (North, East and South Region – ADF) 2006. *Mozambique: 2006-09 Country Strategy Paper*. African Development Bank, African Development Fund.
- CTIIGC e UICN Moçambique 1998. *Macrodiagnóstico da Zona Costeira de Moçambique*. Maputo.
- Dejene, A. and J. Olivares. 1991. *Integrating Environmental Issues into a Strategy for Sustainable Agricultural Development: In the Case of Mozambique*. Washington. World Bank.
- ESRI 1992. *Countries*. USA. ESRI.

Fennessy, S.T. and van der Elst, R.P. 2004. *Lubombo Trans-frontier Marine Protected Zone*. Durban, South Africa. Oceanographic Research Institute. Unpublished report.

Govan, H. and Hambrey, J.B. 2002. Participatory Coastal Zone Management: The Way Forward? *InterCoast 42*. Fall 2002. USA. University of Rhode Island, Coastal Resource Center. Narragansett, pp. 20-23.

Freeman, W.J. 2003. A Neurobiological Theory of Meaning in Perception Part I: Information and Meaning in Nonconvergent and Nonlocal Brain Dynamics. *International Journal of Bifurcation and Chaos (IJBC)* 13(9), 2493-2511.

Guelke, L. 1989. Forms of life, history, and mind: an idealist proposal for integrating perception and behavior in human geography. . In: Boal, F.W. and Livingstone, D.N. *The Behavioural Environment: Essays in repletion, application, and Re-evaluation*. London and New York. Routledge. P 289-310.

Guissamulo, A. and Bento, C. 2002. *Proceedings from the Regional Workshop on the Nomination of World Natural Heritage Sites*. March 20-21, 2000. Maputo, Mozambique. MICOA and UNESCO.

Hambrey, J., Phillips, M., Chowdhury, M. A. K. and Ragunath B. S. 1999. *Composite Guidelines for the Environmental Assessment of Coastal Aquaculture Development. Volume 1: Guidelines*. Secretariat for Eastern Africa Coastal Area Management (SEACAM).

Hatton, J. 1995. *A Status Quo Assessment of the Coastal Zone, Mozambique Phase 1: Ponta do Ouro – Xai-Xai*. Maputo. MICOA, UEM, IUCN.

Hockings, M., Stolton, S. and Dudley, N. (2000). *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas*. UK. IUCN, Gland, Switzerland, and Cambridge.

<http://www.ramsar.org>. Accessed on 13th December 2008.

<http://www.southafrica.info>. Accessed on 13th December 2008.

INE 1996. *Anuário Estatístico, Moçambique*. Maputo. INE.

INE 1999. *Recenseamento Geral da População e Habitação 1997*. Maputo. INE.

IUCN 1994. *Guidelines for protected Areas Managemnt Categories*. CNPPA with the assistance of WCMC. IUCN, Gland, Switzerland and Cambridge, UK.

IUCN 2004. *Managing Marine Protected Areas: A Toolkit for the Western Indian Ocean*. Nairobi, Kenya. IUCN Eastern African Regional Programme.

Kelleher, G. 1999. *Guidelines for Marine Protected Areas*. IUCN, Gland, Switzerland and Cambridge, UK.

Kimball, L. A. 2001. *International Ocean Governance: Using International Law and Organizations to Manage Marine Resources Sustainably*. IUCN, Gland, Switzerland, and Cambridge, UK.

Kuper, A. and Kuper, J. 1989. *the Social Science Encyclopedia*. London and New York. Routledge. 919 p.

le Roux 2005. Environmental education research. *In: Ioubser, C.P. Environmental Education : some South african perspectives*. Pretoria, South Africa. Van Schaik.

Lindén, O. and Lundin, C.G. 1997. The Journey from Arusha to Seychelles: successes and Failures in Integrated Coastal Zone management in Eastern Africa and island States. *In: Lindén, O., and Lundin, C.G. (Eds.). Proceedings of the Second Policy Conference on Integrated Coastal Zone Management in Eastern Africa and Island States, Seychelles, 23-25 October, 1996*. SIDA and The World Bank.

Lundin, C.G. and Lindén O. 1996. the Seychelles Conference Statement. *In: Lindén, O., and Lundin, C.G. (Eds.). Proceedings of the National Workshop on Integrated Coastal Zone Management in Mozambique*. . Inhaca Island and Maputo, Mozambique. MICOA, University of Eduardo Mondlane, SIDA and The World Bank, pp. 143-146.

Mansur, E. and Karlberg, A. 1986. *Levantamento do abastecimento de lenha e carvão na cidade de Maputo*. Maputo. PNR, DNFFB.

Marshall, C. and Rossman, G. B. 1989. *Designing Qualitative Research*. Sage Publications, Inc.

Massinga, A. and dos Santos, C. 1998. Mecufi Coastal Zone Management Project. *In: Moffat, D. and Kyewalyanga, M. (Eds.). Local Community Integrated Coastal Zone Management: Experiences from Eastern Africa. Proceedings of the Regional Workshop: Experiences in Local and Community Integrated Coastal Zone Management – Lesson to Date. Zanzibar*. SEACAM and WIOMSA, pp. 23-42.

Massinga, A. and Hatton, J. 1996. Status of Coastal Zone in Mozambique. *In: Lundin, C.G. and Lindén, O. (Eds.). Proceedings of the National Workshop on Integrated Coastal Zone Management in Mozambique*. Inhaca Island and Maputo, Mozambique. MICOA, University of Eduardo Mondlane, SIDA and The World Bank, pp. 7-64.

Matakala, P. W. Mushove, P. T. 2001. *Arranjos institucionais para o Maneio Comunitário dos Recursos Naturais (MCRN): perfis e análise de 42 iniciativas de MCRN em Moçambique*. Maputo. Projecto FAO GCP/MOZ/056/NET.

MICOA 1994. *Environmental Management National Programme*. Maputo. MICOA.

MICOA 1998. *Coastal Zone Management National Policy: Discussion Draft*. Maputo. MICOA. Unpublished document.

MICOA and Ministry of Tourism 2002. *Unpublished Speech Honourable President Joaquim Alberto Chissano at GIFTS TO THE EARTH Ceremony*. Maputo. MICOA and Ministry of Tourism. Unpublished document.

Miles, M. B. and Huberman, A. M. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*, (2nd ed.), SAGE Publications, Thousand Oaks, CA.

Ministry of Tourism. 2003. *Tourism Policy and Implementation Strategy. Resolution n. 14, of the 4th of April 2003*. Maputo.

Moffat, D. and Kyewalyanga, M. (Eds.). *Local Community Integrated Coastal Zone Management: Experiences from Eastern Africa. Proceedings of the Regional Workshop: Experiences in Local and Community Integrated Coastal Zone Management – Lessons to Date*. Zanzibar. SEACAM and WIOMSA.

Neuman, W.L (ed.) 2000 *Social Science Research Methods: Quantitative and Qualitative Research Methods*. Allyn and Bacon.

NOAA Coastal Services Center 2004. Social Science in MPAs: survey. Available from http://www.csc.noaa.gov/mpass/tools_survey.html. [Accessed at 2005-08-20].

Nuttall, D. 1999. Sustaining Human and Avian Population in Mozambique: The Need for Ecotourism. In: D.G. Reid (ed.). *Ecotourism in Eastern and Southern Africa*. Canada, University of Guelph. P. 83-100.

Obura, D.O., Wanyonyi, I. N. and Mwaura, J. M. 2002. Participatory Monitoring of an Artisanal Fishery in Kenya. In: Lindén, O., Souter, D., Wilhelmsson, D., and Obura, D. (eds.). *Coral Reef Degradation in the Indian Ocean Status Report 2002*. Kalmar, Sweden. CORDIO and the authors.

Phillips, A. 2002. *Management Guidelines for IUCN Category V Protected Areas: Protected Landscapes/Seascapes*. IUCN Gland, Switzerland, and Cambridge, UK.

Platt, C. 1988. Effects of causal attributions for success on first-term college performance: a covariance structure model. *Journal of Educational Psychology* 80(4), 569-78.

Reid, D.G., Sindiga, I., Evans, N. and Ongaro, S. 1999. Tourism, Bio-Diversity and Community Development in Kenya. In: D.G. Reid (ed.). *Ecotourism in Eastern and Southern Africa*. Canada. University of Guelph, pp. 39-58.

Robertson, W.D., Shleyer, M.H., Fielding, P.J., Tomalin, B.J., Beckley, L.E., Fannessy, S.T., van der Elst, R.P., Bandeira, S., Macia A. and Gove D. 1996. *Inshore Marine Resources and Associated Opportunities for Development of the Coast of Southern Mozambique: Ponta do Ouro to Cabo de Santa Maria*. Unpublished report no. 130. Oceanographic Research Institute, Durban and Universidade Eduardo Mondlane. Maputo.

Robford Tourism 2004. *Concept plan for appropriate and sustainable community-based tourism: Lubombo Trans-frontier Conservation Area, Mozambique*. Cape Town, South Africa. Unpublished report.

Salm, R.V. Clark, J. and Siirila, E. 2000. *Marine and Coastal Protected Areas: A guide for planners and managers*. Washington DC. IUCN.

Sayer, J.A and Campbell, B.M. 2004. *The Science of Sustainable Development: Local Livelihood and Global Environment*. United Kingdom. Cambridge University Press. 268 p.

Thomas, L. and Middleton, J., 2003. *Guidelines for Management Planning of Protected Areas*. IUCN Gland, Switzerland, and Cambridge, UK.

UNDP 2006. *National Human Development Report 2005*. Maputo. UNDP.

Voabil, C. and Engdahl, S. 2001 (Eds.). *The Voyage from Seychelles to Maputo – Success and failure of integrated coastal zone management in Eastern Africa and island states, 1996-2001*. Maputo. SEACAM.

Walls, K. 1998. Leigh Marine Reserve, New Zealand. *In: Goriup, P. Protected Areas Programme: Marine Protected Areas. PARKS 8(2)*, June 1998: WCPA of IUCN. Gland. Switzerland, 5-10.

WCPA 2003. *Vth World Parks Congress - Benefits beyond boundaries*. Gland Switzerland. IUCN.

WWF/IUCN 1998. *Creating a Sea of Change*. The WWF/IUCN Marine Policy. Gland. Switzerland.

APPENDICES

Appendix 1: Questionnaire for data collection and information

RESEARCHER INTRODUCTION

Hello, my name is Anselmo Gaspar. I am a student at the University of KwaZulu-Natal, Centre for Environment, Agriculture and Development. I am here as part of my studies. I am carrying out a study on Perceptions on Marine Protected Areas. The purpose of the study is to assess the level of support of local people towards the Ponta do Ouro / Kosi Bay Marine Protected Area (MPA). The study sites are Ponta do Ouro and Ponta Dobela and it is in this context that you have been identified as a respondent. A maximum of thirty minutes will be needed.

This session is totally voluntary and neither myself, Ponta do Ouro / Kosi Bay Marine Protected Area (MPA), nor can the University compensate you for your time. However, if you agree to participate in this session, you can choose to end this session at any time and you can refuse to answer any question. I don't need your names, but will require some information on your personal circumstances to help contextualise the findings. However, whatever information you provide will be treated with utmost confidentiality, so your anonymity is held in high regard.

It should also be pointed out that this study will not necessarily bring you or your community any direct benefit but any feedback from these studies can be used in the future for the betterment of your community. Please feel free to ask questions if you are unsure at any time during this session. By participating in this study, you will not in any way be exposed to danger of any form and your participation is entirely dependent on your consent. Lastly, do I have your consent to proceed with the session? **(SESSION TO PROCEED ONLY IF CONSENT IS GIVEN)**

Site/ village: Questionnaire #

1. RESPONDENTS' BACKGROUND INFORMATION

To help me relate your views to the core issues of this study, I will need some understanding of your personal circumstances. The following questions are meant to help in this regard. None of the questions will prejudice you whatsoever.

- 1.1 Age: 19-26 years 26-30 years 31-45 years ≤ 46 years Don't know
- 1.2 Sex: Male Female
- 1.3 Marital status: Single Married Other (specify):
- 1.4 Education? (The highest level attained)
None Primary Secondary Tertiary Other (specify):
- 1.5 Household size (number of people living in the house and 'eat from the same pot')
Adults (≤18)..... Children (≥18).....
- 1.6 How long have you lived in this area?
- 1.7 Are you presently employed? Yes No **(If No, skip to 1.11)**
- 1.8 Please describe your present employment.
- 1.9 How would you describe your income from your current job?
Very Satisfactory Satisfactory Not Satisfactory
- 1.10 Please, give an estimate of your monthly income:
≥750,000.00Mt 751,000.00-1500000Mt 1,501,000.00-3,000,000.00Mt ≤3,001,000.00Mt
- 1.11 Since you are unemployed, how do you earn income?
.....
.....
.....
- 1.12 How would you describe your current source of income?
Highly reliable Reliable Not reliable Other (Specify).....
- 1.13 How much of your income is derived from marine and coastal resources (including associated opportunities?) None Little Some Most
- 1.14 How would you describe your family's reliance on marine and coastal resources?
Very high High Average Low None

1.15 If there is anything else you want to tell me about your personal circumstances that would help me to understand your relationship with the MPA, please do so now.

.....

2. AWARENESS OF THE ESTABLISHMENT OF THE MARINE PROTECTED AREA

The stretch between Ponta do Ouro and Machangulo Peninsula is now a Marine Protected Area. A Marine Protected Area is defined as “any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part, or all, of the enclosed environment”. I would like to ask you a few questions in this regard.

2.1 Please describe your level of awareness about the Ponta do Ouro / Kosi Bay Marine Protected Area?

Very high High Average Low None

2.2 How did you get to know hear of the Ponta do Ouro / Kosi Bay Marine Protected Area?

.....

2.3 How would you rate each of the following among the **local people living in** the MPA?

Attributes	Very strong	Strong	Weak	None
Awareness about the MPA				
Local support for the MPA				
Knowledge of goals of the MPA				
Communication with MPA officers				
Expectations of benefits from MPA				

2.4 Do you think there is any linkage between the Marine Protected Area and the conservation of natural resources in this area? Yes No

In either case, please elaborate:

2.5 In your opinion, is the creation of an MPA justified? Yes No

In either case, please elaborate:

2.6 Are you aware of the MPA description (vision, methods, and goals)? Yes No

2.7 To achieve the goal of marine and coastal resources conservation, it is important to lay down clear objectives. What do you understand to be the MPA objectives?

.....

2.8 How would you rate the problem of use of marine and coastal resources in this area?

Urgent, needs attention Not urgent, can stay as is Not sure

2.9 In your opinion, list three major threats faced by marine and coastal resources in this area.

.....

2.10 How would you rate each of the following on the processes leading to the establishment of the MPA?

	Very Good	Good	Poor	None
Consultation and involvement of local people				
Agreement on goals and management objectives				
Transparency of the process				
Feedback at various stages				
Conflict management				

2.11 If there is anything else you want to tell me about awareness levels of the MPA, please do so now.

3. IMPACTS OF MPA ESTABLISHMENT

The establishment of a Marine Protected Area may be associated with some impacts at different levels: individual, household, community, etc. I now wish to address this aspect in terms of your perceptions.

3.1 Has the creation of a MPA affected you in any way? Yes No
 In either case, please elaborate:

3.2 How would you rate the dependence of local people on marine and coastal resources?
 Very high High Average Low None

3.3 Name a livelihood activity that may be affected by the establishment of the MPA?

3.4 Have you historically accessed marine and coastal resources without constraints?
 Yes No

3.5 How has the establishment of the MPA affected local people in relation to the following factors? (Tick)

Factors	<i>Very strong</i>	<i>Strong</i>	<i>Weak</i>	<i>None</i>
Access and use to marine and coastal resources				
Selling of marine and coastal resources				
Conservation of marine and coastal resources				
Keep out people from outside				
Traditional leadership authority				

3.6 Rate the present status of marine and coastal resources in the MPA in general?

Very satisfactory Satisfactory Unsatisfactory Barely enough

3.7 In your view, is there hope for improvement in the marine and coastal resources with the establishment of MPA? Yes No

3.8 Are you personally aware of evidence of unsustainable use of marine and coastal resources?

Yes No (If No, skip to 3.10)

3.9 Please provide examples of unsustainable resource use.

3.10 How would you associate each of the following groups with the unsustainable resource use? (Tick)

Group	<i>Very strong</i>	<i>Strong</i>	<i>Weak</i>	<i>None</i>
Local villagers				
Local traders/ business people				
Outsiders (non-locals)				
Others (specify:				

3.11 Give an example of a disadvantage you associate with the MPA?

3.12 If there is anything else you want to tell me about the impacts of the MPA, please do so now.

4. BASIS FOR SETTING THE PRIORITIES OF THE MPA

Effective management of marine and coastal resources requires a clear basis for setting priorities for the MPA. The following questions aim to establish your opinion in this respect.

4.1 List three priorities that the MPA must achieve to gain the support of local people.

4.2 In your opinion, do the current priorities of the MPA coincide with those of local people?
 Yes No
 In either case, please briefly explain.

4.3 How would you rate each of the following factors in setting the priorities of the MPA? (Tick)

Factor	Very strong	Strong	Weak
Local socio-economic/ development needs			
Marine and coastal resources conservation (Biodiversity)			
Community participation			
Cultural heritage			
Others (specify):			

4.4 What is your opinion on each of the following statements?

Statement	Strongly agree	Agree	Disagree	Not sure
Priorities for this MPA are clear to local people				
Priorities for this MPA have been discussed with local people				
Priorities for this MPA are relevant to this context				
Priorities for this MPA were imposed by government				
Priorities for this MPA are externally driven				

4.5 If there is anything else you want to tell me about the basis for setting priorities for the MPA by the authorities, please do so now.

5 OPPORTUNITIES AND CONSTRAINTS

The establishment of the MPA presents both opportunities and constraints. The next set of questions relate to your opinion about the opportunities and constraints of the MPA.

5.1 What main opportunities do you associate the establishment of the MPA with?
 Conservation of resources Tourism Income / job creation Others (specify).

5.2 How would you rate the importance attached to marine and coastal resources in this area by the following groups? (Tick)

Groups	Very important	Important	Not important	Not sure
Local people				
Government				
Local traders/ business people				
Other				

5.3 In your opinion, has unsustainable use of marine and coastal resources been a problem in this area?
 Yes No
 In either case, elaborate:

5.4 Do you anticipate the establishment of the MPA helping with the following issues? (Tick)

Issue	Yes	No
Uncontrolled access		
Inappropriate resource uses		
Controlled development		
Benefiting local people		
Minimising conflict of usage between groups		

5.5 One potential benefit of the MPA is tourism. How important is tourism to the following groups? (Tick)

Groups	Very important	Important	Not important	Not sure
Local people				
Government				
Business community				
NGOs				
Others (specify):				

5.6 In your opinion, what benefits are drawn from tourism in the area?

.....

5.7 What are the main tourist attractions for this area?

.....

5.8 Another opportunity is income generation through job creation. How would you rate the MPA in terms of job creation? Very successful Successful Not successful Not sure

5.9 Has the establishment imposed any constraints for the local people? Yes No

In either case, elaborate:

.....

5.10 In terms of constraints, how would you describe the impact of the MPA on the following?

Constraint	Very strong	Strong	Weak	None
Access to marine and coastal resources (i.e., reduce access)				
Selling of marine and coastal resources (i.e., restrict selling)				
Conservation of marine and coastal resources (i.e., restrict usage)				
Traditional leadership authority (i.e., reduce the authority levels)				

5.11 Has there been any form of community representation of concerns about perceived constraints resulting from the establishment of the MPA? Yes No

Please briefly elaborate:

.....

5.12 Which of the following categories is most preferable to you for the MPA?

Strict control, no use Controlled access, Multiple use Don't know

In either case, please elaborate:

.....

5.13 If there is anything else you want to tell me about the opportunities and constraints of the MPA, please do so now.

.....

6 LOCAL PEOPLE' ROLES AND RESPONSIBILITIES

The establishment of the MPA presents requires that roles and responsibilities be shared among local people. The next set of questions addresses this imperative.

6.1 Do you see yourself playing a role in the future development of the MPA?

Yes No (If No, skip to 6.2)

If Yes, Please elaborate:

.....

.....

6.2 How important is the role of each of the following in the management and planning of the MPA?

	<i>Very important</i>	<i>Important</i>	<i>Not important</i>	<i>Not sure</i>
Local people				
Government				
Business community				
NGOs				
Traditional leadership				

6.3 In your opinion, can the MPA be managed without community support/ involvement? Yes No

In either case, elaborate:

.....

.....

6.4 Do you personally possess skills that may be useful in the management of the MPA?

Yes No (If No, skip to 6.5)

If Yes, Please elaborate:

.....

.....

6.5 Describe the availability of the following skills/ labour in your area.

Category	<i>Highly available</i>	<i>Available</i>	<i>Not available</i>	<i>Not sure</i>
Unskilled				
Semi-skilled				
Skilled				
Managerial/ professional				

6.6 How much opportunity for participation in decision-making does each of the following groups have?

	A great deal	Some	Little	None
Local community				
Business people				
Traditional leadership				
Others (specify):				

6.7 If there is anything else you want to tell me about the roles and responsibilities concerning the MPA, please do so now

.....

.....

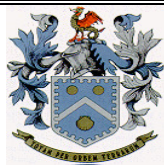
6.8 Please describe anything else you would like me to know about the MPA?

.....

.....

.....

THANK YOU VERY MUCH FOR YOUR TIME AND AGREEING TO PARTICIPATE IN THIS STUDY.



STYLESHEET FOR CONTRIBUTORS

Authors **must** adhere to the style as laid out here when preparing manuscripts for submission to the *Journal*. Failure to do so will delay refereeing and publication. Note: S.I. units must be used throughout; tables should be appended on separate sheets; a separate list of figure captions must precede the figures; and figures should be appended on separate sheets. Figures must be clear and legible for reproduction at single column width; computer graphics of high quality are only acceptable if the linework and lettering is comparable to conventional productions.

The first page of the typescript should contain the title of the paper and the name(s) and full address(es) of the author(s) in the style shown eg:

RAINFALL AND AGRICULTURE IN THE EASTERN CAPE, 1900-1994

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The second page must repeat the title of the paper, followed by an **abstract** of approximately 100-200 words in which the principal findings of the research should appear.

RAINFALL AND AGRICULTURE IN THE EASTERN CAPE, 1900-1994

Abstract

Climatological records show dramatic variability of rainfall in South Africa as a whole during the twentieth century. In theory, agricultural productivity should match these variations, a proposition that is tested with specific reference to crop yields in the Eastern Cape. Strong associations do indeed exist between rainfall patterns and agricultural activity. Other changes, such as variations in farm size and farming technologies, appear to exert little effect.

The introduction (and subsequent text) must be typed in double-spacing. The introduction should not contain any subheadings. Leave a space between paragraphs. References to be cited as shown. List citations in ascending date order, and alphabetically within the same year. One or more publications by an author in the same year must be distinguished by appending letters a, b, c to the citations. Main headings should be in bold type.

Introduction

Throughout the history, human activity on the land has been governed by the availability of water. In all the available historical research, however, little attention has been given to quantitative estimates of the precise relationship between.... Furthermore, in South Africa, data are now available for the first time, which allow detailed examination of the effect of changes in farming practices on crop yields.

In their discussion the historical geography of agriculture, both Smith (1977) and Andrews (1978) show a keen awareness of the climatological constraints...

Indent and punctuate particular points as shown, and designate alphabetically. The expression *et al.* is used when the work of more than two authors of one work is being cited. Use 'n.d.' to show that a work has no publishing date. Footnoted material to be marked with a superscript.

Rainfall Variability in South Africa

The principal rainfall variations in South Africa have been studied only recently (Reed, 1994). Preliminary screening of climatological data in Southern Africa by Deane (1980, 1983b) shows that numerous sites in the eastern Cape are subject to extreme variations (Fig. 1). Data on precipitation at selected mission stations in the nineteenth century show that:

- (a) rainfall was heaviest in summer;
- (b) rainfall exhibited great variations within decades¹; and
- (c) yields varied in concert with rainfall, with a lag of several months (Parker *et al.*, n.d.).

These findings differ markedly from those reported in the study undertaken ten years ago during storm conditions (Brown, 1986), but approximate those made by Gill (1989).

Type subheadings in italics, aligned with the left margin of text. Avoid placing subheadings directly after a main heading. Refer to Figures and Tables as shown. Quantities less than ten should be expressed verbally, otherwise numerically.

Agriculture in the Eastern Cape

Information pertaining to crop yields at 1 117 Cape farms disclose a strong geographical variation which is best understood in terms of two major regions.

The Northern District

The two most distinctive features of yields in this part of the country are ... (Figs 2 and 3). Altogether, ten per cent of the crop yields ... Precipitation at each of the stations shows a very pronounced diurnal variation (Table 1). Early morning and early evening patterns are similar excepting at land lying higher than 1 000 m, but at all other times ...

The Southern District

There are three notable components evident in the eastern zones of the study area (Deane, 1993a). As suggested elsewhere (Francis, 1977, 1978) these accord well with observations that...

Direct quotations should be cited using double inverted commas and must contain a page(s) reference. Direct quotations, which are more than three lines in length, should be inset from both margins and typed in single spacing without inverted commas. Avoid ending a paragraph with a long direct quotation.

Rainfall-Agriculture Relationships

In her landmark study, Tessig (1965, p.89) proposed that in dry areas especially, regional studies of arable and pastoral activity, which failed to attend to climatic constraints, were 'a charade'. Others have made the same argument (Yelch, 1962; Bore, 1988), although Tedious (1977, pp. 286-287) has noted that:

Direct links between climate and agriculture are never proven absolutely until the likely mediating affect of human agency can also be ascertained, and this is the true challenge facing interdisciplinary research science today.

Taking these various opinions into account, and bearing in mind the well known warning given in 1902 by a Government minister,² who...

Equations should be laid out as shown below:

The relationship between rainfall and production of maize may be expressed as follows:

$$P = 1,53R + 0,86T \quad (1)$$

where P is production in tones ha⁻¹, R is January-March rainfall in mm, and T is a measure of technology levels (Gill, 1989).

Do not introduce new material in the conclusion, and do not use point form in this section. Acknowledgements should follow immediately after the text.

Conclusion

In the eastern Cape during the twentieth century the nature of agricultural activity correlates extremely strongly with patterns of rainfall. On the one hand, ... On the other hand, ...

Taking into account the major differences pinpointed in the Cape region, it is reasonable to suppose that...

Acknowledgements

Grateful thanks are due to M.J. Mouse who drew the maps, and to the Dollar Foundation, which provided financial support for the research. The conclusions reached are solely those of the authors.

Footnotes should be kept to a minimum and must be collected numerically at the end of the typescript. Use small superscript digits to number the notes, and indent the text of the notes. Notes should be used for archival references and **not** as a device for elaborating the text or making asides.

Notes

¹ Central Archives Depot, Pretoria (CAD), Department of Agriculture (DA) 468 (12/345): Memoranda concerning production of grain in the colonies, March 1976 - December 1993

² CAD, DA 469 (47/521): Minister of Lands to Prime Minister, 12 October 1902

³ *Ibid.*, 9 December 1902.

The reference list

The reference list is **not** a bibliography and must contain only material which is cited in the text. **Complete information should be provided for every reference.** Organise the references alphabetically without numbering. The initials of authors and/or editors must appear behind the surname(s). Use the convention 'Anon.' to refer to unknown authors. Do not use '*et al.*' in the reference list. Date of publication must appear as in the examples. Punctuate all material exactly as shown. The only words, which are capitalised in the titles of journal articles, are proper nouns. The titles of journals should **not** be abbreviated. Book and periodical titles should be italicised. Volume numbers must be included for journals, but part numbers

should only be used if the pagination in successive issues is not sequential. The names of book publishers and city/town of publication must be included. Monographs and dissertations/theses to be cited in the style shown. Leave a blank line between references.

References

- Anon., 1943: The roaring coastal winds, *South African Panorama*, 24 (7), 2-6.
- Barnes, J., Smith, M.L.B. and Frames, R. (eds), 1953: *Readings on Energy Potential in the Far East*, Hutchinson, London.
- Deane, R., 1980: Trapped waves in the atmosphere, *Journal of Atmospheric Research*, 56, 1-23.
- Deane, R., 1993a: Wind patterns and energy, *Science*, 123, 34-49.
- Deane, R., 1993b: Assessment of wind power potential, *Journal of Applied Climatology*, 23, 1654-1659.
- Francis, L., 1977: Patterns of pollen distribution in the Cape, *South African Geographical Journal*, 23, 11-19.
- Francis, L., 1977: Wind and pollen dispersion: a botanical view, *Botany*, 87, 94-105,
- Gill, A.E., 1977: Coastal lows from the synoptic point of view, *Quarterly Journal of the Royal Meteorological Society*, 14, 77-99.
- Hunter, I.J., 1994: The Weather of the Agulhas Bank, Unpublished M.Sc. Dissertation, University of Natal, Durban.
- Kirby, M.J., 1976: The problem of wind power, in Jones, A.B. (ed.), *Estimating Techniques for Climatologists*, Oxford University Press, Oxford, pp. 123-129.
- Parker, N.J., Ray, P., Band, T., Luk, O. and Farr, R., n.d.: *Mission Stations of the Eastern Cape*, Bantam Press, New York.
- South Africa (Republic), 1976: *Annual Report of the Department of Water Affairs*, Government Printer, Pretoria.

Sample figure and table captions

These should be presented on separate sheets immediately preceding the figures.

Figure Captions

- Figure 1: The spatial variation of rainfall off the east coast in the summer of 1949 (from Wetty, 1954).
- Figure 2: The geography of crop yields.
- Figure 3: Rainfall - crop yield relationships, 1944-1954.

Table Captions

Table 1: Farm size classification in the Cape, 1956-1978 (Source: South Africa (Republic), 1976).

COMPONENT B

A note on style

The following manuscript has been written in accordance with the style sheet for the South

African Geographical Journal (Appendix 2 of Component A)

**LOCAL PEOPLE'S PERCEPTIONS OF MARINE PROTECTED AREAS:
A CASE STUDY OF PONTA DO OURO, MOZAMBIQUE**

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ABSTRACT

This research paper is based on an empirical study undertaken to assess the local respondents' perceptions of a marine protected area (MPA). The study was motivated by the understanding that the existence of the MPAs requires be acknowledging and supporting by local people. The focus of the study was the Ponta do Ouro-Kosi Bay MPA (a section of the recently proclaimed Lubombo Transfrontier Conservation Area). The study was confined to the Mozambican areas around Ponta do Ouro. Findings confirm the widely recognised importance of marine resources to local livelihoods. It further illustrates a strong sense of inadequate consultation in processes leading to the establishment of the MPA. There is also a strong set of socio-economic factors that ought to influence future priorities of the MPA. These include Infrastructure development, park maintenance, job creation and training.

Opportunities associated with the MPA are outlined as are the perceived constraints, especially the role of the traditional authority in the management of the MPA and the question of access. Study participants also identified areas in which they felt they could play a role if provided the opportunity. Overall, the initiative received a positive rating from the participants despite the perceived weakness in communication with the MPA authorities.

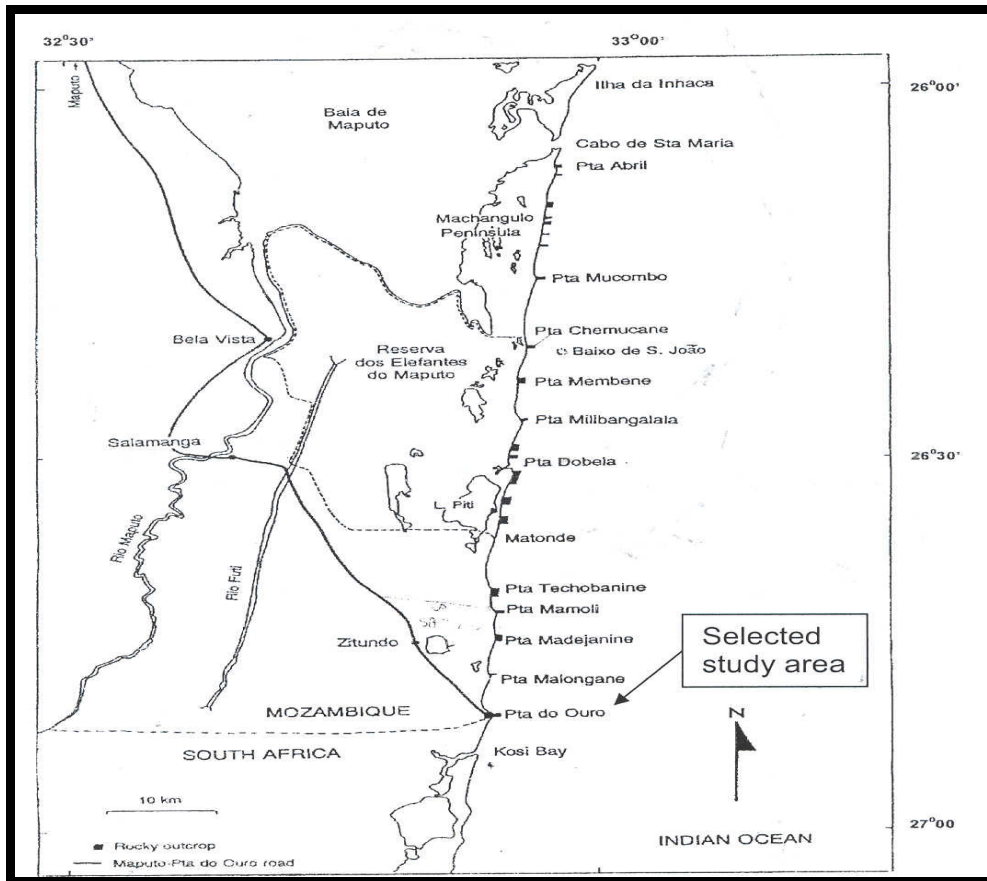
INTRODUCTION

Background information

Marine and coastal resources worldwide are under intensifying pressures from excessive use at unsustainable levels, pollution and other effects of growing population in coastal regions. Not surprising, the need to step up conservation initiatives to encourage the sustainability of marine ecosystems and associated resources has been noted at various scales ranging from local to international (Lindén and Lundin, 1997).

In southern Africa, a region characterised by high levels of poverty and low rates of economic growth, the role of marine resources in local and national economies cannot be over-emphasised. In addition to being a source of employment opportunities, marine resources are an integral part of local livelihoods. It is therefore important to ensure that local perspectives are integrated in emerging efforts to better conserve marine and coastal resources.

This paper is based on local perspectives of a Mozambican coastal community living in the area that forms part of the newly established Marine Protected Area (MPA) involving Mozambique and South Africa. The MPA, namely Ponta do Ouro-Kosi Bay is part of both countries demonstration of their commitment and contribution towards building a global system of marine and coastal protected areas networks (WCPA, 2003). The MPA also has a regional significance: it is part of the Lubombo Transfrontier Conservation Area involving Mozambique, Swaziland, and South Africa (MICOA, 2005).



(Source: Robford Tourism 2004)

Figure 1: The study area

The introduction to paper covers the study rationale; methods and approach, and the aim and objectives. The next section provides an overview of marine and coastal areas in Mozambique. The results and the discussion of them follow.

Study rationale

The survival of the Ponta do Ouro – Kosi Bay MPA hinges on many factors. One of these is the support the MPA will receive from local people. Such support needs to be underpinned by access to information – whether there has been adequate and timely access to information or not, and transparency – whether all stages of the activities are publicly visible, including the decision making process. Access to information and transparency can raise the awareness levels about the initiative and facilitate societal ‘buy in’. In turn,

awareness levels have implications for perceptions of the impact of the MPA and what should constitute its priorities. Similarly, it becomes possible to identify opportunities and constraints associated with the MPA as well as reaching some level of understanding about what roles can be played by local people.

Method and approach

An empirical investigation was undertaken over a period of four weeks in November-December 2005. All 35 respondents were above 18 years of age and were local residents, predominantly local community members and local businessmen in the tourism sector. An interviewer-administered questionnaire was the main source of primary data. This questionnaire sought to obtain local people's perceptions, identifying the sampling procedure as one that would focus on qualitative data. The use of likert scales for a number of questions opened the opportunity to interrogate the finer nuances of respondents concerns and perceptions on particular issues.

The extent of the MPA, on the Mozambican side, is from Machangulo Peninsula to Ponta do Ouro (North-South), and the source of the Futi River and Indian Ocean (East-West) (MICOA, 2005). The area in reference is the southern section of the 2700Km coastline of Mozambican territory, situated between latitudes 10°20'S and 16°50'S (Massinga and Hatton, 1996). The study was confined to the Mozambican side of the Ponta do Ouro – Kosi Bay MPA.

The study area has been selected because of a number of factors and as stated by Fennessy and van der Elst, 2004; Massinga and Hatton, 1996; and Robertson *et al*, 1996. The area has:

- High biodiversity (marine mammals, sea turtles, and constitutes part of a global endemic hot spot – the Maputaland⁵–Pondoland regional mosaic);
- Diverse habitats (high parabolic coastal dunes – up 120m, coastal zone, beaches, rocky shores, deep reefs, coral reefs, open ocean, estuarine, sea-grass, mangroves);
- Vulnerable ecosystems (corals, mangroves);
- Rare species (Sea turtles nesting sites; coelacanths; endemic fishes);
- Spawning refuges (for depleted line-fish species);
- Exceptional tourist potential (angling, diving, boating, swimming, spear fishing, whale watching);
- Relatively unspoilt areas throughout (low pollution levels and limited development);
- A strategic trans-frontier location and therefore the potential to benefit from the St Lucia MPA;
- Potential to contribute to MPA target (can add up to five percent towards Mozambique’s MPA target of 20 percent) and adjacent terrestrial area of high conservation value; and
- Data/information from previous studies, including the recent Fennessy and van der Elst (2004) study;

Aim and objectives

The aim of this study was to assess the level of support of local people towards the Ponta do Ouro - Kosi Bay MPA. The specific objectives were to:

- ◆ Establish awareness levels of the establishment of the Ponta do Ouro – Kosi Bay MPA.
- ◆ Understand the perceived impact of the establishment of the MPA on access to coastal and marine resources by local people.
- ◆ Outline and examine the factors that local people perceive should be the basis for determining the priorities for the MPA;

- ◆ Identify the perceived opportunities and constraints associated with the establishment of the MPA;
- ◆ Investigate what the local people perceive to be their roles and responsibilities regarding the MPA.

MARINE AND COASTAL AREA AND RESOURCES CONSERVATION IN MOZAMBIQUE

Mozambique's coastline measures approximately 2 700 km along the Indian Ocean, making it one of the longest national coastlines in Africa (Massinga and Hatton, 1996). Managing such a long stretch of coastal area is a big challenge for a country still recovering from the effects of a prolonged civil war and yet to streamline its development agenda (Arnaldo, 2004.). Environmental matters, including marine and coastal management, alongside other developmental challenges are arguably in their very formative stages in Mozambique.

The situation regarding marine and coastal conservation efforts in Mozambique is perhaps a reflection of the situation globally. Challenges include over-fishing of stocks, habitat destruction and the ecologically destructive effects of by-catch (Salm and Clark, 2000). Mozambique's portion dedicated to marine and coastal management is very small compared to its terrestrial protected areas. Out of an estimated 137 700 km² of total coverage of protected areas, only 8 950 km², that is, 6.5 percent or one percent of total surface of Mozambique, is dedicated to coastal and marine protected areas (MICOA and Ministry of Tourism, 2002; Ansley, 2005).

In response to growing international calls for marine and coastal areas conservation, and as part of the country's ongoing efforts in environmental management, the Mozambican government recently declared the area between Machangulo Peninsula and Ponta do Ouro a MPA. To be an effective means to support biodiversity conservation and ecologically and economically sustainable fisheries, Marine Protected Areas should be managed in the context of human societies that are dependent on marine ecosystems (WCPA, 2003). They

should also cover the full range of IUCN categories (including highly protected marine reserves and areas managed for multiple uses) but remain flexible. Marine protected areas are gaining support because they are seen as supportive of ecosystem management hence encouraging the conservation of critical habitats, fostering the recovery of overexploited and endangered species, maintaining marine communities, and promoting their sustainable use.

FINDINGS AND DISCUSSION

The order in which the results have been presented follows the outline in which the objectives have been presented above. However, a preliminary but important aspect of this study was the development of the socio-economic profile of the respondents. Data were collected on age, gender, education, marital status, household size, duration of stay in the area, employment, and income. This section precedes the presentation of findings.

Respondents' background information

Socio-economic profile of the respondents, such as the level of education and their history provide the basis for understanding the project results obtained and the subsequent analyses.

The majority of respondents – 25 respondents (71 percent) were between the ages of 26 and 45, the oldest and youngest being 68 and 22 respectively. Education levels, compared to most rural environments in Mozambique were relatively high, with 14 respondents (40 percent) reporting an attainment of secondary education and a further nine respondents (25 percent) having attained tertiary education. Household size ranged from one to 14, with the majority – 22 respondents (63 percent) reporting household sizes of less than or equal to five members.

In terms of marital status, the difference between single and married respondents, 17 respondents or 49 percent, and 18 respondents or 51 percent respectively was very close. In terms of duration of residence in the area, the majority – 26 respondents (74 percent) took up residence in the area in the last ten years.

An overwhelming majority – 33 respondents (94 percent) were employed and described their satisfaction with present income variously: very satisfactory (six respondents or 17 percent), satisfactory (21 respondents or 60 percent) and not satisfactory (seven respondents or 21 percent). Perceptions of the reliability of income from present employment were exactly split between ‘highly reliable’ (50 percent) and ‘not reliable’ (50 percent). Estimates of monthly income indicated that the monthly incomes for 21 respondents, i.e., 61 percent of the respondents were between 1,501,000.00-3,000,000.00 Mt. The rest indicated monthly incomes of less than \leq 3,001,000.00 Mt. Sources of income for the two unemployed respondents were a combination of family support, informal trading, and home based industry and were regarded as either satisfactory/ unreliable.

Unexpectedly many respondents described their income derived from marine and costal resources as “none” and “little”. However, the majority of them work in tourism related business and do not see the immediate connection to those resources.

Awareness of the establishment of Ponta do Ouro – Kosi BayMPA

The importance of awareness of respondents and the general public of any resource management initiative cannot be over-emphasised. Local people awareness creates opportunities for collaborative work, shared decision-making, the sharing, and distribution of benefits and legitimising decisions. Implementation and planning of initiatives in environments characterised by stakeholder awareness are enhanced when awareness levels of an initiative (either proposed or already under way) are high. In this context, not only is the public a reservoir to inform problem definition, it also contains key people who can assist in the process of recognising a MPA as a legitimate undertaking.

It was therefore important to assess the level of respondents' knowledge about the establishment of the MPA as their awareness has implications for their support of the management and conservation processes. Linked to this was the need to identify the sources of information about the MPA and perceptions about the problem of unsustainable use of marine resources.

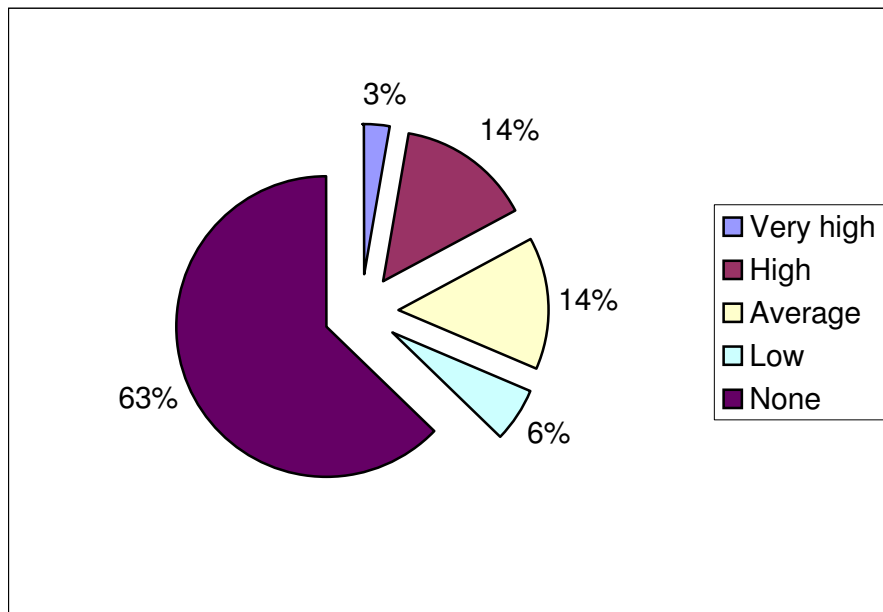


Figure 2: Level of respondents' awareness about the MPA

The awareness levels about the establishment of the MPA were low (Figure 1). Apart from one respondent (three percent) who claimed to have a very high level of awareness, the majority – 63 percent (22 respondents) were not aware of the establishment of the MPA. The rest described their awareness levels about the MPA as follows: high – 14 percent (five respondents); average (five respondents, i.e., 14 percent) and low (two respondents or six percent). This contrast with what was expected as a result of the relative high level of education of the majority of respondents referred above.

The sources of information about the establishment of the MPA were identified by only 13 respondents (37 percent) as follow: government, particularly the Ministry for the Coordination of Environmental Affairs - eight respondents (23 percent) and the Ministry of Tourism and Ministry of Agriculture and Rural Development (two respondents or six percent). The remaining tree respondents, i.e., nine percent heard about the MPA from a local organisation and South African researchers.

Table 1: Respondents’ rating of communities’ awareness, local support, knowledge of MPA goals, communication with MPA officers and expectations of benefits

How would you rate each of the following among the local communities in respect of the MPA?	Very strong		Strong		Weak		None	
	No.	%	No.	%	No.	%	No.	%
Awareness about the MPA	2	6	0		12	34	21	60
Local support for the MPA	6	17	2	6	6	17	21	60
Knowledge of goals of the MPA	-	-	4	11	8	23	23	66
Communication with MPA officers	1	3	1	3	4	11	29	83
Expectations of benefits from MPA	4	11	4	11	4	11	23	67

Respondents expressed their opinions about selected attributes with regard to the local communities’ awareness, local support, knowledge of the goals of the MPA, communication with authorities and expectations of benefits from the MPAs. For all these attributes, the results suggested a negative view (Table 1). Given the fact that from socio-economic profile, the majority of respondents possess relative high level of education, this finding is unexpected.

Notwithstanding the high level of negativism about the MPA, the majority (32 respondents or 91 percent) saw a linkage between the MPA and conservation of natural resources in the area. Of these, only 13 respondents (41 percent) elaborated, expressing the linkage in terms of mitigating fostering/better management though controls/ regulations of fishing and providing for multiple use opportunities through zoning. The majority (22 respondents,

i.e., 63 percent) could not elaborate their perception of the linkages between the MPA and natural resources conservation in the area.

Although 63 percent or 22 respondents affirmed that were unaware of the existence of the MPA, many of them considered the creation of MPA to be justified; only 46 percent, i.e., 16 respondents provided detailed elaborations on their responses. From the elaborations, two major issues emerged as benefits of establishing the MPA: their contribution to marine and coastal biodiversity conservation and prospects for more strict control. The lack of elaborations by just above half (54 percent or 19 respondents) is consistent with the low rating of awareness, local support, knowledge of goals, communication and expectations of the MPA.

Awareness levels of the MPA description in terms of its vision, methods, and goals were low with nine respondents (26 percent) responding in the affirmative. A follow up question about the objectives of the MPA was also poorly answered. Twenty nine percent responded, most of them highlighting conservation/ protection of marine and coastal resources and one respondent noting the possibility of zoning to permit multiple uses. This was unexpected given that 23 respondents or 66 percent felt that the problem of unsustainable use of marine and coastal resources was urgent and needed attention. An exact split of responses was recorded between 'not urgent', 'can stay as is' and 'not sure' – six respondents, i.e., 17 percent in either case.

Table 2: Respondents' perceptions of the unsustainable use of marine and coastal resources in the study area

Identified concerns/ problems	No.	%
Illegal fishing	28	80
Driving on beach/dunes	20	57
Solid waste	8	23
Turtle eggs collection	4	11
Intensive diving/diving schools*	4	11
Burning and vegetation cutting	3	9
Use of aquatic firearms	2	6

*Included intensive swimming and other water sporting activities

NB: Percentages do not total 100 percent because multiple responses were permitted.

In order to avoid misunderstandings in interpretation and translation into Portuguese of the term “unsustainable use”, the respondents were given detailed information about the meaning and they were also provided with some examples of “sustainable” and “unsustainable” use.

Various threats to marine and coastal resources sustainability and productivity were identified (Table 2). Illegal fishing, driving on beaches/dunes, and solid waste emerged as the top three threats.

In addition to those listed in Table 2, other unsustainable use of marine and coastal resources were exemplified by individuals using uncontrolled boat launching sites, their illegal use of aquatic fire arms (spear guns) and taking part in indecent behaviour (sex) on the beaches. The lack of government representation (visibility of authorities/ law enforcement) and uncontrolled burning and cutting of vegetation were other factors leading to the unsustainable use of resources.

In terms of the processes leading to the establishment of the MPA, the fact that the majority of the responses (more than 25 respondents or 70 percent in all cases) fall under

the designation ‘poor’ or ‘none’ suggest a pessimistic view of the process (Table 3). It also suggests a feeling of alienation among the respondents from the process. Based on these findings, the social sustainability and support of the initiatives under the MPA cannot be said to be on firm public approval.

Table 3: Respondents’ perceptions of the processes followed in the formation of the MPA

	Very Good		Good		Poor		None	
	No.	%	No.	%	No.	%	No.	%
Consultation and involvement of local people	5	14	2	6	11	31	17	49
Agreement on goals and management objectives	5	14	3	9	4	11	4	66
Transparency of the process	4	11	5	14	9	26	9	49
Feedback at various stages	5	14	2	6	6	17	6	63
Conflict management	5	14	1	3	2	6	2	77

Impacts of the establishment of the Ponta do Ouro - Kosi Bay Marine Protected Area

MPAs exist in a context of human societies. The success of MPAs is therefore closely tied to how they are perceived to impact the surrounding communities. Thus, one of the objectives of this study was to *understand the perceived impact of the establishment of the Ponta do Ouro and Kosi Bay MPA on access to, and control over coastal and marine resources by respondents.*

Ten respondents (29 percent) felt that the establishment of the MPA impacted positively on them in some way, against 71 percent who felt otherwise. The perceived impacts were noted as follows: improvements in marine conservation (four percent); fostering tourism - two respondents (six percent); and improving awareness levels about marine and coastal areas conservation among the locals (six percent or two respondents).

Dependence on marine and coastal resources by human populations in coastal zones is generally high, with coastal zones globally accounting for more than 60 percent of the

world population (WCPA, 2003). This study suggests that while the dependence may not be as high as in other contexts, there were nonetheless some degrees of dependence and some recognition of this relationship.

Respondents described their dependence on marine and coastal resources as 'very high' (seven respondents, i.e., 20 percent), 'high' (two respondents or six percent) and 'average' (five respondents, i.e., 14 percent), which adds up to 14 of the respondents (40 percent). Further, 17 respondents (49 percent) described their dependence on marine and coastal resources as 'low' leaving only a small proportion (four respondents or 11 percent) declaring no dependence on marine and coastal resources. 14 Respondents (40 percent) identified fishing and 11 respondents (31 percent) tourism as the main livelihood activities that may be impacted by the establishment of the MPA.

It suffices to emphasise that even for those that declared no direct dependence on the marine resources, their major sources of income were marine-related because many of them work in tourism operations which take advantage of the coastal and marine opportunities. Should the fishery collapse or the state of the beaches and associated coastal serenity be lost, it is highly unlikely that the present job opportunities would continue to exist. It is evident that there is a heavy reliance on the continued ecological integrity and associated marine resources in the area, except it is mainly in the non-consumptive sense.

In spite of the above declarations by the respondents, the majority - 30 or 86 percent stated that historically, they have depended on marine and coastal resources without any government restrictions on usage. In other words, there is anxiety that the establishment of the MPA may create restrictions in terms of access and resource use. This type of fear may

be unfounded. The Mozambican government’s position on the TFCAs is to incorporate both sustainable use zones and core areas of globally or regionally important biodiversity (Massinga, and Hatton, 1996). The issue, therefore, is more a reflection of the limited extent to which communities have been engaged on the matter of introduction the MPA by the authorities.

Table 4: Respondents’ perceptions of how the establishment of the MPA has impacted access, trade, conservation, and traditional leadership

	Very strong		Strong		Weak		None	
	No.	%	No.	%	No.	%	No.	%
Access and use of marine and coastal resources	5	14	13	37	11	31	6	17
Selling of marine and coastal resources	3	9	3	9	19	54	10	29
Conservation of marine and coastal resources	10	29	2	6	4	11	19	54
Keep out people from outside	11	31	12	34	7	20	5	14
Traditional leadership authority	2	6	15	43	11	31	7	20

Consideration was also given to what the respondents saw as impacts of the MPA on specific activities (Table 4).

Respondents were asked to rate the present status of marine and coastal resources in the area now occupied by the MPA. Responses were divided in their responses, with tree respondents (nine percent) describing the status as ‘very satisfactory’ and another 14 respondents (40 percent) as ‘satisfactory’, together giving a positive view of around 50 percent. The rest expressed negative sentiments – as ‘unsatisfactory’ - six respondents (17 percent) and ‘barely enough’ - 12 respondents (34 percent). However, the majority – 33 of respondents (94 percent) were optimistic about improvements in the conservation of marine and coastal resources with the establishment of the MPA.

As with any initiative in resource management, there are various interests and stakeholder groups, and their involvement in resource destruction, usage, conservation, and other

considerations varies. Respondents were almost unanimously agreed that local people were less involved in unsustainable utilisation of marine and coastal resources (Table 5). Rather, they put the blame on outsiders (non-locals) who they said were responsible for driving on beaches, illegal fishing, and other unscrupulous activities. This finding highlights the need to consider the question of access to the area. What type of permit system is in place and what restrictions if any accompany the permit systems?

Table 5: Respondents perceptions of the contribution of different groups in impacting the marine and coastal zones and associated resources

	Very strong		Strong		Weak		None	
	No.	%	No.	%	No.	%	No.	%
Local people	4	11	2	6	8	23	21	60
Local traders/ business people	3	9	6	17	13	37	13	37
Outsiders (non-locals)	21	60	8	23	4	11	0	0
Others (specify):	0	0	0	0	0	0	0	0

Basis for setting the priorities

Effective management of marine and coastal areas requires a clear basis for setting priorities for a MPA. Respondent perceptions about what ought to constitute priorities of a given MPA can have far reaching effects. Local people' perceptions, particularly if they are not supportive, heighten the likelihood for tensions and conflict. Prospects for collaboration may also be compromised. Where supportive, such perceptions can constitute a useful basis for shared decision-making and collaboration. Favourable perceptions can also be very informative and helpful both for management, planning and implementation purposes. Therefore, local people' perceptions for setting priorities for a MPA can be very crucial to mobilising support for MPA processes. To this end, a specific objective was set for this study: *to outline and examine the factors that respondents perceive should be the basis for determining the priorities for the MPA.*

Table 6: Respondents' rating of factors that should form part of the basis for the future priorities of the MPA

Factors	No.	%
Job creation and training	27	77
Biodiversity conservation	21	60
Community relations and awareness	13	37
Infrastructure development and park maintenance	8	23

Respondents rated four issues generally documented as important in the literature about conservation in southern Africa (Table 6). Job creation and training together with biodiversity conservation occupied the first and second positions, scoring 77 percent (27 respondents) and 60 percent (21 respondents) respectively. Community relations and awareness ranked third with a score of 37 percent (13 respondents). The fourth position, with a score of 23 percent (eight respondents), was infrastructure development and park maintenance.

An implication of the above findings is that the MPA will be expected to contribute in real terms towards solving the long-standing problem of lack of jobs and poverty while at the same time delivering on the biodiversity conservation mandate. Respondents however expressed a need for flexibility in the promotion of biodiversity conservation so that the park can have multiple uses. This way, it would still be possible to access marine and coastal resources but in a much more controlled way. Similarly, in the case of community relations and awareness, they expressed a desire to see a governance structure/ system in which they would be represented and enabled to participate actively as well as influence the distribution of benefits. Respondents also noted that being a potentially favoured tourist destination, the infrastructure needed to be developed and maintained. General routine work such as cleaning the beaches was perceived to be a priority within the broader calls for infrastructure development and maintenance.

Although just over fifty percent felt that the current priorities of the MPA coincided with those of the respondents, efforts to get further clarification were generally fruitless. The few who offered additional comment, noted that the stress placed on job creation in the MPA was an area of agreement between the local people and the authorities. Promoting controlled access to marine and coastal resources by different groups, promotion of tourism and the pursuit of biodiversity conservation were also identified as areas of agreement.

Table 7: Respondents’ rating of conservation of biodiversity, local socio-economic/development needs, community participation and cultural heritage in setting the current priorities of the MPA

How would you rate each of the following in setting the current priorities of the MPA?	Very strong		Strong		Weak	
	No.	%	No.	%	No.	%
Marine and coastal resources conservation (Biodiversity)	27	77	8	23	-	-
Local socio-economic/ development needs	17	48	15	43	3	9
Community participation	9	26	24	68	2	6
Cultural heritage	-	-	-	-	-	-

Often, socio-economic development, biodiversity conservation, community participation, and cultural heritage are presented as concurrent priorities in conservation efforts (GESAMP, 2001). Respondents were tasked to rate each of these aspects in relation to the MPA under study (Table 7).

Biodiversity conservation was highly rated ‘very strong’ (77 percent, i.e., 27 respondents) followed by local socio-economic development (49 percent or 17 respondents). These findings illustrate the respondents’ awareness of the need to promote biodiversity conservation as an important element of the MPA. They also demonstrate a concern shared in some quarters of the conservation sector about the lower prioritisation of cultural heritage issues in some conservation initiatives (Lindén and Lundin, 1997). In terms of contemporary issues in conservation, the findings highlight the importance for authorities

to seriously consider socio-economic issues as an integral aspect of the establishment of MPAs.

Priorities only make sense if they are clear to respondents. This presupposes that they need to be discussed exhaustively with such discussions centring on the contextual relevance of the set priorities. However, dangers exist in the process of priority setting in that they may be imposed or externally driven. Respondents gave their opinions on their perception of the process behind the setting of the priorities of the Ponta do Ouro - Kosi Bay MPA (Table 8).

Table 8: Respondents opinions on clarity and processes related to priority setting for the Ponta do Ouro-Kosi Bay MPA

What is your opinion on each of the following?	Strongly agree		Agree		Disagree		Not sure	
	No.	%	No.	%	No.	%	No.	%
Priorities for this MPA are clear to respondents	1	3	6	17	16	46	12	34
Priorities for this MPA have been discussed with respondents	2	6	3	9	16	46	14	40
Priorities for this MPA are contextually relevant	2	6	5	14	12	34	16	45
Priorities for this MPA were imposed by government	4	11	8	23	6	17	17	49
Priorities for this MPA are externally driven	1	3	4	11	6	17	24	69

That the majority of the responses are either in the ‘disagree’ or ‘not sure’ category highlights the respondents’ questioning of the process followed in setting priorities for the MPA. For example, the majority of respondents questioned the clarity with which the MPAs priorities were relayed respondents, as nearly half of the respondents ‘disagreed’ with the set statement while a further 34 percent (12 respondents) were unsure. A similar finding was recorded the statement about the setting of the priorities having been discussed with respondents. The findings, 34 percent or 12 respondents (‘strongly agree’ or ‘agree’) responding affirmatively, also illustrate the sense that the priorities may have been imposed.

Nine percent, i.e., three respondents in their closing remarks on priority setting called for the following: improving communication and awareness; stopping ‘wild west’ attitudes and the need to strongly link conservation with tourism. While representing the views of a minority, these calls are nonetheless important. For example, reference to communication and awareness strategies could be calling attention to strengthen information, education and communication strategies while the reference to ‘wild west’ attitudes may be referring to the need to check the contextual relevance of the priorities or ensuring that the priorities are not externally driven.

Opportunities and constraints

The creation of a MPA can be associated with several opportunities and constraints. This section examines the respondents’ perceptions of opportunities and constraints associated with the Ponta do Ouro – Kosi Bay MPA in order to meet the following study objective: *to identify the perceived opportunities and constraints associated with the MPA.*

The main opportunities associated with the establishment of Ponta do Ouro - Kosi Bay MPA were tourism (71 percent or 25 respondents); income generation/job creation (65 percent, i.e., 23 respondents) and conservation of biodiversity (55 percent or 19 respondents). Tourism scored highly because of the favourable natural environment of the MPA – the coastline and associated resources and the various water-based recreation opportunities (e.g. scuba diving, sport fishing and swimming). The serenity of the area, with its clear and wide beaches was also highly emphasised as a major attraction for tourists.

The major benefits associated with tourism were jobs (20 respondents, i.e., 57 percent) and taxes/ income for the state (11 respondents or 31 percent). Various other benefits were identified, e.g. training, culture exchanges, and exposure of the area to people from outside, but in most cases, they individually constituted no more than 5 percent, i.e., two respondents. Income generation (as an opportunity through job creation) was highly rated as ‘very successful’ – 40 percent (14 respondents) and ‘successful’ (18 respondents or 51 percent) giving an overall positive rating of above 90 percent. The establishment of the MPA was potentially seen as helpful in curbing undesirable activities while facilitating those deemed appropriate (Table 9). These results demonstrate the optimism surrounding the potential opportunities associated with the MPA.

Table 9: Respondents’ anticipation for the Ponta do Ouro-Kosi Bay in helping with identified imperatives

Do you anticipate the establishment of the MPA helping with the following?	Yes		No	
	No.	%	No.	%
Uncontrolled access	33	94	2	6
Inappropriate resource uses	33	94	2	6
Controlled development	35	100	-	-
Benefiting local people	33	94	2	6
Minimising conflict of usage between respondents	31	89	4	11

The creation of protected areas has historically been associated with placing limits on access by local communities to resources thereby reducing prospects to harvest and sell such resources (Burke, 1999; Reid *at al.*, 1999; Frimpong, 2000 and Salm and Clark, 2000). Lack of access to both the resources and benefits of a protected area have in some cases evoked feelings of pessimism and lack of support. To the contrary, this study shows feelings of optimism (Table 10). The majority of the respondents described the potential drawbacks of the establishment of the MPA as either weak or none existent. Selling of marine and coastal resources (including concessions for recreation and other purposes) and the conservation of marine and coastal resources received a positive rating, both being seen as not significantly affected by the MPA’s establishment. This arguably suggests a degree

of appreciation of the intentions behind the MPA on the part of the local people. Cynicism was evident in terms of access and the role of traditional leaders, each being described as ‘strong’ by 34 percent (12 respondents) of the respondents.

Table 10: Respondents’ perceptions of the negative impact of the establishment of the MPA on specific issues

In terms of constraints, how would you describe the negative impact of the MPA on the following?	Very strong		Strong		Weak		None	
	No.	%	No.	%	No.	%	No.	%
Access to marine and coastal resources	2	6	12	34	17	49	4	11
Selling of marine and coastal resources	3	9	8	23	20	57	4	11
Conservation of marine and coastal resources	3	9	2	6	2	6	28	80
Traditional leadership authority	2	6	12	34	17	48	4	11

Because protected areas are established in certain social contexts, it is normal to find aggrieved parties within the affected communities. Normally, the concerns should be channelled to the authorities with the hope of redress. The majority of respondents (30 respondents or 86 percent) were not aware of any community presentation of concerns emanating from the establishment of the MPA. This situation could suggest two things: either a low level existence of conflict or a general lack of mechanisms through which concerns are expressed. Some respondents made specific reference to the latter when they noted that the Ponta do Ouro – Kosi Bay MPA initiative was relatively new to them and that they were not aware of its communication channels. The remaining 14 percent (five respondents) were aware of community concerns, which have been presented to the authorities. These concerns were on the need to provide for an allowance of subsistence use/ access within the scope of the law of enforcement.

While this matter was not investigated exhaustively, indications from informal discussions held with various people while conducting the research, suggest an appreciation of the intentions behind the creation of the MPA, despite the lack of adequate explanation to the

locals. This contention is substantiated by inadequate knowledge of the MPA objectives as revealed by the formal survey. Furthermore, nearly all the respondents – 34 respondents (97 percent) preferred a controlled, multiple use system to a strict, no use system approach. Reasons for this view were varied, but mainly revolved around recognition that for many of them, marine and coastal resources form an important part of their livelihoods.

Concluding statements by three of the respondents called on the authorities to ‘get started’ on a more serious scale with all the processes of the MPA in order to address the felt conservation (of marine resources) problems. Another called for improved communication between the locals and the authorities.

Roles and responsibilities

Sustainable management of coastal areas and marine resources requires that roles and responsibilities be shared among local people. Clarification of roles and responsibilities creates opportunities for working together as well as the appreciation of the challenges involved in other respondents’ role in conservation work. It also ensures that local people fully participate in the establishment of and management of MPAs and that they share in the decision-making processes and benefits arising from these areas.

Local people ought to play the roles most suited to them and their circumstances. Full involvement of local communities in decision-making processes is an imperative to guarantee sustainable, efficient, and democratic management of protected areas. To this end, an objective was developed to understand how the respondents perceived their roles and responsibilities in the Ponta do Ouro – Kosi Bay MPA.

To examine the above objective, it was important to recognize that different factors contribute to limited personal capability. These include physical isolation, lack of access to information and limited education. All these contribute to limited confidence, and together, they reinforce powerlessness and voicelessness and marginalization in society (Moore and van Damme, 2002). Communities in such situations are unlikely to get involved in decision-making processes, even on matters affecting them because they will feel less empowered. Nevertheless, 94 percent of respondents ‘felt’ strongly about the need for public participation in setting priorities for the MPA (Table 7).

In spite of the constraints suggested above, 74 percent (26 respondents) perceived of themselves as capable of playing a role in the future development of the Ponta do Ouro – Kosi Bay MPA. This was against a background of 66 percent (23 respondents) who claimed possession of skills which could be useful to the MPA. They identified several areas in which they felt they could play a role (Table 11) and the skills they possess.

Table 11: Possible roles of the respondents in the MPA

Factors	No.	%
Advisory/ community awareness	15	43
Monitoring	5	14
Enforcement (security and patrols)	5	14
Others* (combined)	10	28

*This categorisation was for individual responses, which included environmental education, diving courses, and research (field work).

The majority of the skills were in the area of enforcement (control, patrols and security), monitoring and community relations and awareness (including communication and documents translation). Skills availability in the area is set out in Table 12. While the above findings show a positive perception among the respondents, the reliability of these findings needs to be treated with extreme caution as it is largely self-perception and is not

based on a thorough skills audit in the area. However, the findings provide a useful pointer as to the perceptions of the respondents regarding skills availability.

Table 12: Respondents' assessment of skills availability in the study area

Skills category	Highly available		Available		Not available		Not sure	
	No.	%	No.	%	No.	%	No.	%
Unskilled	29	83	5	14	-	-	1	3
Semi-skilled	18	51	16	46	-	-	1	3
Skilled	4	11	27	77	3	9	1	3
Managerial/ professional	1	3	16	46	15	43	3	9

The involvement of and consultation with all local people in the management and planning of a protected area (including a MPA) is important (Barrow, 1998; Phillips, 2002). The respondents' perceptions of the relative importance of different stakeholder groups is summarised in Table 13.

Table 13: Respondents' perceptions of the relative importance of local people

Factors	Very important		Important		Not important		Not sure	
	No.	%	No.	%	No.	%	No.	%
Local people	9	26	20	57	5	14	1	3
Government	20	57	14	40	-	-	1	3
Business community	15	43	18	51	1	3	1	3
Traditional leadership	14	40	15	43	4	11	2	6

Further, for the majority – 34 respondents (97 percent), the MPA cannot be managed without community support. Asked to elaborate, several reasons were noted by some of the respondents: because they live in the area – 12 respondents (34 percent); they are the owners of the area - four respondents (11 percent); they know the realities of the area - tree respondents (nine percent); they must assist on control - two respondents (six percent) and the MPA must exist harmony with community - two respondents (six percent).

Although participation of local people is necessary for contemporary conservation, it cannot happen in the absence of opportunities for participation being created in the first

instance. Respondents shared their perceptions of the opportunities in decision-making for different stakeholder groups in the affairs of the Ponta do Ouro – Kosi Bay (Table 14).

Table 14: Respondents perceptions of opportunities created/ available for different stakeholder groups to contribute in decision-making processes of Ponta do Ouro – Kosi Bay MPA

Factors	A great deal		Somewhat		Little		None	
	No.	%	No.	%	No.	%	No.	%
Local community	3	9	10	29	14	40	8	23
Business people	11	31	16	45	4	11	4	11
Traditional leadership	6	17	15	43	12	34	2	6

Of the three categories of stakeholder (Table 14), it is evident that there were feelings of discomfort in terms of levels of participation by the local communities and traditional leadership. The first two columns, which indicated responses in the affirmative, totalled the least for local communities (13 respondents or 38 percent). Traditional leadership, inferring from the findings also lagged behind businessmen by a margin of more than seven respondents or 20 percent. In short, the message, rightly or wrongly is that businessmen are perceived to have had more opportunities for participation. Whether this is correct or not is not the issue; it is rather the fact that this perception exists and it is that which needs attention.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study set out with the aim of assessing the level of support of local people towards the Ponta do Ouro - Kosi Bay MPA. This aim was underpinned by five specific objectives.

The first objective sought to establish awareness levels of the respondents regarding the establishment of Ponta do Ouro - Kosi Bay MPA. The overall impression emerging from the study was that of limited awareness about the project in terms of its vision, objectives and goals. The few who were aware about some aspects of the MPA pointed to government sources. Nearly a third of the respondents who were aware of it, acknowledged the relationship between the MPA and resource conservation. Furthermore, all felt that the problems facing the area needed urgent attention. Problems highlighted as being common included illegal fishing, driving on beaches and solid waste disposal. Hence they all felt the initiative was a justified undertaking despite some of them expressing dissatisfaction with how the processes leading to the establishment of the MPA were conducted.

The second objective sought to understand the perceived impact of the establishment of the MPA on access to, and utilization of, coastal and marine resources by local people. Both positive and negative impacts were identified, although the majority felt the initiative did not affect them in any major way. Positive impacts included exposure of the area as a tourist destination, improvements in marine resources conservation, and creating awareness among locals on marine resources and conservation. Less than half of the respondents indicated dependence on marine resources. This proportion rises considerably if one considers that most of the respondents rely on marine-related employment/ sources of income, e.g. restaurants, diving instructors, etc. Fishing and access to marine resources

were highlighted as two livelihood areas likely to be negatively impacted by the MPA – no elaborations were made. There was a sense of anxiety from some respondents following historical dependence without government inhibitions on fishing.

The third objective was concerned with outlining and examining the factors that local people perceive should be the basis for determining the priorities for the MPA. Job creation and training topped the list, echoing past concerns for conservation to be proactive in dealing with socio-economic challenges (WPCA, 2003). Biodiversity conservation also rated highly, again, demonstrating that local people are not inherently opposed to resource conservation efforts. Dialogue is another expected area, and respondents rated it higher than infrastructure and development concerns – which incidentally are a top agenda item on the part of authorities.

The fourth objective sought to identify the perceived opportunities and constraints associated with the establishment of the MPA. In this regard, socio-economic development related opportunities, namely tourism and income generation were highlighted. Job creation and income generation were considered above conservation of biodiversity in terms of priorities. Benefits from the controlling of access to the area (and hence over utilization?), curbing inappropriate resource use, controlled development and ensuring that local people benefit were highlighted. Constraints were mainly seen in relation to the exercise of the role of traditional leadership and access to the area and restrictions in selling of harvested marine resources.

The fifth and last objective was concerned with getting an idea from the respondents about their skills and willingness to get involved in the MPA activities. There was an expressed

desire by the majority to make a contribution to the MPA. Various skills were mentioned, mainly in the following areas: advisory/ community awareness, enforcement – incorporating security and patrolling. Rather than attempting to pass a judgement on the capabilities of the participants regarding these skills, what is important is that there is a willingness to get involved. This arguably could mark the threshold of a very functional relationship between the authorities and the local communities than the suspicion and mistrust which has characterised conservation most conservation initiatives in southern Africa (Moore and van Damme, 2002).

Recommendations

The successful establishment of the MPA in Ponta do Ouro will only materialise if sufficient involvement and consultation with local people is assured. As such, there is an urgent need for the dissemination of the MPA's vision, goals and objectives with the local people.

This study was conducted as a pilot study. To get a broader understanding of issues raised, it may be appropriate to conduct a similar study on a wider scale – both in South Africa and Mozambique - to ascertain a sense of perceptions held by locals. Such a study could be useful in creating an understanding by the authorities, both in Mozambique and South Africa, about the perceptions people hold towards the MPA. Such an understanding would be invaluable in shaping future plans, management decisions and mechanisms for engaging the local people.

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REFERENCES

- Ansley, S., 2005. A CBNRM Study of Communities and Resources in Northern Mozambique. In: Dzingirai, V. and Breen, C. *Confronting the crisis in Conservation - Case Studies from Southern Africa*. CEAD, UKZN, pp. 130-193.
- Arnaldo, C., 2004. Regional Fertility Trends in Mozambique. *Journal of Population Research* 21(2), 2004. Maputo. Eduardo Mondlane University, pp. 177-197.
- Barrow, E., 1998. Community Conservation in East Africa and Further: Some Lesson from Practice. In: Moffat, D. and Kyewalyanga, M. (Eds.). *Local Community Integrated Coastal Zone Management: Experiences from Eastern Africa. Proceedings of the Regional Workshop: Experiences in Local and Community Integrated Coastal Zone Management – Lesson to Date. Zanzibar*. SEACAM and WIOMSA, pp. 23-42.
- Burke, R., 1999. *Project Management – Planning and Control Techniques*. Third Edition. John Wiley & Sons Ltd.
- Frimpong, M., 2000. *Project Management for Non-Profit Organizations*. Johannesburg. Repro Centre.
- GESAMP, 2001. *Protecting the oceans from land-based activities – Land-based sources and activities affecting the quality and uses of the marine, coastal, and associated freshwater environment*. Rep. Stud. GESAMP No 71.
- Lindén, O. and Lundin, C.G., 1997. The Journey from Arusha to Seychelles: successes and Failures in Integrated Coastal Zone management in Eastern Africa and island States. In: Lindén, O., and Lundin, C.G. (Eds.). *Proceedings of the Second Policy Conference on Integrated Coastal Zone Management in Eastern Africa and Island States, Seychelles, 23-25 October, 1996*. SIDA and The World Bank.
- Massinga, A. and Hatton, J., 1996. Status of Coastal Zone in Mozambique In: Lundin, C.G. and Lindén, O. (Eds.). *Proceedings of the National Workshop on Integrated Coastal Zone Management in Mozambique*. May 5-10, 1996. Inhaca Island and Maputo, Mozambique. MICOA, University of Eduardo Mondlane, SIDA and The World Bank, pp. 7-64.
- MICOA and Ministry of Tourism, 2002. *Unpublished Speech Honourable President Joaquim Alberto Chissano at GIFTS TO THE EARTH Ceremony*. Maputo, Mozambique. Unpublished document.
- MICOA, 2005. *Terms of Reference of the Coordinator Group for declaration of the Ponta do Ouro marine and Coastal Areas as Protected Area*. Maputo. Unpublished document.
- Moore, K. and van Damme, L.M., 2002. The Evolution of People-and Parks relationships in South Africa's National Conservation Organization. In: Hattingh, J., Lotz-Sisitka, H. and O'Donoghue, R. (eds.). *Environmental Education, Ethics, and Action in Southern Africa*. Pretoria, South Africa. Human Science Research Council and Environmental Education Association of South Africa, pp. 61-73.

Phillips, A., 2002. *Management Guidelines for IUCN Category V Protected Areas: Protected Landscapes/Seascapes*. IUCN Gland, Switzerland, and Cambridge.UK.

Reid, D.G., Sindiga, I., Evans, N. and Ongaro, S., 1999. Tourism, Bio-Diversity and Community Development in Kenya. In: D.G. Reid (ed.). *Ecotourism in Eastern and Southern Africa*. Canada. University of Guelph, pp. 39-58.

Salm, R.V. Clark, J. and Siirila, E., 2000. *Marine and Coastal Protected Areas: A guide for planners and managers*. Washington DC. IUCN.

WCPA, 2003. *Vth World Parks Congress - Benefits beyond boundaries*. Gland Switzerland. IUCN.