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STUDY ON THE DEVELOPMENT OF  
TRANSBOUNDARY NATURAL RESOURCE MANAGEMENT AREAS  
IN SOUTHERN AMERICA



main report

# **STUDY ON THE DEVELOPMENT OF TRANSBOUNDARY NATURAL RESOURCE MANAGEMENT AREAS IN SOUTHERN AFRICA**

John Griffin

*with contributions from*

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## Acronyms

|           |  |
|-----------|--|
| AAAS      | American Association for the Advancement of Science          |
| ADMADE    | Administrative Management and Design                         |
| BC        | Biodiversity Conservation                                    |
| BSP       | Biodiversity Support Program                                 |
| CAMPFIRE  | Communal Areas Management Program for Indigenous Resources   |
| CBD       | Convention on Biological Diversity                           |
| CBNRM     | Community-based Natural Resource Management                  |
| CBO       | Community-based Organisation                                 |
| CBPP      | Contagious Bovine Pleuropneumonia                            |
| CIDA      | Canadian International Development Agency                    |
| CITES     | Convention on the International Trade in Endangered Species  |
| DED       | German Development Service                                   |
| DNA       | Deoxyribonucleic Acid  |
| DRC       | Democratic Republic of Congo                                 |
| EIA       | Environmental Impact Assessment                              |
| ELMS      | Environment and Land Management Sector                       |
| EU        | European Union   |
| FANR      | Food, Agriculture and Natural Resources                      |
| FMD       | Foot and Mouth Disease                                       |
| FSTCU     | Forestry Sector Technical Coordination Unit                  |
| GBF       | Global Biodiversity Forum                                    |
| GDP       | Gross Domestic Product                                       |
| GEF       | Global Environment Facility                                  |
| GIS       | Geographic Information Systems                               |
| GTZ       | Deutsche Gesellschaft für Technische Zusammenarbeit          |
| HH        | Household Head   |
| IDC       | Industrial Development Corporation                           |
| IFFW      | Inland Fisheries, Forestry and Wildlife                      |
| IFSTCU    | Inland Fisheries Technical Coordination Unit                 |
| IGO       | Intergovernmental Organisation                               |
| IKS       | Indigenous Knowledge Systems                                 |
| IMF       | International Monetary Fund                                  |
| IR        | Intermediate Result  |
| IUCN      | World Conservation Union                                     |
| IUCN-ROSA | World Conservation Union-Regional Office for Southern Africa |
| JICA      | Japan International Cooperation Agency                       |
| LIFE      | Living in a Finite Environment                               |
| LIRD      | Luangwa Integrated Resource Development Project              |
| LUP       | Land Use Plan  |
| M&E       | Monitoring and Evaluation                                    |
| MNR       | Ministry of Natural Resources                                |
| MOU       | Memorandum of Understanding                                  |
| NGO       | Nongovernmental Organisation                                 |
| NORAD     | Norwegian Agency for Development Cooperation                 |
| NP        | National Park  |
| NRM       | Natural Resource Management                                  |

|           |   |
|-----------|---|
| NRMP      | Natural Resource Management Programme                                 |
| OAU       | Organisation of African Unity   |
| PA        | Protected Area  |
| PPF       | Peace Parks Foundation  |
| RALE      | Representative and Accountable Legal Entities                         |
| RAMSAR    | Convention on the Management of Wetlands and Waterfowl                |
| RCSA      | Regional Center for Southern Africa                                   |
| RETOSA    | Regional Tourism Organisation of Southern Africa                      |
| ROU       | Record of Understanding   |
| RSA       | Republic of South Africa  |
| SACCAR    | Agriculture and Research Sector                                       |
| SADC      | Southern African Development Community                                |
| SADCC     | Southern Africa Development Coordination Conference                   |
| SANP      | South African National Parks  |
| SARP      | Southern Africa Regional Program Water Assessment                     |
| SASUSG    | Southern African Sustainable Use Specialist Group                     |
| SDI       | Spatial Development Initiative  |
| SEACAM    | Secretariat for Eastern African Coastal Area Management               |
| SPAW      | Specially Protected Areas and Wildlife                                |
| SpOA      | Special Objective A   |
| SSC       | Species Survival Commission   |
| TBCA      | Transboundary Conservation Area                                       |
| TBNRM     | Transboundary Natural Resource Management                             |
| TBNRMA    | Transboundary Natural Resource Management Area                        |
| TCU       | Technical Coordination Unit   |
| TFCA      | Transfrontier Conservation Area                                       |
| TFCAWG    | Transfrontier Conservation Area Working Group                         |
| UN        | United Nations  |
| UNCRD     | United Nations Centre for Regional Development                        |
| UNDP      | United Nations Development Programme                                  |
| USAID     | United States Agency for International Development                    |
| VH        | Village Head  |
| WB        | World Bank  |
| WCC       | World Conservation Congress   |
| WMA       | Wildlife Management Area  |
| WSCU      | Water Sector Coordination Unit  |
| WSTCU     | Wildlife Sector Technical Coordination Unit                           |
| WWF       | World Wildlife Fund   |
| WWF/SARPO | World Wide Fund for Nature /Southern Africa Regional Programme Office |
| ZACPLAN   | Zambezi River Basin Action Plan                                       |
| ZBWCRUP   | Zambezi Basin Wetlands Conservation and Resource Utilisation Program  |

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am grateful to Dorothy Zbicz for allowing us to reproduce her global list of adjoining protected areas as an appendix to this report (see Appendix 2).

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Throughout the study, we were impressed by the enthusiasm for and ownership of the concept of transboundary conservation areas and transboundary natural resource management in the region, across all stakeholder groups, and in all countries. I wish you all success in transboundary developments in the region in future years!

John Griffin

Washington, D.C.  
November 1999

## Preface

The objective of this study was to conduct an assessment and preliminary analysis of issues, approaches, and targets of opportunity related to the management of transboundary natural resource management areas (TBNRMAs) in southern Africa.

The study was managed by the Biodiversity Support Program (BSP), a USAID-funded consortium of World Wildlife Fund, The Nature Conservancy, and World Resources Institute. It was implemented by the following team:

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| John Griffin         | Team Leader and Institutional, Policy, and Legal Analyst          |
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| Simon Metcalfe       | Sociologist   |
| Mike t' Sas-Rolfes   | Economist   |
| Jaidev "Jay" Singh   | Global Review Consultant  |
| Ebenizário Chonguiça | Angola Consultant (IUCN Mozambique)                               |
| Mary Rowen           | USAID Liaison, Technical Advisor, and Editor (AAAS Fellow, USAID) |
| Judy Oglethorpe      | Study Manager and Technical Advisor (Executive Director, BSP)     |

Geographic information systems (GIS) support was provided by WWF/SARPO. PPF undertook a literature collection and established databases on TBCA literature and regional contacts. Zimbabwe Trust provided administrative and logistical support in the region.

Geographically, the study encompassed Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe (Map 1).

The study consisted of individual consultations in the region with various stakeholders; a review of relevant available literature; development and circulation of draft papers on specific topics; a small consultative meeting with stakeholders from around the region (October 1998); a consultative meeting with SASUSG members (November 1998); presentation of Interim Findings and Recommendations to USAID/RCSA; a large consultative meeting with stakeholders from the region (December 1998); and development of a draft final report. Comments on the draft report have been incorporated into this final report.

In addition to this main report, three other related reports and a summary brochure have been produced from the study, as follows: 1) Environmental Context, 2) Community Perspectives, 3) Global Review, and 4) Highlights and Findings.

The study was initiated to provide information to assist USAID/RCSA to develop a framework for its future efforts in natural resource management. This study was conducted under the then Mission's Special Objective A (SpOA) that focused on increasing regional capacity to manage transboundary natural and wildlife resources. The first two years under this objective were intended to be largely exploratory, with an emphasis on clearly defining an appropriate role for the RCSA in this highly complex area of involvement. Information gathered during the study has been used by USAID/RCSA in the development of its new Strategic Objective, "Increased regional co-operation in the management of shared natural resources."

In addition to assisting USAID/RCSA in its strategic planning, this study and the consultations and meetings associated with it have encouraged and fostered transboundary natural resource management (TBNRM) discussions in the region. It is hoped that this document will be used by all interested stakeholders to further the TBNRM process.

## Executive Summary

International borders are political, not ecological, boundaries. As such, key ecological systems and components often occur in two or more nations and are subject to a range of often opposing management and land-use practices. Unsustainable resource use on one side of a border may adversely affect resource use in neighbouring states. One of the most striking examples of shared resources is that of shared water catchments. Of the 15 largest water catchments in the world, the four that occur in the greatest number of nations are in Africa. The health of any single water catchment, including its wildlife, forests, and grazing lands, is dependent on the sustainable management of its full array of habitats. In order to ensure that future generations have sufficient access to natural resources, the management of water catchments, ecosystems, and migratory wildlife must become more multinational and participatory across local, national, and international levels.

The concept of international peace parks and transboundary conservation areas (TBCAs), developed to better manage common and natural resources, was first introduced in the 1920s and 1930s. By 1997, 136 complexes of protected areas adjoining across 112 international boundaries in 98 countries had been identified (see Zbicz, Appendix 2). Transboundary management activities are already under way in many parts of southern Africa.

The number of TBCAs and Transboundary Natural Resource Management (TBNRM) projects within southern Africa is increasing annually. Until recently, communication between the initiatives was informal and ad hoc, with little dissemination of lessons learned. Dialogue has greatly increased in the last few years due to government initiatives on TBCAs, donor interest, the establishment of the Peace Parks Foundation (PPF), the holding of an international meeting on Peace Parks in Somerset West in 1997, collaborative activities under the Southern African Development Community (SADC), and the formation of the Southern Africa Sustainable Use Specialist Group (SASUSG) working group on Transfrontier Conservation Areas (TFCAs).

USAID funded the Biodiversity Support Program (BSP) to conduct this study to outline the current state of transboundary management in the SADC region and to identify opportunities and constraints for future development. Stakeholders in the region expressed strong interest in the TBNRM process. They have fairly clear ideas about how they would like the TBNRM process to proceed, both at the localised transboundary level, and in terms of overall support to TBNRM in the region. Stakeholders have identified certain principles that can provide the self-determined rules, or codes of conduct, of how operations in the TBNRM field should proceed.

Overall, *synergism* is the anchor of TBNRM. There is no sense in pursuing TBNRM unless there is a belief that the whole will be greater than the sum of its parts. Otherwise, the additional opportunity costs of "going transboundary" will compel stakeholders to stay isolated and to manage initiatives within their own boundaries.

The process itself needs to operate on the following three principles: democracy, sustainability, and efficiency.

**Democracy**--TBNRM initiatives are for "the people"--users, managers, and beneficiaries of natural resources. To this end, stakeholder involvement should occur at all stages of the process, particularly during decision-making.

**Sustainability**--In addition to sustainable natural resource use, sustainable financing, human resources, and institutions are necessary. This applies to finding ways to have enduring resources to carry out TBNRM initiatives and the ability to formulate, communicate, and implement best-use practices.

**Efficiency**--The benefits of TBNRM must outweigh the total costs of this lengthy and complex process. Efficiency is increased by building upon existing resource management systems and institutions.

## **Shared Management of Ecosystems**

To manage shared ecosystems effectively, TBNRM must address not only the ecological aspects, but also the political, cultural, and economic benefits and constraints of each proposed area.

**Ecological Aspects.** TBNRM enables an increase in the size of land under ecologically sustainable management. The main advantage of TBNRM is that, where international boundaries have divided ecosystems, river basins, and wildlife migratory routes, promotion of TBNRM can re-establish key ecological functions previously disrupted by artificial limitations imposed by political borders.

The ecology of southern African ecosystems is such that wildlife-based activities can be a sustainable and profitable land use. Southern Africa is an arid and semi-arid region. Rainfall is highly seasonal and rainfall totals can vary greatly by year. Soil fertility is generally low in high rainfall areas and high in more arid areas (opposite of agricultural needs). Hence, little of the land mass is suitable for sustained cultivation (approximately 5%). Currently, around 5% of land (about the maximum) is cultivated, with 0.28% irrigated. While livestock can be supported on much of the land, both staple food production and livestock production are failing to keep pace with population growth (25% per capita decline in production since 1980).

Large tracts of marginal land, not suitable for agriculture or commercial livestock production, are well suited to wildlife/NRM programs (about 35% of the land could be used for wildlife, currently 20% of the land is under some form of wildlife use). Of these areas, a high proportion lies near or adjacent to international boundaries. The argument is made for the formation of TBNRM areas as a profitable and sustainable land use.

The process to achieve greater ecological stability can also be initiated by a number of non-ecological factors, including a desire to improve regional political cooperation and stability, economic advantage, as well as cultural harmonisation.

**Political and Policy Aspects.** TBNRM improves regional ecological management (see above), increases economic opportunities, decreases cultural isolation, fosters peace, and provides a basis for further collaboration in other, more politically charged, areas.

Southern African countries have realised the importance of regional cooperation as evidenced by the ratification of the Southern African Development Community (SADC) Treaty. While respecting national sovereignty, the SADC Treaty encourages the development of economic, social, and cultural ties across the region and recognises that, in addition to people, natural resources and ecosystems transcend national borders.

Several SADC Technical Coordination Units and their protocols address issues that are relevant to TBNRM. In particular, the SADC Wildlife Sector protocol calls for Member States to promote the cooperative management of shared wildlife resources and wildlife habitats across international borders. However, while fostering regional cooperation, SADC is not an implementing body and thus cannot direct or enforce implementation of regional policies.

Individually, South Africa, Malawi, Mozambique, and Botswana have developed policies that encourage some form of transborder natural resource management. At the same time, Botswana's policies on veterinary control measures act as a dis-incentive for TBNRM activities in other parts of the country. With differing levels of authority, Botswana, Mozambique, Namibia, South Africa, Tanzania, and Zimbabwe have all enacted policies or laws to devolve some aspect of control over land and resource use to local groups. Thus, despite the wide regional need for TBNRM, the majority of initiatives for TBNRM have developed locally between communities, between communities and protected area managers, and between protected area managers. Where tenure and user rights have not devolved to local authorities or users, TBNRM activities are hindered.

**Cultural Aspects.** TBNRM can assist the economic livelihood of communities, resume or legalise cross-border movements, and support cultural ties and traditions, all of which have been divided or restricted by international borders.

The rapid growth of community-based natural resource management (CBNRM) initiatives throughout southern Africa effectively argues the importance of community involvement in TBNRM. In terms of sound land stewardship, community-based participation in NRM is increasingly important as States lack the ability to manage wildlife by regulation and enforcement alone. Many CBNRM activities currently occur in border areas. Increasing the scope of these efforts across borders not only improves ecosystem health for wildlife but also facilitates formal contact between communities (leaders, resource user groups, healers, local businesses, and land managers). In some areas, cross-border activities can act to foster cooperation between communities, while in others, TBNRM could act as unifying vehicle to some of the 45 ethnic communities divided by international borders within southern Africa. Establishment of cross-border contacts could act to advance integrated and sustainable land management, as well as serve as an important vehicle for social change, strengthening marginalised groups, and increasing social and political stability.

**Economic Aspects.** TBNRM can increase efficiency in managing and monitoring natural resources, eliminate or reduce duplication and create an economy of scale, and enhance economic opportunities (e.g., increased tourism potential and revenues).

Within SADC countries, the tourism potential is high and, compared to global growth rates, relatively underexploited. TBNRM activities offer attractive opportunities to the tourism industry in terms of employment opportunities and generation of foreign exchange. Appropriately managed nature-based tourism can be compatible with conservation and can generate funds

needed to manage protected areas, as well as provide income and opportunities to local communities. Much of the success of TBNRM projects is dependent upon increasing levels of nature-based tourism.

The private sector, NGOs, and governments have long-term interests in tourism and conservation and are generally interested in the expanded advantage of TBNRM activities. However, regionwide investment, including investment in TBNRM activities, may be difficult to obtain due to instances of political instability, high rates of inflation, and heavily subsidised (and often nonsustainable) farming. In addition, disproportionately large economies (e.g., South Africa) may act as a constraint in fostering growth in regional integration of economic activities.

Engaging the private sector and NGOs in support of TBNRM activities should be consistent with the fair and equitable treatment of local communities, and should support the development of a national and international climate conducive to investment in the TBNRM sector.

## **Process, Benefits, and Constraints**

Within much of southern Africa, effective management of natural resources requires at least some degree of management across boundaries. The level of agreement necessary to enable the desired management activities will depend on individual cases. The process of TBNRM development occurs along a continuum, depending on regional needs or driving interests. Informal cooperation may occur on a number of levels, and may include complementary fire control regimes, tracking of illegal hunters, and management of certain key species. These relationships may continue for years; however, they are extremely sensitive to personnel changes and shifts in overarching policy. While effective long-term management in some areas may be possible with relatively informal, local-level cooperation, certain transboundary programmes may require formal, high-level Memoranda of Understanding (MOUs) to catalyse change. In most cases, a MOU is required to obtain the full range of ecological, socioeconomic, political, and cultural benefits.

At any given level of agreement, the advantages and benefits of TBNRM are available for stakeholders who are genuinely involved in the TBNRM process. That said, proposed new TBCAs/TBNRMAs need to be assessed to see whether the potential benefits (ecological, economic, cultural, and political) will be greater than benefits from existing management structures. New TBNRM areas should be chosen carefully to ensure that projected benefits will be greater than the costs; failure to do so could lessen good will and momentum for other projects. The main benefits and constraints highlighted within the study are discussed below.

At the national level, TBNRM activities lead to greater benefits in resource management and conservation. Politically, TBNRM initiates the potential for regional conflict resolution. However, differences in capacity, commitment, and national policy are strong constraints to formalisation of transboundary agreements. In particular, questions of national sovereignty and security (including veterinary disease issues), as well as high transaction costs, may act to inhibit forward momentum in forming multinational policies and agreements.

TBNRM-fostered growth of the private sector is extremely “politically correct,” both in terms of benefiting the environment and promoting the global village. The private sector can draw on this good will to attract international investment and donation. Broader transborder cooperation

will lead to greater possibilities for the freer movement of people, goods, services, and money. However, in this sector in particular, the constraints are many. They include: restrictive national financial policies, insufficient devolution of authority to community groups, barriers to free trade, and restrictive government veterinary policies.

Many communities already benefit from CBNRM activities and can use these as a foundation for TBNRM. Successful TBNRM activities stand to benefit local communities through a wide range of factors, including improved long-term security and welfare, increased economic options, improved relations with government sectors, increased status, and improved ecosystem management. While the benefits are great, constraints in forming TBNRM are also very strong. These include weak existing devolution of tenure and user rights to communities, confusion and conflict between governance and tenure, as well as the possibility of community benefits being usurped by larger entities (e.g., NGOs, national interests, or ecological emphasis).

One of the strengths of future TBNRM activities in southern Africa is that there are already initiatives and actions under way. For continued success, any TBNRM process needs to be responsive to initiatives shown and to react rapidly to what has already been started. Stakeholders in the region stressed that there is minimal need for donors, or external agencies, to initiate new transborder projects, but should, instead, assist critical needs in ongoing projects. Donors and external agents should be careful not to become drivers of the TBNRM process, but should focus instead on "levelling the playing field" by building the capacity of less developed partners. Assistance needs to be client based, where actions are responsive to the requests of those using, receiving, demanding, or purchasing the services, assistance, or product provided. Rapid response is important so that initiatives, once started, do not stagnate once they reach critical levels for action.

By limiting externally-driven processes, true stakeholders will maintain ownership and control of the TBNRM initiative. General guidelines can be outlined for TBNRM development, but it must be recognised that conditions of each area are unique and that detailed blueprints for TBNRM areas are not possible. TBNRM efforts should evolve according to specific situational and subjective circumstances, and should not be moulded by some general overall framework or paradigm. Priorities, resources, capacity, and motivations differ; these need to be recognised and acted upon accordingly for initiatives to be sustainable.

TBNRM improves regional ecological management, increases economic opportunities, decreases cultural isolation, fosters peace, and provides a basis for further collaboration in other, more politically charged, areas. Continued TBNRM progress relies on maintaining open communication between existing efforts, sharing successes, lessons learned, and best practices among stakeholders, donors, and practitioners. It is this dialogue that will shape the foundation of future efforts in transboundary conservation.

There is good ecological, cultural, economic, and political rationale for TBNRM, and the current climate is generally favourable for transboundary development in the region. There is a remarkable amount of support, enthusiasm, and political will at most levels and in nearly all stakeholder groups. Given the huge range of complex individual circumstances in transboundary areas, there is no one ideal formula for TBNRM development. Experimentation, flexibility, and variety; in addition to open communication and access to information, results, and lessons; will be important ingredients in TBNRM development in southern Africa in the coming years and decades.

# 1. Introduction

*"Regional cooperation is not an optional extra; it is a matter of survival."*

(SADC Policy and Strategy for Environment and Sustainable Development, ELMS, 1994, p.3)

International borders are political, not ecological, boundaries. For this reason, key ecological systems and components occurring in two or more nations are often subject to a range of often opposing management and land-use practices. Unsustainable resource use on one side of the border may adversely affect resource use in neighbouring states. To ensure that future generations have sufficient access to natural resources, today's management of water catchments, ecosystems, and migratory wildlife must become more multinational and participatory across local, national, and international levels. Sustainable natural resource planning and management must involve the ecological, cultural, political, and economic concerns of stakeholders across national boundaries. However, prior to defining and discussing the essential elements of TBNRM, it is necessary to clarify terminology.

## 1.1 Clarifying Terminology: TBCA/TFCA and TBNRM

Transboundary Conservation Areas (TBCAs) and Transfrontier Conservation Areas (TFCAs) are both based on the idea of some aspect of shared environmental management between nations. No real distinction exists between the two acronyms, and they are used interchangeably in the region and literature. The terms *boundary* and *frontier* are synonymous; *the only difference is that frontier can also mean the outer limits of knowledge or achievement*, and these two words may hold different connotations for certain individuals. The World Bank defines TFCAs as:

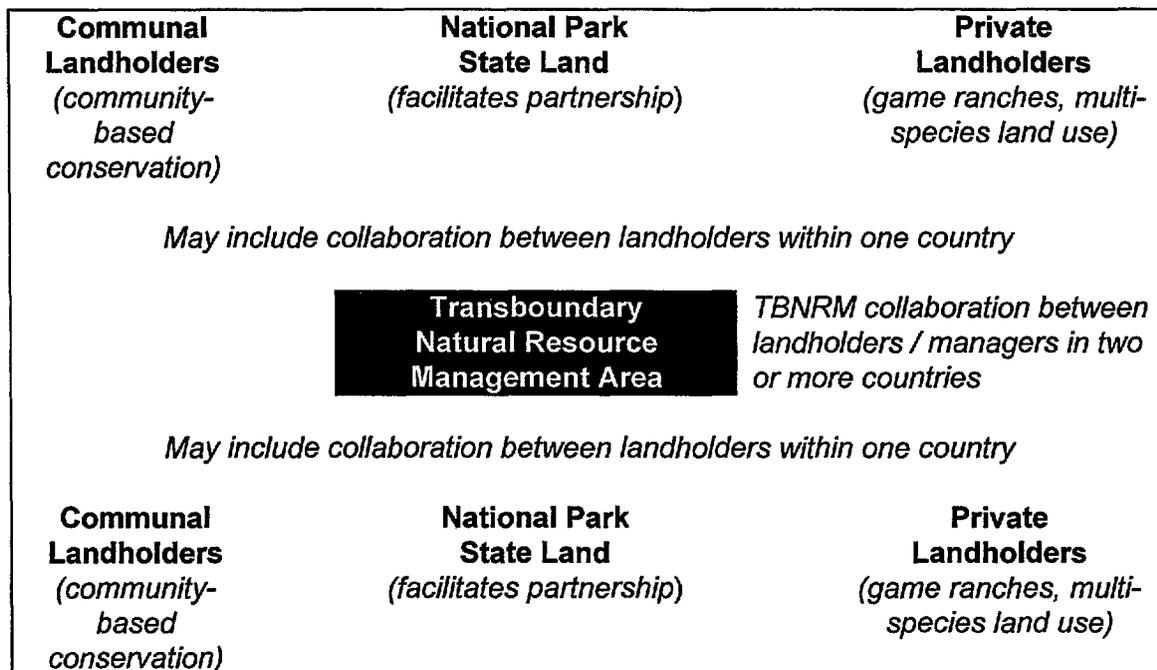
*"relatively large areas that straddle frontiers (boundaries) between two or more countries and cover large-scale natural systems encompassing one or more protected areas."*  
(World Bank, 1996)

Over time, the regional discourse on TBCA/TFCA has expanded, and the above definition has been questioned for the following reasons:

- *Relatively large* is an undefined and subjective measure; do the areas have to be large to be considered transboundary?
- The term *boundary* is defined as something that marks, fixes, or forms a limit or territory, the margin. "Between two or more countries" is limiting; in some places in the region, transboundary initiatives are under way between provinces and other national divisions.
- *Large-scale natural system* is not an absolute concept--i.e., it is often hard to define such system boundaries (although there is probably wide consensus on what might constitute such a system). Again, does it have to be large?

- Does it have to encompass a *protected area*? Conventionally, a protected area is defined as an area of land officially set aside by a government for the purposes of ecological or cultural conservation; such lands are generally owned and managed by the state. However, there are instances of private or communally-held land that is managed for conservation purposes. Where two such areas are linked across an international boundary, the results may be the same as any formal, protected-area focused TBCA, but the area is excluded by the above definition.
- The concept of *broader multiple use* fails to come across clearly in the definition. In addition, there is some concern in the region that the concept of conservation area or protected area is too limiting and that the words *conservation* and *protected* connote maintaining, and even preserving, the existing situation or condition and excluding consumptive resource use.

To better address these concerns, the diagram below presents a possible solution.



This study realigns terminology to incorporate a more holistic approach, known as - Transboundary Natural Resource Management (TBNRM). A Transboundary Natural Resource Management Area (TBNRMA) is therefore:

*“An area in which cooperation to manage natural resources occurs across boundaries.”*

These boundaries can be international, or they can occur within a country across provincial borders. On certain levels, boundaries can also occur between different types of landholdings or use areas. Area is defined as either a geographical land area or an ecological concept, such as migratory wildlife or water. TBNRMAs are especially appropriate where a (major) ecosystem extends across two or more boundaries (i.e., the political territory of one or more states or provinces).

The process of TBNRM is defined as follows:

*“Any process of cooperation across boundaries that facilitates or improves the management of natural resources (to the benefit of all parties in the area concerned).”*

The emphasis here is on the process, not the geographic area. Hence, if it serves the function of TBNRM, then it is a TBNRMA. A TBNRMA exists as soon as there is any sort of TBNRM activity represented by some sort of institution (be it a contract, protocol, management plan, or communication forum [formal or informal]).

## 1.2 Holistic Approach to Management

Taken further, the TBNRM concept could incorporate the overall concept of natural resource management (NRM) required across all sorts of boundaries in support of a bioregional, biosphere, or ecosystem management approach. This would be in keeping with the growing recognition that traditional ideas of park or protected-area boundaries as distinct lines is inappropriate and unrealistic. Instead, there is a need to cooperate with surrounding landowners, users, and managers. Cooperation is needed among private, public, and community sectors. TBNRM is not a static concept; rather, it is an ongoing process, not bound by any particular time or space constraint, and can occur to varying degrees (see Box 1).

### **Box 1. Levels of the TBNRM Process**

The extent to which transboundary cooperation and management happen can vary. There are at least three distinct levels of TBNRM, as follows:

#### **Level 1—Local collaborative (transboundary) natural resource management**

At this level, management of wildlife and natural resources (ecological management) is coordinated between management authorities across boundaries. Typically, wildlife would be free to move across these boundaries without restriction.

#### **Level 2—Local collaborative people management**

This level entails the removal of restrictions that prevent people from crossing boundaries within a specified TBNRMA. Changes in national policies regarding border movements may be necessary. The emphasis would remain localised to a specific TBNRMA.

#### **Level 3—Harmonisation of national policies and legislation**

This level entails changing and harmonising relevant national laws and policies to facilitate the TBNRM process. This is the level that institutions, such as SADC, are working toward.

It is important to note that political and economic costs increase considerably as one moves up the levels, and most existing initiatives are still grappling with Level 1.

For this study, the term *TBNRM* will be used rather than *TBCA* when referring to the southern African region. However, at times, as in the discussion of global lessons learned (Section 2), *TBCA* is used. In addition, at times, the term *TFCA* is applied when it is the specific terminology used by a project or area. It is hoped that over time, a single term will come to be accepted in the region.

### 1.3 Overview of this Report

With the understanding that the overall objective of the study was to conduct an assessment and preliminary analysis of issues, approaches, and targets of opportunity related to the development and management of TBCAs in southern Africa, this study report is designed to:

- **Present a review of lessons learned in transboundary park and TBCA development and management worldwide** (Section 2). This includes a review of the ecological, political, cultural, economic, and institutional rationales for TBCAs.
- **Present an overview of the region in relation to TBNRM** (Section 3). In this section, the general situation in the southern African region is presented. Section 3.1 begins by describing the natural resources in the region and the predominating land-use forms, especially in the marginal lands of border areas. The discussion then moves to the major stakeholder groups residing in these areas--“local communities”--and goes on to describe these stakeholders and the development and importance of the CBNRM movement (Section 3.2). In particular, this section highlights how TBNRM can be a natural next step for CBNRM, *if* the communities are a genuine part of the transboundary discourse. One of the critical elements of TBNRM is the devolution of authority, and Section 3.3 reviews the policy and legal frameworks that might hinder or support the TBNRM process. Organisational aspects are reviewed in Section 3.4, followed by a review of the general economic situation (Section 3.5), which might encourage or inhibit the TBNRM process. Finally, Section 3.6 reviews what has already happened in the region in the area of TBNRM, including donor assistance.
- **Describe the constraints and opportunities to the development and management of TBNRM** (Section 4) from the viewpoint of three of the major stakeholder groups: public sector (Section 4.1), private sector (Section 4.2), and community level (Section 4.3).
- **Identify the specific principles that need to be followed and recommendations for future TBNRM activities** (Section 5).

## **2. Global Lessons Learned in TBCA Establishment**

In this section, issues pertaining to the benefits and problems in setting up TBCAs are presented. Where illustrative, examples from TBCAs around the world are briefly discussed. The section ends with a list of the key lessons learned.

### **2.1 History**

In 1932, the first TBCA was established as an international peace park that linked the Glacier National Park in the U.S. to the Waterton Lakes National Park in Canada. Prior to establishing the Glacier-Waterton International Peace Park, Poland and Czechoslovakia signed the Krakow Protocol in 1925 to set the framework for establishing international cooperation to manage border parks (Thorsell 1990). However, the first of these parks were not established until after the Second World War, and their numbers grew gradually until the 1970s and 1980s, when many of the TBCAs were established. By 1997, 136 complexes of protected areas adjoining across 112 international boundaries in 98 countries had been identified. These, along with an additional 69 proposed complexes, represent at least 205 existing and potential TBCAs (Zbicz and Green 1997; Zbicz, Appendix 2).

The increasing emphasis on TBCAs marks a conceptual shift among social and political institutions away from creating large, strictly protected national parks toward establishing regional multiple-resource areas for use by local communities along national borders (Hanks 1997). The TBCA concept lends itself to the incorporation of such innovative approaches as biosphere reserves and a wide range of CBNRM programs (World Bank 1996). These innovations may be "old ideas with new opportunities." TBCAs allow for the scaling up of traditional protected areas with benefits spread over larger areas and more communities involved with potentially significant positive political and economic gains.

### **2.2 Ecological Aspects**

International border areas contain some of the most biologically intact ecosystems in the world, many of which are located in remote and inhospitable areas (Westing 1998; Griffiths 1995). The remoteness of many borderlands, and the fact that borders often split what should be functioning ecological units, make them good candidates for conservation areas. This is evident in the number of national parks and game reserves along international borders, especially in Africa (nearly 40% or 76 out of about 200 of the national parks in Africa lie along international borders; 35 of 109 (32%) boundaries have a national park on one or both sides [Griffiths 1995]).

One striking example of shared resources is water catchments. Of the world's 15 largest, the four that are shared by the most countries are located in Africa (Table 1). Together, these 15 areas cover 26% of the global land surface (Blake 1993) and illustrate the need for regional and multinational cooperation to manage transboundary resources effectively and sustainably.

**Table 1. World's 15 Largest Water Catchments  
(by Number of Water-catchment Countries)**

| <b>Water Catchment</b> | <b>Water-catchment Area (million ha)</b> | <b>Length (km)</b> | <b>No. of Water-catchment Countries</b> |
|------------------------|--|--------------------|---|
| Niger                  | 220                                      | 4,200              | 10                                      |
| Congo (Zaire)          | 372                                      | 4,700              | 9                                       |
| Nile                   | 303                                      | 6,650              | 9                                       |
| Zambezi                | 142                                      | 3,500              | 8                                       |
| Amazon                 | 587                                      | 6,400              | 7                                       |
| Ganges-Brahmaputra     | 160                                      | 2,900              | 5                                       |
| La Plata               | 320                                      | 4,880              | 5                                       |
| Amur                   | 190                                      | 2,820              | 3                                       |
| Mississippi            | 325                                      | 6,020              | 2                                       |
| Ob                     | 301                                      | 5,410              | 2                                       |
| Saint Lawrence         | 128                                      | 4,000              | 2                                       |
| Yenisey                | 253                                      | 5,540              | 2                                       |
| Lena                   | 249                                      | 4,400              | 1                                       |
| Mackenzi               | 184                                      | 4,240              | 1                                       |
| Yangtze                | 196                                      | 6,300              | 1                                       |

Source: Blake (1993).

The ecological advantages of TBCAs are generally those that occur with an increase in land area under ecologically sustainable management. The specific advantage of TBCAs is that where international boundaries have divided ecosystems, river basins, and wildlife range and migratory routes, formation of TBCAs can re-establish key ecological functions previously disrupted by artificial limitations imposed by political borders.

One of the most visible negative effects of divided ecosystems is the disruption of nomadic and migratory wildlife movement patterns (World Bank 1996). Large mammal populations with hampered migration patterns include elephant populations near the South African and Mozambique border (Tembe Elephant Reserve and Maputo Special Reserve) that are prohibited from moving between the countries by electric fences (World Bank 1996; Russell 1998); elephant and wildebeest populations whose ability to search for water have been severely hampered by fences along the borders between Botswana and Namibia; and Marco Polo sheep and snow leopard seasonal movement patterns that have been jeopardised by increased poaching, livestock grazing and insurgency in the Central Asian mountains (Jackson and Ahmad 1995). A good example of how a TBCA has alleviated such problems is the ibex that migrate seasonally between the Gran Paradiso and Vanoise National Parks in Italy and France. The ibex were protected in their winter range in their Italian Alps habitat in the Gran Paradiso but were not protected in their summer range across the border in France until the Vanoise was established as a mechanism to protect the ibex's transborder range (Thorsell 1990).

## 2.3 Political Benefits

Politically, the reasons driving TBCA formation vary considerably and include improved regional ecological management, increased economic opportunities, decreased cultural isolation, and the desire to foster peace in a bilateral and regional framework. TBCAs may provide a mechanism to develop capacity for bilateral cooperation, thereby creating opportunities for further collaboration in other, more politically charged areas.

According to McNeil (1990), TBCAs may be established primarily to build confidence and goodwill between border nations, as well as stimulate transboundary cooperation in resource management. Within the fledgling field of environmental security, TBCAs may play an important role by reducing or eliminating the impacts of violence on and over natural resources. Environmental security relates to re-conceptualising national security interests by incorporating the significance of natural resources into the economic, cultural, and social development of a nation. Mathews (1989) and Kaplan (1994) show how the effects of environmental degradation on human and wildlife populations can lead to conflict over resources and political chaos. Establishing TBCAs may be considered a first line of defence to protect regional commons and to cooperatively promote sustainable economic development and peace.

Weed (1994) evaluated five peace parks in order to determine whether they served as important tools in biodiversity conservation as “concrete manifestations” of the new spirit of regional cooperation and conflict resolution in Central America. The parks examined include the following: La Amistad International Biosphere Reserve (Costa Rica and Panama); Si-a-Paz or the Planned System Areas for Peace (Nicaragua and Costa Rica); Trifinio Trinational Conservation and Development Zone (Guatemala, El Salvador, and Honduras); Maya Biosphere Reserve and related protected areas (Mexico, Guatemala, and Belize); and Darien Conservation Zone (Panama and Colombia). He concludes that the process of establishing these peace parks has brought the countries closer together. As these nations attempt to meet the challenges of regional coordination, they are talking and exchanging information on various levels that have positive impacts. A significant achievement of the Maya Biosphere Zone is the warming of relations between Guatemala and Belize to an extent that Guatemala has formally recognised Belize’s borders.

Similar environmental security implications can be seen in the efforts to create a sustainable transboundary link along the borders of Cambodia, Laos, and Vietnam. Although the efforts are primarily to preserve Indochina’s remaining natural forests that occur mostly on the borders of these countries, the endeavour also hopes to create trust between the three states. In this context, the “Forum for Transboundary Conservation in Cambodia, Laos, and Vietnam,” sponsored by WWF and United Nations Development Programme (UNDP), hopes to establish dialogue and transboundary conservation areas along the national boundaries that straddle a powerful symbol of conflict both in the region and worldwide--the Ho Chi Minh Trail (Dillon and Wikramanayake 1997).

## **2.4 Cultural Implications**

Culturally, TBCAs assist in the economic livelihood of indigenous groups whose traditional land areas have been divided by international borders. TBCAs assist in developing policies for the resumption or at least legalisation of cross-border movement of tribal groups divided by international boundaries. TBCAs can help rejoin traditional heritage territories and can assist in the preservation of indigenous knowledge. This has great potential in re-establishing tribal customs and building confidence, not only among the border communities, but also between the national governments.

One such example is the La Ruta Maya transboundary program that established an unprecedented four-nation cooperative to manage a multinational ecocultural tourism circuit in the Maya region of Central America. This program, first conceived in the 1960s by the Organisation of American States and the International Development Bank, will preserve the cultural and biological heritage of the once powerful Mayan Empire that spanned southern Mexico, Belize, Guatemala, and El Salvador. The potential of this transboundary cultural project is immense, not only in preserving the culture and architecture of the Mayas, but also in generating revenues for local communities in this poor region.

## **2.5 Economic Implications**

Economic incentives exist along the gradient of players involved in TBCA formation. Tourism is one of the most directly affected industries. According to World Bank figures, the tourism sector is the second largest income generator in the world after oil. In 1994, global tourism generated an estimated US\$ 3,400 billion of gross output or 10% of global Gross Domestic Product (GDP) (World Bank 1996). TBCAs will create richer opportunities for expanded ecotourism, and may be better able to diffuse tourist concentrations, thereby enabling more high-quality experiences. Care needs to be taken such that economic opportunities are shared among stakeholder groups as well as among member countries.

## **2.6 Institutional Opportunities and Benefits**

One of the greatest benefits of TBCA formation is the increase in capacity among respective national partner institutions to manage natural resources. Capacity-building in less-developed partner nations is also an area where donor organisations need to focus to create a long-term option for sustainable management. This will enable equitable participation of member states in regional meetings. Stronger regional capacity enables better decision-making with regard to common ecological problems, such as climate change, pollution, Convention on the International Trade in Endangered Species (CITES) issues, and desertification.

One of the clearest benefits of TBCAs is that of "levelling the playing field" among neighbouring states to manage natural resources. An example of this is the TBCA between the Tibet Autonomous Region of China and Nepal that spans the Quomolongma National Park in Tibet and the Langtang National Park, Makulu-Barun National Park and Kanchenjunga Conservation Area, and Sagarmatha National Park, all of which are located in Nepal; this TBCA

creates one of the world's largest networks of protected areas across international borders. With the help of The Mountain Institute, informal information exchange began between the two countries. Tibetan officials were able to gain from the expertise of the Nepalese wildlife and park officials to a point where there is now a sustained level of communication between the two nations related to natural resource management, tourism, and cultural exchanges (Sherpa, L., pers. comm. to J. Singh 1997).

For all the benefits possible, the formation of TBCAs is neither easy nor rapid. Long-term commitments from both partner nations and donors are necessary to re-evaluate historical perceptions of international boundaries. Some of the factors affecting TBCA formation are outlined in Section 2.7 below.

## 2.7 Factors That Encourage or Limit Success

In most cases, three major factors encourage the establishment of a TBCA. First, **broad political support and political will** are necessary for any kind of interstate cooperative endeavour. The success of efforts to establish peace parks in Central America was largely due to the support of political figures, including heads of state. Moreover, high-level demand to establish a political symbol of cooperation between neighbouring states enhances political support and will to establish TBCAs. Second, **sustained funding** for the variety of components is necessary for building capacity and sustaining the process of building TBCAs. Funding forms the core component of any program and, in many instances, directly correlates with the amount of political will and support. Third, **involvement of international agencies**, such as NGOs and intergovernmental organisations (IGOs), greatly contributes to the success of TBCA establishment by providing external sources of funding and support, as well as technical expertise.

The TBCA process should encourage broad participation of local communities and the general public. The process should not be seen as a "top down" process, but instead should be inclusive of, and transparent to, all stakeholders. The process should build upon the existing informal relationships between management authorities, community groups, and other groups and individuals. These informal operating systems may lead to more formalised agreements. The process is further assisted where there is already a high level of cooperation between bordering communities, local management authorities, and central government agencies.

Regional organisations and conventions are more effective in establishing TBCAs if driven by local consensus, rather than if directed by donors and third parties. For example, the Specially Protected Areas and Wildlife (SPA) Protocol in the Caribbean provides a number of key lessons, as follows:

- It adopts a two-tiered approach, whereby the general and common objectives are agreed upon but implementation is left to each state; implementation by each state is based on its level of economic development, resource capabilities, and dependence on the resources.
- It aims to facilitate technical and scientific research and mutual assistance without imposing strong obligations.

- It is based on the ecology of the region and the necessary criteria for the longevity of the ecosystem (de Fontaubert and Agardy 1998).

TBCAs that have a highly visible target species or scenic areas benefit from increased visibility, both in terms of donor and NGO involvement and in greater tourism revenue. For example, the presence of the endangered snow leopard and Marco Polo sheep and the efforts to protect them are strongly influencing the establishment of a TBCA between Pakistan and China. The target species focus has proven successful in many conservation and reintroduction projects. In addition, Weed (1994) states that designating parts of, or whole TBCAs as World Heritage Sites or Biosphere Reserves demonstrates, to local communities, the global importance of the resources; and instils a sense of pride that has tended to speed up the process. Increased international awareness, as well as increased donor funding, generally follows World Heritage designation.

From the above discussion, it is clear that formation of TBCAs is greatly impeded when the process **lacks political will and sustained funding**. States that have had strained relations for a number of years may not have the capacity or the sustained political will to undertake the lengthy negotiations required for establishing TBCAs. Assistance from NGOs, IGOs, and international conventions can significantly reduce these transaction costs by offering a forum for negotiation and funding. In areas where high opportunity costs favour present land-tenure patterns, it may be difficult for nations to alter consumption of natural resources patterns, especially if one state may not benefit as much from the TBCA as would a neighbouring state.

Another factor that slows or impedes TBCA formation is **unequal management capacity among neighbouring states**. While this factor does not prevent TBCA formation, it should be clear to donor agencies and partner nation(s) that there may need to be a considerable period of information sharing and capacity-building to enable equitable representation among the neighbouring states. In addition, problems may arise where protected areas on either side of a border have **different resource management regimes**. For example, a hunting block may border a strictly protected park. This unequal status raises important, and often difficult to resolve, issues related to resource conservation and utilisation.

TBCA formation is difficult where the **attitudes and perceptions of local communities are not supportive of conservation efforts**. TBCAs must have the support of the local communities as the benefits and costs are usually borne by them first.

Establishing a TBCA is a lengthy and complex process that cannot and should not be forced because of the large number of stakeholders involved. Many TBCAs may never get established because of the need for sustained political will over a number of years. Problems may arise with the differing interests and priorities of subsequent governments.

Where language and cultures differ, extensive capacity-building and awareness education need to be carried out for both the official and key members of local communities.

In conclusion, TBCA formation is still a new concept whose potential benefits are yet to be realised. Although it is too early to make any definitive statements, it can be said that, through TBCAs, the potential exists to foster political cooperation and sustainable cross-border ecosystem management.

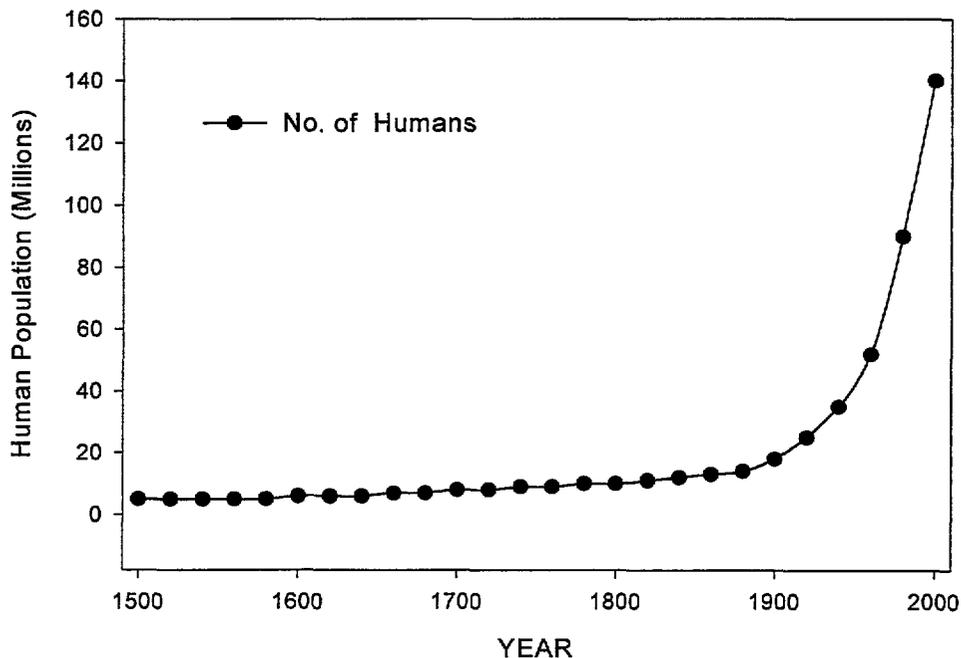
### 3. Overview of the Southern African Region in Relation to TBNRM

#### 3.1 Natural Resources, Land Use, and Conservation

In terms of evolution, the ecology of southern Africa has been, and continues to be, shaped by the dynamic interaction of rainfall patterns, temperature, vegetation, wildlife, and people. The rift valley, a dominant feature of the region, connects southern Africa to East Africa and provides a contiguous landscape for the vast diversity of megafauna and flora.

The last two millennia in Africa have been characterised, if not dominated, by human migrations and the invasion of livestock and the recent explosions of human and livestock populations in the region (Figure 1). Livestock first moved into Africa from the Middle East about seven thousand years ago and reached southern Africa about two thousand years ago (Denbow and Wilmsen 1986; Cumming 1982). Over the past one hundred years, the ecology of southern Africa, along with much of the global land surface, has also been shaped by large-scale farming and ranching, mineral extraction, introduction of alien species and diseases, and vast changes in water use and extraction.

**Figure 1. Human Population Growth in Southern Africa since c. 1500AD**  
(based on data from McEvedy 1980 and more recent regional data)



The following section focuses on key features of the ecology and land-use changes that have a bearing on conservation issues and the creation of TBCAs- in southern Africa.

### **3.1.1 Environmental overview**

The southern extension of the Rift valley shapes much of the region's topography. From Tanzania to the south, the Rift runs through Lakes Tanganyika and Malawi to the coast near Beira. A branch extends along the Luangwa Valley and the Middle Zambezi to reach the margins of the Okavango swamps in Botswana.

The narrow coastal plains of Tanzania and Mozambique give way to ranges of mountains that form a saucer-like rim on the east coast of Africa and extend southward to the Cape and northward along the west coast of Namibia and into the Angolan highlands. The interior of the region formerly held a vast internal drainage basin, giving rise to sedimentary deposits, such as the Karoo sandstones and the vast coal deposits in Botswana, South Africa, and Zimbabwe. The basin rim has been breached by the Orange River in the south, and the Limpopo and Zambezi rivers to the north, with the remnants of the ancient internal drainage basin now represented by the Okavango drainage basin (Map 2).

Rainfall patterns in the subregion change from winter rainfall in the Cape to a single summer rainfall season in the subtropics and a dual rainy season close to the equator in the northern half of Tanzania. Mean annual rainfall varies between <100 mm per annum on the west coast to >1,800 mm per annum in the eastern montane regions range (Map 3). A high proportion (about 60%) of the region receives less than 600 mm per annum and thus falls within the semi-arid to arid category, and most (> 75%) of the region is subhumid or drier.

Rainfall is often highly variable and seasonally unpredictable. As such, both food production and its subsequent benefit (financial return) to farmers is highly variable. Production systems that can buffer the vagaries of weather and its effects on primary production and animal production systems are thus at a premium. Systems based on tertiary service products, such as tourism, rather than primary production of crops or secondary production of meat and milk offer a realistic supplementary or alternative land-use option under variable arid and semi-arid conditions. This general principle is, or should be, an important consideration in land-use policy irrespective of whether areas suitable for wildlife use are adjacent to international boundaries and thus suitable for TBNRMA development.

### **Biodiversity**

The biodiversity "value" of a particular area is generally measured by the area's species richness (number of species), by its number or percentage of endemic species or genera (species found only in one area/region), as well as by ecosystem uniqueness and function. The vegetation communities of southern Africa are diverse, ranging from montane, Acacia woodland, mixed woodland, scrub, mixed grassland/ woodland, savanna, and arid scrub. Of the 20 vegetation regions in Africa defined by White (1983), 10 occur within southern Africa (Map 4). Of these, all except the unique Cape regional centre of endemism (Fynbos) (Region V) of South Africa occur across international boundaries. Five of the 10 regions have high rates of endemism ( $\geq 40\%$ ) (see Table 2).

**Table 2. Vegetation Regions within Southern Africa and Area Protected within Each Region**

|      | <b>Phytochorial Region<br/>(vegetation zone)</b> | <b>Area (km<sup>2</sup>)<br/>of Region*</b> | <b>Area (km<sup>2</sup>)<br/>Protected</b> | <b>Percent<br/>Protected</b> | <b>Percent<br/>Intact</b> |
|------|--|---|--|------------------------------|---------------------------|
| II   | Zambezian  | 3,939,100                                   | 306,435                                    | 7.7                          | 57                        |
| IV   | Somali-Masai                                     | 1,990,000                                   | 96,288                                     | 4.8                          | 52                        |
| V    | Cape   | 71,000                                      | 12,364                                     | 17.0                         | 40                        |
| VI   | Karoo Namib                                      | 692,600                                     | 48,510                                     | 7                            | 57                        |
| VIII | Afromontane                                      | 715,000                                     | 29,600                                     | 4.5                          | 37                        |
| X    | Guinea-Congolia/Zambezia<br>transition zone      | 705,000                                     | 2,600                                      | 0.3                          | 49                        |
| XII  | Lake Victoria Mosaic                             | 224,000                                     | 16,076                                     | 7.7                          | 16                        |
| XIII | Zanzibar-Inhambane regional mosaic               | 336,000                                     | 14,818                                     | 3.9                          | 38                        |
| XIV  | Kalahari-Highveld transition zone                | 1,223,000                                   | 92,839                                     | 7.2                          | 38                        |
| XV   | Tongoland-Pondoland regional mosaic              | 148,000                                     | 8,926                                      | 6.0                          | 46                        |
|      | <b>Total</b>                                     | <b>10,043,700</b>                           | <b>638,499</b>                             | <b>6.4</b>                   |                           |

\* Note: Some regions extend beyond the area of southern Africa defined in this report.

Source: MacKinnon and MacKinnon (1986).

From the point of view of TBNRMAs, important vegetation sites include the Zambezi source area (Zambia/Angola), Kaokoveld (Angola/Namibia), Succulent Karoo (Namibia/South Africa), "middle Rovuma River" (Mozambique/Tanzania), Maputaland Centre (South Africa, Swaziland, and Mozambique), Drakensberg Afro-alpine region (Lesotho/South Africa), and the Chimanimani Mountains (Mozambique/Zimbabwe)

Analyses of animal species richness at a continental scale have been published for butterflies (Carcasson 1964); passerine birds (Crowe and Crowe 1982); waterbirds (Guillet and Crowe 1985); plants, primates and ungulates (MacKinnon and MacKinnon 1986); and mammals (Turpie and Crowe 1994) (MAP 5). For butterflies, the highest levels of species richness in Africa occur in the region of Cameroon and, in southern Africa, along the Tanzanian coastal forest. The studies on birds and mammals show that the highest levels of species richness occur in Tanzania and the lowest in the desert region of Namibia and the northern Cape Province of South Africa. Combining the broad species distributions for mammals, birds, reptiles, and amphibians into a composite indicates that the highest levels of species richness occur along the Afro-montane belt and across into the Angolan highlands.

A key issue to emerge from the many studies of species richness distributions of particular taxa is that the "hotspots" for one taxonomic group seldom coincide with those of another (see Table 3). However on a broad scale, within southern Africa, the greatest species diversity is found in South Africa, Tanzania, and Mozambique (at least for those groups and criteria included in the analysis), while the lowest levels of diversity occur in Lesotho, Namibia, and Botswana (Map 6).

**Table 3. Baseline Data on Species Diversity and Endemism for Southern Africa**

| Criteria                | Country     |             |              |              |             |             |              |               |              |             |              |
|-------------------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|---------------|--------------|-------------|--------------|
|                         | Angola      | Botswana    | Lesotho      | Malawi       | Mozamb.     | Namibia     | S. A.        | Swazil.       | Tanzan.      | Zambia      | Zimbabwe     |
| Area (km <sup>2</sup> ) | 1246700     | 600372      | 30350        | 118484       | 783030      | 824292      | 1221040      | 17366         | 886040       | 752614      | 390245       |
| <b>No. species:</b>     |             |             |              |              |             |             |              |               |              |             |              |
| Mammals                 | 276         | 154         | 33           | 187          | 179         | 154         | 247          | 47            | 310          | 229         | 196          |
| Birds                   | 872         | 569         | 288          | 630          | 666         | 640         | 774          | 496           | 1016         | 732         | 634          |
| Reptiles                | 150         | 143         | 50           | 124          | 170         | 140         | 301          | 106           | 273          | 160         | 156          |
| Amphibians              | 80          | 36          | 35           | 69           | 62          | 32          | 95           | 39            | 121          | 83          | 120          |
| Fish                    | 268         | 81          | 8            | 600          | 500         | 97          | 220          | 45            | 250          | 156         | 132          |
| Flowering Plants        | 5000        | 2000        | 1576         | 3600         | 5500        | 3159        | 20300        | 2636          | 11000        | 4600        | 6000         |
| <b>Total:</b>           | <b>6646</b> | <b>2983</b> | <b>1990</b>  | <b>5210</b>  | <b>7077</b> | <b>4222</b> | <b>21937</b> | <b>3369</b>   | <b>12970</b> | <b>5960</b> | <b>7238</b>  |
| <b>Species Density:</b> | <b>5.33</b> | <b>4.97</b> | <b>65.57</b> | <b>43.97</b> | <b>9.04</b> | <b>5.12</b> | <b>17.97</b> | <b>194.00</b> | <b>14.64</b> | <b>7.92</b> | <b>18.55</b> |
| <b>No. Endemics:</b>    |             |             |              |              |             |             |              |               |              |             |              |
| Mammals                 | 4           | 0           | 0            | 0            | 2           | 0           | 4            | 0             | 12           | 6           | 2            |
| Birds                   | 0           | 0           | 0            | 0            | 0           | 0           | 4            | 0             | 13           | 1           | 0            |
| Reptiles                | 0           | 0           | 0            | 5            | 1           | 0           | 116          | 0             | 48           | 0           | 0            |
| Amphibians              | 20          | 0           | 2            | 4            | 2           | 2           | 49           | 0             | 40           | 1           | 2            |
| Fish                    | 0           | 0           | 1            | 450          | 400         | 0           | 0            | 0             | 230          | 0           | 1            |
| Flowering Plants        | 1260        | 17          | 2            | 69           | 219         | 45          | 18000        | 4             | 110          | 211         | 95           |
| <b>Total:</b>           | <b>1284</b> | <b>17</b>   | <b>5</b>     | <b>528</b>   | <b>624</b>  | <b>47</b>   | <b>18173</b> | <b>4</b>      | <b>453</b>   | <b>219</b>  | <b>100</b>   |

### Distribution of endangered and “flagship” species

The distribution of certain key or “umbrella” large mammal species has a bearing, both ecologically and economically, on the development of TBCAs and corridors linking existing protected areas. Reasonably accurate range maps are available for such species as elephant, rhinoceros, cheetah, wild dog, buffalo, and the full range of antelope species in the region (East 1989; Skinner and Smithers 1990) (see Maps 7 and 8). In several areas, important populations of these species straddle international borders and, in some instances, movements are constrained by game fences. In most cases, these fences have been erected to control animal movements as a component of animal disease control measures to protect the livestock industry and with little, if any, consideration of the ecology or conservation of wild species in these areas (see Section 3.1.5).

### 3.1.2 Trends in land and natural resource use

Africa has long been shaped by the presence of humans, and the recent human-induced species extinctions in mammalian faunas, which have occurred elsewhere in the world in the last 50,000 years (e.g., America, Europe, Australia, and New Zealand), have not occurred on this continent (Diamond 1997). Local extinctions are, however, on the increase as human activities (agriculture, forestry, mining, reservoirs, urban development) transform habitats and displace indigenous plant and animal species. The management of arid and semi-arid areas in southern Africa for subsistence cropping and extensive livestock production shows little promise of being sustainable at the present, let alone at projected human densities (Jahnke 1982; Cumming and Bond 1991; Cumming and Lynam 1997), despite much recent argument to the

contrary. At the same time, protected areas are also under siege. Declining and inadequate funding (Cumming, du Toit, and Stewart 1990), impaired resources to protect and manage national parks (Leader-Williams 1988; Leader-Williams and Albon 1988), overpopulation of certain species, such as elephants that impact on habitats and other species (Cumming et al. 1997), and loss of species due to increasing ecological isolation of protected populations (Soule, Wilcox, and Holtby 1979; Western and Gichohi 1993) all contribute to the growing list of threats to standard approaches to protected area management. The crux of the issue is whether rural development has to continue to follow the path of transforming land and displacing biodiversity or whether there are alternative paths to rural development, particularly for farmers on marginal lands, that can take advantage of Africa's comparative advantage in its spectacular wildlife. Land-use decisions have a direct bearing on TBNRMAs and this section examines some of the ecological land-use and natural resource use trends that have a bearing on these issues. From an ecological and conservation perspective, the time to look "beyond parks" is long overdue.

### **Development of dual agricultural systems**

Dominant features of land-use and land-use change in southern Africa during the present century have been rapid human population growth; establishment of dual agricultural sectors (i.e., widely separated commercial and peasant agricultural systems and services), particularly in South Africa, Namibia, and Zimbabwe; development of single-species ranching systems with fenced paddocks; and deployment of major resources in subsidies and veterinary controls to support the livestock industry. Although less land was involved in establishing dual agricultural systems in Angola, Malawi, Mozambique, Tanzania, Zambia, and parts of Botswana, the process nevertheless resulted in major distinctions between large-scale agri-business (plantation) developments and peasant, subsistence agriculture. With tenfold increases in human populations since 1900, combined with low levels of urbanisation and a high dependence on wood fuel, dual agricultural systems have contributed to the impoverishment of small-scale farmers and the conversion of large areas of land to subsistence agriculture. Land transformation in South Africa has been described by Downing (1978), MacDonald (1989), and Mentis and Seija (1993) and the changes in policy and practice in land use in Zimbabwe have been reviewed by Murphree and Cumming (1993). The current areas of land under different types of tenure in the region are presented in Map 9 and summarised in Table 4.

### **Trends in crop and livestock production**

Human population growth since the middle of the twentieth century has been accompanied by declines in indicators of human welfare, such as per capita food production. In keeping with the combination of low soil fertility in the more humid parts of the region, low rainfall where soils tend to be more fertile, and the generally infertile soils of the region, only 5% of southern Africa is under cultivated or permanent crop land. This area is close to the generally accepted level for the region of 5-7% arable land and the arable area per person has declined from 0.6 ha per person in 1961 to 0.27 per person in 1993. At a country level, Malawi is the highest at 14% cultivated, while Botswana is the lowest at 0.7%. Only 0.28% of the region is under irrigation, the highest level occurring in Swaziland at 3.9%, followed by South Africa at 1.1%. The potential for expansion of arable land, other than into marginal areas, is limited.

**Table 4. Land Categories, Human Population Size and Growth, and Agricultural and Energy Indicators in Southern Africa**

| Pop./Dev./Land use          | ANGOLA    | BOTSWANA  | LESOTHO | MALAWI   | MOZAMBIQUE | NAMIBIA   | S. AFRICA   | SWAZILAND | TANZANIA  | ZAMBIA    | ZIMBABWE  | TOTALS     |
|-----------------------------|-----------|-----------|---------|----------|------------|-----------|-------------|-----------|-----------|-----------|-----------|------------|
| Area (Km2)                  | 1,246,700 | 600,372   | 30,350  | 118,484  | 783,030    | 824,292   | 1,221,040   | 17,366    | 886,040   | 752,614   | 390,245   | 6,870,533  |
| Land tenure:                |           |           |         |          |            |           |             |           |           |           |           |            |
| State land (%)              | 6.6       | 23.0      |         | 17.0     | 4.1        | 15.0      | 4.6         | 1         | 14.5      | 7.9       | 16.0      | 10.51      |
| Communal land (%) (Note 1)  | 88.0      | 71.0      |         | 78.7     | 93.0       | 40.0      | 13.0        | 60        | 84.0      | 89.0      | 48.6      | 64.86      |
| Private farm land (%)       | 5.4       | 6.0       |         | 4.3      | 2.9        | 45.0      | 73.4        | 39        | 1.5       | 3.1       | 35.4      | 23.17      |
| Human population (1990):    |           |           |         |          |            |           |             |           |           |           |           |            |
| Numbers (millions)          | 10.01     | 1.3       | 1.80    | 7.9      | 15.5       | 1.16      | 35.8        | 0.8       | 26.0      | 7.6       | 10.1      | 117.97     |
| Growth rate                 | 2.67      | 3.51      | 2.85    | 3.31     | 2.65       | 2.66      | 2.2         | 3.4       | 3.67      | 3.76      | 3.15      | 3.08       |
| Ha per person               | 12.5      | 46.2      | 1.7     | 1.5      | 5.1        | 71.1      | 3.4         | 2.2       | 3.4       | 9.9       | 3.9       | 5.8        |
| Rural Pop. (% total)        | 71.7      | 76.4      | 79.70   | 85.2     | 75.2       | 75        | 41.5        | 66.9      | 70.7      | 44.4      | 72.4      | 62.2       |
| Ha per rural person         | 17.4      | 60.4      | 2.1     | 1.8      | 6.7        | 94.7      | 8.2         | 3.2       | 4.8       | 22.3      | 5.3       | 9.4        |
| Agriculture:                |           |           |         |          |            |           |             |           |           |           |           |            |
| Arable land (km2)           | 35,000.0  | 13,600.0  | 3200    | 23,330.0 | 30,800.0   | 6,570.0   | 134,730.0   | 1800      | 52,300.0  | 52,080.0  | 2,782.0   | 356192.00  |
| Area under Tsetse fly       | 419,781.0 | 3,000.0   | 0       | 13,737.0 | 388,318.0  | 1,471.0   | 3,583.0     | 0         | 354,416.0 | 367,137.0 | 21,366.0  | 1572809.00 |
| Grazing land                | 709,612.0 | 479,819.0 | 25000   | 68,795.0 | 331,662.0  | 709,125.7 | 1,026,227.0 | 15000     | 479,324.0 | 273,946.0 | 316,679.0 | 4435189.70 |
| Cattle (1,000's)            | 3,350.0   | 2,900.0   | 530     | 910.0    | 1,450.0    | 2,000.0   | 12,215.0    | 660       | 14,000.0  | 2,400.0   | 5,800.0   | 46215.00   |
| Sheep & Goats (1,000's)     | 1,200.0   | 965.0     | 2490    | 859.0    | 469.0      | 8,300.0   | 36,111.0    | 362       | 10,200.0  | 392.0     | 1,600.0   | 62948.00   |
| TLU's per km2               | 5.2       | 6.6       | 50.5    | 16.9     | 4.8        | 6.3       | 22.3        | 51.1      | 35.5      | 9.2       | 19.8      | 14.6       |
| Energy:                     |           |           |         |          |            |           |             |           |           |           |           |            |
| Per Capita Consumption (GJ) | 14.9      | 27.3      | ?       | 26.8     | 26.9       | ?         | ?           | ?         | 24.5      | 26.1      | 33.0      |            |
| Wood fuel as % total fuel   | 77.3      | 56.1      | ?       | 94.3     | 89.1       | ?         | ?           | ?         | 91.4      | 58.3      | 52.0      |            |

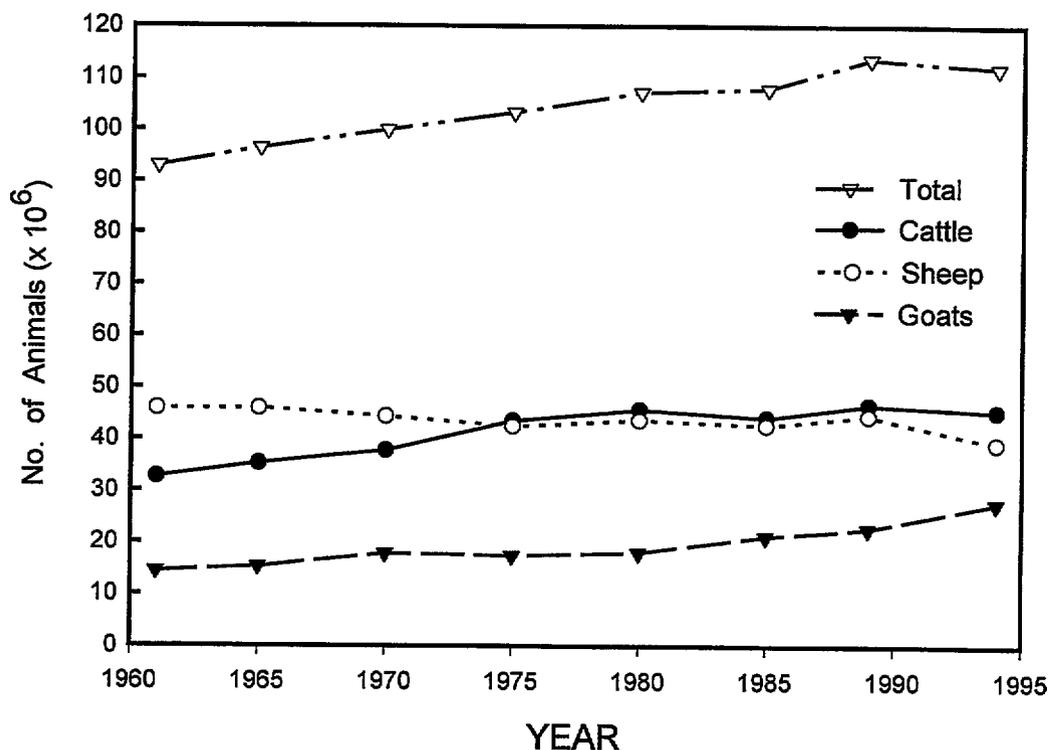
Note: Communal Land refers to land under traditional use or tenure and occupied by small-scale, often subsistence, farmers. In some countries in the region "Communal Land" is legally "State Land" (e.g. in Mozambique and Zimbabwe). State land includes protected areas and agricultural estates managed by the state and where occupation and use by peasant farmers is largely precluded.

Source: Partially updated from Cumming (1991).

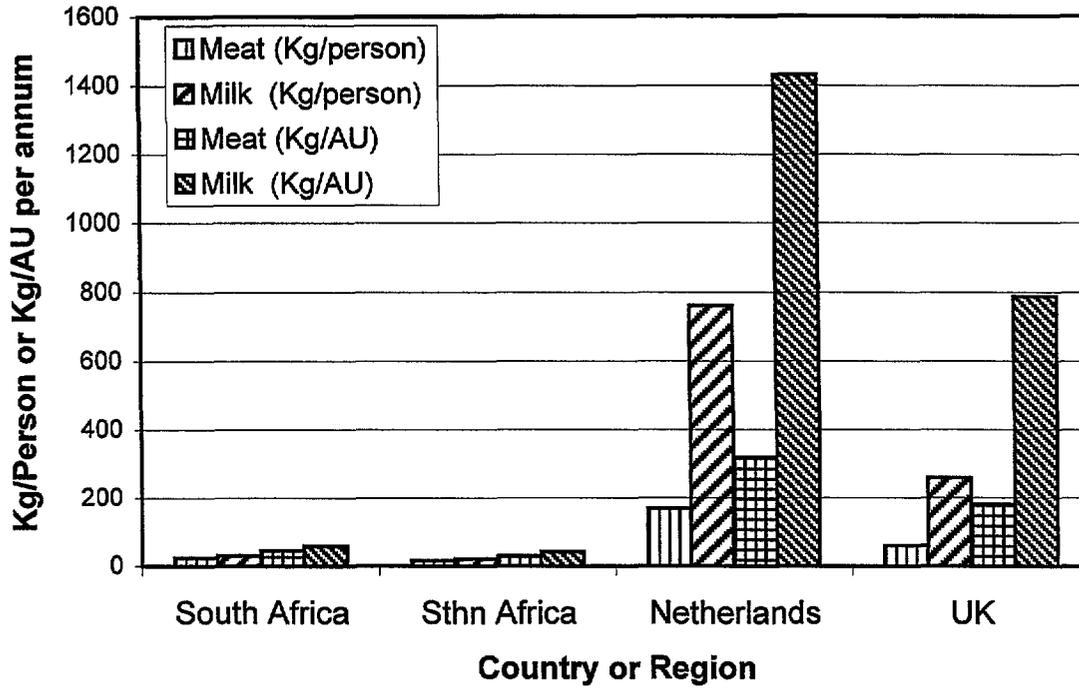
The production of cereals and root crops (maize, sorghum, millet, and cassava; which form the primary staple food) has increased since 1961, but has not kept pace with population growth. Much of the problem relates to inappropriate land use and subsidies to farmers (both peasant and commercial) to cultivate marginal lands. In addition, many of the major cash crops (tobacco, cotton, copra, coffee, tea, citrus, grapes, bananas, palm oil, and sugar) are mostly grown in fertile areas with higher rainfall or under irrigation and under large-scale commercial operations. These operations often require increased water usage and conversion of forest (often key water catchments) into agricultural land. For example, the extension of large- and small-scale tobacco farming involving estates and tenant farmers in Malawi and Tanzania has greatly increased the rate of land clearance and wood fuel harvesting (to cure the tobacco) over the last two decades (Temu 1979; Misana, Mung'ong'o, and Mukamuri 1996).

Within southern Africa as a whole, there are now fewer livestock units than people in the region (i.e., for each person in southern Africa, there is less than one livestock unit). Furthermore, the overall number of livestock in the region has shown little growth over the last three decades (Figure 2). The very real and serious constraints to livestock production in the region are linked to fundamental aspects of soil nutrient status and quality of food for livestock. European livestock production is nearly 20 times greater than that of southern Africa in regard to levels of meat and milk production per animal and per person. This disparity in production efficiency serves to emphasise that southern Africa's comparative advantage in world markets clearly does not lie in domestic livestock production (see Cumming and Bond 1991 and Figure 3). Nevertheless, domestic animals dominate the southern African landscape and the biomass densities of wild ungulates are about one tenth those of domestic livestock for nearly all countries in the SADC region (Figure 4).

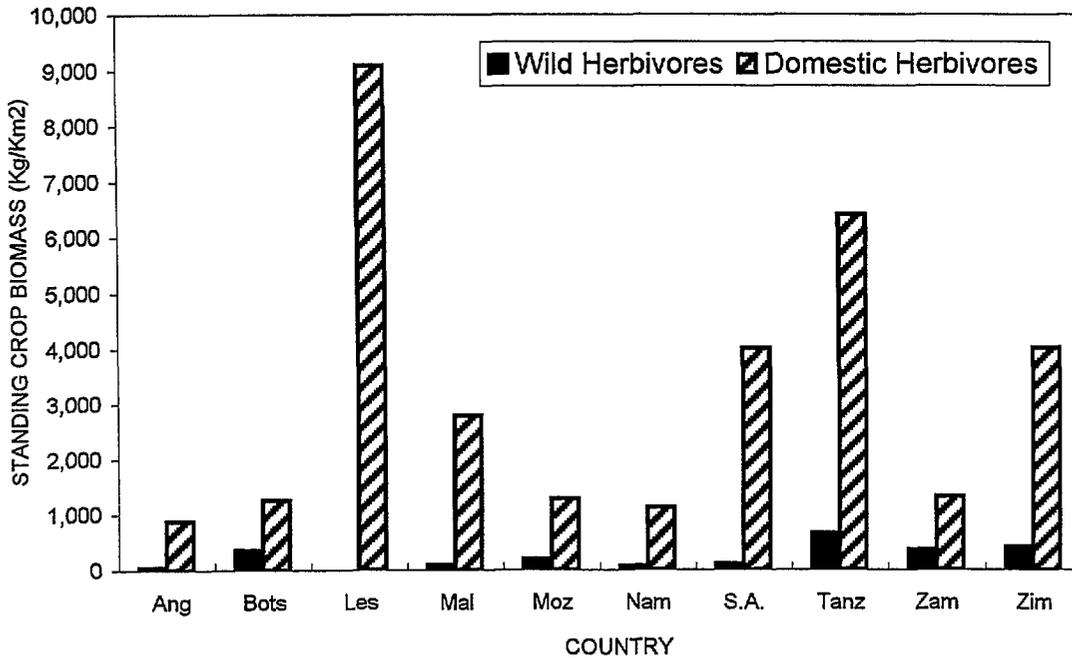
**Figure 2. Trends in Livestock Numbers for Southern Africa 1961-1994**  
(updated from Cumming 1991)



**Figure 3. Animal Production Levels in Southern Africa and Europe**  
(from Cumming and Bond 1991)



**Figure 4. Comparison of Standing Crop Biomass of Domestic Livestock and Wild Herbivores in Southern African Countries** (from Cumming and Bond 1991)

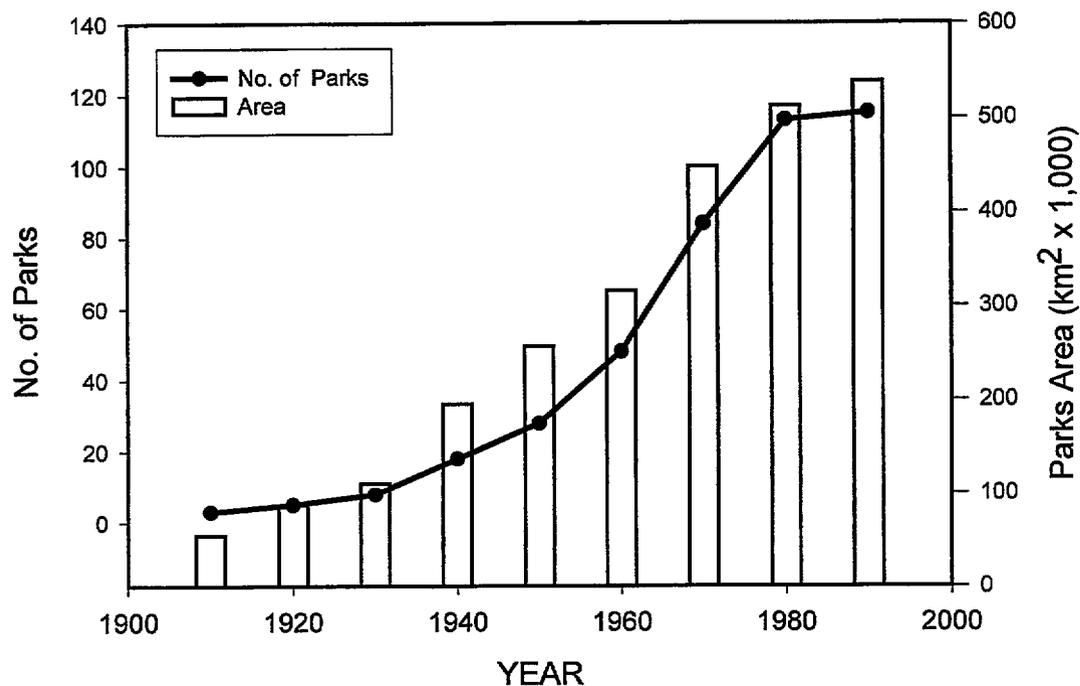


Given the declining fortunes of livestock production in much of southern Africa, it is not surprising that, where appropriate institutions exist for farmers to turn to wildlife as a land use, this option has been increasingly used (Cumming 1991, 1995). Countering this view are arguments that livestock have an intrinsic cultural value that does not extend to game animals and that accounts for high stocking rates and low levels of commercial exploitation of livestock by communal farmers. While strong cultural traditions with respect to livestock do exist in many ethnic groups in the region, the persistent myths surrounding the “Bantu Cattle complex” (Herkovits 1926) as an explanation for livestock keeping and management practices have been discredited (e.g., Mtetwa 1978; Doran, Low, and Kemp 1979; Low, Kemp, and Doran 1980; Steele 1981). Past and current livestock practices in communal farming areas of the region reflect financially efficient and risk-averse strategies at the individual and household level under prevailing national economic and agricultural policies (e.g., Buchan 1988; Barrett 1992).

### 3.1.3 Protected areas and other land under wildlife, forestry, and fisheries

The area and number of national parks and game reserves in southern Africa have grown exponentially over the last century (Figure 5) while, at the same time, the average size of protected areas declined with the addition of generally smaller areas. The largest national average size of protected area occurs in Tanzania (about 4,800 km<sup>2</sup>), while the smallest occurs in South Africa (about 370 km<sup>2</sup>). The extent of communal, private lands, and state protected areas in the region is summarised in Table 5.

**Figure 5. Growth of Protected Areas in Southern Africa 1900-1997**  
(redrawn and updated from Cumming 1990)



**Table 5. Communal Land, Private Land, and Protected Areas Available to Wildlife in Southern African Countries**

| Wildlife Mgmt./Conservation          | ANGOLA   | BOTSWANA  | LESOTHO | MALAWI   | MOZAMBIQUE | NAMIBIA   | S. AFRICA | SWAZILAND | TANZANIA  | ZAMBIA    | ZIMBABWE | TOTALS    |
|--------------------------------------|----------|-----------|---------|----------|------------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| <b>Communal land:</b>                |          |           |         |          |            |           |           |           |           |           |          |           |
| Game area (km2)                      | ?        | 120,074.4 | 0.0     | 0.0      | 1.0        | 50,000.0  | 0.0       | 0.0       | 90,000.0  | 160,488.0 | 12,000.0 | 432563.4  |
| % of communal land                   | ?        | 28.2      | 0.0     | 0.0      | 0.0        | 15.2      | 0.0       | 0.0       | 12.1      | 24.0      | 6.3      | 21.15     |
| <b>Private land:</b>                 |          |           |         |          |            |           |           |           |           |           |          |           |
| Game area (km2)                      | ?        | 1,000.0   | 0.0     | 0.0      | 0.0        | 22,725.0  | 160,000.0 | 45.5      | 0.0       | 0.0       | 28,000.0 | 211770.5  |
| % Private land                       | 0.0      | 2.8       | 0.0     | 0.0      | 0.0        | 6.1       | 17.9      | 0.7       | 0.0       | 0.0       | 20.3     | 16.86     |
| No. farms                            | ?        | 5.0       | 0.0     | 0.0      | 4.0        | 450.0     | 8,500.0   | 1.0       | 0.0       | 0.0       | 187.0    |           |
| % of farms                           | ?        | 2.5       | 0.0     | 0.0      | 0.0        | 8.2       | 7.1       | ?         | 0.0       | 0.0       | 4.7      |           |
| <b>State land (protected areas):</b> |          |           |         |          |            |           |           |           |           |           |          |           |
| Total area (km2)                     | 82,307.0 | 103,953.0 | 68.1    | 12,622.0 | 32,250.0   | 107,125.3 | 56,500.0  | 49.8      | 134,881.0 | 59,451.0  | 49,418.0 | 638625.2  |
| % of country                         | 6.6      | 17.3      | 0.2     | 10.7     | 4.1        | 13.0      | 4.6       | 0.3       | 15.2      | 7.9       | 12.7     | 11.62     |
| No. protected areas                  | 13.0     | 9.0       | 1.0     | 21.0     | 9.0        | 13.0      | 153.0     | 5.0       | 15.0      | 19.0      | 30.0     |           |
| Mean size (km2)                      | 6,331.3  | 11,550.3  | 68.1    | 601.0    | 3,583.3    | 8,240.4   | 369.3     | 10.0      | 8,992.1   | 3,129.0   | 1,647.3  |           |
| Total area under wildlife            | ?        | 225,027.4 | 68.1    | 12,622.0 | 32,251.0   | 179,850.3 | 216,500.0 | 95.3      | 224,881.0 | 219,939.0 | 89,418.0 | 1200652.1 |
| % of country                         | ?        | 37.5      | 0.2     | 13.4     | 4.1        | 21.8      | 17.7      | 0.5       | 25.4      | 29.2      | 22.9     | 25.56     |

**Source: Partially updated from Cumming (1991).**

The development of game ranching in southern Africa was greatly encouraged by the work of Fullbright scholars (Dasmann, Mossman and Riney) during the late 1950s and early 1960s and then later by changes in legislation in South Africa, Namibia, and Zimbabwe during the 1970s. These developments led to the rapid expansion of game ranching and sport hunting on private properties (Cumming 1991, 1993) with the more recent developments of larger conservancies, where several private ranchers have established common or joint management regimes for their wildlife and removed intervening fences (du Toit 1992). The extension of wildlife as a land use to communal areas of the region followed in the 1990s with the establishment of several CBNRM programs in the region.

Some indications of long-term trends may be gained from the changes toward wildlife as a land use in Zimbabwe, particularly in northwestern Zimbabwe where the area under wildlife has increased from 10,000 km<sup>2</sup> in 1930 (when Hwange Game Reserve was proclaimed) to more than 20,000 km<sup>2</sup> today, involving several land categories, namely, national parks, safari areas, forestry areas, private land, and communal land (Cumming 1993). Substantial wildlife conservancies have developed in Zimbabwe, where about 22% of the county's land is under wildlife with nearly half of this area being outside the national parks and wildlife estate (Cumming 1993).

These changes in land-use, along with the network of gazetted conservation areas, indicate the potential for broadening conservation areas across borders. Some of the potential and actual areas for TBCAs/TBNRMAs are presented in Map 10. Additional sites, including CBNRM areas, need to be considered as well. The process of choosing areas for CBNRM will differ by area and will depend on stakeholder interests and goals. A checklist of the criteria for rating areas for their TBNRM potential has been started (Cumming 1999). Some of the criteria include measures of: existing land-use designations, agricultural potential, habitat diversity, species richness, amount of threatened species or habitat, cultural importance, scenic values, tourism potential, and indigenous use importance. While useful in compiling information, it is recognised that these measures are only a tool; and that the TBCA/TBNRMA process is driven by a complex combination of ecological, cultural, economic, and political issues.

### **Trends in large wild mammal populations**

The period from 1600 to 1890 saw increasing and unsustainable harvesting of wildlife products from southern Africa. Ivory, hides, and ostrich plumes were in particular demand. Most populations of ungulates and rhinos had dwindled to low levels by 1900 largely as a result of the widespread use of firearms and commercial exploitation linked to the colonisation of the region (Mackenzie 1988). During the 1890s, rinderpest, the ungulate equivalent of measles, reached southern Africa from the Arabian Peninsula and devastated livestock and wildlife populations in the region. The epidemic dealt the final blow to many already overexploited ungulate populations, particularly in South Africa. The extinction of elephant, as result of overhunting, was anticipated south of the Zambezi (Bryden 1903). The collapse of wildlife populations over large areas and the establishment of colonial governments set the stage for the establishment of the first game reserves and hunting areas, which later became national parks.

Elephant populations have recovered from extremely low levels in 1900 to more than 250,000 in southern Africa today (Said et al. 1995; Craig 1997). By the mid-1960s, their numbers in protected areas had reached such high densities that woodlands were being destroyed and many agencies in the region implemented culling programs to control population

growth (Laws 1970; Anderson and Walker 1974; Cumming 1980; Spinage 1990; Hall-Martin 1992; Martin, Craig, and Booth 1989; Cumming et al. 1997). High levels of poaching during the 1980s in Tanzania (Douglas-Hamilton 1987) and Zambia (Jachmann and Billiouw 1997) resulted in marked reductions in the elephant populations in those countries that are now recovering. Elephant populations in southern Africa are presently thriving.

The fate of black rhino has been less fortunate. The continental population declined drastically during the twentieth century, especially during the 1970s and 1980s. During the period from 1990 to 1992, the population in Zimbabwe declined from some 2,000 to nearly 300 due to rampant poaching from which it is slowly recovering.

Overall, the trends in large ungulate populations in the region are down. Only 25% of the species listed in Table 6 are unequivocally rated as increasing, and in only two countries (Namibia and South Africa) are 50% or more of the listed species rated as increasing. In most countries of the region, the number of species rated as increasing is less than 25%, and, in some countries (Angola, Lesotho, Mozambique, and Tanzania), none are rated as increasing. These data suggest that the status of large wild mammals in the region is generally declining and that their conservation requires far greater attention than it has been receiving.

All of the potential TBCAs/TBNRMAs (Map 10) can play a significant role in enhancing wild herbivore populations that might otherwise be constrained by fences or small ranges within existing parks (Table 7). The number of species that would benefit from having larger areas across which to move, or which are likely to benefit from moving across international boundaries, or both, varies between 3 species in the Drakensberg to more than 14 species in the Chobe/Hwange area. The number of potential TBNRMAs involved in enhancing space for particular species varies from 3 areas in the case of Nyala to 13 for Eland, with zebra, buffalo, wildebeest, and impala populations benefiting in 10 or more potential TBNRMAs.

## **Indigenous Forests and Woodlands**

The development of game reserves and related protected areas for large wild mammals was accompanied by an essentially similar movement in several countries in the region to preserve areas of indigenous woodland that were perceived as valuable timber resources or mountainous areas in the headwaters of catchments where water catchment protection was important. Forest reserves were also established in an attempt to reduce the uncontrolled "mining" of valuable timber resources (Judge 1993; Pearce and Gumbo; 1993). For the most part, forest reserves tend to be smaller than game reserves and cover a smaller total area (see Map 11). They have also been more prone to illegal resource exploitation and the area under protection within the region is probably diminishing rather than increasing.

Fuelwood and charcoal probably constitute the greatest direct use of woodland resources in the region and, as indicated in Table 4, wood fuel provides about 75% of per capita energy consumption. The reason for this high proportion is that the majority of people (> 60%) live in rural areas without access to electricity or other energy resources for cooking and heat. Current levels of harvesting (and growth in levels of woodland harvesting) are unlikely to be sustainable.

**Table 6. Numbers and Trends of the Larger Ungulates in Southern Africa**

| Species                       | Number    | Reg.   | Country Status |     |     |     |     |     |     |     |     |     |     |
|-------------------------------|-----------|--------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                               |           | Status | An             | Bw  | Le  | Ma  | Mz  | Na  | SA  | Sw  | Tz  | Zm  | Zw  |
| Elephant                      | 300,000   | I      | d              | i   | -   | s   | s/i | i   | i   | -   | s/i | s/i | i   |
| White Rhino                   | 8,300     | I      | -              | i   | -   | -   | -   | i   | i   | i   | -   | i   | i   |
| Black Rhino                   | 2,218     | S/I    | ex             | ex  | -   | d   | d   | i   | i   | ?   | s/d | ex  | i   |
| Hippo                         | 95,000    | ?      | ?              | s   | ?   | ?   | ?   | s   | s   | ?   | ?   | s/i | s   |
| Warthog                       | 250,000   | ?      | ?              | ?   | ?   | ?   | ?   | ?   | ?   | ?   | ?   | s   | i   |
| Bushpig                       | 200,000   | ?      | ?              | ?   | ?   | ?   | ?   | ?   | ?   | ?   | ?   | s   | s   |
| Burchell's Zebra              | 492,000   | S/D    | ?              | d   | ex  | s/d | ?   | s   | i   | s/i | s/d | d   | s/i |
| Mountain Zebra                | 8,000     | I      | ex?            | -   | -   | -   | -   | i   | i   | -   | -   | -   | -   |
| Giraffe                       | 61,720    | S      | ex             | s/i | -   | -   | ex? | i   | s/i | s/i | s/d | s/d | s/i |
| Buffalo                       | 470,000   | D      | d              | d   | -   | s   | d   | s/d | i   | s/i | s/d | s/d | s   |
| Bushbuck                      | 106,000   | S/D    | d              | s   | ex? | s/d |
| Sitatunga                     | 20,000    | S      | s/d            | s/i | -   | -   | ?   | s/i | -   | -   | s/d | s/d | ?   |
| Nyala                         | 30,000    | S/I    | -              | i   | -   | i   | d   | s/i | i   | s/i | -   | -   | ?   |
| Lesser Kudu                   | 3,000     | S/D    | -              | -   | -   | -   | -   | -   | -   | -   | s/d | -   | -   |
| Greater Kudu                  | 300,000   | S/I    | d              | s   | -   | s/d | d   | i   | i   | s/d | S?  | s/d | s/d |
| Eland                         | 100,000   | S?     | d              | s   | ?   | s/i | d   | i   | i   | d   | s/d | d   | s/i |
| Bohor R'buck                  | 37,000    | D      | -              | -   | -   | -   | -   | -   | -   | -   | d   | -   | -   |
| Sthn R'buck                   | 33,000    | S      | d              | s/i | -   | s/d | d   | i   | i   | s/i | s/d | s/d | s/d |
| Mtn R'buck                    | 32,000    | S/D    | -              | ?   | d   | -   | ?   | -   | s/d | s   | s/d | -   | -   |
| Puku                          | 75,000    | D      | d              | s/d | -   | s/i | -   | ?   | -   | -   | s/d | d   | -   |
| Waterbuck                     | 52,000    | D      | d              | s/i | -   | d   | d   | ?   | i   | s/i | s   | s/d | s/i |
| Black Lechwe                  | 30,000    | S      | -              | -   | -   | -   | -   | -   | -   | -   | -   | s   | -   |
| Kafue Lechwe                  | 65,000    | I      | -              | -   | -   | -   | -   | -   | -   | -   | -   | i   | -   |
| Red Lechwe                    | 71,000    | D      | d              | s/d | -   | -   | -   | d   | -   | -   | -   | ?   | -   |
| Rhebok                        | 10,000    | S/D    | -              | -   | ?   | -   | -   | -   | s/d | s/d | -   | -   | -   |
| Red Hartebeest                | 108,000   | I      | ex             | s/i | -   | -   | -   | i   | i   | s   | -   | -   | i   |
| Lichtenstein's Hb             | 36,000    | S/D    | -              | -   | -   | ?   | s/d | -   | ?   | -   | s/d | d   | i   |
| Bontebok                      | 2,300     | S/I    | -              | -   | -   | -   | -   | -   | i   | -   | -   | -   | -   |
| Blesbok                       | 237,000   | I      | -              | s/i | s/i | -   | -   | i   | s/i | s   | -   | -   | s/i |
| Tsessebe                      | 85,000    | I      | d              | s   | -   | -   | ex? | i   | s/i | -   | d   | s   | i   |
| Blue Wildebeest               | 1,183,000 | D      | d              | s   | -   | -   | d   | s/i | i   | -   | d   | d   | s/i |
| Black Wildebeest              | 18,000    | I      | -              | -   | s/i | -   | -   | i   | s/i | s   | -   | -   | -   |
| Roan                          | 14,650    | D      | d              | s/d | -   | s/i | ?   | i   | s/i | ?   | s/d | d   | s/d |
| Sable                         | 53,000    | S/I    | d              | s/d | -   | s/i | s/d | i   | ?   | ?   | s/d | d   | i   |
| Gemsbok                       | 326,650   | I      | ex?            | i   | -   | -   | -   | i   | i   | -   | -   | -   | s/i |
| Impala                        | 1,500,000 | S/I    | d              | s   | -   | s/i | s/d | i   | s/i | s/i | s/d | s/d | s   |
| Black faced Impala            | 2,200     | S/I    | d              | -   | -   | -   | -   | i   | -   | -   | -   | -   | -   |
| Gerenuk                       | ?         | D      | -              | -   | -   | -   | -   | -   | -   | -   | ?   | -   | -   |
| Th. Gazelle                   | 390,000   | D      | -              | -   | -   | -   | -   | -   | -   | -   | s/d | -   | -   |
| Grant's Gazelle               | 35,000    | D      | -              | -   | -   | -   | -   | -   | -   | -   | s/d | -   | -   |
| Springbok                     | 670,000   | I      | d              | s   | -   | -   | -   | i   | s/i | -   | -   | -   | -   |
| Number of species present (a) |           | 41     | 25             | 28  | 9   | 18  | 21  | 30  | 30  | 22  | 27  | 25  | 25  |
| Number of species increasing  |           | 10     | 0              | 4   | 0   | 1   | 0   | 18  | 15  | 5   | 0   | 2   | 8   |
| % of species increasing       |           | 24%    | 0%             | 14% | 0%  | 5%  | 0%  | 60% | 50% | 5%  | 0%  | 8%  | 32% |

Note: Status for the region as a whole and for each country is indicated (symbols: i = increasing, s = stable, d = decreasing, ? = status uncertain or unknown, ex = extinct). Data for antelope, giraffe, and zebra are summarised from East (1998); data for pachyderms are from African elephant and rhino specialist group reports; and data for hippo are from Oliver (1993).

**Table 7. Occurrence of Fences and Likely Movement of Selected Large Herbivores across International Boundaries for Potential TBCAs/TBNRMAs in Southern Africa**

| Area #         | Transboundary Area <sup>1</sup> | Fence <sup>2</sup> | TBM <sup>3</sup> | Ele      | WRh      | BRh      | Hip      | Gir      | Ze        | Buf       | Wbst      | Imp       | Gmb      | Ku        | Ela       | Spbk     | Wbk      | Nya      | Roan     | Sa       | Hb       | # Sp. |
|----------------|---------------------------------|--------------------|------------------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|----------|----------|----------|----------|----------|-------|
| 1              | Iona/Skeleton Coast             | 0                  | 1                | 1        | 0        | 1        | 0        | 1        | 1         | 0         | 0         | 1         | 1        | 0         | 0         | 1        | 0        | 0        | 0        | 0        | 0        | 7     |
| 2              | Caprivi/Sioma/Luiana            | 1                  | 1                | 1        | 0        | 0        | 1        | 1        | 1         | 1         | 1         | 1         | 0        | 1         | 1         | 0        | 0        | 0        | 0        | 0        | 0        | 9     |
|                | Chobe/Hwange                    | 1                  | 1                | 1        | 1        | 1        | 0        | 1        | 1         | 1         | 1         | 1         | 1        | 1         | 1         | 0        | 0        | 0        | 1        | 1        | 1        | 14    |
|                | Kaudom/Caprivi/WMA in Bw        | 1                  | 1                | 1        | 0        | 0        | 0        | 1        | 1         | 1         | 1         | 1         | 1        | 1         | 1         | 1        | 1        | 0        | 1        | 1        | 0        | 13    |
| 3              | Gemsbok/Kalahari                | 0                  | 1                | 0        | 0        | 0        | 0        | 1        | 1         | 0         | 1         | 0         | 1        | 0         | 1         | 1        | 0        | 0        | 0        | 0        | 0        | 7     |
| 4              | Mana/Zambezi/Cahora Bassa       | 1                  | 1                | 1        | 0        | 0        | 1        | 0        | 1         | 1         | 0         | 1         | 0        | 1         | 1         | 0        | 1        | 1        | 1        | 1        | 0        | 11    |
| 5              | Kruger/Zinave/Gonarezhou        | 1                  | 1                | 1        | 1        | 1        | 1        | 1        | 1         | 1         | 1         | 1         | 0        | 1         | 1         | 0        | 1        | 1        | 1        | 1        | 1        | 16    |
| 6              | Niassa/Selous                   | 0                  | 1                | 1        | 0        | 0        | 1        | 0        | 1         | 1         | 1         | 0         | 0        | 1         | 1         | 0        | 1        | 0        | 0        | 1        | 1        | 10    |
| 7              | Ais Ais/Richtersveld            | 0                  | ?                | 0        | 0        | 1        | 0        | 0        | 1         | 0         | 0         | 1         | 1        | 1         | 0         | 1        | 0        | 0        | 0        | 0        | 0        | 6     |
| 8              | Drakensberg                     | 0                  | ?                | 0        | 0        | 0        | 0        | 0        | 1         | 0         | 1         | 0         | 0        | 0         | 1         | 0        | 0        | 0        | 0        | 0        | 0        | 3     |
| 9              | Malalotja                       | 1                  | ?                | 0        | 1        | 0        | 0        | 0        | 0         | 1         | 1         | 1         | 0        | 1         | 1         | 0        | 0        | 0        | 1        | 1        | 0        | 8     |
| 10/11          | Ndumu/Tembe/Maputo              | 1                  | 1                | 1        | 1        | 1        | 1        | 1        | 1         | 1         | 1         | 1         | 0        | 1         | 1         | 0        | 1        | 1        | 0        | 0        | 0        | 13    |
| 12             | Tuli                            | 1                  | 1                | 1        | 0        | 0        | 0        | 1        | 1         | 1         | 1         | 1         | 1        | 1         | 1         | 0        | 1        | 0        | 0        | 1        | 1        | 12    |
| 13             | Chimanimani                     | 0                  | ?                | 0        | 0        | 0        | 0        | 0        | 0         | 0         | 0         | 0         | 0        | 1         | 1         | 0        | 0        | 0        | 0        | 1        | 0        | 3     |
| 14             | Nyika                           | 0                  | 1                | 0        | 0        | 0        | 0        | 0        | 0         | 1         | 0         | 0         | 0        | 1         | 1         | 0        | 0        | 0        | 1        | 1        | 1        | 6     |
| 15             | Kasungu/Lukusizi                | 0                  | 1                | 1        | 0        | 0        | 1        | 0        | 0         | 1         | 1         | 1         | 0        | 1         | 1         | 0        | 0        | 0        | 1        | 1        | 1        | 10    |
| 16             | Lengwe                          | 1                  | 1                | 0        | 0        | 0        | 0        | 0        | 0         | 1         | 0         | 1         | 0        | 1         | 1         | 0        | 0        | 1        | 1        | 1        | 1        | 8     |
| 17             | Mwabvi                          | 0                  | 1                | 0        | 0        | 0        | 0        | 0        | 0         | ?         | 0         | 1         | 0        | 1         | 1         | 0        | 0        | 1        | 1        | 1        | 1        | 7     |
| <b>Scores:</b> |                                 | <b>8</b>           | <b>11</b>        | <b>9</b> | <b>4</b> | <b>5</b> | <b>5</b> | <b>8</b> | <b>12</b> | <b>10</b> | <b>10</b> | <b>10</b> | <b>6</b> | <b>12</b> | <b>13</b> | <b>4</b> | <b>6</b> | <b>3</b> | <b>6</b> | <b>9</b> | <b>6</b> |       |

Note: Species abbreviations: Ele = elephant, WRh = White rhino, BRh = Black rhino, Hip = Hippo, Gir = Giraffe, Ze = Zebra, Buf = Buffalo, Wbst = Wildebeest, Imp = Impala, Gmb = Gemsbok, Ku = Kudu, Ela = Eland, Spbk = Springbok, Wbk = Waterbuck, Nya = Nyala, Roan = Roan, Sa = Sable, and Hb = Hartebeeste (Red and Lichtenstein's, depending on locality).

<sup>1</sup> Names associated with potential areas are given as a convenient "handle," based on existing protected areas or other well-known features and are not intended to define the TBNRM areas in any way.

<sup>2</sup> Fence: 0 = absent, 1 = present

<sup>3</sup> TBM = Transborder movement likely in absence of barriers and would enhance population status

? = importance of occurrence of transboundary movement uncertain

1 = transboundary movement occurs or will occur in absence of fences

The all important issue of catchment protection, water yields, and downstream impacts (often across international boundaries) is receiving some attention in regional programs aimed at integrated management of catchments. Examples include the Zambezi Action Plan (ZACPLAN) and the management of the Letaba and Olifants river catchments, which run through Kruger National Park into Mozambique. From the point of view of TBNRMAs in the region, montane areas with potentially important transboundary linkage would include the Drakensberg mountains in Lesotho; the Lebombo Mountains in Swaziland; the northern part of the Drakensberg, which drains into Mozambique; the eastern highlands of Zimbabwe and Malawi, both of which drain into Mozambique; and the highlands of Angola, where rivers running into the large internal drainage basin of the Okavango/Kwando arise.

### **Freshwater fisheries and wetlands**

Wetlands cover some 13% of the area of southern Africa. Large natural lakes in the region (Victoria, Tanganyika, Rukwa, Nyasa/Malawi, Chilwa, Bangweulu, and Mweru) support substantial fisheries, as do the two major man-made lakes in the region (Lakes Kariba and Cahora Bassa). All lakes except Rukwa and Bangweulu in Zambia are split by, or are located along, international boundaries. Several major wetlands in the region are important fisheries and conservation areas (Map 12). Those that straddle international boundaries include: Mweru-Wantipa marsh, the swamps upstream from Lake Mweru, part of the Bangweulu swamp, swamps on the lower Shire in Malawi, Cuando/Linyanti/Chobe swamps in the Caprivi, and wetlands in the upper Zambezi that straddle the Angola/Zambia border. An area of saline pans in the Cunene drainage straddles the Angola/Namibia border and the Pongola river floodplain and associated wetlands fall within South Africa, Swaziland, and Mozambique and flow into the Maputo River.

From a conservation perspective, Lake Nyasa/Malawi has the highest species diversity of any lake in the world, but Lake Tanganyika has a greater diversity of fish families and, in terms of genetic diversity, is the richer lake. Both of these lakes fall within the boundaries of three nations and therefore provide opportunities for the development of freshwater/lacustrine TBNRMAs. Conservation threats to these great lakes are the introduction of exotics, overfishing, and the impacts of land use in surrounding catchments on the water chemistry of the lakes (Bootsma and Hecky 1993). The introduction of the Nile perch has eliminated about 65% of the endemic haplochromid fauna of Lake Victoria and the loss of about 200 taxa from the lake (Goldschmidt, Witte, and Wanink 1993; Lowe-McConnell 1993). It provides an eloquent, if not tragic, example of how a fish fauna that has taken 750,000 years to evolve can be decimated within 30 years by the introduction of exotic fishes (Lowe-McConnell 1993).

#### **3.1.4 Water supply and demand**

Precipitation over southern Africa is almost entirely in the form of rain, with snow falling over limited mountainous areas in South Africa during brief periods in winter. Of this, 50% falls on the five major catchments of the region, namely, the Zambezi (1.338 km<sup>3</sup>), Okavango (0.367 km<sup>3</sup>), Orange (0.366 km<sup>3</sup>), Rufiji (0.265 km<sup>3</sup>), and the Limpopo (0.256 km<sup>3</sup>). About 85% of precipitation in the region falls in 48 out of 167 mega drainage basins.

The total amount of precipitation over the region, or in any one basin, is however, only part of the equation to determine water flows and yields. Moisture is lost primarily through evapotranspiration, and in arid areas this exceeds precipitation for most of the year. Water is absorbed into the soil and also percolates into groundwater storage systems where it may later be discharged into rivers as groundwater flow. The remaining water, in the form of surface runoff, accumulates in wetlands, streams, and rivers. Until recently, the prevailing view has been that all such water was available as a resource to be used by humans. Increasingly, it is becoming apparent that if wetlands, rivers, and estuaries are to remain functional entities, a minimum flow of water is required to maintain their functional integrity (O'Keefe 1986; Ferrar 1989). Apart from recent legislation and associated research in South Africa, the principle that a drainage basin has right to a share of the water flowing through it does not seem to have been seriously factored into water yield and water demand equations.

The estimated demand only for South Africa, Swaziland, and Botswana amounts to about 60% of the likely available runoff before the requirements to maintain functional rivers and wetlands have been fully considered (Chenje and Johnson 1996; WRI 1992). This level of offtake bears out the generally held view that water will be a serious limiting factor to development in southern Africa in the near future (Falkenmark 1989, Falkenmark, Lundqvist, and Widstrand 1990).

The implications of broad-scale analysis of water yields and demands for TBNRMAs are not clear. However, as the demand for water increases with increasing human populations and industrialisation, there is little doubt that rivers and wetlands will be placed under increasing stress. The effective management and protection of large, high-yielding water catchment areas, such as the upper reaches of the Zambezi on the Angola/Zambia border, the highlands of central Angola that feed the Okavango and the Zambezi, and the highland areas of northeastern Zambia, Malawi, and eastern Zimbabwe, Swaziland, and Lesotho will be extremely important for the region as a whole.

An analysis of water resource management in southern Africa was outside the scope of this project. However, a detailed study of water resource management in the region has been carried out by USAID/RCSA (Soderstrom 1999). The report presents the major issues, constraints, and opportunities related to water resource management in the region. It also presents the results of a questionnaire sent to more than 100 stakeholders in the region to ascertain their response to the prioritised activities in the SARP Report (1995).

### **3.1.5 Veterinary implications of TBNRM areas**

One of the main goals of TBNRM area formation is the re-establishment of historical wildlife movement patterns. While changes in land-use patterns have resulted in a fragmented area available for wildlife, it is geographically possible to re-establish both cross-border and local migration patterns. However, one of the main obstacles is conflicting methods and levels of disease control, as control by one country affects the large migratory fauna of its neighbours. Over the last century, control and prevention of disease transmission from wildlife to livestock, and from livestock to livestock has, in several countries, severely altered wildlife movement patterns in southern Africa. (The main diseases of livestock and a broad indication of their prevalence are summarised in Table 8, and the links between some livestock diseases and wildlife are summarised in Table 9.) Several nations have erected veterinary control fences to

**Table 8. Summary of Major Livestock Diseases and their Prevalence in Southern Africa**

| Disease              | Angola | Botswana   | Lesotho | Malawi | Mozambique | Namibia | S. Africa | Swaziland | Tanzania | Zambia | Zimbabwe |
|----------------------|--------|------------|---------|--------|------------|---------|-----------|-----------|----------|--------|----------|
| Foot & Mouth Disease | +      | 1980       | -       | +      | +++        | +       | 1991      | 1969      | +++      | ++     | ++       |
| Rinderpest           | -      | 1896       | 1896    | 1898   | 1896       | 1904    | 1904      | 1898      | 1982     | 1896   | 1898     |
| Pleuropneumonia      | ++     | 1939, 1994 | -       | -      | -          | 1924    | 1924      | -         | +        | +      | 1904     |
| Lumpy skin disease   | +      | 1984       | +       | +      | +          | +       | +         | +         | ++       | +++    | +        |
| Rift valley fever    | ?      | -          | -       | +      | +          | -       | -         | ?         | ++       | +      | 1987     |
| Bluetongue           | +      | +          | +       | +      | +          | +++     | +++       | +         | +        | +      | +        |
|                      |        |            |         |        |            |         |           |           |          |        |          |
| Anthrax              | +      | +          | +       | +      | +          | +       | +         | +         | +        | +      | +        |
| Echinococcosis       | +      | +          | +       | +      | ++         | -       | -         | +         | +        | +      | +        |
| Heartwater           | ++     | ++         | -       | ++     | ++         | +++     | +++       | ++        | ++       | +      | +        |
| Leptospirosis        | +      | -          | +       | +      | +          | +       | +         | ?         | +        | +      | +        |
|                      |        |            |         |        |            |         |           |           |          |        |          |
| Anaplasmosis         | ++     | +          | +++     | ++     | ++         | +       | ++        | ++        | ++       | ++     | +        |
| Babesiosis           | ++     | +          | +       | ++     | ++         | +       | ++        | ++        | ++       | ++     | +        |
| Brucellosis          | ++     | +          | +       | ++     | ++         | +       | +++       | ++        | ++       | ++     | +        |
| Theileriasis         | ++     | -          | -       | ++     | +          | -       | +         | +         | ++       | +      | +        |
| Trypanosomiasis      | ++     | +          | -       | ++     | ++         | +       | 1952      | -         | +++      | +++    | +        |
| Malignant catarrh    | -      | +          | -       | -      | ?          | +       | ++        | -         | ++       | -      | +        |

+, ++, +++ indicate low, intermediate and high levels of prevalence in the region

Sources: Office International des Epizooties (1990) World Animal Health 1989, Vol. V, No. 2, Animal health status and disease-control methods (Part one: Reports) and (Part two: Tables). Table from Cumming and Bond (1991).

**Table 9. Some Links between Important Livestock Diseases and Wildlife**

| Disease             | Causal Agent | Vector         | Buffalo | Impala | Kudu | Eland | Wildeb. | Warthog | Zebra | White Rh. | Cattle | Sheep | Pigs |
|---------------------|--------------|----------------|---------|--------|------|-------|---------|---------|-------|-----------|--------|-------|------|
| Foot & Mouth        | Virus        | none           | C/S     | S      | S    | S     | S       | S       | -     | -         | C/S    | S     | S    |
| Malignant catarrh   | Virus        | none           | -       | -      | -    | -     | C       | -       | -     | -         | S      | C/S   | -    |
| Rinderpest          | Virus        | none           | C/S     | S      | S    | S     | S       | S       | -     | -         | C/S    | S     | S    |
| African swine fever | Virus        | Sand tampan    | -       | -      | -    | -     | -       | C       | -     | -         | -      | -     | S    |
| Heartwater          | Rickettsia   | Bont tick      | C       | ?      | ?    | C     | C       | -       | -     | -         | S      | S     | -    |
| Trypanosomiasis     | Protozoa     | Tsetse fly     | C       | ?      | C    | -     | -       | C       | -     | -         | S      | S     | S    |
| Theileriosis        | Protozoa     | Brown ear tick | C       | -      | -    | -     | -       | -       | -     | -         | S      | -     | -    |

Note: C = carrier, S = susceptible, and - = unaffected.

Source: Cumming and Bond (1991).

limit contact between disease-free livestock (export quality) and noncertified livestock (for local markets) and wildlife (see Map 13 and Table 7). The formation of TBNRMAs requires that protocols be developed to address the myriad of veterinary issues that arise with animal movement between areas, especially across borders. Specifically, agreements need to be reached on how to deal with wildlife/ livestock disease monitoring, prevention, control, and eradication. Assessments of disease issues for individual TBNRM areas will need to be carried out, similar to that of Pereira (1995), which discusses the potential animal health hazards of three TFCA areas in Mozambique, Zimbabwe, and South Africa.

In the simplest form, protocols will need to address issues of standardising disease monitoring programs between neighbouring countries. At its most complex, the success of TBNRMAs will depend on binational and regional agreements (e.g., for rinderpest and foot and mouth) to address issues where one nation's livestock or wildlife is disease free (either by eradication or barrier control), or has been re-stocked with disease-free animals, while its neighbour's animals are infected (carriers included). To gain political support from the livestock-owner stakeholders, careful and early attention needs to be focused on efforts to minimise wildlife-livestock and wildlife-wildlife disease transfer (e.g., foot and mouth disease, free stock). Where adjacent conservation areas have different livestock/wildlife land-use regulations (e.g., national parks adjacent to CBNRM areas), it is necessary to address issues of grazing rights within the TBNRMA, disease prevention and monitoring, and, should disease outbreaks occur, protocols for control, eradication, and compensation.

Impacts of fences are important both cross-border and within countries. Ecologically, fences (e.g., veterinary, road, stock, and those to prevent crop damage) are destructive. Fences clearly disrupt traditional animal movement, especially during periods of drought and stress, when movement to critical water sources and secure grazing areas are key to animal survival. Failure to permit free movement of wildlife has and will continue to lead to drastic reduction in population numbers. Re-establishing historical cross-border movement of wildlife may also require re-establishing historical movement within individual countries. With increasing emphasis on wildlife-based tourism, CBNRM, and TBNRM activities, it may be more beneficial to fence disease-free livestock into certain areas, rather than to fence wildlife out. By creating islands where disease-free livestock can be maintained, the possibility is opened to enable wildlife to move more freely and more in harmony with existing environmental conditions.

The economic viability of the livestock industry requires swift action in response to disease outbreaks. For example, during the 1970s, buffalo were eradicated from the southeast lowveld of Zimbabwe because they were considered the major source of foot and mouth disease (FMD) virus; more recently, a major outbreak of Contagious Bovine Pleuropneumonia (CBPP) occurred in cattle in northwestern Botswana during the early 1990s, and thousands of head of livestock were slaughtered to contain the disease.

However, prior to implementing control measures, it is necessary to understand which vectors are responsible for infection, as well as the ecological effects of such measures. For example, FMD outbreaks have historically been blamed on buffalo until the recent discovery, using DNA fingerprinting techniques, that some outbreaks in cattle in Zimbabwe originated from carrier cattle. There are also several clear examples of major detrimental effects of FMD control fences on wildlife populations in Botswana (Williamson, Williamson, and Ngwamotsoko 1988). In addition, the recent CBPP outbreak in Namibia resulted in an extensive erection of

additional control fences in Botswana (Albertson 1997). These fences were erected without consultation or consideration of the ecological requirements of the region's wildlife or of the economic viability of the region's tourism industry. Recently, a small section of fence was removed to permit wildlife movement, but the bulk of the fences still remains. Many of the fencing issues were raised and discussed at the 1998 Southern Africa Regional Workshop on Fences (Conservation International 1999). Currently, some fence projects are subject to post fence-building Environmental Impact Assessments (EIAs) to determine the effects of fencing. Policies need to be developed such that all future fencing plans are contingent on pre-building EIAs.

In addition, it is necessary to measure and evaluate wildlife-wildlife impacts. Of equal importance to livestock-wildlife disease transfer is that between adjacent wildlife populations. Where populations have been separated either by fences or alternate land uses, it is necessary to focus on the possible disease implications of rejoining wildlife populations. For example, FMD is endemic in Kruger National Park, primarily in buffalo populations, but also in such species as impala, kudu, warthog, and bushbuck. Both livestock and wildlife populations on the Mozambique and Zimbabwe borders are FMD free (naive population) (Pereira 1995). The formation of TBCAs/TBNRMAs across South Africa, Mozambique and Zimbabwe borders requires careful attention and agreement on how FMD and other diseases should be controlled. Concern has been expressed that, if FMD-free wildlife is stocked in the Maputo Reserve and Corridor in Mozambique and the southern border fence with South Africa is removed, the disease may spread north from wildlife in Kwazulu Natal.

Additional examples of disease outbreaks and identification of disease carriers will continue to occur. Infectious diseases are found in a host of organisms and are carried by a number of vectors. Even without TBNRMAs as a consideration, diseases do not respect political boundaries and must be dealt with on a regional basis.

In conclusion, where fences are moved or completely eradicated, and control measures modified, agreements need to be developed between the livestock industry stakeholders and wildlife departments. These plans need to take a multi-pronged approach, as follows: (1) develop alternative fencing or eradication programs to protect disease-free animals (both livestock and wildlife); (2) develop surveillance protocols to detect disease carriers and outbreaks proactively; (3) develop protocols for dealing with disease control prophylaxis and disease outbreak control procedures; and (4) change land use to avoid conflict.

## 3.2 Sociocultural Situation and the Role of Communities

### 3.2.1 Communities within a transboundary context

Many of southern Africa's ethnic communities are situated in a transboundary context, living around key resource areas: riverine areas, wetland, arable land, grazing land, underground and surface water, aesthetic landscapes, wildlife, and forests. Many resource-rich areas, such as riverine alluvial soils, have had common property systems with managed access for years. These communities are well aware that political and administrative boundaries are often not contiguous with local cultural, ecological, or trade systems. National boundaries were not premised on community land-use perspectives. Often the reverse occurred, and virtually all the "modern" national and administrative boundaries in the region have required communities to make significant adjustments to their forms of social organisation and to their means of meeting their livelihood needs. The reality for many communities is that they have been dislocated by national boundaries ( ). Table 10 below shows the high number of ethnic groups that span boundaries in the southern African region.

**Table 10. Transboundary Ethnic Groups**

| <b>Boundaries</b>          | <b>Partitioned Ethnic Groups</b>  |
|----------------------------|---|
| 1. Botswana-Namibia        | Ova Herero, Khoisan Basarwa, Bayei, Hambukush/Hambasushu, Tonga, Subiya |
| 2. Botswana-Zambia         | Tonga, Subiya   |
| 3. Botswana-Zimbabwe       | Va-Kalanga, Ba-Birwa  |
| 4. Botswana-South Africa   | Ba-Tswana   |
| 5. Malawi-Mozambique       | Yao, Sena, Nyanja, Chewa, Ngoni   |
| 6. Malawi-Tanzania         | Ngonde  |
| 7. Malawi-Zambia           | Chewa, Ngoni, Tombuka, Ngonde   |
| 8. Mozambique-South Africa | Swazi, Shangaan   |
| 9. Mozambique-Swaziland    | Swazi   |
| 10. Mozambique-Tanzania    | Makonde, Yao, Ngoni, Matengo  |
| 11. Mozambique-Zambia      | Chewa, Ngoni, Nsenga  |
| 12. Mozambique-Zimbabwe    | Barwe, Ndau, Manyika, Shangaan  |
| 13. Namibia-South Africa   | Nama  |
| 14. Namibia-Zambia         | Subiya  |
| 15. South Africa-Swaziland | Swazi   |
| 16. South Africa-Zimbabwe  | Shangaan, Venda   |
| 17. Tanzania-Zambia        | Mambwe, Inamwanga   |
| 18. Zambia-Zimbabwe        | Balocolough, Tonga, Shona (KoreKore)                                    |

*Source: Asiwaju (1985).*

Note: This table includes some of the major groups; it is intended as an example and is not comprehensive.

For a century, cultural, socioeconomic, and political systems have been contained by nation states, first bolstered by colonialism and then by centralised nationalism. Across the region, communities must ignore official borders in order to maintain livelihoods and cultural integrity. Communities living on national boundaries are often frustrated in meeting everyday needs (e.g., trading goods and services, sharing spiritual occasions, or finding a marriage partner).

For local communities, TBNRM is not a new fad, but a daily reality. Hence, regional initiatives to support TBNRM could genuinely foster a local cultural renaissance. Socially, groups that may feel marginalised by their location in regard to boundaries would enjoy the enhanced status and identity that formal recognition of cross-border collaboration and communication might give. Directly related to environmental management, the indigenous knowledge systems (IKS) shared between ethnic groups could be harnessed effectively to support TBNRM and give TBNRMAs a special cultural context. A TBNRM programme could foster meetings between traditional leaders, healers, resource user groups, craftmakers, trackers, guides, range managers, and others. In addition, communities that were a minority on one side could have their pride boosted by identification with stronger groups across the border.

### **3.2.2 Communities as part of the regional discourse**

Today, local communities are increasingly becoming more a part of the regional discourse, though this has not always been the case. Despite millennia of coexistence with the African environment, indigenous peoples were not active participants in the colonial discourse related to conservation (Crosby 1986; Anderson and Grove 1987). The dominant theme in conservation for decades related to species extinction as a consequence of human action, which generated attempts to reserve places for nature and to separate humans from other species. The idea of “fortress conservation” dominated the discourse in sub-Saharan Africa. African communities were cast in the role of poachers, while the state (colonialists) was placed in the more glamorous role of gamekeeper (Hulme and Murphree, forthcoming; MacKenzie 1987).

Post-colonial Africa was launched into an ideologically divided world and most of the new governments set about centralising authority and consolidating national unity.<sup>1</sup> The traditional social organisation of communities was perceived as a threat despite the fact that it provided the social cement, which enabled states to function as societies at all (Hyden 1983). Initially, the new nation states uniformly reached down to command the political, development, and conservation agendas through their control of the policy arena, with Tanzania actually disbanding its traditional leaders in 1962. Across Africa, traditional “voices” were ignored, and the customary rules of access to land and natural resources were made subservient to state control. Rural Africans lost formal recognition of their IKS, especially in the face of democratic centralism. Governmental agencies administered communal land and resources for and with the people, leading to the formal dominance of civil communal society by the state, and communities became dependent upon essentially weak governments. However, despite the

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<sup>1</sup> The emergence of the independent political regimes alienated Western-based conservationists from management control of the new reserves, thereby prompting a powerful European advocacy for Africa's wilderness values. Communities were marginalised by a formal discourse maintained between Northern interests and new African governments.

state's attempted co-option of "community", traditional societies remained relatively intact because the state's grasp was beyond its reach.

Since the 1980s, the dominant conservation discourse has been challenged, particularly in southern Africa. The new states lacked the capacity to manage community through regulation and negative sanctions. To be effective as well as popular, governments had to provide positive incentives to ensure local people participated willingly in the conservation of biological resources as an integral aspect of their land-use practices. By the 1990s, the counter-narrative, which supported CBNRM approaches, was ascending, supported by such global watershed meetings as the Fourth World National Parks Conference (1992) and the Convention on Biological Diversity. These, *inter alia*, emphasised the fact that indigenous peoples and local communities were primary stakeholders and partners in a common endeavour. The need for positive incentives is recognised in the discourse by the prevalence of such themes as property rights, sustainable use, resource values, and the equitable distribution of conservation costs and benefits (Munasinghe and McNeely 1994).

CBNRM addresses the participation of local communities in the process of establishing local resource management and compatibility in relation to lands situated in neighbouring areas, whether protected areas or communal or private land. A substantial technical and institutional base has been developed over the last decade in the region related to CBNRM<sup>2</sup>. Table 11 identifies three of the archetypal CBNRM approaches, while the following section highlights some of the commonalities and contrasts of CBNRM in the region. The rapid growth of CBNRM initiatives has taken on characteristics of a programmatic, even a social, movement with a life of its own. Communities are now definitely part of the regional discourse.

### **Commonalities and contrasts of CBNRM in the SADC Region:**

- All communities have a rich heritage of indigenous knowledge systems.
- All countries manifest a dichotomy between customary and statutory means of legitimising behaviour, especially with regard to land and natural resources.
- Women have security of tenure in few countries, in part because of customary inheritance rules.
- All countries except Angola and Mozambique have a heritage of British-style administrative and local government institutions; Angola and Mozambique are fashioned after the Portuguese system.
- Some countries (e.g., Lesotho, Malawi, South Africa, and Zimbabwe) face more resource competition (due to population density) than do others (e.g., Botswana, Mozambique, Namibia, and Zambia). South Africa, Zimbabwe, and Namibia face land-reform pressures consequent to their inequitable settler land apportionment systems.

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<sup>2</sup> A comprehensive foundation bibliography, which is catalogued in Pro Cite, was compiled through the USAID-funded regional NRMP (see SADC Wildlife TCU/Africa Resources Trust 1996). Contact Dept. of National Parks & Wildlife, P.O. Box 30131, Lilongwe 3, Malawi or Africa Resources Trust, P.O.Box A860, Avondale, Harare, Zimbabwe.

- All countries have to confront agrarian reform in some way, partly driven by economic adjustment.
- Many countries, especially those with a heritage of centralised political and administrative systems, face governance reform involving decentralisation of authority and devolution of land rights.
- Rural communities in the region contend with formal state dominance of informal community systems, rendering them powerless in the policy arena: they are co-opted, compliant, and dependent.
- Communities have spent a century as dependent entities under colonial and post-colonial states.

**Table 11. Location of Components of CBNRM within the Context of TBNRM**

| <b>Component</b>                     | <b>Protected Area Outreach</b>   | <b>Collaborative Management</b>  | <b>Community-based Conservation</b>  |
|--------------------------------------|--|--|--|
|                                      | <i>Conservation for/with the people</i>  | <i>Conservation with/by the people</i>   | <i>Conservation by the people</i>  |
| <i>Whose agenda</i>                  | TBNRM area development dominated by protected area parties. Community neighbours are subsidiary partners to achieve PA conservation objective. | TBNRMAs dominated by protected area parties with communities slowly moving towards some joint management responsibilities.                                 | Local community as legal land entities join protected area authorities as full and equal partners.                                       |
| <i>Who owns process</i>              | Protected Area with conditional benefit flow to communities.   | The state with concessions toward joint management & multiple use.   | Community has legal rights of access.  |
| <i>Who plans</i>                     | Joint planning only of outreach activities.  | Joint planning of multiple use access.   | Community often assisted by advisors / administrators.   |
| <i>Who controls</i>                  | Protected Area authority.  | Joint authority.   | Community authority (democratic/traditional).  |
| <i>Ownership of resources, areas</i> | Protected Area controls relationship with dependent communities.   | Protected Area oversees unequal partnership.   | <i>De facto</i> community but depends on how well bounded/focused the tenure arrangements are  |
| <i>Dominant objective</i>            | Enhanced conservation & integrity of protected areas & TBNRMAs.  | Conservation of PA & TBNRMAs through managed access to multiple use resources.   | Rural livelihoods: needs met but conservation needs integrated.  |
| <i>Fate of conservation resource</i> | Protected area core maintained for national heritage & benefit but wider TBNRMA manifests land use conflicts & fragmentation.                  | PA core maintained for national heritage. Benefits shared with local community groups & individuals. Use may not be sustainable & species may be affected. | Where resource insignificant to rural economics or culture, it may be lost. Resource maintained when culturally / economically valuable. |

## **CBNRM approaches**

Three archetypical approaches have been identified by Barrow and Murphree (forthcoming). These approaches, which cover a continuum of complementary strategies, are suitable in specific situations, as follows:

- **Park outreach**--a suitable response for a protected area authority;
- **Community-based conservation**--appropriate for landholders; and
- **Collaborative management**--appropriate between land authorities.

## **Communities and TBCAs or TBNRMAs**

From a community perspective, TBNRM describes the situation more accurately than the notion of TBCAs, which emphasise conservation ahead of sustainable use. Tension between conservation and development objectives and TBCA/TFCA development should not be an excuse for a retreat into the old fortress of "command-and-control" conservation. In the twentieth century, African communities generally lost both wildlife property rights on their own land and also land rights, alienated to state-run protected areas. New policies separated wild animals from the ecological and economic systems of which they were an inherent part (Child and Chitsike 1997).

A large part of the apparent success of CBNRM has been its focus on communities themselves. It is important that this positive development is not now constrained by any approach to TBCAs that might push communities to the margins of protected areas and into weak partnerships with governmental and private-sector agencies. Whether communities become real partners in, or merely beneficiaries of, TBCAs and TBNRMAs will be an important indicator of their long-term sociopolitical sustainability. Informal transboundary activities already exist between communities that could be nurtured rather than overwhelmed by regional political diplomacy, governmental bureaucracy, conservation advocacy, self-promoting publicity, and tourist-market forces.

### **3.2.3 Communities' value of land and resources**

*"For many rural communities, natural resources hold the greatest hope for sustainable economic growth and betterment of their lives...."*

(CBNRM Policy, Government of Botswana, 1998, p.2)

One of the critical elements of CBNRM is that resource economics, in practical, down-to-earth ways, began to play a central role in finding incentive-driven strategies that could link the conservation of biodiversity with the requirement for human agricultural and pastoral land use. To a large extent, it is the value that the various forms of tourism<sup>3</sup> put on aesthetic and wildlife

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<sup>3</sup> Tourism includes the following aspects of recreational experiences: hunting, phototourism, ecotourism, adventure, cultural tourism, travel, and sightseeing.

resources that has been a driving force within the CBNRM process. Before tourism emerged as a land use, most remote rural communities had little direct contact with the private sector. The concepts of resources as tourist commodities and communities as resource-based companies have presented new land-use options and the need for property rights institutions. From this start, CBNRM has expanded to assess natural resource values in a much broader fashion, including various veld products. Communities have been motivated to reassess their land use by new resource values that can contribute to the development of their communities and household incomes.

### **3.2.4 Community participation in TBNRM partnerships**

How far communities will be included in TBNRM partnerships and collaborative management arrangements will depend, in part, on whether communities are organised to assert themselves in the policy dialogue. Although significant advancements have been made, communities are still insufficiently organised at various levels. For example, the San communities have not been effectively included in joint ventures due to the weakness of community property institutions in the TFCA situation in the Kalahari area. Until communities are organised and formally recognised (e.g., through setting up their own Community-based Organisations [CBOs]), they cannot effectively engage governments, the private sector, and other stakeholders. In fact, many governments tend to see communities as a subset of the state.

At a regional or bilateral level, rural communities, outside of local authority structures, are not organised or encouraged to represent themselves and participate in regional policy arenas. SADC could encourage civil society participation through representative associations in national- and regional-level planning fora. The relationship between communities and the other stakeholders involved in CBNRM is largely conditioned by how far governments have empowered communities to be the masters of their own resources.

Communities in southern Africa today exist under the rational-legal authority of nation-states.<sup>4</sup> Recognition of the juxtaposition of customary and statutory institutions is critical in understanding the utility of "community" as a concept in the context of CBNRM. Internally, rural communities manifest heterogeneity, differentiated and stratified on the following interacting levels, each relating to resource access: lineage (position), gender (marriage, inheritance), age, and wealth. However, the statutory dominance by centralised power structures (government, NGO, donor, and private sector) means that communities are construed as uniform tenurial (land) and governmental entities. The "community" in the CBNRM and TBNRM context could be defined cynically as "that unit of social organisation *permitted* to operate as such by the state." The challenge to fit the construct of a TBNRMA (form) to the dynamic reality (shape) on the ground demands confrontation (honest dialogue) between landholders and between landholders and national and protected-area authorities. Farmers (as well as hunter-gatherers) are primary stakeholders in communal settings because their families have, over time, depended on the ecosystem they live in. Other parties' interests might not depend as directly and permanently upon the local ecosystem (Dassman 1988).<sup>5</sup>

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<sup>4</sup> Max Weber (1864-1920) identified three forms of legitimisation for authority in society: 1) traditional, 2) rational-legal (bureaucratic), and 3) charismatic. Southern Africa manifests dualism between the first two with ever-present populist possibilities for the third.

<sup>5</sup> Dassman contrasts "ecosystem" people, who depend on the local resource base, with "biosphere" people, who depend on global market access and do not directly suffer if a single ecosystem deteriorates.

## **Communities are heterogeneous and complex**

The communal resource base presents an endowment to which many parties within a community may claim entitlement. Many informal institutions are not recognised or valued by policymakers and regulators, although their policies may impact on peoples' livelihood strategies. Considering this complex communal structure (see Table 12), it is little wonder that any community would struggle to function as a distinctly unitary stakeholder in relation to outsider parties (e.g., state, private sector). The assumption of the homogenous community is partly contrived by external pressures and expectations for it to be so. However, for communities to function as institutions capable of effective decision-making, they need recognition and to know what their rights and responsibilities are, especially those related to land and land-based resources.

In addition to the four community interest groups outlined above, two sectors are important in considering CBNRM issues, as follows:

- **Lineage** (extended family, village, headmanship, chieftaincy, clan)--where families (same name or totem) live in different villages or areas, there may be an existing right of access to resources that transcend traditional village boundaries.
- **Gender-based issues**--while women do not generally have formal ownership of resources, they do, informally, manage access to specific resources at the household and village level.

## **Communities working with the private sector**

From a community perspective, the private sector seeks to acquire exclusive access over a particular resource or area, or to form a joint venture for a particular marketing purpose. The private sector needs to make formal and binding arrangements with authorised community agencies, but it routinely finds itself frustrated because communities cannot make effective decisions within a reasonable time frame. Often, because communities are rigidly administered, the private sector will attempt to bypass communities to secure decisions at a higher level. This can lead to lack of transparency, which, in turn, can lead to corruption and result in communities feeling cheated by their own authorities and alienated from "their" resources.<sup>6</sup> CBO linkages at provincial, national, and regional levels, while growing in number, are not common. One example of successful linkages occurs in Zimbabwe, where the CAMPFIRE (Communal Areas Management Program for Indigenous Resources) Association, as a CBO, can represent communities and liaise with the private sector. The emergence of local CBOs is a necessity if communities are to protect and defend their own interests. In addition, there is a need for these CBOs to be consolidated vertically into national associations; however, to date, this has happened rarely in the region.

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<sup>6</sup> In Zimbabwe, for example, the policy objectives of poverty alleviation and economic empowerment can conflict when communities are expected to give concessions to groups who may not provide the most reliable or competitive marketing services.

**Table 12. Customary CBNRM Institutions**

| <b>Community Interest Group</b>                 | <b>Tenorial Grouping</b>  | <b>Territorial Location</b>  | <b>Right of Access</b>   |
|---|---|--|--|
| <b>Household</b><br><b>Household Head (HH)</b>  | Homestead family & dependants. Security of women depends on HH & his heirs.   | Homestead area. Arable lands, common grazing, & access to natural resources in village & beyond.   | Access/inheritance through HH. Control over arable land, grazing & domestic livestock through male HHs.  |
| <b>Village</b><br><b>Village Head (VH)</b>      | Set of households that comprises the primary management unit (group) for land & resource access. Presided over by a VH.         | Village area. Stock of arable & grazing lands & natural resources bounded within specific territory, with reciprocal inter-village access for strategic needs. | Mediation of intra-and inter-village access, inclusion/exclusion to resources, especially common property resources. Critical "gatekeeper" institution.        |
| <b>Headmanship</b><br><b>Headmanship Leader</b> | Set of villages that comprises the secondary management unit (group) of the lineage. Presided over by headman or subchief.      | Headmanship area. Provides most of the subsistence livelihood needs of the resident village-based households.  | Mediates inter-village access to resources, as well as inter-ward reciprocal arrangements. Provides unity & solidarity for villages. Key coordinator function. |
| <b>Chieftaincy</b><br><b>Chief</b>              | Set of headmanships that form tertiary management unit of the lineage. Presided over by chief (sometimes paramount chief/king). | Chieftaincy area. Provides for all the subsistence needs of headmanship, villages, & households.   | Mediates inter-headmanship access & overall inclusion/exclusion to chieftaincy territory. Interface between customary/statutory management institutions.       |

### 3.2.5 Devolution to the local level

Although governments in southern Africa have been relatively progressive in promoting sustainable use at the local level, devolution is not complete. CBNRM must be nested within the national legal framework related to land. At the macro level of the state, only two basic frameworks have been provided, both versions of decentralisation. National governments have decentralised to either statutory or traditional authorities, or to some combination of the two. In no case in southern Africa have communal land rights been devolved to households and individuals (see Box 2). There is a critical difference between the top-down approach related to decentralisation and the bottom-up approach related to devolution of rights. The relationship between these decentralised governance institutions and community-based conceptions of ownership and use ensures that CBNRM remains relatively fixated at the interface between the community (meso) and local and regulatory authority (macro) levels of communal property management.

## Property and resource access rights

It is important that a community can register as a communal property organisation with the same rights and responsibilities as a private landholder. If the primary issue of who holds the land and resource rights is unclear, then other management aspects will be flawed. A rights-based approach to land and resource tenure would appear to be most in line with the wider policy environment related to civil society, market, and governance. It is a necessary, if insufficient, condition for sustainable CBNRM. Without clarity on this issue, CBNRM will continue to struggle to accommodate a flawed design framework. The tenure/governance issue lies at the heart of many lessons being learned in CBNRM in southern Africa at present.

### **Box 2. Gender and Devolution of Rights and Authority: Still a Long Way To Go**

It must be admitted that, in terms of gender, formal access by women to both democratic and traditional authority is a rarity in the region. It is the norm at present that land rights tend to be held by the head of household (male) who resides in his patrilineal home area. Certainly, individuals can, in principle, hold rights, but there are no examples in CBNRM of formal wildlife rights or benefits being earmarked for individuals rather than households, villages, or generally higher levels. Outside of marriage, women living on communal land remain dependent on their fathers or brothers for access to land. Women use natural resources, but their management ability is restrained because their interests, especially in formal settings, are co-opted.

If a community is construed as the proprietor or producer of natural resources, then, in terms of market relations of supply and demand, resource user groups could be held accountable for their consumptive use. While producer groups, for simplicity's sake, may be conceived of as territorial land units, user groups need access to resource niches that may traverse proprietorial areas to reach the products they need. Pastoralist livestock owners may move from range to range depending on the seasons, crossing administrative boundaries as they track forage-rich resource zones. In semi-arid areas, grazing cannot be managed purely within a territory but requires horizontal collaborative management between area-based regimes. Women, as a resource user group collecting ilala palm leaves for craft production, may come from different villages with a common interest in a particular resource at the micro level (e.g., Shashe/Limpopo TBCA).

### **Devolution: Key to the five principles of CBNRM**

Early in the CBNRM process, five optimal principles were advocated that apply in the TBNRM context. These principles, which rest upon devolution of tenure (access, proprietorship, etc.), are as follows (Murphree 1991):

- Resources should be given a focused value so that communities can see where conservation (management) benefits exceed costs.
- Differential burdens result in differential benefits (proprietary equity within but not necessarily between communities).
- Magnitude of benefits should reflect quality of management (a positive relationship between active husbandry and harvest).
- Unit of proprietorship should be unit of production, management, and benefit (dualism should be avoided).
- Unit of proprietorship should be as small as practical within ecological and sociopolitical constraints (efficiency in collective action).

The prototype for these principles was established in the mid-1980s with respect to private farms and ranches in Zimbabwe and Namibia (Murphree 1995).<sup>7</sup> Namibia and Zimbabwe's legislation conferred "ownership" or "custodianship" of wildlife resources on the owners of privatised land; however, the transplant of the private landholder model to communal lands is neither easy nor simple.

- The community **management units** analogous to private farms are not surveyed entities, although they may well exist in the social and ecological geographies of local culture and traditional authority. They may also appear on the administrative maps of local government, but frequently these have little economic or ecological rationale. Practitioners and policymakers are unsure what criteria to use in determining these units, other than that they should be small enough to provide face-to-face interaction for all members. The fact that CBNRM struggles to achieve this may be good, as these units should be self-determined, but in the short run it makes initiation difficult.
- The analogous proprietary unit in communal lands is far more **organisationally complex** than the private firm or ranch. Its membership is larger and internally differentiated, not only in terms of its membership but also in terms of its resource endowment. Members have specific usufruct rights over arable land, but also have collective rights to the communal commons.
- The greatest problem is the **tenure status** of communities on communal lands who lack strong property rights (i.e., "the rights of possession, use, and disposal of worth").

These basic principles provide an ideal type that CBNRM and TBNRM policies and programs need to approximate.

### 3.2.6 Authority as an issue: Dualistic nature at the local level

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<sup>7</sup> From Murphree in keynote address of *The Commons without the Tragedy: Strategies for CBNRM in Southern Africa*. Proceedings of the Regional NRMP Annual Conference, Liz Rihoy, ed. SADC WSTCU and USAID Regional NRMP. Kasane, Botswana, April 3-6, 1995.

Communities need to be able to make decisions and have responsibility at the local level. All countries in southern Africa have to confront and reconcile the issue of dualistic authority over natural resources, typically between property systems legitimised by statutory law and customary convention. Land rights can be vested in the landholder (freehold or lease), but in communal systems, where CBNRM mostly occurs, authority is generally located with elected systems, patriarchal chieftaincies, or both. In some instances there appears to be an effort to foster a constitutional Chieftaincy where traditional leaders hold authority but their power is tempered by representative governance. Dualism can be seen in the following examples:

- “Authority” over access and use may be granted through a democratic system but actual “management” of land and resources is administered through customary communal form (e.g. Zimbabwe, Botswana, Tanzania).
- “Authority” is granted through traditional institutions but nascent democratic pressures push for executive accountability (e.g. Zambia, Namibia, Malawi).

Legitimate authority<sup>8</sup> is necessary if the institutional arrangements for decision-making related to common property management are to be effective. The management of common pool resources is also complicated because the joint management of undivided biodiversity may mean that the ideal unit of social organisation (community management) may not coincide with the ideal unit needing to be managed (ecosystem). Ultimately, all human tenurial arrangements require collaborative endeavour to achieve the correct dimensions of scale. The joint management of a river means that tenurial systems collaborate horizontally (along the river) and vertically (water catchment level).

Countries in southern Africa, and elsewhere, are preoccupied with these issues. Those with a settler past of dualistic tenure, private and communal - Namibia, South Africa, and Zimbabwe - are pressed by the need for equitable land distribution and tenure reform. The countries with a state socialist and centrist background - Tanzania, Mozambique, and Angola - where state ownership was pre-eminent, are challenged by land tenure reform to empower communities and the private sector. All countries have to confront how best to balance decentralisation from central to local government systems, the relationship between statutory and customary ones, and the need to devolve clear rights and responsibilities to land and a “bundle” of natural resources. Both Tanzania and Zimbabwe have undergone substantial public land tenure reviews. In both cases the fundamental recommendation for communal land was that rights should be vested in the people, the village assembly, and not in the council which represented them. Land rights were private and individual, first and foremost, and then had to be consolidated into group access rights and not *vice versa*. In both cases the governments opted to decentralise to councils but not devolve rights and powers to the people.

The conceptual confusion between governance and tenure is, debatably, the most critical design flaw in CBNRM policies and programs at present. Natural resource and wildlife use rights depend on land rights. The private sector, now fully supported by the globalisation process, demands legal rights of access to land and natural resources. The indigenous communal sector has generally only been granted these rights through their local authorities or councils and chieftaincies - although trusts (Botswana) and conservancies (Namibia) are a positive refinement. The private model vests private rights in individuals or constituted groups

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<sup>8</sup> *Authority* is defined as “the power or right to control, judge, or prohibit the actions of others.”

whereas the communal model tends to empower institutions before people. Communities face the challenge of developing common property institutions within the framework of customary and statutory law. The latter, formal law, provides a rational-legal framework but often the customary institutions determine the legitimacy of entitlements to specific resource endowments (e.g. grazing, fuelwood, water, fields, medicines etc.).

Is it possible to upgrade what are effectively second class rights into full, registered ownership, with a diversity of options as to forms of ownership and internal rules? The region struggles with this possibility at present:

- **CAMPFIRE (Zimbabwe)** granted the district council (communal land authority) authority over wildlife. The district (some 3,000 km<sup>2</sup>) with some 30,000 people cannot be compared as a management unit to the private landholder on 100 km<sup>2</sup>
- **ADMADE (Zambia)** allows government to oversee communal wildlife use rights closely and distribute benefits through traditional authorities (land authorities). There is presently a policy change that envisages a separation of powers between chiefs and communities with the former cast as symbolic owners and authorities while the people work through elected executive committees (constitutional patriarchy).
- **The TRUSTS of Botswana** are democratically based and operate on the scale of controlled hunting areas and wildlife management areas. A trust is a legally empowered community-based organisation that elects members to a board.
- **The CONSERVANCIES of Namibia** allow a community to define itself (generally traditionally) and its territory; once its intent and institutional capacity are ascertained, it is granted wildlife use rights (not full land rights). The relationship between conservancies and local authorities has yet to be clarified.

### 3.3 TBNRM Policy and Legal Environment in Southern Africa

This section addresses the major policy and legal arrangements that affect the development and management of transboundary natural resources in the southern African region. The term *policy* refers to the specific courses of action that have been selected or decided upon to guide and determine present and future decisions. The term *legal* refers to the rules of conduct or action laid down and enforced by a government body.

In general, there are limited, specific references to transboundary or cross-border aspects in policy and legislation in the region. If something is written, it is more likely to appear in a policy document, rather than in legislation. In part, this is because policies are often reviewed and amended before laws are. As in most instances, there is a general tendency in the region to be more advanced or progressive in policies, as they are not as binding as legislation. Policy and legislation have developed in an incremental evolutionary style, building on previous changes. As this evolution continues, it is expected that transboundary aspects will be dealt with in a more specific way over the next few years.

The most essential ingredient necessary for TBNRM is the authority, right, and powers to enter into transboundary agreements and implement actions. For the most part, limited concrete statements in policy or legislation allow or transfer authority to an institution to address cross-border relations.

### 3.3.1 The starting point: Political boundaries

*“In view of the fact that so many African borders are artificial creations that cut across ethnic groupings, it is not surprising that many of the continent’s inhabitants have often expressed dissatisfaction with them.”*

(Nkiwane, 1997, p.19)

Before the issue of authority to act transborder can be addressed, it is important to recognise the reality, existence, and limitation of political boundaries. It is, in part, due to the existence of these boundaries that authority is required to establish collaboration across them. The majority of the boundaries were established before most of the existing national governments came into existence, many over 100 years ago during the so-called “Scramble for Africa.” Although the quote by Nkiwane holds true for many Africans, and he makes a case that borders still need to be “rationalised” (Nkiwane 1997), the colonial boundaries have been widely agreed upon. The Organisation of African Unity (OAU) has had a policy of recognising and maintaining these colonial borders, with all member states pledging themselves “to respect the borders existing on their achievement of national independence” (Resolution 16 [1] of the First Ordinary Session of the Assembly of Heads of State and Governments, 1964), despite the fact that these boundaries were considered by African nationalists as “artificial” and “anti-African” (Nkiwane 1997). In addition, most SADC countries<sup>9</sup> specifically recognise these boundaries in their policy and legislation. For example, Botswana’s Wildlife Conservation and National Parks Act of 1992 (Gov’t of Botswana 1992d) defines the boundaries of its parks and conservation areas in relation to the country’s international boundaries as stipulated by the 1961 OAU resolution on international boundaries. South Africa has the same definition of areas according to international boundaries in its National Park Area Act (Gov’t of South Africa no. 57, 1976).

Since colonial governments generally acted independently of one another, an argument can be made that the boundaries formulated clearly did not consider NRM<sup>10</sup>. Ecological rationales were not used when randomly determining these lines on the map. The boundaries followed geometric or linear projections on maps and/or followed geographic features, such as rivers (e.g., Zambezi, Rovuma), lakes (e.g., Tanganyika, Malawi/Niassa), or mountain ranges (e.g., Drakensberg). Boundaries tended to be in marginal areas where natural resources were not

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<sup>9</sup> Swaziland is one exception in the region, where pre-independence Swazi territory has been included in the territorial sovereignty of South Africa and Mozambique, despite claims that the land belonged to the Swazi Nation (Swazi Nation Land Act, 1961). The land reform act in South Africa could recognize the authority of the Swazi King and certain NR areas (e.g., the forest resources shared with South Africa).

<sup>10</sup> Although they did not specifically address transboundary issues, there were conservation agreements reached by these colonial powers, see Conservation for the Preservation of Wild Animals, Birds and Fish in Africa (1900) and the Convention Relative to the Preservation of Fauna and Flora in their Natural State (1933 – London Convention). The 1933 Convention later served as the basis for the African Convention on the Conservation of Nature and Natural Resources (1968).

disputed. Because borders were, and largely remain, peripheral to the key mineral and agricultural resources, they are often the least developed in terms of infrastructure and other aspects. They were the last areas to be developed, and received the least attention in terms of management.

In many ways, the comparative remoteness and lack of development focus have continued to maintain these boundary areas as optimal lands for what they are most ideally suited for--wildlands with potential for sustainable natural resource use. However, these lines on the map have superimposed false margins, and have ignored sociocultural, ecological, and economic realities and potentials. Hence, the regional management and sustainable use of shared resources now represent a major challenge and opportunity for the SADC region.

### 3.3.2 SADC: Going beyond boundaries

*"The 1992 SADC Treaty<sup>11</sup> commitment to integration and a new regional community also reflects the cultural and environmental realities that many peoples as well as wildlife, natural resource and ecological zones have always transcended national boundaries in the region."*

(SADC Policy and Strategy for Environment and Sustainable Development, ELMS, SADC1994a, p. 3, emphasis added)

SADC is one institution in the region that appears to be taking on the challenge of going transboundary; it sees opportunities for the region and views borders as agents of economic change and development. SADC sees self-sustaining development for the region on the basis of collective self-reliance and on the interdependence of member states. Although this section will show SADC's clear support for transboundary issues, the main question still remains whether the authority to take action exists. Yet, as stated earlier, these changes are of an evolutionary nature and the fact that SADC has outlined and recognised the importance of transboundary relationships is a strong step in the direction of supporting the development and management of TBNRM.

The SADC treaty, in general, supports the ideas of TBNRM, as TBNRM is within SADC objectives and strategies. Specifically, the treaty encourages the development of economic, social and cultural ties across the region (SADC 1992a - Article 5, par. 2 (b)). It promotes liberalised border policies that eliminate obstacles to the free movement among member states of capital and labour, goods and services, and of the region's peoples (Article 5, par. 2 (d)). In order to achieve this free movement, exchange control and immigration and customs regulations will eventually have to be changed. Efforts to make these changes are ongoing in SADC. The treaty further states that policies and plans should be harmonised and the appropriate institutions for implementation should be created (SADC 1992a).

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<sup>11</sup> The Southern African Development Community (SADC) treaty, signed on August 17, 1992 in Windhoek, Namibia (with South Africa joining in 1994), by the Heads of State or Governments, aims to encourage economic cooperation and integration "through the establishment of an economic community of states" (SADC 1992a).

The treaty is designed not only to influence SADC as an institution, but has an understood duty of each individual member nation to adopt in its own adequate measures to promote the achievement of the SADC's objectives (Article 6, par. 1). In lieu of this duty, "member states shall take all necessary steps to accord (the) treaty the force of national law" (Article 6, para. 5). In addition, members are to refrain from taking any measures that might hinder the implementation of the provisions of the treaty. Hence, if any member state acts in a way likely to prevent the treaty's aims, then it is in direct violation of the treaty (e.g., according to the treaty, any action by one state to tighten exchange controls or immigration and visa procedures would be acting illegally). So, provisions of the treaty are applied not simply at the international level between the signatory states, but also within the internal legal systems of those states (SADC 1992a).

In regards to NRM, SADC has policies, protocols, and statements that promote cross-border initiatives; most of these are based on the framework of the **Regional Policy and Strategy for Food, Agriculture and Natural Resources (FANR)** (SADC1992b). The FANR lists among its objectives:

- *"To ensure the efficient and sustainable utilisation, effective management and conservation of natural resources."*
- *"To incorporate environmental considerations in all policies and programs and to integrate the sustainable utilisation of natural resources with development needs."*
- *"To ensure the recognition of the value of natural resources so that they can contribute optimally to the welfare and development of all people of the region"*(SADC, 1992b, p.1).

In the wildlife sector, the link with transboundary is spelled out clearly. The mission statement of the SADC Wildlife Sector Technical Coordination Unit (WSTCU) "recognises that ecosystems and ecosystem processes extend across national boundaries of SADC member states" and that the sector will "strive to improve the quality of life of SADC people by means of a regional approach to sustainable utilisation of wildlife resources" (SADC 1997b). In the **SADC Wildlife Policy**, goals and objectives of the WSTCU support a TBNRM approach in the following specific objectives:

- support programs aimed at the conservation of regional ecosystems and landscapes, especially those that stretch across national boundaries (8.2.1);
- facilitate actions aimed at preventing man-induced extinction of any indigenous wild plant and animal species, especially where populations are distributed across national boundaries (8.2.2);
- coordinate efforts to combat illegal trade in wildlife and wildlife products, especially across national boundaries (8.2.3);
- develop common strategies to conserve populations of endangered, endemic and cross border migratory species (8.2.4);
- support appropriate management of water catchment and aquatic ecosystems, especially where they extend across national boundaries (8.2.5); and

- support initiatives aimed at the development of transfrontier conservation areas (8.2.6) (SADC 1997b).

These policy objectives, and their support of TBNRM, are given more weight by their integration into the **SADC Wildlife Sector Protocol**. The objectives of the Protocol talk about taking “common approaches to the sustainable use and conservation of wildlife resources,” “harmonising legal instruments” (including veterinary regulations), exchanging information, and “promoting the conservation of shared wildlife resources through the establishment of transfrontier conservation areas” (SADC 1999, p.5). The latter is further supported in Article 7, which states that:

- *“Member states shall, as appropriate, establish programs and enter into agreements with other Member States to promote the cooperative management of shared wildlife resources and wildlife habitats across international borders;”*
- *“Member states shall, in recognition of the location of key wildlife resources near international boundaries, promote the development of transfrontier conservation and management programs;” and*
- *“Two or more Member States may establish specific agreements within the framework of this Protocol to promote cooperative management, the conservation of species and populations, and the marketing of their products” (SADC 1999, p.10-11).*

**The Forestry Sector Policy and Development Strategy for SADC** (SADC 1997d) stresses commonality in problems and the need for regional cooperation; however, it fails to place significant emphasis on cross-border or transboundary elements. Under resource management strategies, it does specifically state the need for:

*“the development of regional fire management program and protocols for transboundary cooperation in forest protection and the prevention of illegal trade of forest produce and information sharing networks, with particular emphasis on the collation and dissemination of information on forest types and influences that cross national boundaries. In addition, under strategies for environmental management, it addresses the need for monitoring deforestation, negative transboundary impacts, and success of mitigation measures” (SADC 1997d, p.15-16).*

The *SADC Policy and Strategy for Environment and Sustainable Development* takes the strategic approach that the first priority of any SADC program should be to address issues that are truly “regional” in nature. Hence, one of the major strategies is managing shared natural resources on an equitable and sustainable basis. The more detailed issues and projects proposed in the policy and strategy fall into several categories, the first three of which are:

- Major problems that are common to two or more countries (land degradation, deforestation, etc.);
- Resources and ecosystems shared by two or more countries (e.g., Zambezi River, migratory wildlife, international fisheries, Kalahari-Namib);

- Problems with transboundary impacts in two or more countries (e.g., siltation of rivers, fires, etc.) (SADC 1994a, p.37).

Water is one of the most critical transboundary resources in the SADC region. The draft **Regional Protocol on Shared Watercourse Systems** was developed in 1995. Initially overseen by SADC-ELMS, the Water Resources Sector was separated into its own unit at the 1996 SADC Summit and the Water Sector Coordination Unit (WSCU) was established. The Protocol has since been ratified. Some key elements of the Protocol are to:

- Develop close cooperation for judicious and coordinated utilisation of the resources of shared watercourse systems in the SADC region;
- Coordinate environmentally sound development of shared watercourse systems in the SADC region in order to support socioeconomic development; and
- Consolidate other agreements in the SADC region on common utilisation of certain watercourses (SADC 1995).

In September 1998, the WSCU presented the Regional Strategic Action Plan for Integrated Water Resources Development and Management in the SADC Countries (1999-2004). The Action Plan has seven strategic objectives; the first two of which are to:

1. Improve the legal and regulatory framework at the national and regional level and
2. Improve national and transboundary river basin management, planning, and coordination (SADC 1998d).

The Action Plan lists a number of priority projects. The projects were selected based upon a number of factors, the first two of which are as follows: (1) projects which have emerged in response to a common need within the integrated water resource development and management strategy for the region and (2) projects that are regional or have regional implications (SADC 1998d).

The **SADC Protocol on the Movement of People**, if ratified, should impact transboundary aspects by easing the movement of local people across borders.

The Draft **SADC Tourism Protocol**, in keeping with the SADC treaty, indicates that the member states have an obligation to strive toward the removal of practices that could be obstacles to regional tourism development. Specifically, the Protocol identifies the need to facilitate intra-regional travel through the easing or removal of travel and visa restrictions, the harmonisation of immigration procedures, the creation of a uni-visa for international tourists travelling in the region, the need for improvements in air transport networks, the creation of a favourable investment climate, and joint marketing and joint ventures (Article 5, SADC, 1998b). It further states that "policies for the development and marketing of tourism products and services of the region need to be harmonised" and that cross-border investment and transfer of know-how is to be encouraged, specifically from "the more developed parts of the region to those not so advanced in tourism development" (SADC 1998b, p.4).

### 3.3.3 Does SADC provide the authority for transboundary initiatives?

The various SADC protocols and policies described in the previous section provide clear support for member nations to pursue transboundary initiatives. Even though comparable policies or legislation do not exist in most of the countries, an organisation or group in a nation could initiate TBNRM by making reference to the provisions of the treaties. This is supported by the treaty, which states that the agreements made by SADC equally apply within the internal legal systems of those states (SADC 1992a). Unfortunately, this is not easy or pragmatic. Although the SADC policies and treaties would seem to indicate otherwise, the reality is that SADC lacks the authority to enforce agreements and is, therefore, reduced to playing more of an advisory or advocacy role (similar to what happens with international conventions, see below).

While the policies are supportive of establishing and managing transboundary initiatives, they do not generally address how to proceed. SADC can only encourage its member states to take certain actions; it cannot provide authority for actors in nation states to make agreements with neighbouring states, prior to having national policy, legislation, or agreements in place.

In accordance with Article 33 of the SADC Treaty, the only power that SADC has to force compliance by member states is it to apply sanctions. Under this provision, any Member State that is party to a specific protocol can have sanctions imposed on it if it persistently fails, without good reason, to fulfil obligations, or if it implements policies that undermine the Treaty's principles and objectives (SADC 1992a). The process of actually applying these sanctions is tedious. Sanctions would only come into effect after a report is submitted to the Council that then makes recommendations to the Summit, which then decides, on a case-by-case basis, the appropriate sanction to be imposed. Sanctions are rarely applied.

### 3.3.4 Relevant international conventions and TBNRM

Similar to the SADC protocols, certain member states are signatories to various international conventions that inherently, or specifically, state broad support for NRM initiatives of a transboundary or regional nature. Although not all SADC member states are signatories to these agreements, the Wildlife Protocol (SADC 1998a) encourages the cooperation and implementation in SADC of CITES, RAMSAR (Convention on the Management of Wetlands and Waterfowl) and the Bonn Convention on Migratory Species. These conventions currently have been ratified by eight, five, and one SADC members, respectively. All SADC states discussed in this study have ratified CITES, the United Nations (UN) Convention on Biological Diversity, and the UN Convention to Combat Desertification (see below; year that each country ratified is enclosed in parentheses):

- *Ramsar Convention on Wetlands of International Importance* (1971): Botswana ('97), Malawi ('97), Namibia ('95), South Africa ('75), and Zambia ('91);
- *World Culture and Natural Heritage* (1972): Malawi ('82), Mozambique ('83), Tanzania ('77), Zambia ('84), and Zimbabwe ('82);

- *CITES Convention on the International Trade in Endangered Species* (1973): Botswana ('78), Malawi ('82), Mozambique ('81), Namibia ('90), South Africa ('75), Tanzania ('80), Zambia ('81), and Zimbabwe ('81);
- *Convention on the Conservation of Migratory Species of Wild Animals* (1979): South Africa ('91);
- *UN Convention on Biological Diversity* (1992): Angola ('98), Botswana ('95), Lesotho ('95), Malawi ('94), Mozambique ('95), Namibia ('97), South Africa ('95), Swaziland ('94), Tanzania ('96), Zambia ('93), and Zimbabwe ('94);
- *UN Framework Convention on Climate Change* (1992): Namibia ('94) and Zambia ('93);
- *UN Convention to Combat Desertification* (1994): Angola ('97), Botswana ('96), Lesotho ('95), Malawi ('96), Mozambique ('97), Namibia ('97), South Africa ('97), Swaziland ('96), Tanzania ('97), Zambia ('96), and Zimbabwe ('97).

Of the global conventions listed above, it is important to note that only the UN Convention to Combat Desertification calls for the development of regional and Sub-Regional Action Plans, in addition to National Action Plans. The SADC ELMS has developed the Sub-Regional Action Programme to Combat Desertification in Southern Africa (SADC 1997c). The Action Programme states:

*"Whereas overcultivation, overgrazing, and deforestation have previously been identified as the three major causes of desertification in the [SADC] subregion, they are, in fact, the result of much deeper underlying forces of a socioeconomic nature, such as a general over-dependence on natural resources"* (SADC 1997c, pg.vii).

The ideas of this statement support the need for improved natural resource management across the subregion. Although the other UN conventions do not mandate the development of regional action plans, they do provide an important forum for regional cooperation to address regional and global issues.

For example, the Ramsar Convention, which encourages joint conservation measures for transboundary wetlands, has been acted upon in the region. Efforts of cooperation have taken place between Namibia and South Africa near Oranjemund (where the mouth of the Orange River meets the Atlantic), and between Zimbabwe and South Africa on the pans between the Madimbo corridor and Kruger National Park (de Villiers 1998, p.101).

However, one problem with these agreements is that few countries have the national legislation to make the content of the international agreements binding in their own countries. South Africa is one exception in that it links the adherence to international regulations to the Constitution (Environment Conservation Act no. 73 of 1989)<sup>12</sup> and states in its White Paper on Environmental Management Policy (Gov't of South Africa 1998c, p.51) that "it must pass domestic legislation to give effect to its international obligations." The Environmental Management Policy of South Africa even appears to lay the groundwork for transfer of authority when it states that "all relevant interested and affected parties must have adequate opportunity

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<sup>12</sup> Although the Constitution was rewritten in 1996, this principle has remained.

for participation in negotiating, entering [into], and implementing international agreements” (Gov’t of South Africa 1998c, p.51).

In addition to the above, there are regional agreements that address natural resource issues. One of the first<sup>13</sup> to identify the need for a broader perspective towards NRM was the African Convention on the Conservation of Nature (1968). It highlighted the importance of the conservation, use, and development of wildlife resources within a framework of land-use planning and economic and social development, both inside and outside protected areas (Rudge, Hurst, and Hunter 1997, p.2). This was clearly in support of a more bioregional form of management.

Reluctance to sign certain international agreements may be due to concern that neighbouring member states may not be able to enforce the legislation effectively. This may be especially true of trade and law enforcement types of agreements. For example, the Lusaka Agreement, Agreement on Cooperative Enforcement Operations, is directed at illegal trade in wild fauna and flora (SADC 1994c), and has only been signed by five SADC countries: Lesotho, South Africa, Swaziland, Tanzania, and Zambia.

Other regional agreements have been extremely successful. For example, the ZACPLAN was established in 1985 to "foster regional co-operation among the Zambezi basin states for environmentally sound management of the common water resources" (SADC 1998d). Its member states are Botswana, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe. The ZACPRO 2 project (one of the plan’s activities) became the model for the development of the 1995 SADC Protocol on Shared Watercourse Systems (SADC 1995)(see Section 3.3.2).

### **3.3.5 National frameworks and TBNRM**

In most SADC countries, there is very little said directly about TBNRM in legislation or policy documents; a few exceptions are described below.

#### **Statements in Support of TBNRM**

South Africa’s recent White Paper on Environmental Management Policy for South Africa (Gov’t of South Africa 1998c) indicates that South Africa’s regional isolation negatively impacted its commitment to regional growth, and that its environmental problems cannot be solved in geographic isolation. In order to extend international cooperation, the Presidential Council, in 1991, tasked itself to promote transboundary conservation. In addition, the 1996 Green Paper on the Conservation and Sustainable Use of South Africa’s Biological Diversity included transfrontier conservation in its policy and strategy to promote cooperation at the international level. South Africa also recognises tourism as a link toward transfrontier cooperation. In particular, it was noted that a southern African regional forum should be created on the basis of joint management strategies, regional tourism linkages, and bioregional approaches to environmental management.

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<sup>13</sup> Others include the 1933 Convention on the Protection of African Flora and Fauna and the 1951 Plant Protection Agreement, both of which were entered into force before most of the SADC countries achieved independence.

Malawi's Draft National Wildlife Policy (Gov't of Malawi 1998) suggests that the field of cooperation must include partner institutions in neighbouring countries. Specific emphasis is placed on such aspects as joint poaching patrols, research programs, and the control of illegal trade in wildlife products.

Mozambique's Environmental Law (Gov't of Mozambique 1997), Article 13, provides the legal basis for the creation of protected areas of national, regional, or even international nature; this can be interpreted as being in direct support of TBNRM. In addition, Mozambique's National Tourism Policy (Gov't of Mozambique 1995), although it does not state anything specifically about transboundary issues, stipulates that high-quality regional tourism and its promotion must be part and parcel of infrastructural and legislative reforms. The Ponta de Ouro Zone of Mozambique's tourism strategy will target high-income tourists from neighbouring South Africa and therefore lends itself to TBNRM initiatives.

The most notable legislative action recently occurred between Botswana and South Africa, when an agreement was reached on the recognition of the Kgalagadi Transfrontier Park (South African Government Gazette, 28 August 1998, Gov't of South Africa Notice 1810 of 1998a). Although the draft bi-lateral agreement was published for public comment, various policy guidelines were stipulated that could act as legislative guidelines in a more formal agreement. This includes such aspects as joint recognition, undivided ecosystem, coordination of management, shared revenue, freedom of movement, and adherence to international law (see Section 3.3.8 below for more discussion on this development).

### **Barriers to Legal and Policy Frameworks: Statements Hindering TBNRM**

At times, the national frameworks tend to hinder TBNRM by being overly protectionist or by promoting policies that are dis-incentives to TBNRM. One example of this is Botswana's Agricultural Legislation, which justifies the creation of foot-and-mouth disease control corridors and cattle fences on the international boundaries, which hinder TBNRM activities (see Section 3.1.5 for more discussion on this topic). However, while the Botswana National Policy on Natural Resources, Conservation and Development (Gov't of Botswana 1990) emphasises the importance of the livestock and indicates the use of an "interventionist approach under which a combination of laws, price incentives, and fiscal reliefs in effect determine the dominant land uses" (1990, p.4), it also states that two other approaches are expected to dominate more in the future, both of which are more supportive of TBNRM and sustainable development. These are: (1) resource allocation based on "reasonable rationing" and zoning and (2) multipurpose (integrated) use and management of resources.

Another area in which TBNRM is hindered is in statements that are contradictory to devolution (see Section 3.3.6). Although devolution is often talked about and identified as critical, not as much is actually written to support this principle. Tenure and resource access rights, a key part of the devolution of authority, are not yet adequately addressed. In many SADC countries (e.g., Angola, Malawi, and Swaziland), legislative powers and decisions about land rest with the state, usually the king or president. In these situations, other stakeholders only have user rights and tenure issues still need to be addressed. In Botswana (Chapter 8 of the Constitution), the state is said to hold fundamental interest over natural resources; however, it may assign or delegate management, utilisation, or proprietary rights to specific resources to individuals and groups, including CBOs (see Box 3).

### Box 3. Make Policy and Legislation Nationally; Take Action (Drive the Process) Locally

An interesting aspect of TBNRM, thus far in the SADC region, is that initiatives have usually started at the local level and then turned toward the national level for support and authority. As stated in Section 3.2, at the community level, this interaction has been ongoing since before the boundaries were established. Thinking beyond boundaries is part of local-level reality and policy; it is the means for determining existing and future decisions. These local-level actions can occur between various configurations of local-level stakeholders, including the following:

*Communities:* Communities along the Zambezi River, in projects of Tchuma Tchato (Mozambique), ADMADE (Zambia), and CAMPFIRE (Zimbabwe), have initiatives at the borders of these three countries. Collaboration was first started by the communities, building on traditional relationships and then slowly bringing in provincial support. Generally, these have not gone to a national level (except in Mozambique where a special legislative diploma was passed to enable communities to benefit from wildlife schemes). In two of the three areas, national parks neighbour the other side of the communities; these could develop into a community-protected area situation as well.

*Communities and Protected Area Managers:* Along the Drakensberg-Maloti Mountains is an example where protected area officials (South Africa) are making efforts to coordinate fire management and other practices with communities on the other side of the boundary (Lesotho). Another example is the Nyika-Vwaza area between Malawi and Zambia, where Chief Chikulayamemba has constituents in both countries and his people in Zambia are often unofficially involved in resource harvesting in the protected areas in Malawi.

*Protected Area Managers:* The protected area managers in the Gemsbok National Park in Botswana and the Kalahari Gemsbok National Park of South Africa collaborated with each other since 1948 on joint game census programs and other issues, without an official policy or legislation backing this action. The realities of the local situation necessitated cooperation, and therefore it somehow found a way to happen. Obviously, this cooperation was limited and constrained due to its unofficial nature. In the end, for this particular situation, the local initiatives have led to the establishment of a binational agreement that will expand the potential for collaboration and improved management (Gov't of South Africa Notice 1810, Bilateral Agreement, 1998a).

Other informal exchanges of information or assistance include cooperation on anti-poaching, which happens throughout the region (e.g., Kruger National Park, South African National Parks, and Conservation Authorities in Mozambique). Unfortunately, in most instances, the provision of this national support is an exceptionally long process and serves to dampen and slow initiatives.

### 3.3.6 Devolving authority internally to assist the TBNRM process

As stated earlier, the granting of authority and the right to determine use of resources is a critical first step. In Namibia,<sup>14</sup> South Africa, and Zimbabwe, legislation introduced in the late 1960s and early 1970s initiated the allocation of this authority. The legislation allowed private landowners rights to manage and commercially benefit from wildlife on their land. This converted wildlife into an economic asset, and greatly stimulated game ranching and the emergence of conservancies in these countries. These changes were the precursor to a similar allocation of rights to communal areas, which followed in all three of these countries. In Zimbabwe, CAMPFIRE was supported by legislation drafted in 1982 (Rudge, Hurst and Hunter 1997, p.15). In Namibia, communities are able to form communal land conservancies and, in turn, acquire rights over the wildlife on their land as specified in the policy: Wildlife Management, Utilisation and Tourism in Communal Areas: Benefits to the Communities (1995).

The allocation of this authority to communities initiated the CBNRM movement in the region. CBNRM has continued to develop and clarify its role in policy. Botswana's Community Based Natural Resource Management Policy (Gov't of Botswana Paper No. 19, 1998a)<sup>15</sup> is one of the most explicit and best laid-out documents in this respect.

The CBNRM Policy states as an objective "to devolve management rights over natural resources directly to qualifying local communities" (p.2), in effect, translating areas that allow open access to natural resource into common access areas (p.6). The policy goes further to state that "clear conditions of resource access must be part of CBNRM-initiated programs to guarantee equitable and broad distribution of created benefits" (p.4). This is accomplished in part by allowing, in certain instances, CBOs exclusive access to natural resources (p.7). The Government enters into resource leases when communities create Representative and Accountable Legal Entities (RALE), a more legalised form of CBO (like the creation of Associations or Trusts in Malawi and District Councils gaining "Appropriate Authority" status in Zimbabwe), in which the communities adopt self-regulating procedures (constitution and/or bylaws)(Gov't of Botswana 1998a).

The Botswana CBNRM policy goes one step further than most to make a statement about providing revenues to support this devolution. It states that:

*"Land Authorities and District Councils receive substantial revenue generated from lease fees and royalties in both commercial and community areas. The Government encourages that this revenue is directed towards promoting the objectives of CBNRM and community development...."*

The policy is also progressive in its encouragement of the support and involvement of private enterprises, including tourism operators, to advance partnerships and skills transfer. It is also

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<sup>14</sup> Namibia's Government Ordinance of 1968.

<sup>15</sup> Listed as an extension of the Wildlife Conservation and National Parks Act of 1992; the Tourism Act of 1992; the Tourism Policy of 1990; the Botswana national Conservation Strategy of 1990; the Wildlife conservation Policy of 1986; the Agricultural Resources conservation Act of 1974; and the National Development Plans 7 & 8.

progressive in its identification of the undervaluing of resources; and government recognition of “the potential of involving rural communities in natural resource based and cultural tourism as a key means to combat poverty” (Gov’t of Botswana 1998a p. 5).

The Wildlife Policy of Tanzania (Gov’t of Tanzania 1998a) falls in line with other progressive nations in the region, and marks a clear break with previous policies in Tanzania by making provision for community management of wildlife on local community lands. This is done, in part, by allowing communities to establish Wildlife Management Areas (WMAs), a type of common-property regime. The Wildlife Conservation Act (Gov’t of Tanzania 1974) provides the legal backing to this policy, in that it empowers the Minister of wildlife to declare “Authorised Associations,” which, in effect, describe the WMAs. Tanzania has also provided support to customary access rights in the Land Act Bill (Gov’t of Tanzania 1998b). The bill states that customary titles are, in every respect, of equal status and effect as the granted titles (LEAT 1998, p.3). Although these are elements that would help TBNRM, the Tanzanian Framework does not refer specifically to transboundary issues, even though it recognises buffer zones, dispersal areas, and wildlife corridors.

As in Tanzania, Namibia makes no specific reference to transboundary conservation or cooperation. However, the Decentralisation Policy (Gov’t of Namibia 1996) did raise the possibility of legislative reform on a decentralised basis. The areas of decentralisation mentioned focus on the deconcentration of central government decision-making, deregulation of organisations, and the devolution of control to the subnational level. This policy sets an important tone in Namibia that is conducive to TBNRM. The 1996 Namibia Forestry Strategic Plan and the 1997 Forest Act (Gov’t of Namibia 1997) use the devolution of authority as a component in their documents, although no specific mention is given to TBNRM.

Mozambique’s new Land Law (Gov’t of Mozambique 1998), Article 31, also includes provisions for the participation of local communities in the management of natural resources.

### **3.3.7 National policies and legislation**

The harmonisation of policies and legislation would definitely make TBNRM a much easier process. The SADC Treaty states that this harmonisation should exist alongside the creation of appropriate institutions for implementation (SADC 1992a). However, it is not expected, nor realistic, that all national policy and legislation in the region would become the same. What is sought is sufficient national legislation to make provisions for bilateral and regional alliances and agreements in support of, or enabling, TBNRM. As is discussed with the Botswana-South Africa case below, it is more realistic to address each TBNRMA on a case by case basis, rather than to unilaterally change all legislation at the national level.

Furthermore, in most cases, a TBNRMA will need to have its legal identity within the framework of the individual national legal systems. No international precedent exists to date in which an independent international agency has been established with its own legal status and with exclusive jurisdiction over a TBNRMA. In this extreme case, states would be handing over all management and authority to the international body.

### **3.3.8 Transferring authority to conservation organisations or others**

In the case of the Kgalagadi Agreement, the Governments of Botswana and South Africa have shown how conservation organisations can be allowed to act as agents of governments in the execution of international obligations, in effect transferring authority to the organisations. This case is possibly the least complicated version of TBNRM, because it is between two state protected areas. However, the same principle could be applied to community associations, local government authorities or others. The following section briefly examines this interesting case in more detail.

The Gemsbok National Park (NP) in Botswana (28,000 km<sup>2</sup>) and the Kalahari Gemsbok NP in South Africa (9,591 km<sup>2</sup>) share a 300-km border. Since 1948, on the basis of an informal “gentlemen’s agreement,” cooperation has occurred, and the two areas have been functioning as one ecological unit without fencing and with free movement of wildlife. In 1964, the Botswana warden enhanced the cooperation by making some of his South African counterparts (the warden and some senior staff) honorary rangers in Botswana. This action allowed easier access into the Botswana park and facilitated joint activities (e.g., anti-poaching and game census). A Transfrontier Management Committee was formed in 1992 to determine ways in which to enhance the cooperation. The efforts of this committee have led to the recent establishment of the Kgalagadi TFCA.

The critical element in establishing the Kgalagadi TFCA is the signing of a bilateral agreement between Botswana and South Africa. This agreement takes the roughly 50 years of cooperation to a new level in that it provides the collaborating government agencies the authority to make joint management decisions on behalf of their respective governments. This is an especially significant step for the South African National Parks (SANP), which, as a statutory body, has no legal powers to engage in activities outside South Africa, nor does it have the right to enter into agreements with a neighbouring nation (de Villiers 1998, p.106). This devolution of authority was able to occur due to a provision in the South African Constitution (1996), which states, in section 238, that “an executive organ of state in any sphere of government may exercise any power or perform any function for any other executive organ of state on an agency or delegation basis” (de Villiers 1998, p.6). Hence, South Africa was able to appoint SANP as an agent of the government to fulfil its responsibilities, in terms of this international agreement. The Department of Wildlife and National Parks is the agent for Botswana. The agreement is a bi-lateral treaty concluded by the Department of Foreign Affairs (Gov’t of South Africa 1998a).

The agreement has its basis in three documents, as follows:

1. an international agreement between the two states;
2. a record of understanding (ROU) between the respective conservation agencies (which recognises each other’s sovereignty in terms of national legislation and sets up a management agency); and

3. a plan for the day-to-day management of the area.

The international agreement recognises the “sovereign equality and territorial integrity” and separate legal systems of the two states. The “Agreement shall in no way be construed as derogating from any provision of the respective laws of the Parties or any other agreement entered into between the Parties” (Gov’t of South Africa 1998a). Therefore, a separate legal authority is not being applied; rather, the framework for managing the area will be based on the national legislation of the two countries. To facilitate this, the two governments agree to remove legal and practical obstacles and impediments, and to harmonise national legislation as far as possible (Gov’t of South Africa 1998a, 2.2.3). An area of management concern is that in some very visible areas (e.g., in regard to visitor relations [gate times, etc.]), the two parks currently differ. It was agreed that the joint regulations would be drafted to resolve these issues.

The Kgalagadi area plans to eliminate travel documentation requirements. This would create a visa-free zone between Botswana and South Africa, as long as the visitor remained within the transboundary area and did not exit into a different country. A link with the conservancies on the Namibian side could be facilitated at some later date by way of an entrance gate that will be opened at the Mata Mata rest camp on the South African side of the border (de Villiers 1998, p.109).

The agreement also sets up the Kgalagadi Transfrontier Park Foundation responsible for the direction of activities without taking legally binding decisions. An important aspect of the foundation is that it is registered as a section 21 company under South African law<sup>16</sup> and is therefore entitled to receive donations and to distribute funds within the TFCA. In this way, the foundation can gain a certain degree of financial autonomy critical for sustainability. The agreement also states that “an equitable apportionment of revenues generated by the Parks, i.e., the gate fees, ...shall be shared equally” (though other revenues from tourist facilities will be maintained individually) (Gov’t of South Africa 1998a, 2.2.4).

The management plan addresses the matter of stimulating cooperation and partnerships with neighbouring communities. The San of the Kalahari made a land claim for 25,000 ha of land bordering the Kalahari Gemsbok, and for land use rights for over half of the park. South Africa appears to be taking a historical perspective on land claims and, as of 1999, has recognised the San’s claim. The Minister of Land Affairs said, “From the beginning, I recognised the legitimacy of the San’s claim. It is clear they lost their land rights and access to resources during the process leading to the creation of the park. The challenge now is to come up with a creative package to achieve the community’s long-term viability”.<sup>17</sup> The San’s claim gives them 50,000 ha within the park boundaries, in addition to land outside the park.

No additional integration of other stakeholders (e.g., communities) has occurred at this stage. On the Namibian side, there have been informal discussions with private landholders regarding integration of some form with the Kgalagadi area.

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<sup>16</sup> South African Companies Act (no. 61 of 1963), the company enjoys equal legal personality in Botswana and South Africa.

<sup>17</sup> Minister of Land Affairs, Derek Hannekom, quoted in an article “Sands of Time Run Out for the San” (The Star. Thursday September 24, 1998).

### 3.4 Organisational Situation with Respect to TBNRM

This section addresses the administrative structures that direct and manage efforts to develop and manage transboundary natural resources. Some of these structures are also responsible for ensuring that policy and legislation (see Section 3.3) are implemented. Discourse in the region highlighted the preference of using the term *organisational*, as opposed to *institutional*, to more appropriately define or categorise the structures. The organisations involved in the region are mainly of four types: regional government (SADC), national governments, NGOs and CBOs, and private-sector organisations. This section concentrates mainly on regional and national government organisations, while Section 3.5 focuses on NGOs and private-sector organisations.

#### 3.4.1 SADC's technical organisational structure

SADC, which evolved from the Southern Africa Development Co-ordination Conference (SADCC), was formed to promote coordination throughout the region. The SADC Declaration Treaty and Protocol mandates the creation of specific Commission and Technical Coordination Units (TCUs) to assist coordination on a sectoral basis. Each sector is coordinated by a particular country. For the most part, the sector designations correspond to the natural strengths of host countries. The following list provides the sectoral breakdown and the corresponding country responsibilities:

- Food, Agriculture, and Natural Resources (FANR)
  - Agriculture and Research (SACCAR)--Botswana
  - Environment and Land Management (ELMS)--Lesotho
  - Food Security--Zimbabwe
  - Forestry (FSTCU) and Biodiversity Conservation (BC)--Malawi
  - Inland Fisheries (IFSTCU)--Malawi
  - Livestock--Botswana
  - Marine Fisheries and Resource--Namibia
  - Water (WSCU)--Lesotho
  - Wildlife (WSTCU)--Malawi
- Energy--Angola
- Tourism--Mauritius
- Culture and Information--Mozambique
- Transport and Communication--Mozambique
- Human Resources--Swaziland
- Industry and Trade--Tanzania
- Mining--Zambia
- Finance and Investment--South Africa

The concept of dividing up the responsibility for the various sectors within SADC makes good political sense. However, from a functional standpoint, it can be problematic because the various sectors are dispersed around the region and coordination is difficult (logistics of coordination alone, are a concern). Lack of coordination is a well-recognised problem in SADC, as identified in a FSTCU study that states, "linkages between forestry and the other SADC

Sectors are weak at the regional level..." (SADC 1997d, p.8). This presents an interesting paradox, considering that the main purpose of SADC is to promote regional coordination.

Biodiversity Conservation (BC) presents another coordination problem, as it is an issue in more than one technical unit and thus requires a cross-sectoral approach. The difficulties of coordination (as well as politics) were shown during the Southern African Region Biodiversity Conference (in Maputo 1996) when there was some confusion and conflict in identifying a focal point for coordination of BC. This function was eventually handed over to FSTCU at a joint TCU meeting in Salima, Malawi in January 1997.

Similarly, the SADC Natural Resource Management (NRM) Programme, which addresses CBNRM and other NRM issues, is ideally a cross-sectoral program. The fact that the NRM program was allocated to the WSTCU has restricted its impact and, at times, has caused it to duplicate or overlap activities carried out by the FSTCU. This example also points out the difficulties of trying to fund and implement multisectoral or collaborative programs within SADC. The same reasons (political and administrative) that this does not work well at the national level are replicated within SADC. In all three NRM sectors, there is a certain degree of "reinventing the wheel." This is especially true for CBNRM activities for which the WSTCU has lessons learned that can be applied to forestry and fishery (and vice versa). Duplication of effort is especially disheartening when the limited capacity (infrastructure, staff, and equipment) of the units is considered. Both the WSTCU and FSTCU are supported by donor assistance (USAID and GTZ/DED, respectively).

In general, multisectoral coordination is a much-stated necessity in development. The SADC Tourism Protocol draws attention to this fact:

*"Recognising that, for sustainable tourism development to become a reality, the increased cooperation and facilitation from the sectors responsible for immigration, transport and aviation, information, trade and local government, is fundamental to the full realisation of this Protocol."*

(SADC, Tourism Protocol, 1998b)

Unfortunately, in this specific incidence, the NRM sectors are not mentioned among the sectors to be coordinated with sustainable tourism development.

In TBNRM, there is a critical need for coordination and partnerships across both physical and technical boundaries. Any given TBNRM initiative might require decisions and actions in tourism, transport and communication, industry and trade, and in any of the eight FANR sectors (wildlife, forestry, livestock, ELMS, etc.). The prevailing question is: "How is this coordination is to occur on a regional level when there are difficulties accomplishing coordination at national levels?" As discussed in the previous section on policy, one senior government officer in the region voiced the idea that, due to its multisectoral nature, SADC should consider a specific umbrella TBNRM Protocol that is recognised and supported by the many relevant sectors.

## Coordination of SADC NRM sectors

*"[The three NRM TCUs] have a great responsibility to attempt to provide clear and concise guidance for the management of the region's natural resources and ecosystems, especially those that are transboundary in character."*

(SADC, Forestry, Fisheries, and Wildlife Consolidation Proposal, 1997a, p.3, underscore added)

Since 1980, Malawi has been responsible for coordinating the management of natural resources and ecosystems across member states in the Inland Fisheries, Forestry, and Wildlife (IFFW) sectors. Levels of coordination have varied over the last two decades. The units are said to have appeared to have "some sense of cohesion" between 1988 and 1992, but, since then, have gradually drifted away from solid forms of integration toward "sporadic acknowledgement and collaboration" (SADC 1997a). Difficulties in collaboration are said to have suffered more since the 18th of July, 1997, when ministerial changes reorganised the Ministry of Natural Resources, in which the three units were housed. The Ministry was split into two ministries: Ministry of Forestry, Fisheries, and Environmental Affairs (still maintaining Fisheries and Forestry) and Ministry of Tourism, National Parks, and Wildlife (wildlife sector). The recent change puts into question the often-floated idea of streamlining and consolidating the three TCUs in Malawi into one unit (see Joint IFFW TCU Task Group report – SADC 1997a).

### 3.4.2 SADC capacity and resources

Funding for SADC is constrained by a dependence on donor funding for programs and projects and by limited financial contributions from member states. Unless clear net benefits are seen by member states, there is reluctance to use limited national resources to fund regional, as opposed to national, programs resources (see sections 3.4.3 and 3.5 below). Hence, SADC is hindered by a lack of capacity to take on its defined objectives, roles, and responsibilities.

Beyond limited SADC funding, the operations of a given sector TCU (e.g., wildlife, fisheries, or forestry) are the responsibility of the sector's host country. Individual sectors and their programs may be supported through donor funding. However, a given sector's ability to implement its regional agenda depends heavily on the capacities of the sector's host country. As identified in sections 3.4.3 and 3.5, there are significant differences within the region in terms of economic growth and ability to finance SADC TCUs. For example, as Malawi is under significant pressure to achieve its own national programs, it is not surprising if it is unable to provide resources to regional initiatives. Staff responsible for the SADC WSTCU are often co-opted from their SADC responsibilities to deal with "urgent" national matters. Somehow, Malawi is forced to try to balance both concerns.

### 3.4.3 National capacity and resource levels

This section makes particular reference to the wildlife sector in terms of national organisational capacity. By focusing on one sector, we are able to get a fairly accurate representation of the

overall government organisational situation, especially with respect to other NRM sectors. This analysis of government organisations is also informative to highlight the differences in capacity and resources around the region.

## Human Resources

In general, there is a shortage of human resources throughout the region. An attempt to quantify this shortage can be made by looking at figures for the "ideal" number of staff required to properly manage a protected area. It is suggested that a density of law enforcement staff required for areas with elephants is estimated at 1 staff:50 km<sup>2</sup> and 1 staff:20 km<sup>2</sup> for areas with rhinoceros (Bell and Clarke 1984). Another general system for estimating the number of staff required is determined by setting a staff number equal to the square root of the size of the protected area; thus, a protected area of 100km<sup>2</sup> would require 10 (1:10km<sup>2</sup>) enforcement staff and an area of 10,000 would need 100 (1:100km<sup>2</sup>) (Martin 1993). These "ideal" staffing numbers are less valid when there are either a large number of very small reserves or only very large reserves exist and are not meant to be used to set staffing numbers countrywide by adding up protected land area.

Taking the above into account, it is clear that, within the region, the amount of protected area that each field staff person is responsible for differs significantly. Some country-staffing patterns are dramatically outside of acceptable human-resource levels. Using rough calculations, it appears that staffing numbers are very low for Angola and Mozambique, and low for the Botswana northern parks and Tanzanian game reserves and national parks. Mozambique, and to some extent Angola, have already begun increasing staff numbers significantly and will continue to do so over the next few years. On the other hand, a few countries that appear to have adequate law enforcement staffing levels include South Africa (Natal and Kruger), Zambia, Zimbabwe, and Malawi (see Table 13).

Although it would appear that a good part of the region has sufficient staffing numbers, these numbers do not present a clear impression of the quality and efficiency of those human resources. Throughout the region there is the problem of having many very low-paid staff which can lead to low morale. This can, at times, be worse than having fewer staff altogether. Hence, even where numbers are high, it may be an inaccurate representation of capacity as government agencies can employ relatively high numbers of staff with limited budgets (Cumming, du Toit and Stuart 1990, p.38). In some countries in the region, these unrealistically high staff levels are being reduced by more than 50% as retrenchments and downsizings of government agencies occur (e.g., Tanzania, Zambia, and Zimbabwe). In other countries, such as Botswana and Malawi, hiring in the civil service has been frozen or restricted to lower levels. Angola and Mozambique are the two exceptions in the region as they are adding, or will add, hundreds of new staff (ULG 1998, p.14).

Besides the overall numbers, staff efficiency then depends on a number of other factors, including morale, which varies from low to moderate to high; discipline; and level of training (Cumming, du Toit and Stuart 1990, p.38). Training differences in the region are also significant, varying from none to some to well-organised, in-service training facilities (Table 14).

Another aspect of motivation is salaries. As shown in Table 13, these also vary greatly throughout the region. Published salaries in 1990 were the highest in South Africa (Natal), at \$1,860 per year for guard level and \$7,830 per year for warden level. Taking South Africa as

having the highest salaries in the region (i.e., 100%), then the respective guard- and warden-level salaries of the other countries shown would compare as follows: Zimbabwe 85% and 98%, Malawi 22% and 14%, Tanzania 9% and 4.7%, and Mozambique 8% and 4.6%. The difference can be seen in the field, where, on one side of the border, the guard is driving around in a 4x4 with a clean, new-looking uniform and equipment, while, on the other side, the guard is on foot, poorly shod with a tattered uniform or T-shirt and hardly any equipment. These differences can cause problems in TBNRM activities as it is difficult for partners to feel equal when there is such disparity.

**Table 13. Indicators and Comparison of Resources Available to Government Agencies for Conservation**

| Country                   | Area km <sup>2</sup> Protected <sup>1</sup> | Total Budget (US\$ x 1,000) <sup>2</sup> | Operational Budget (US\$ x 1,000) <sup>3</sup> | Total Field Staff <sup>4</sup> | Vehicles: (4-wheel drive) |
|---------------------------|---|--|--|--------------------------------|---------------------------|
| Angola                    | 80,000                                      | N/A                                      | 20   | 40                             | 0                         |
| Botswana (Northern Parks) | 23,000                                      | N/A                                      | N/A  | 175                            | N/A                       |
| Malawi                    | 10,800                                      | 526                                      | 198  | 191                            | 22                        |
| Mozambique                | 65,700                                      | 448*                                     | N/A  | 58                             | 6                         |
| South Africa (Natal)      | 2,800                                       | 12,182                                   | 2,727  | 730                            | 93                        |
| South Africa (Kruger)     | 20,000                                      | N/A                                      | N/A  | 2,000**                        | N/A                       |
| Tanzania National Parks   | 39,100                                      | 700                                      | 450  | 359                            | 58                        |
| Tanzania Game Reserves    | 61,665                                      | N/A                                      | N/A  | 405**                          | N/A                       |
| Zambia                    | 63,585                                      | N/A                                      | N/A  | 3,000**                        | N/A                       |
| Zimbabwe                  | 47,000                                      | 9,117*                                   | 2,455  | 1,380                          | 121                       |

<sup>1</sup> May not be total area reserved for wildlife conservation in the country, but just the area of the specific wildlife agency that provided information.

<sup>2</sup> Total annual allocation (mostly for 1986) for salaries, travel allocation (vehicle running costs, subsistence, etc.).

<sup>3</sup> Total annual allocation for travel/subsistence and recurrent costs only.

<sup>4</sup> Excludes head-office staff and casual labourers.

\* The budgets might now be lower for some countries and higher for others; a comparison between 1981 and 1987 figures showed that Mozambique budgets had declined from \$600,000 to \$400,000 and Zimbabwe budgets had declined from \$13,000,000 to \$9,117,000. Since 1987, the budgets could have continued to decline, although, in the case of Mozambique, they might actually have begun to recover.

\*\* For these countries, the staff numbers are total, so they represent more staff than for the other countries.

\*\*\* Data for Angola, Botswana, Kruger, Tanzania Game Reserves, and Zambia are more recent (1992-1997). Some figures for countries have changed; most notably, Mozambique has increased staff significantly and Zimbabwe staff almost doubled, although they are trying to reduce that figure back by 50% now.

Source: Adapted from Cumming et al. (1990, p.40), with additions from ULG (1998).

**Table 14. Service Conditions in Selected Wildlife Agencies in SADC**

| Country           | Salaries<br>(US \$/year)<br>Guard Level | Salaries<br>(US \$/year)<br>Warden Level | In-service<br>Training<br>Facilities | Morale   |
|-------------------|---|--|--------------------------------------|----------|
| Malawi            | 410                                     | 1,100                                    | Some                                 | Moderate |
| Mozambique        | 150                                     | 360                                      | Occasional<br>courses                | Variable |
| S. Africa (Natal) | 1,860                                   | 7,830                                    | Well organised                       | High     |
| Tanzania (N.P.)   | 170                                     | 370                                      | Some                                 | Low      |
| Zimbabwe          | 1,580                                   | 7,660                                    | Some                                 | Variable |

Source: Adapted from Cumming et al. (1990, p.39).

## **Material Resources**

Human resource shortages are compounded by shortages in material resources (equipment, vehicles, firearms, radios, etc.). For example, prior to recent donor contributions, Mozambique had only one vehicle per 8,212 km<sup>2</sup> of protected area. In many countries, larger amounts are spent on salaries (staffing) with comparatively little spent on operational budgets. For example in Malawi, operational expenditures account for just 38% of total expenditures. This imbalance leads to management difficulties. It is recommended that recurrent expenditures be equally divided between salaries and operational costs (Bell and Clarke 1984). Numerous examples show that staff have equipment and vehicles (often from donor projects that have ended), but lack sufficient funds to cover fuel costs and upkeep. In one park, an electric fence was set up to keep problem animals away from fields; the fence stopped working as the distilled water required to keep the solar battery running could not be purchased. When the fence failed to function, it was cut up into pieces and used by the local communities.

## **Financial Resources**

Generally, financial resources in the region are insufficient. An estimate of minimum level of recurrent expenditure that wildlife agencies need to protect areas adequately is \$200/km<sup>2</sup>/year (Martin 1993). For the figures available from 1990 and 1997, most of the countries in the SADC region did not reach this funding level. The differences in the region are striking (see Table 14). Zimbabwe was just below this minimum level; while Malawi, Mozambique, and Tanzania were well below this level (>70%). In contrast, the Natal Parks Board (now KwaZulu Natal Nature Conservation) in South Africa has recurrent expenditures 22 times greater than the minimum, a level that exceeds budget levels in many western countries. Not only does this show the insufficient level of financial resources for some countries, but it highlights the huge difference in resources available in the region.

### 3.4.4 Dialogue capabilities and coordination efforts

Due to the centralisation of decision-making in most countries in the region, dialogue between government agencies that need to work with one another across boundaries is hindered. Although the agendas of local-level organisations might be similar, their corresponding national institutions might have differing priority concerns. Problems of communication between vertical interest levels increase as issues are translated from local to national levels, and again as issues are addressed at transboundary and regional levels.

TBNRM is a multisectoral issue requiring horizontal coordination between sectors on two sides of a boundary. Again, the complexity of dealing with multiple sectors nationally increases in transboundary situations. In many countries in the region, the management and authority over natural resources is severely fragmented. This division leads to duplication of efforts and possible conflicts between institutions. Luckily, some countries in the region are beginning to plan to review the legislative situation with the aim of reorganising and streamlining NRM (e.g., Botswana CBNRM Policy – Government of Botswana 1998a, p.6). For example, the Botswana 1990 Environmental Policy emphasises “the importance of developing linkages between the different natural resources” (Gov’t of Botswana 1990, p.6).

### 3.4.5 Other regional organisations

#### Other Regional Government Organisations

In addition to SADC and national government organisations, there are some good examples of regional organisations developed around specific natural resources. The first conservation-related TBNRMA is being formally established between Botswana and South Africa in the Kalahari Gemsbok and Gemsbok National Parks (see Section 3.3.8), where the Kgalagadi Transfrontier Park Foundation is being formed to direct activities within that park. Other prominent examples are found in the water sector, in which transboundary issues have longstanding, recognised importance in the region. Several river basin authorities deal with TBNRM and binational and multinational agreements and partnerships. Those authorities include the following:

- *Cunene River Basin Joint Technical Commission*: concerned with the Cunene River, which flows between Angola and Namibia, with focus on waterpower issues.
- *Komati Basin Agreement*: tripartite committee for the Komati River Basin, with representatives from Swaziland, Mozambique, and South Africa.
- *Lesotho Highlands Water Project*: concerned with the Upper Orange River Basin and water resource issues between South Africa and Lesotho (this is not on the Drakensberg side).
- *Limpopo River Permanent Technical Committee*: concerned with the Limpopo River and includes Botswana, South Africa, Zimbabwe, and Mozambique.

- *Namibia-South Africa Permanent Water Commission*: addresses shared water resources concerns.
- *OKACOM*: trilateral commission between Namibia, Angola, and Botswana, concerned with environmentally sustainable development of shared watercourses, particularly the Okavango River.
- *Secretariat for Eastern African Coastal Area Management (SEACAM)*: assists East-African coastal countries to implement and coordinate coastal management activities. Mozambique, South Africa, and Tanzania are in the Reference Group.
- *ZACPLAN*: fosters regional cooperation among Zambezi Basin countries. The plan emphasises environmentally sound management of the area's water resources (see Section 3.3.4).
- *Zambezi River Authority*: joint authority between Zambia and Zimbabwe, mainly concerned with the power sector and management of the Kariba Dam and Reservoir.

Following the signing of the SADC Protocol on Shared Watercourses, there will likely be more agreements made and organisations formed. Some of those might include the following river systems: Pungwe and Save Rivers (Zimbabwe and Mozambique), Shire River (Malawi and Mozambique), Rovuma River (Tanzania and Mozambique), and Songwe River (Malawi and Tanzania). (For more information on the water sector, see SARP report [1995] and Soderstrom [1999].)

### **Other regional, NGO, donor, and private-sector organisations**

This section refers briefly to a few of the more regionally-focused organisations that may be able to assist with the development and management of TBNRM initiatives. The following list is not meant to be exhaustive; it is well-recognised that numerous organisations are not included here (see also Section 3.5.2).

- *Global Environment Facility (GEF)*: a World Bank/UNDP facility formed following the Rio Summit in 1992, which has four focal funding areas: biodiversity, international waters, global climate change, and energy. The first two of these focal areas are extremely well-suited to transboundary initiatives. The GEF/WB has a longstanding involvement and substantial investments in TBNRM in the region (predominately in Mozambique) (see also Section 3.6.2).
- *Investimentos Niassa Lda.*: a Mozambique company, with additional Scandinavian funding, that has recently become involved in a concession that includes the management of the Niassa Reserve and adjacent lands in Mozambique. The area borders the Rovuma River and Tanzania, and is an area of local TBNRM activities.
- *IUCN-ROSA (World Conservation Union-Regional Office for Southern Africa)*: a membership organisation to which many government organisations and NGOs in the region belong. Many of IUCN-ROSA's activities contribute to TBNRM. In its recent regional meeting of members (September 1998), a regional strategic plan was approved

that included the following objective: *"to promote and facilitate a transboundary approach to natural resource and environmental management."*

- *PPF (Peace Parks Foundation)*: As its name indicates, PPF's primary objective is TBNRM-related (see Section 3.5.2). The PPF has been assisting in various transboundary activities in the region and has served as a catalyst to an important variety of initiatives. It has a clear TBNRM agenda, and is well-positioned to support future TBNRM development in southern Africa. It still has to gain acceptance in some quarters in the region in order to attain its full potential. PPF staff are working towards this goal. (Further information on PPF's work is presented in Section 3.6.2.)
- *SASUSG (Southern African Sustainable Use Specialist Group)*: a volunteer organisation established under the auspices of the World Conservation Union's (IUCN) Sustainable Use Initiative, part of IUCN's Species Survival Commission (IUCN/SSC). Many of the members are staff of other environmental organisations in the region. SASUSG has recently established a working group on Transfrontier Conservation Areas (TFCA WG).
- *Southern African Traditional Leaders' Council for the Management of Natural Resources*: council established at the Victoria Falls NRMP conference in 1997 by 23 traditional leaders from five SADC countries. Although this initiative has not been adequately followed up on since the 1997 meeting, it has as its vision *"that indigenous members of the southern African community come to understand the need to manage natural resources wisely and sustainably, through the processes of traditional systems and knowledge, and thereby improve the quality of life of all people."*
- *USAID/RCSA (United States Agency for International Development/Regional Center for Southern Africa)*: center that is well-positioned to support transboundary developments because, unlike many donors that are constrained to working bilaterally, the RCSA has a regional mandate. In its 1998 Strategic Plan Mission Statement, the RCSA's focus includes the following goal: *"to support regional initiatives to promote an integrated market, strengthen democratic principles, and manage the region's resources in a sustainable fashion"* (USAID/RCSA 1998). The RCSA had a Special Strategic Objective to *"increase regional capacity to manage transboundary natural resources."* Under this objective, RCSA funded a study of water resource management and this study on transboundary natural resource management areas. In late 1999, RCSA began planning activities under its new Strategic Objective of *"increased regional cooperation in the management of shared natural resources."*
- *WWF/SARPO (World Wide Fund for Nature/Southern Africa Regional Programme Office)*: program whose goal is to contribute to the maintenance of biodiversity and functioning ecosystems in southern Africa for the benefit of people and nature. The regional programme's priority biomes include coastal and marine ecosystems, freshwater ecosystems, and savanna woodlands. With its focus on management of priority ecoregions, there are numerous TBNRM overlaps with this organisation's objectives and activities since many ecoregions cross national boundaries.

## 3.5 Current Economic Environment in the SADC Region

### 3.5.1 Background

As a region, SADC faces some considerable challenges for economic development. At the same time, the current economic environment offers some exciting opportunities for TBNRM development. To take advantage of these opportunities, it is necessary to have an understanding of some of the broader current issues in the region.

At present, political instability represents a major threat to the regional economy. Angola and the Democratic Republic of Congo (DRC) are currently engaged in serious civil conflict, while Lesotho is recovering from recent turmoil. This instability has the potential to spill over into neighbouring countries, and has also led to disagreements between certain SADC governments. Zimbabwe is actively supporting the DRC government in its attempt to retain power, whereas other SADC governments (e.g. South Africa) have different positions.

Political instability discourages foreign investment, which is greatly needed to boost the region's economy. The regional per capita GDP has declined from US \$918 per person in 1990 to US \$881 in 1997 (SADC figures). Within the region, there are large disparities in prosperity. Per capita GDP differs greatly in magnitude between richer countries, such as Botswana (US \$3,160) and South Africa (US \$2,672), and less prosperous countries, such as Malawi (US \$193) and Mozambique (US \$117). Growth rates vary as well. Interestingly, the two fastest-growing economies are those of the most prosperous and least prosperous countries: Botswana's economy grew at a rate of some 6.9% in 1997 and Mozambique's at 6.0%. By contrast, South Africa grew at only 1.7%, Namibia at 1.8%, and Zimbabwe at 2.0% (see Table 15).

**Table 15. Selected 1997 Data from Relevant SADC Economies**

| Country     | Population | GDP    | Exports | Imports | Growth |
|-------------|------------|--------|---------|---------|--------|
| Angola      | 11.7       | 7726   | 4000    | 2500    | 5.9    |
| Botswana    | 1.5        | 4740   | 1800    | 1087    | 6.9    |
| Lesotho     | 2.2        | 892    | 200     | 1023    | 3.5    |
| Malawi      | 12.4       | 2397   | 498     | 360     | 5.3    |
| Mozambique. | 16.5       | 1944   | 217     | 767     | 6.0    |
| Namibia     | 1.8        | 1274   | 1725    | 1907    | 1.8    |
| S. Africa   | 43.0       | 114939 | 30378   | 28399   | 1.7    |
| Swaziland   | 1.0        | 2034   | 561     | 743     | 3.8    |
| Tanzania    | 30.0       | 6854   | 542     | 1141    | 3.3    |
| Zambia      | 9.8        | 3720   | 868     | 777     | 3.5    |
| Zimbabwe    | 12.3       | 5784   | 1622    | 1776    | 2.0    |

Source: Official SADC figures<sup>18</sup>

<sup>18</sup> Figures for population are in millions. Figures for GDP, exports and imports are in US\$ millions. Figures for Growth are expressed as GDP percentage growth.

While these national differences in economic prosperity and growth rates present significant challenges for regional economic integration, they also present a compelling reason to encourage steps toward integration.

One of the largest constraints to regional integration is the disproportionate size of South Africa's economy. Other SADC countries feel somewhat threatened by this disparity. Where South African corporations are keen to expand their interests in the region, domestic companies in other countries seek a degree of protection. Conversely, South African workers are keen to protect themselves from immigrant labourers from other SADC countries who are prepared to work for far lower wages. Ultimately, freer trade and movement of people would benefit the whole region; however, there are protectionist and vested interests lobbying against greater integration.

In addition, SADC economies generally share the following characteristics:

- **Basic livelihood needs**, such as food security and primary health care, are priority issues.
- Most SADC economies are **heavily reliant on commodities**, i.e., mining. In recent years, commodity prices have been declining, along with accessible mineral reserves. Mining is not indefinitely sustainable.
- Agriculture is a mainstay of most SADC economies. Many rural people rely on subsistence farming to survive. Commercial agriculture is well-developed in such countries as South Africa, Zimbabwe, Namibia, and Botswana, but has been heavily subsidised in the past. Such **subsidised agriculture is seldom sustainable**; most of these countries have predominantly arid environments, in which unsubsidised agriculture is largely nonviable.
- Most SADC economies have **high rates of inflation**; in 1997, the regional average inflation rate was 18.7%.
- **Other related problems** include low productivity levels, low levels of foreign reserves (with Botswana being a notable exception), high budget deficits, and weak institutional capacity.
- Many economies are being subjected to rigorous **structural adjustment programs** imposed by such institutions as the International Monetary Fund (IMF). Such programs call for major trade reforms, downsizing of government, privatisation, debt restructuring, monetary policy reform, and devolution of power to local authorities.
- **Financing and investment is a major problem**. Governments have limited financial resources, and, as a result, many have weak institutional capacity, poorly paid staff, capital scarcity, and inadequate infrastructure. The situation is aggravated by a low level of private-sector investment. This makes governments overly dependent on donor funding, which is in itself problematic. Donors do not always coordinate their activities, resulting in inefficient allocation of resources.

### **3.5.2 Tourism potential**

With its considerable tracts of pristine natural areas, the SADC region has a global competitive advantage in the provision of nature and its associated industries, such as nature-based tourism. The potential of the tourism industry is widely recognised. Globally, travel and tourism is the world's largest industry, accounting for 11% of the GDP of the World's Economy in 1995 (South African Dept. of Trade and Industry 1996). In the SADC region, the contribution of tourism is much lower; for example, in South Africa, which attracts over half the region's visitors, the contribution was only 4% of the GDP in 1995. According to the World Tourism Organisation, world receipts from tourism grew from US \$267.6 billion in 1991 to US \$337.1 billion in 1994, an increase of 26%. During this time, SADC's share of the world total grew by only 14%, from US \$1.6 billion to US \$1.8 billion, only 0.53% of the world total. This suggests that there is considerable potential for growing this sector of the economy

Tourism provides certain attractive advantages over other forms of industry. First, it is labour-intensive and therefore a good creator of employment (World Travel and Tourism Council 1998). Second, it is a high generator of foreign exchange. In 1994, for example, tourism earned more than 30% of the world's total export services. Third, appropriately managed tourism can be compatible with conservation efforts and can generate funds needed to manage protected areas, as well as uplift local communities in isolated rural areas.

Within the region there is an expressed desire to address the potential for growth in the tourism sector. For example, SADC member states have established a regional tourism marketing organisation called Regional Tourism Organisation of Southern Africa (RETOSA). In South Africa, the government has outlined a strategy to encourage the growth of "responsible tourism." The private sector has recently joined forces with government to create a massive fund to market the country.

There are certain obstacles to developing the tourism industry in the region. Health and security are two major concerns to potential overseas visitors and need to be addressed. Additional problems include lack of tourism infrastructure in certain areas and high costs in air travel and other sectors. These issues need to be addressed at both national and regional levels.

Provided the above obstacles are addressed, there are good reasons to believe that the region's tourism can be realised. The relative profitability of mining enterprises is declining, and subsidies to conventional agriculture (a form of land use that competes with and displaces wildlife and natural areas) are being reduced. These trends will ensure that the relative economic importance of nature-based tourism will increase, even if current visitor levels remain stagnant.

### **3.5.3 SADC policy issues**

The potential for developing nature-based tourism in the region, especially in conjunction with transboundary initiatives, must also be seen in the overall context of the SADC and its policies (see Section 3.3.2). Many issues of national vested interests and protectionist tendencies

remain; however, the overall trend within the region is toward greater regional cooperation and freer trade.

The stated goals of SADC, related to enhancing the economic environment, are to:

- harmonise macro-economic policy;
- increase the pace of privatisation;
- encourage private/public-sector partnerships;
- create an enabling regional investment and trade environment supportive of enterprise;
- rationalise and harmonise various investment policies, codes, and mechanisms; and
- promote cross-border investment and payment mechanisms.

Clearly, there is much political support for the basic tenets of sound conservation management at the regional level. This support originates from both the public and private sectors, and is expressed in official SADC policy.

#### **3.5.4 Private-sector and NGO motivations with regard to TBNRM**

There is a broad spectrum of private-sector and NGO interest in the conservation and tourism sectors; motivations range from philanthropic and long-term, to strictly commercial and short-term. The philanthropic end of this spectrum is represented by NGOs and certain wealthy individuals, whereas the strictly commercial end of the spectrum is represented by local entrepreneurs and large corporations. In reality, most interested parties are motivated by a combination of philanthropic and commercial objectives, although this is not widely recognised.

Private-sector agents and NGOs are motivated to :

- support nature conservation (for aesthetic and other reasons);
- support sustainable industries;
- support industries that create new jobs and uplift disadvantaged people; and
- invest in activities with the above attributes to gain financial and "psychic" returns (i.e., the "feel-good" factor and positive existence values).

To the extent that TBNRM furthers the development of conservation and related industries, it will be in demand by the private sector. Some of this demand is simply based on existing demand for conservation, but there is also demand for some of the incremental benefits of TBNRM. This is clearly demonstrated by the level of private-sector support for the South African-based PPF, an NGO set up specifically to promote the developments of TFCAs.

Specific aspects of TBNRM that appeal to the private sector are:

- Creation of larger conservation areas with improved infrastructure, better management, and greater market appeal. Such areas have the potential to offer a range of new business opportunities to private agents, better and easier access to new areas, and easier ways to market them.
- Potential reduction or elimination of barriers to travel and trade across national boundaries (e.g., faster and simpler customs and immigration formalities). Reduced barriers will enable private agents to conduct their business more efficiently, thereby increasing opportunities for profits.
- Enhanced opportunities to invest or conduct business across national boundaries (by harmonisation of laws concerning tour operators, private developers, etc). Similarly, this will expand the range of options available to and profitability of private ventures.

It is important to note that, although many private agents express verbal support for the development of TBCAs/TBNRMAs, fewer agents are currently willing or able to back up words with significant action. This seems to be especially true of the smaller commercial operators, who are preoccupied with practical day-to-day issues, and for whom TBCAs/TBNRMAs are a potentially useful, but by no means essential, supplement to their working environment. Nonetheless, such smaller operators eagerly anticipate outside initiatives that will catalyse the TBNRM process and will ultimately bring about the anticipated benefits.

When it comes to translating expressed demand into action and investment at this stage, it is wealthier individuals and organisations (many of which are based outside southern Africa) that are most likely to contribute directly to TBCA or TBNRM development. Even so, it is worth noting that PPF intends to raise much of its major project funding from government and multilateral donor agencies rather than from private sources, which appear to be more limited.

It appears that the commercial private sector will provide greater support to TBCA/TBNRM development once certain enabling mechanisms have been put in place. For example, certain large infrastructure developers look to such mechanisms as the South African Spatial Development Initiatives (SDIs) and the Industrial Development Corporation's Ecotourism Fund (a concessionary lending facility) to create and facilitate investment opportunities. Smaller, more local agents tend to take advantage of specific initiatives as and when they materialise.

An important aspect of both private-sector and NGO support is a sincere overall concern that future TBNRM initiatives are structured to ensure that local communities are fairly treated. Most agents would like to see communities empowered to benefit both directly and indirectly from the natural resource base. (For more information on direct and indirect benefits from TBNRM, refer to Appendix 3.)

Ultimately, private-sector support for TBNRM will depend largely upon whether governments create the right enabling environment (i.e., an appropriate package of incentives for the private sector to engage in the TBNRM process). SADC policies show promise in this regard, but it is national governments that need to take the lead to make this a reality.

## **3.6 TBCA and TBNRM Developments in Southern Africa**

### **3.6.1 TBCA and TBNRM developments in the region**

To date, many initiatives have occurred in the region under the broad definition of TBCA (where protected areas are involved). Initiatives have started in several ways. Early efforts often involved informal collaboration at the local level between protected area staff. For example, Zambian and Malawian staff of the Nyika National Parks collaborated many years ago through such activities as joint burning programs and permitting law enforcement teams to cross the border and make arrests on the other side. This collaboration has since ceased, although discussions are under way to reintroduce a similar system. Management staff of Gemsbok National Park in Botswana and the Kalahari Gemsbok National Park in South Africa started collaborating informally in 1948 on certain management issues (e.g., animal census). This arrangement continued for many years, and, in 1992, the two countries decided to start a process of formalising it with the establishment of the Kgalagadi Transfrontier Park. The two countries have since established a Transfrontier Management Committee, prepared a joint management plan, established a Transfrontier Foundation, and have signed a formal bilateral agreement and record of understanding (see Section 3.3.8).

Informal collaboration between protected area staff, as outlined above, is probably easiest when it involves protected areas on both sides of the border with similar management objectives and no other land use categories are involved. In the early days, these cases did not involve high-level diplomacy; and while they were limited in what activities were possible, they seemed to have served the purpose well at the time.

Formal approaches to TBCA development have started to occur more recently, as in the case of the Kgalagadi Transfrontier Park, which is the most highly formalised arrangement in the region to date. At this stage, central government wildlife staff members have become involved, as have other ministries (e.g., customs and immigration authorities and the attorney general). The role of central government features more prominently when dealing with multiple land-use types, rather than with simple protected-area situations, and always when arrangements need to be more formalised (e.g., the Kgalagadi).

Since the establishment of an intergovernmental liaison committee in 1982, there has been cooperation between authorities in Lesotho (Maloti Mountains) and South Africa (uKhahlamba-Drakensberg) regarding this shared mountain range system, which has regional significance as a water catchment area. A Memorandum of Understanding for TBNRM is in preparation and a joint coordination unit has been established. Transboundary cooperation occurs between government agencies, namely the National Environmental Secretariat and the KwaZulu-Natal Nature Conservation Service, as well as between governments and communities (on public, private and communal lands).

Another recent example concerns the areas covered by the GEF Transfrontier Conservation Areas and Institutional Strengthening Project in Mozambique. Mozambique aims to collaborate with Zimbabwe and South Africa to promote development of TFCAs in: Maputaland (including Maputo Special Reserve in Mozambique and Tembe Elephant Reserve and Ndumo Reserve in

South Africa); Gaza (including Zinave and Banhine National Parks and Hunting Area (Coutada) 16 in Mozambique; Kruger National Park in South Africa; and Gonarezhou National Park in Zimbabwe); and the Chimanimanis (including Chimanimani National Park in Zimbabwe).

International collaboration started with informal meetings between Mozambican and South African officials. South Africa and Zimbabwe formed a joint committee. A tri-national meeting has been held recently by the three countries. Limited collaboration is occurring on the ground (e.g., thus far, assistance to Mozambique from South Africa with law enforcement and the conducting of joint surveys). Many plans are being made for the future; however, Mozambique needs time to rehabilitate its protected areas after the war. Special provisions are being made to promote CBNRM. As in the Lesotho case, there is a complex range of land-tenure situations in the three areas, including protected areas, privately owned land, communal areas, and a hunting area. One of the communities to be involved is the Makuleke people, who have recently regained access to traditional land in the north of Kruger National Park and will derive benefits from it, while maintaining the park's conservation status.

Based on the Kgalagadi model, South Africa and Botswana have started collaboration in the Tuli Block/Limpopo Valley transborder areas. In this case, there is the additional aspect that a good portion of the land in the TBNRMA is held by private landowners. It is hoped that Zimbabwe will also become involved; this will add another level of complexity, as the land ownership on the Zimbabwe side is mainly communal. The overall benefits of collaboration are to increase conservation opportunities for this marginal ecosystem and to extend the range of large mammals. PPF is playing a role here, as in some of the other areas in the region; in this case, it has purchased a farm in the complex in order to divert land use from irrigation.

An initial attempt to create a TBCA between Malawi's Kasungu National Park and Zambia's Lukuzuzi Game Reserve and other lands connecting the two protected areas stalled. This may have occurred because the initiative was led by an NGO and was not seen as coming from the Zambian government; Malawi authorities did not become involved. However, the two countries still recognise the potential for collaboration, and Zambia has recently created a corridor linking the two protected areas.

In the Lower Zambezi National Park in Zambia and Mana Pools National Park in Zimbabwe, agreement has been reached between the wildlife authorities for such joint operations as aerial surveys and following illegal hunters across the border. In the Caprivi area, collaboration on shared wildlife populations has been initiated through the removal of a section of veterinary cordon fence along the Namibia/Botswana border. In addition, Zambia is also keen to become involved in international collaboration in the area.

TBCA development is not limited to terrestrial ecosystems. Discussions have been held by Malawi, Tanzania, and Mozambique regarding joint management of Lake Malawi. The governments of Zambia and Zimbabwe have been collaborating for many years on a cooperative program for Lake Kariba (the latter, in part, assisted by funding from the Norwegian Agency for Development Cooperation (NORAD)).

The above discussion has focused largely on TBCA experiences in the region, where collaboration is mainly either between protected areas or involves arrangements between governments for the joint management of natural resources, especially wild mammals and water. With regard to TBNRM, the experience is broader. As outlined in Section 3.2, much

informal use of natural resources occurs in border areas and has done so for many decades. Where movement of local people is not prevented, and where there are cultural ties across borders, there are often economic trade links based on locally harvested natural resources whose supply-and-demand situations are unequal on opposite sides of the border. This occurs, for example, with production of palm wine in the Futi Corridor area in southern Mozambique and its sale in South Africa (Pollett et al 1996). Fuelwood often moves across borders; for example, from Gaza in Mozambique to Kruger National Park, from land east of Lake Malawi/Niassa in Mozambique to Malawi islands on the east side of the lake, and from forest areas in Mozambique to the east of Mulanje Mountain in Malawi. Since much of this trade is informal, its scale is unknown; but it is probably substantial and plays an important role in the economies of the local transboundary communities concerned.

An example from Malawi demonstrates the importance of taking the transboundary socioeconomic situation into consideration in CBNRM projects rather than working in isolation in one country alone. A project to promote beekeeping by local communities living on the boundary of Malawi's Nyika National Park ultimately failed, in part, because people living across the border in Zambia were not allowed to participate. Since they were not gaining benefits and yet had close cultural and economic ties with the communities in Malawi, they stole the honey. Had communities from both sides of the border been able to benefit from the scheme, perhaps with the Zambian Nyika National Park also participating, the outcome might have been different. A new CBNRM project on the Malawi side of Nyika and Vwaza is working to address this transboundary issue. The situation in Nyika-Vwaza is an interesting one, since the communal area there overlaps the boundary and Chief Chikulayamemba has constituents in both countries. Hence, his people in Zambia are often unofficially involved in resource harvesting in the protected areas in Malawi that are part of the CBNRM initiatives in that country.

In summary, experiences in TBCA and TBNRM in southern Africa have been many and varied. Until recently, they occurred on an individual, ad hoc basis, with relatively little communication between initiatives and hence little sharing of experiences and lessons learned. Dialogue has greatly increased over the last few years, with the establishment of PPF, the holding of an international meeting on peace parks in Somerset West in 1997, and by the formation of the SASUSG's Working Group on TFCAs. A large amount of enthusiasm for and ownership of the TBCA/TBNRM concept has developed in most of the countries covered by the study; however, the learning curve is high. While there is experience of informal collaboration between protected areas and community-level, cross-border natural resource trade, to date there is less in the way of formal agreements.

### **3.6.2 Donor involvement in TBCA and TBNRM in southern Africa**

Several organisations and donors are currently supporting and working on transboundary initiatives. Currently, the two main organisations focusing on transboundary efforts in southern Africa are the GEF and the PPF.

Two of the GEF's focal areas, biodiversity and international waters, are extremely well suited to transboundary initiatives. As such, the GEF is one of the few international donors that have a number of projects specifically designed to address transboundary and regional conservation issues. The variety of GEF projects (both current and finished) are briefly outlined

here. Several projects concentrate on transboundary projects in East Africa between Kenya, Uganda and Tanzania. These projects are: (1) Reducing biodiversity loss at cross-border sites in East Africa (GEF/UNDP) - the project focuses on combining traditional and modern perspectives on a range of issues that pertain to natural resource management and decision making; (2) Lake Victoria Environmental Management (GEF/WB, Executing agency – Kenya, Tanzanian and Ugandan National Secretariats for the Lake Victoria Environmental Management Program) – the project addresses the major threats (pollution, invasive species, over fishing, etc) facing the Lake Victoria ecosystem. A third project - Institutional support for the protection of East African biodiversity (GEF/UNDP, Executing Agency - FAO) - supports existing government and non-governmental organisations to enhance their capacity to address biodiversity conservation. Another GEF/UNDP project is funding a transboundary study in Tanzania, DR Congo, Burundi and Zambia on "Pollution control and other measures to protect biodiversity in Lake Tanganyika". This five-year project aims to improve understanding of ecosystem function and the effect of stresses on the lake system. The project will assist in coordinating efforts to control pollution and prevent biodiversity loss.

The GEF TFCA and Institutional Strengthening Project is based in Mozambique's National Directorate of Forestry and Wildlife. Operating mainly in Mozambique, it aims to promote transboundary development in three transboundary areas: (1) Maputo Special Reserve and Futi Corridor (Mozambique)/Tembe Elephant Reserve and Ndumu Reserve (South Africa); (2) Banhine and Zinave National Park & hunting area 16 (Mozambique)/Kruger National Park (South Africa)/ Gonarezhou National Park (Zimbabwe); (3) Chimanimani Mountains (Mozambique) and Chimanimani National Park (Zimbabwe). These projects work with individual government ministries: in Mozambique, through the National Directorate of Forestry and Wildlife and the Ministry of Agriculture and Fisheries, in Zimbabwe, through the Ministry of Mines, Environment and Tourism, and in South Africa, the Ministry of Environmental Affairs and Tourism (see section 3.6.1).

In a separate but complementary project, GEF/World Bank is funding Biodiversity Conservation in Southeast Zimbabwe. The project is run through the Department of National Parks and Wildlife Management, Ministry of Environment and Tourism. The project aims to design and implement a natural resource management program for Gonarezhou National Park bordering both Mozambique and South Africa (this project was approved in mid-1998).

The GEF also funds two projects that focus on SADC countries. These are:

- (1) Southern Africa biodiversity support program (GEF/UNDP). This is run through SADC to assist countries to collaborate with, and build capacity between, neighbouring states in the implementation of the Convention on Biological Diversity (CBD). One aspect of this study focuses on discussions of regional "cross border" conservation issues.
- (2) Inventory, evaluation and monitoring of botanical diversity in southern Africa: a regional capacity and institution building Network (GEF/UNDP) – the project is working to develop networking capability and build capacity among 10 SADC countries to inventory and monitor botanical species within the region's diverse vegetation communities.

The Peace Parks Foundation (PPF) is the only organisation in the region whose sole objective is to address transborder conservation in Africa. PPF's primary objective is "to promote transfrontier conservation, 'peace parks' in Africa". PPF is working on seven TFCA's

along South Africa's borders. In addition, PPF is investigating TFCAs along Lake Malawi and some of the more northerly great lakes. PPF's projects are varied and range from purchasing land, infrastructure development, and land surveys as well as building regional capacity through courses at the Southern Africa Wildlife College. In the Kgalagadi TFCA, PPF assisted in capacity building in Botswana, building of the joint visitor gates, and a vegetation study (Botswana). On a broader scale, PPF and IUCN sponsored the Parks for Peace Conference in Cape Town in 1997. The conference served to bring discussion of a global issue into the SADC region.

With regard to water catchment areas, the Canadian International Development Agency (CIDA), with IUCN, is funding a broad regional project: the Zambezi Basin Wetlands Conservation and Resource Utilisation Program (ZBWCRUP). The project aims to strengthen the capacity of participating states (Angola, Botswana, Namibia, Malawi, Mozambique, Zambia, and Zimbabwe) to provide input to initiatives within the Zambezi drainage basin and region. This is a TBCA project that focuses not on borders but on regional management of an entire river basin.

In addition to these transborder and regional projects, there are a number of donor funded projects that focus on a particular aspect of a TBCA; these projects can play a vital role in forwarding the TBCAs development. For example, the European Union (EU) is funding a community project in Lesotho to assist with land-use planning. The project will assist in developing the community's capacity to voice their issues in the formation of the proposed Drakensberg-Maloti TBCA. Japan International Cooperation Agency (JICA) is planning to fund the coordination unit that will discuss and prepare proposals for the TBCA. GEF/WB is currently developing a proposal for the South African side of the project. GEF/UNDP has a project in Qalting Dt. that looks at cross border issues to East Cape. Coordination of donors, in this case the EU, JICA and GEF, is key to funding the variety of issues that need to be addressed in the discussions and actions leading to TBCA formation. In addition to donor agencies, the South Africa "Spatial Development Initiative" (SDI) programme uses government funds to leverage private sector involvement in development activities. The Maputo Corridor SDI is addressing the socio-economic aspects of Corridor development activities in cooperation with the provincial and national departments of Environmental Affairs.

While not originally developed with transboundary issues in mind, there are many donor projects in the SADC region that could be further developed or augmented to have a transboundary focus. The previously mentioned CAMPFIRE in Zimbabwe is a good example. The majority of Communities associated with the CAMPFIRE program are adjacent to, or close to Zimbabwe's international borders. These are ideal areas to initiate efforts in transboundary conservation. The GEF is working with CAMPFIRE associations, along with other collaborators to address TBCA issues in and around the Gonarezhou National Park, Zimbabwe and adjacent conservation areas in Mozambique and South Africa. USAID has been a major funder of the CAMPFIRE Program with the Netherlands and GTZ funding specific smaller sections.

There are a number of other strong CBNRM projects that may be able to address cross border issues, these include: the Administrative Management Design (ADMADe) Program in Zambia and the Living in a Finite Environment (LIFE) program in Namibia, both of which receive funding from USAID bilateral programs. In addition, there is the Luangwa Integrated Resource Development Project (LIRDp) in Zambia funded by NORAD. GTZ is working in the Nyika National Park area in Malawi, and has begun discussion with officials on both the Zambia and

Malawi sides. IUCN (ROSA) provides extensive capacity-building activities with SADC member states. A number of other projects are both on going and under development.

Finally, USAID is currently reviewing its role and comparative advantage in transboundary natural resource management. To date, USAID has played a key role in gathering data from transboundary NRM stakeholders, synthesising the material and then disseminating the information within the region. This TBNRM study is a collaborative effort between USAID/RCSA and BSP to identify and discuss the variety of components needed to promote the development of transboundary natural resource management in the SADC region. In late 1999, the RCSA began planning activities under its new Strategic Objective *“Increased regional cooperation in the management of shared natural resources”*. USAID has had a longer involvement in the region’s water sector. In 1995, USAID funded a Southern African Regional Water Sector Assessment. The report ranks thirty regional projects for potential donor funding and provides a database of information on water activities in the region. The RCSA has since funded a further water study on *“Towards sustainable water resources management in southern Africa”* (Soderstrom 1999) Since its formation, USAID/RCSA has funded technical assistance as well as studies and workshops to build regional capacity to address water resources issues.

## 4. Opportunities and Constraints for TBNRM Development and Management

The regional situation, as presented in Section 3 and based on additional information from consultations held by the study team, highlights a series of opportunities and constraints for TBNRM development and management in the region. The opportunities and constraints presented below are aimed at three stakeholder groups: public sector, private sector, and communities.

### 4.1 Public-sector Opportunities and Constraints

#### 4.1.1 Public-sector opportunities

The opportunities perceived by the public sector offer a favourable combination of circumstances to assist the progress of TBNRM activities. Overall, increased regional cooperation is seen as an opportunity for progress.

#### *National Governments*

- **Enhanced ecosystem management.** Transboundary ecosystem management provides significant opportunities for national governments where intact ecosystems are under threat from unsustainable development and where key ecological functions have been disrupted by national boundaries. TBNRM may provide viable alternatives to maintain ecosystem integrity, and transboundary collaborative management can increase the value of internationally shared resources by re-establishing key ecological functions (e.g., water catchments).
- **Benefits of scale in resource management and protection.** Scale provides the benefit of synergism, where the whole is greater than the sum of its parts (see Section 5.1). This benefit is especially noticed by the agencies responsible for NRM. Numerous benefits can be seen from direct interaction between staff on both sides of the border. These include shared expertise and activities, backstopping (e.g., fire management and anti-poaching), and, possibly, shared resources (e.g., materials, equipment, and training).
- **Opportunities for problem resolution.** This benefit can accrue at the national, provincial, or local levels. However, the opportunities are probably greatest at the local level, where the advantage of TBNRM to assist resolution of ecological, economic, or social problems on the ground is the most tangible. This is especially relevant when local areas are remote from their national capitals and where they may have a greater natural sense of association and collaboration with their counterparts directly across the border. At the local level, people want to be able to move the process forward and get things done. They see the costs of dealing with closed boundaries, and are therefore more adamant about promoting the TBNRM process and its direct, localised benefits.

- **Global recognition.** From a national standpoint, being seen as doing the “right” thing is important to governments. Cooperation, partnerships, peace, collaboration, and regional integration are all viewed positively in the global arena. TBNRM is seen as supporting the internationally recognised principles of democracy, sustainability, and efficiency (see Section 5.1). In addition, TBCAs or TBNRM development provides an individual country an added sense of having its conservation efforts recognised, similar to what is gained by designating MAB, Ramsar, or World Heritage Sites. The value of TBCAs and TFCAs is rapidly gaining recognition and popularity.
- **International investment.** Because the TBCA/TBNRM concept is currently popular and is globally recognised, it is thought that international investment (commercial, private, and donor) will be attracted to TBNRM initiatives. Examples of international interest being converted into investments can be seen in the existing and growing interest in the PPF, which focuses specifically on TFCA issues; in the TBCA initiatives of the World Bank/UNDP and GEF; as well as certain private-sector operations.

## **SADC**

SADC supports many national government opportunities in TBNRM issues. By supporting national programs, SADC units assist the implementation of SADC’s own goals and objectives, which are, in effect, a compilation of the objectives of its member states.

- **SADC mandate to promote TBNRM and regional cooperation.** The fact that SADC already has the mandate to promote TBNRM and regional cooperation offers a strong chance for advancing TBNRM initiatives in the region. The foundation exists.

### **4.1.2 Public-sector constraints**

The following are perceived or existing constraints to the public sector’s full involvement in the TBNRM process. These issues represent what represses, confines, and restrains the public sector from forming partnerships and promoting TBNRM.

#### ***National Governments***

- **Differences in capacity.** Ability and skills vary between countries in the region. At times, these differences are quite significant. They are sometimes seen by the groups with greater capacity as hindering their potential to progress with cross-border activities that they feel ready to embark upon. In groups with lesser capacity, there is a sense of not being able to participate fully or to be able to control the process.

The most significant problem with the variation in capacity is that it affects the ability or ease of making lasting partnerships. Sustainable partnerships are less likely to exist if the parties do not realise the interdependence of the TBNRM process. Parties cannot act alone, but rather need to work together, even if the process is initially slow while capacity is gained. The most critical problem arises when parties feel that they do not have adequate power or control over the situation. This occurs when parties do not consider themselves at an equal level to negotiate, enter into agreements, and see

those agreements implemented. These differences in capacity, which also occur between the public sector and other stakeholders, cause similar problems.

- **Lack of capacity and skills.** The capacity and skills to initiate and implement TBNRM are often weak or lacking all together. Areas where capacity needs to be strengthened include organisational skills, communication, facilitation, group dynamics, negotiation, analytical decision-making skills, business and technical NRM skills, networking, and fundraising and proposal writing.
- **Differences in level of commitment.** Countries vary in their level of commitment to TBNRM issues. Differences in capacity and other factors can lead to unequal commitment or promise to the process. Unequal commitment is a quick way to sour potential partnerships. Problems arise when one party is excited about collaboration and is taking noticeable action toward promoting it, while the other party is not. The process is stalemated when certain countries have the support of their public sector while their neighbours do not. These differences in level of commitment also occur between the public sector and other stakeholders as well, leading to similar problems.
- **Lack of resources, especially lack of investment or funding.** The public sector feels constrained by its limited resources of information, human/organisational skills, and capacity, infrastructure, and finances. Even where TBNRM is considered important, problems may arise if the public sector has other, more pressing priorities for its limited government resources.
- **Ineffective communication with other stakeholders at all levels.** Communication must occur in both directions. There are problems of communication between the public sector and other stakeholders. The public sector has difficulties making known how it operates, what it wants, and what it is willing to contribute to various initiatives. For other stakeholders, such as the private sector or communities, there is often a problem of knowing how to make contact with the public sector. Even when the lines of communication are known, they can be ineffective; this leads to agreements being reached without consultation with the public sector. There are cases where lower (local) levels within the public sector make informal agreements with their counterparts across the border without prior communication with the higher (national) levels of the public sector and vice versa.
- **Incompatible policy and legislation.** Policy and legislation between governments vary greatly. This variation can hinder initiatives where one government allows for a certain type of activity while the other does not. The incompatible nature can be small (e.g., differences in whether open vehicles can be used by tourists in protected areas or not or park closing and opening times) or can be larger (e.g., differences in customs and immigration policies, land use policy, veterinary control, or tenure).
- **No authority or mandate for lower levels to deal with international issues.** This constraint is true for most governments in the region. The on-the-ground TBNRM process can be hindered where the authority or mandate to act is not devolved from higher to lower levels of government. As mentioned above, various examples in the region illustrate cross-border cooperation taking place without the official consent of national governments. The issue of lack of devolution of power is probably one of the

most critical constraints to TBNRM. TBNRM is binational or multinational in nature and therefore, at some point, usually requires higher national-level agreements. However, these agreements need to be reached on broad issues of willingness to cooperate, recognition of sovereignty, etc. Once formed, these plans should be handed over to lower levels of government to work out the details of implementation.

- **Concerns about sovereignty and autonomy.** Lack of devolution by national governments is, in part, driven by a government's concern that it might lose some right or power over its own self-government by getting involved in TBNRM. This is more likely to become a constraint where there is a risk that the principles (see Section 5.1) are not upheld, especially those of democracy (e.g., tolerance and trust). If one partner believes the other is not abiding by the principles, then it will appear that the noncompliant country is trying to dictate or direct how the other country will act.

Trust, or the assured reliance on the character, strength, and honesty of a particular party, is one of the most critical elements of TBNRM. Unfortunately, the principle of trust is a difficult one, as many potential TBNRM stakeholders have either not worked together before or have been in situations where they may have been in direct conflict with one another on other issues. With this noted, the TBNRM process can assist in promoting trust in the simplest way, by having stakeholders be trustworthy with one another. By building shared experiences of relying upon one another, even if in small tasks, it is easier for stakeholders to believe that they can rely on one another in the future.

- **High transaction costs.** The costs of carrying out the TBNRM process are considered high, in terms of both time and resources (human, financial, and informational). Even before a partnership agreement is reached or joint implementation occurs (which have their own high costs), several levels of meetings are needed to address planning, document drafting, etc. For a public sector that is short on resources, this can be viewed as an inordinately high cost to deal with supposed intangibles before a concrete product is delivered.

TBNRM has the added transaction cost of the need to properly address multiple land-use issues and multiple stakeholders both within and across borders. This level of complexity is often avoided by the public sector, where communication and collaboration between line ministries within a government may be poor, let alone with other institutional sectors on its side of the border. An additional element to add to the high transaction costs is the fact that the political composition and focus of governments and government officials can change quickly (often with diametrically opposing views). These changes can affect the whole process, and may sometimes necessitate restarting near the beginning.

- **Security issues.** The safety and welfare of the nation is one of the most critical concerns of national governments. TBNRM, in its simplest sense, can be viewed by public decision-makers as “unlocking the door” and letting in whatever elements (especially the undesirable ones) show up. Border security is one real fear in the TBNRM process, especially because past rebel activities in the region have been carried out from directly across borders. Hence, the issue of trust arises and needs to be addressed with regard to opening border areas.

After border security, the threat of disease (mainly to livestock) and associated veterinary concerns are high on the list of factors hindering TBNRM (see Section 3.1.5). The erection of veterinary cordon fences and the reluctance to remove them once they are in place are in direct opposition to the idea of TBNRM, as fences hinder the free movement of wildlife. In addition, there is concern about increased illegal immigration resulting from the potential “softening” of boundaries. This is a large concern based upon a history of migrant labourers moving to and from certain countries in the region.

- **Political instability.** Unstable government has been and still is (mainly in the case of Angola) a problem in the region. In Angola, the heart of the political resistance movement is based in the protected areas in the southeast corner of the country. This area happens to be part of one of the most critical potential TBNRM areas in the region, with links to the Zambezi River system, Caprivi Strip, and Okavango Delta (incorporating Zambia, Botswana, Angola, and Namibia directly, and possibly other countries indirectly). This is a strong example of a government or partner that could be very difficult to work with in TBNRM. Other, less obvious issues of political stability can also hamper TBNRM activities. Politically weak or unsupported governments can also threaten TBNRM initiatives due to lack of ability to act, or by concerns of partner states in terms of commitment, trust, and interdependence.

## **SADC**

- **Lack of resources.** SADC has inadequate resources (informational, human and organisational, infrastructure, and financial) to adopt the role that it could ideally play in TBNRM. The major constraint with SADC is the lack of financial resources to address the host of other resource problems. SADC itself does not have the budget to carry out all the activities that it has set out to do. The SADC structure delegates certain technical coordination roles to specific member states. In the case of TBNRM, the most relevant are Malawi for Wildlife, Fisheries, Forestry and Biodiversity, and Lesotho for Environment and Land Management Services (including water resource management). The ability of these TCUs is directly correlated to the capacities of the countries responsible for them. In the example of Malawi, which is severely limited by insufficient resources for its own national concerns, it is unlikely that sufficient resources are allocated to the SADC TCUs. In fact, even the few resources that are allocated to SADC are often re-appropriated for use on “more urgent” national issues. If SADC is really to play an active role, then a separate resource provision mechanism needs to be designed.
- **Lack or poor use of coordinating structures.** In theory, SADC is responsible for the coordination of regional activities. However, the structures or elements that would make such a system happen are nonexistent or are poorly used. The SADC TCUs are often forced to respond to crisis situations of concern, and are unable to address the day-to-day coordination role that TBNRM requires.
- **Multiple sectors in SADC.** TBNRM is multisectoral and SADC, like individual national governments, has extreme difficulty working with multisectoral issues. One case in point is the inability of proper coordination of the Wildlife, Fisheries, and Forestry TCUs, all of which are based in the same country (Malawi). The problem increases in

magnitude when tourism issues (covered by Mauritius) or water resource issues (Lesotho) need to be integrated; further escalation occurs with additional issues on customs, immigration, and finance. Mechanisms for intersectoral coordination have not yet been sufficiently addressed in SADC. One recommendation is that a SADC TBNRM Protocol be established; this could provide the mandate for coordination (although it already exists in the SADC Treaty) and could outline specific mechanisms on how coordination would occur.

## 4.2 Private-sector Opportunities and Constraints

### 4.2.1 Private-sector opportunities

- **Politically correct industry.** The nature-based tourism industry has a potentially good image that could be further enhanced by TBNRM. Growth in nature-based tourism, besides providing profit for private business concerns, can provide such potential benefits as increase in economic development, conservation efforts, benefits for local communities, and regional peace.
- **Overseas interest in investing in and donating to conservation enterprises.** Many people in affluent countries are willing to spend money on ecological conservation in Africa. This existence value is reflected by the large memberships of international conservation NGOs and by the huge popularity of wildlife-related documentaries. Thus, given the right investment opportunities, foreign private money may be available for TBNRM-related activity.
- **Enabling mechanisms for investment.** Government initiatives, such as South Africa's Spatial Development Initiatives (SDI) and the Industrial Development Corporation (IDC) ecotourism fund provide incentives for private-sector developers to create infrastructure in TBCAs and TBNRMAs.
- **Generic regional marketing through RETOSA.** The SADC Tourism Coordinating Unit has established the Regional Tourism Organisation of Southern Africa (RETOSA) to market the region as a whole (coordinated destination marketing). Such marketing efforts should increase the total number of visitors to the region. Increased tourism will benefit private tour operators, especially those who operate on a regional basis.
- **Potentially freer movement of people, goods, services, and money.** Whether or not freer trade is linked directly to TBNRM, the private sector perceives considerable benefits from TBNRM. These benefits include reduced transaction costs, economies of scale, and the reduction of business risk through diversification.

### 4.2.2 Private-sector constraints

- **Restrictive financial institutional environment.** Within the region, there are numerous restrictions on capital flows, financial regulations, and tax laws that complicate international investment and financing initiatives. Foreign exchange risk also

discourages investment by offshore agents. Governments in southern Africa could facilitate additional investment in TBNRM activity by removing foreign exchange controls (in certain countries) and by providing more secure systems to protect investors.

- **Government reluctance to embrace full private-sector participation.** To varying degrees, southern African governments actively discourage the private sector from assuming certain roles. Perhaps the most sensitive issue is that of private land ownership, especially large tracts of land set aside for conservation. For example, many governments are unwilling to allow foreign organisations to purchase freehold rights to land appropriate for conservation; they see this as an issue of national sovereignty. Some governments do allow private freehold land ownership (South Africa, Namibia, Zimbabwe, and Botswana), but even so, tenure is not always secure. In most instances, leasehold options are preferred; however, these are often short-term and do not always provide the appropriate incentives for private-sector involvement.
- **Local communities insufficiently empowered.** This is a common private-sector complaint. Commercial agents, such as property developers and tourism operators, are keen to negotiate directly with local communities over such issues as concessions, business opportunities through outsourcing, and employment. Naturally, most agents will attempt to achieve the best deals possible; however, many agents are genuinely concerned that communities are not disenfranchised or cheated in the process.

Commercial agents favour capacity-building initiatives that elevate the negotiating status and abilities of local communities. While agents do not see this as their role, they are critical of some of the past government and NGO involvement in this area. For example, they would like to see governments empower communities by granting them direct and secure land tenure (i.e., ownership rights). In many cases, governments are unwilling to do this; in some instances, they devolve authority to regional government structures. This partial devolution does not represent the true interests of the community. Although some commercial agents are happy to deal chiefly with high-ranking government officials (including paying bribes), it appears that most would prefer not to operate that way.

Commercial agents also are critical of many foreign NGOs that involve themselves with community issues in specific areas. Agents often feel that they can negotiate directly with communities, but are unable to do so when NGOs insist on representing the communities' interests. Such involvement may be well intended but sometimes appears to be self-serving, and is not always insightful or constructive.

- **Lack of public-sector capacity.** Another common private-sector complaint involves the lack of capacity in public agencies, especially conservation agencies, many of which are seriously underfunded in several SADC countries. The private sector has limited incentives to invest, for example, in protected areas that lack infrastructure and vital services, such as road maintenance and anti-poaching measures.
- **Lack of trust.** Government agencies and NGOs are frequently suspicious of the motivation driving private-sector agents. This suspicion is partly justified, as some private agents have acted unethically in the past. There is a need for more effective

communication between the parties involved to facilitate better understanding and build trust. Failing this, it will be difficult to implement successful partnerships.

- **Existing barriers to travel and trade.** Customs and immigration formalities at borders impose costs on private operators. In some cases, these can be significant. For example, the Kazangulu border post between Botswana (Kasane) and Zimbabwe (Victoria Falls) often holds up tour buses for periods of up to three hours, representing significant cost in time for tour operators.
- **High airfares.** The SADC region is still subject to many monopolistic practices in the aviation sector. Most national commercial airlines enjoy some protection from competition. Consequently, airfares from overseas and within the region are unnecessarily high. High tariffs act as a deterrent to foreign visitors and discourage travel within the region. The exact extent of this deterrent effect is not known, but it may be significant and is worthy of further investigation in relation to other nature-based tourism markets.
- **Protectionism.** Whereas most commercial operators favour greater access to other countries, some still favour protective measures. This is to be expected since many commercial operators want a competitive environment for everyone but themselves. There is a trade-off in granting operators greater access to other countries; on the one hand, this may improve efficiency, but on the other, it may result in lowering standards and adversely affect local businesses and jobs.
- **Veterinary controls.** These act as a constraint in cases where the private sector may wish to introduce new stock of species that are disease prone (e.g., buffalo) or wish to allow species to migrate freely across boundaries that are separated by disease-control fences.

## 4.3 Community-level Opportunities and Constraints

### 4.3.1 Summary of opportunities for community participation

- **Improved social security and welfare.** TBNRMAs could act to improve social security and welfare through more valuable community-based property rights if the following assumptions are met:
  - Community property rights, generally and specifically for TBNRMA-situated communities, become more secure over time.
  - Natural resources become more valuable for communities in TBNRM areas.
- **Increased income-generating options.** Livelihoods could be improved through diversified land use and increased income-generating options related to the tourist industry. Benefits arise where TBNRMAs can act as a multiplier of CBNRM opportunities through attracting investment resulting from enhanced scale and improved collaborative planning within and between countries.

- **Improved ecosystem and natural resource management.** CBNRM has already established a foundation for enhanced compatibility of land use between land-use categories. TBNRMAs could further extend this compatibility by adding a significant dimension of joining together areas where boundaries have divided ecosystems and key ecosystem functions (e.g., rivers and mountain ranges).
- **Richer cultural and social environments.** Many of the region's ethnic communities have been divided by international boundaries. A TBNRMA program could foster a cultural renaissance if communication and exchange could be facilitated on various aspects related to historical heritage, indigenous knowledge systems, and transboundary cultural exchanges.

A richer cultural environment could add value to nature-based tourism, as well as provide more employment potential. A TBNRM programme could foster meetings between traditional leaders, healers, resource user groups, craftsmakers, trackers, guides, range managers, and others.

- **Improved government relations.** The opportunity for communities to plan and work with their governmental representatives in a TBNRMA context could enable communities situated on boundaries to improve and deepen their ties with what often seems a distant institution. Joint planning within countries could establish protected area authorities and communities and landholding parties with a common vision and purpose, as well as mutually beneficial strategies. Working with authorities and communities in other countries would foster community and state authority relations beneficial to cooperation, coordination, and co-management.
- **Improved private-sector collaboration.** Collaboration with authorities and other communities on a larger scale would be more likely to present opportunities for communities to meet and plan with the private sector.
- **CBNRM as a foundation for TBCAs and TBNRM.** Many communities that could be involved in the TBNRMA developments have already been involved in CBNRM projects. They have started to address resource property issues, as well as institutional development and capacity-building. They have an appreciation for resource values and also have some experience in resource and benefit management. TBNRM can be an extension of the CBNRM foundation and can enable neighbouring communities to compare and contrast national differences and lessons learned. In addition, the prospect of working with protected area authorities holds opportunities, as much as constraints. Communities have a great interest in the land-use practices of their neighbours, especially when direct contact has been difficult in the past. The shared identity between neighbours could improve local confidence in a better future.
- **Status of local communities raised.** TBNRMAs may raise the status of local communities and may help to provide a better forum for voicing their concerns. By attracting the attention of urban and international constituencies, more attention will be focused to see whether communities benefit from the TBNRM model in relation to conservation-based community development.

- **Communities learning through shared experiences.** Communities can learn rapidly through the sharing of experiences and policies. The TBCA and TBNRM process provides a context through which all community stakeholders can compare and contrast their experiences, practices, and policies. This process creates a learning environment that promotes the dissemination and use of best practices. For example, a community with weak tenure rights could learn how best to advocate to improve its position to one with more secure land tenure.

#### 4.3.2 Summary of constraints to community participation

- **Weak communal property rights.** Weak communal property rights (tenure) over wildlife and natural resources require high transaction costs related to achieving efficient and effective CBNRM/TBNRM. Without devolution of rights and responsibilities (costs and benefits) over natural resources, communities cannot become full stakeholders in the process.
- **Dualistic local authorities.** Dualistic local authorities (statutory law and traditional convention) contest community authority and undermine efficient and effective CBNRM/TBNRM.
- **Confusion between governance and tenure.** Confusion between governance (role of local authorities) and tenure (rights and responsibilities to natural resources) impedes progress in TBNRM activities. It is important for parties to agree on the duties, responsibilities, and powers of the interested parties. Rights to land and natural resources should be vested in people rather than in their representative institutions.
- **Transaction time costs.** Community management of natural resources always involves collective decision-making, which takes time. The higher the transaction cost of communal decision-making, the less efficient the management of TBNRM programmes becomes.
- **Potentially marginalised community interests.** Stakeholder interests that are more easily mobilised at national and regional levels may marginalise community interests and participation in planning and implementation. Authorities, experts, and private-sector interests may dominate the TBCA/TBNRM process. If transboundary initiatives are perceived as locally elitist, their sociopolitical sustainability will be weakened.
- **NGO usurpation of community mandates.** Where NGOs implement programs for the benefit of communities, transactions and mandates need to be transparent to all parties. Care needs to be taken so that NGOs do not usurp community mandates in order to fundraise for TBCAs/TBNRMAs. These efforts may not be sufficiently transparent or accountable in the use of, or the community's level of access to, funds.
- **Fears of a top-down process.** As TBCAs and TBNRMAs involve national diplomacy between protected area authorities and other sectors, implementation may be a top-down process. This may lead to reversing some of the gains made in decentralisation through the CBNRM program.

--While communities are securing some control over the CBNRM process, the TBNRM process may require that some advances are slowed or temporarily reversed.

--Donors and governments may allow the TBCA/TBRNMA process to become a fixed, rigid project framework.

--Communities, unlike other stakeholders, may be marginalised and excluded from fora at national and local levels.

- **Insufficient capacity to participate.** Communities require assistance to establish and strengthen the necessary skills and institutional framework to participate effectively in the TBNRMA process.
- **Cultural heritage subordinated.** Cultural and biological diversity are of equal importance to communities, but not to all TBNRMA promoters. Hence, cultural heritage aspects may be subordinate to the conservation and trade aspects of the TBNRMA concept. Communities living along national borders are often frustrated in meeting daily needs (e.g., trading goods and services); communities need to see these concerns as being addressed in the TBNRMA process.
- **Unclear equity relationships.** The equity relationship between state-protected lands and community-based NRM is unclear within and between countries with regard to TBNRMAs. In several instances, communities that border protected areas may reside in the neighbouring country. Few, if any, protected areas address the equity needs of transboundary neighbours. For example, would private landholders in one country (e.g., Tuli Block, Botswana) address equity needs in a neighbouring country (e.g., Beitbridge, Zimbabwe)? If transboundary equity is not addressed, how would compatible transboundary land use be achieved?

## 5. TBNRM Principles, Process, and Recommendations

The overarching rationale in support of TBNRM is the need for and value of taking a broader ecosystem approach to NRM. Effective management of natural resources in cross-border areas requires at least some degree of cooperation across boundaries. This management may be possible with local level cooperation or it may require high-level MOUs to catalyse and effect change. The TBNRM process may be initiated or graduated along a continuum, depending on regional needs or driving interests. The advantages and benefits of TBNRM are there for stakeholders who are genuinely involved in the process (see Box 4).

The assessment of the southern African regional TBNRM situation (see Section 3) led to a discourse with stakeholders on the opportunities and constraints for developing and managing TBNRMAs (see Section 4). Early in the assessment, the need for an understanding of certain essential principles for the TBNRM process was highlighted. In addition to these principles, there was also an emphatic request for better understanding of how the TBNRM process should be supported both internally (stakeholders in a local area) and externally. The following sections describes the principles, process, and recommendations voiced by various stakeholders in the discourse, from both one-on-one and larger group meetings that took place during this study.

### Box 4. TBNRM Rationales: Why Go Transboundary?

"Going transboundary" has to have significant benefits beyond NRM within a nation state. Some value-added benefits that may result from cooperating in TBNRM are:

- **Ecological.** TBNRM re-establishes key ecological functions, improves the protection of internationally shared resources (e.g., water catchments), increases the area available for wildlife and plant populations (thereby reducing the extinction risk due to stochastic events), and re-establishes seasonal wildlife migration routes.
- **Political.** TBNRM improves regional cooperation, fosters peace, and provides a basis for further collaboration in other, more politically charged, areas.
- **Cultural.** TBNRM assists the economic livelihood of communities, addresses issues of cross-border movements, and supports cultural ties and traditions, all of which have been divided or restricted by international borders.
- **Economic.** TBNRM increases efficiency in monitoring and managing natural resources, eliminates or reduces duplication of effort, creates economies of scale, and enhances economic opportunities (e.g., increased tourism potential and revenues).
- **Organisational.** TBNRM builds capacity among stakeholders and promotes an enabling environment for better decision-making about common problems, opportunities, and potentials.

## 5.1 Principles of TBNRM

TBNRM activities are already under way in many parts of southern Africa. Some areas have been involved in TBNRM for decades, while others are just beginning. Stakeholders in the region have relatively clear ideas of how they would like the TBNRM process to proceed, both at the localised, site-specific level and in terms of overall support to TBNRM in the region. Stakeholders have identified certain principles that can provide the self-determined rules or codes of conduct of how operations in the TBNRM field should proceed. Adoption and use of these principles by stakeholders may enhance the success and endurance of the TBNRM process in the region, as well as that of any individual's contributions or actions. The core principles voiced by stakeholders in the TBNRM discourse are the following:

- **Democracy.** TBNRM initiatives are for the people, i.e., users, managers, and beneficiaries of the resources. To this end, stakeholder involvement should occur at all stages of the process, particularly during decision-making.
- **Sustainability.** In addition to sustainable natural resource use, sustainable financing, human resources, and institutions are necessary. This applies to finding ways to have enduring resources to carry out TBNRM initiatives and the ability to formulate, communicate, and implement best use practices.
- **Efficiency.** The benefits of TBNRM must outweigh the total costs of this lengthy and complex process. Efficiency is increased by building upon existing resource management systems and institutions.

## 5.2 Enabling Conditions of the TBNRM Process

TBNRM initiatives must be seen as a process. They require an approach that is marked by gradual changes that lead toward the development of improved levels of TBNRM. This process orientation requires time and patience. It cannot impose institutions or structures upon people; rather, it must allow the process to evolve (in its own time) on the basis of real need. This allows the initiative to be internalised, as opposed to remaining external. Adaptive management (i.e., management that is flexible and that adjusts, accommodates, or conforms to new demands and conditions) should be used. Transboundary management needs to learn from, and be driven by, its experiences (and those of others) and to adjust to changing realities.

Supporting a process-based approach means that general guidelines can be outlined for any given area, based on regional or local experiences and knowledge. However, there must be recognition that **situations differ and are unique**. Hence, standard blueprints for TBNRM for any given area do not exist. TBNRM efforts should evolve according to specific situational and subjective circumstances, and should not be moulded by some general overall framework or paradigm. Priorities, resources, capacity, and motivations differ and need to be recognised and acted upon accordingly for initiatives to be sustainable. To be successful, TBNRM needs to form meaningful and valuable partnerships, promote synergism and value-added benefits; the process must be demand-driven and promote devolution and participation.

## 5.2.1 Partnerships

TBNRM is essentially the cooperative or collaborative management of resources by a group of stakeholders on either side of a border, who enter into various forms of **partnerships** with each other. A critical element of TBNRM is the promotion of these partnerships. Stakeholders need to feel that they can rely on one another. Without **trust**, they will not believe in or commit to the process. Trust among stakeholders is built by shared experiences, where partners can successfully rely upon one another. Where past histories interfere, these experiences can start with small tasks and build into more complex relationships over time, as higher levels of trust develop.

One stumbling block to effective partnerships occurs when decisions are made that a subgroup of stakeholders is unaware of and did not participate in making. Hence, **transparency** is important so that the process is clear to everyone. Finally, stakeholders have to feel that there is **accountability** in the process and that the agents of the process are responsible for their actions and are answerable to the stakeholders. Accountability is especially important for, although not limited to, authorities.

As discussed in Section 4, situations in the region can differ significantly in terms of capacity, socioeconomics, legal issues, and policy. Individuals, groups, and institutions have different practices and value systems. Stakeholders need to be tolerant, aware, and respectful of these differences. At the local level, this means recognition and respect of Indigenous Knowledge Systems, cultural heritage, and kinship ties. Since these differences occur both within and across boundaries, it is essential to recognise the **sovereignty** of individuals, institutions, and particularly nations. Each partner needs to feel it has the power, authority, and control over its own situation. Sovereignty is particularly important where nation states desire to maintain their autonomy or right of self-government. A potential constraint to TBNRM occurs when a nation feels that a neighbouring state is trying to exercise control in the nation's area of influence. These fears may be more likely between parties where past histories of hidden or open conflict have weakened trust between nation states.

For the partnerships to work and be sustainable, they need to be based on mutual or shared interest in the partnership. **Reciprocity** is important, not just on the levels of interest, but also in terms of actions taken and "carrying the weight." One partner should not feel as though it is the only party contributing to the initiative. In addition, **equity** is important in relationships; parties that deal with the majority of the costs in the process should benefit from the process, directly and/or indirectly. Without equity, sociopolitical factors will threaten the sustainability of the TBNRM initiative. There can be no one-way streets in TBNRM. At the same time, initiatives should not be seen to be dominated by one actor; situations may require that more capable partners assist less developed ones to build capacity in order to participate fully in the process.

## 5.2.2 Synergism

**Synergism** is the anchor of TBNRM. There is no sense in pursuing TBNRM unless there is a feeling that the whole is greater than the sum of its parts. TBNRM needs to lead to efficiency and increased benefits. Otherwise, the opportunity costs of TBNRM will result in stakeholders remaining isolated and managing initiatives within their own boundaries. TBNRM needs to be a

**value-added** product. Sustainability of the process requires that a TBNRM site's existence increase the relative worth or importance of its parts. One point made repeatedly in the study is the need to pursue low transaction costs. TBNRM initiatives need to strive for the **maximum output for the minimum inputs**. For the process to be viable, all key partners need to see the existence of a **real potential for incremental benefits**. Potential TBCAs/TBNRMAs should be vetted to see whether benefits (ecological, economic, cultural, and political) will be greater than existing management concerns. TBNRM areas should be chosen carefully such that projected benefits are greater than the costs; failure to do so could lessen good will for other projects.

Comparatively, the southern African region has many ongoing and potential TBNRM initiatives that require minimal inputs to lead to fairly significant outputs. In many ways, the adage of "small is beautiful" can apply to the nature of inputs required for TBNRM. Hence, keeping initiatives small and at the appropriate level may enhance a stakeholder's ability to drive and control the process.

### 5.2.3 Demand-driven process

TBNRM initiatives must be based on the perceived needs or management requirements encountered by "managers." These managers can come from the community, private sector, public sector, or some combination thereof. Stakeholders must have an interest or desire to be involved in TBNRM for any or all of the ecological, social, and/or economic rationale supporting an individual initiative.

One of the strengths of future TBNRM activities in southern Africa is that there are already initiatives and actions under way. Any agency or individual that wishes to further assist these efforts or new initiatives does not need to be either the initiator or the driver of the process. The TBNRM process needs to be **responsive to initiatives shown** and to react rapidly to what has already been started or what is desired by local stakeholders. Rapid response is important so that initiatives, once started, do not stagnate once they reach critical levels for action. Assistance needs to be client based, where actions are responsive to the requests of those using or receiving the services, assistance, or product provided. By limiting externally driven processes, true stakeholders maintain ownership and control of the TBNRM initiative.

Where possible, efforts should **use existing resources and institutions**. As the region already has various elements of the TBNRM process under way, additional efforts should capitalise on the experience, resources, and lessons learned of the regional stakeholders. For example, legal agreements have been written and signed for the formation of the Kgalagadi Transboundary Park: lessons learned from the process and products of this agreement between the nation states should be drawn upon by others in the region. Finally, it is also important that the existing TBNRM site-specific institutions be considered before attempting to create new structures.

### 5.2.4 Devolution and participation

The TBNRM process needs to promote **devolution** and participation so that the most suitable partnerships are formed, synergy is maximised, and demand-driven processes are supported. It is essential that responsibility and decision-making are devolved to the appropriate level. Higher levels of authority must enable lower levels of responsibility and benefit. Although

decentralisation and democratisation are often promoted in the region, real devolution and the policies supporting it are still insufficiently evident. Lack of devolution could be a stumbling block for TBNRM. The ability of stakeholders to form partnerships in which they can genuinely work and share responsibility is a critical assumption of TBNRM. A balance must be achieved between high-level political support, which is required at the central level, and local ownership and self-determination, which are necessary at the local level.

**Participation** of all stakeholders is also imperative. All bonafide stakeholders need to be identified and actively involved in the TBNRM process to contribute to its success and to share in its benefits. In order to gain equitable participation, it may be necessary to slow the process while the capacity of some parties is developed. In general, inclusion, not exclusion, should be promoted.

### 5.3 Recommendations to Support the TBNRM Process

Once a TBNRM area has been identified, either as a particular site or as a management concern between countries, the actual TBNRM process (the dialogue processes, agreement development, collaboration, the forming of partnerships and the joint management of resources) can be supported. Six interrelated types of support are required to enhance TBNRM, as follows:

1. **Information**--identified and used to make informed decisions;
2. **Skills**--developed to strengthen the foundation and support the process;
3. **Authority**--devolved to make decisions, as well as support and manage the process (assuming policies and political will support the process);
4. **Enabling policy and legal environment**--political will supporting the process developed;
5. **Resources**--Informational materials, people and organisations, basic infrastructure, and financial resources identified, enhanced, and used efficiently; and
6. **Process of TBNRM dialogue**--supported to ensure that follow-up meetings and next steps are carried out, cooperation is promoted and improved management and enhanced benefits are achieved.

While these six areas can be viewed separately, the interrelationship among them is vital to the TBNRM process. To obtain the information required, it may be necessary to develop the skills and capacity to assemble baseline data and information (i.e., technical or financial analysis skills). Use of accurate, appropriate information will enable specific authorities to make informed decisions and support the development of the necessary political will. Funding and trained, capable people are required at each stage to effectively assemble the enabling policy and legal environment, thereby paving the way for authority to exist (although it could be argued that authority is needed first).

In pursuing these recommendations, recognition and acceptance of the principles are enhanced, and the principles become part of the process. For example, an activity that works to remove perverse incentives or that provides accurate information about land-use options (i.e., whether an agriculturally biased, land-use policy is valid) will promote efficiency and sustainability. Similarly, by increasing resource access rights at the community level, authority and responsibility are devolved and the principle of democracy is supported.

For nearly all activities, the statement “on both sides of the boundary” can be applied. For the TBNRM process to be effective, it is essential that it is not a one-sided endeavour. By ensuring that all relevant sides are involved in the TBNRM initiative, the democracy principle is upheld (i.e., reciprocity in partnerships, participation, and mutual respect [see Section 5.1]). This will help to ensure the sustainability of the initiative.

### **5.3.1 Information requirements to make informed decisions**

As highlighted above, the availability of, access to, and use of information are required by all parties to a TBNRM initiative. Data must be collected, surveys conducted, analysis performed, and, most importantly, used in more informed decision-making. The information should be appropriate, both in the nature of its collection and in its presentation such that it is used and understood by all stakeholders. It must abide by the principles, especially those of efficiency and sustainability. The gathering of information cannot be seen as a static, one-time activity; rather, it should be viewed as part of the feedback cycle that helps the TBNRM process to adapt, and hence, endure. The following types of information are required:

- **Organisational and individual capacity situation.** Once the TBNRM players have been identified, it is necessary to determine which skills and capacities need to be developed to manage and support the TBNRM process.
- **Ecological/natural resource situation.** It is important to identify the ecological processes and elements that are affected in the transborder area. It is also important to adopt an ecosystem approach to NRM in the area under consideration. Some stakeholders suggested that the entire decision-making process needs to be housed within the larger context of an ecosystem approach.
- **Social and socioeconomic situation.** It is necessary to identify stakeholders and understand the motivations that bring them to the “TBNRM table.” Potential or existing conflicts and constraints between stakeholders should be identified early in the process and plans to address them should be developed. Care must be taken to understand the IKS that incorporate local social constructs of meaning and purpose in relation to the environment and cultural and kinship ties.
- **Existing and potential management practices.** Relevant practices, including existing actions and the institutions implementing them, should be identified.
- **Policy and legal environment.** Existing policies that will act to support or hinder the process should be identified, as should areas for policy development or reform. It is also important to identify and incorporate the drivers and implementers of relevant policies and laws into the TBNRM stakeholder groups.

- **Business and economic opportunities and liabilities.** It is necessary to assess existing and potential conditions. This includes understanding the economic performance of existing enterprises and undertaking general viability and specific feasibility studies to identify opportunities. In making these assessments, it is important to distinguish between commercial success (refers to an actual tangible profit) and economic success (might incorporate other nondirect values and benefits). Both are important, but differ.
- **Value added of developing transboundary management.** Once the relevant biological, economic, community-based, and sociopolitical issues are identified, it is necessary to evaluate and, if possible, quantify the value added of developing transboundary management. Knowing these values will help determine whether the process is worth moving forward, and will assist in convincing others. To build support for the process, it is necessary to provide information on the options available to stakeholders. It is also necessary to clearly assess the pros and cons of the proposed action (.e.g., identify how communities would benefit from increased regional development of the tourist industry, and how it might adversely affect them). In addition, assessments need to be conducted to further examine and identify the potential of TBCA/TBNRM for each country (this could be done by national wildlife or forestry departments, environmental ministries, and/or NGOs).
- **System for monitoring and evaluating (M&E).** An M&E system needs to be developed for the TBNRM process and for many of the individual elements (i.e., NRM and economic). M&E provides information feedback on various elements of the process. In addition, M&E can serve to check whether the principles identified in Section 5.1 are being upheld. The level of M&E needs to be determined (what type, for whom, by whom, and in what form). It should be appropriate and efficient to operate.

### 5.3.2 Skill requirements to strengthen the foundation

There is a critical need to develop the capacity of TBNRM stakeholders, especially where capacity is needed to level the playing field among stakeholders. For partnerships to work and be sustainable, one side can not appear overwhelmingly in control of the relationship. Hence, development of skills should be focused where relative capacities are unequal. The demand for this activity was stated by all parties, both by those with greater and those with lesser capacity levels. Those in a stronger position are eager to see their potential or existing partner's capacity increased so that equitable partnerships can be developed.

The specific techniques of how skills are developed vary, and can include training, mentoring/coaching, and exchange visits. Stakeholders emphasised that working examples should be used (e.g., exchange visits and/or mentoring by fellow regional stakeholders). When developing and providing capacity-building services, it is important to remember the Principles, in terms of who is selected to provide the service, who is the recipient, and what skills are developed. Training and skills development need to be tailored to the needs of those participants. Many stakeholders should be involved in individual training sessions as joint activities help foster relationships and mutual trust. Training must also include training of trainers so that information is disseminated throughout the stakeholder groups. Where possible, existing training facilities and personnel in the region should be used (and more

specifically in the locality of the individual TBNRM initiative). TBNRM should add to the learning process initiated through CBNRM and, where appropriate, build upon the CBNRM lessons learned, especially with regard to skills development and information acquisition.

The skills required for a specific TBNRM process will vary, but might include the following:

- **Organisational development.** One of the most fundamental skills needed is an understanding of how groups function. All stakeholders need to learn how to deal with one another, to understand what each other wants, and what it means to be a good partner (similar to how clients need to learn how to be good clients and service providers). This training enables stakeholders to foster systematic and integrated planning both within and between stakeholder groups. Additional organisational development skills include: **communication** skills to increase the capacity to exchange and transfer of information and opinions, **facilitation** skills to create a strong, "bottom-up" process, **networking** skills to enable stakeholders to communicate with appropriate counterparts, **analytical** ability to make decisions and develop defensible positions, and, **negotiation** skills to enable stakeholders to present and defend their positions effectively.
- **Business and finance skills.** Planning, assessment, finance, marketing, and management skills need to be developed. They are necessary for building linkages between TBNRM initiatives and the market and private sector. Fundraising and proposal writing were also identified as skills that many stakeholders require.
- **Technical NRM skills.** An ecosystem approach to land-use management, planning, and ecology need to be developed. For example, communities need hands-on resource management training to address specific situations (e.g., problem animal management, anti-poaching, translocation, stock and range management, and camp development and maintenance).

### 5.3.3 Development and devolution of authority

TBNRM is about partnerships and collaboration. Given the authority and ability to debate and negotiate, stakeholders will be able to make binding decisions, manage, and support the process. Stakeholders require the authority or permission to enter into discussions and negotiations with their national and cross-border partners to develop workable agreements. Several actions will serve to promote an environment for negotiation:

- **Devolution of authority** to appropriate stakeholders is a fundamental requirement of the process and is closely tied to developing the enabling policy and legal environment that permits and supports the authority. Devolution of authority needs to be promoted and supported such that rights and responsibilities are passed from higher to lower levels where actions need to be taken, costs are incurred, and benefits acquired.
- **Decentralised** authority to act in specific areas on each side of the border in which the transboundary agreements will be implemented is needed to move the TBNRM process forward. At the same time, it is important that the national (centralised) authorities (in

recognition of the principle of sovereignty and autonomy) do not feel excluded from the TBNRM initiative. Development of a framework to guide centralised representation on decentralised issues is required. TBNRM stakeholders see a dynamic dialectic between the SADC, regional and bi-national stakeholders on one level and local stakeholders on another level. TBNRM needs to find a middle ground that can incorporate all parties at the right times and in the appropriate fashion.

- **Devolution of land and resource access rights** must be fully supported to ensure that tenure, as a critical component of establishing a positive incentive framework, is secure and unencumbered by unnecessary negative sanctions and bureaucratic hurdles. Differentiation between the “ownership” (supply) of environmental goods and services and the utilisation (demand) for communally-based natural resources needs to be encouraged. Institutional support to and between proprietorial and utilisation groups needs to be enhanced. Similarly, specific support to gender-based resource user groups is needed.

### 5.3.4 Development of an enabling policy and legal environment

One of the most critical elements identified for TBNRM to succeed is the existence of a supportive environment that enables stakeholders to make meaningful, lasting, and sustainable partnerships. From the previous section, it is clear that the authority to act is key to the process. Where additional levels of change are required, it is necessary to create or adapt policies and laws to develop the proper enabling environment.

- In creating an enabling environment, it is necessary to support advocacy activities that favour TBNRM. **Increased awareness of TBNRM** is important for the development of, and support for, regional TBNRM strategies and a regional vision of shared natural resources. It is in this environment that regional TBNRM strategies are supported and the regional vision expanded.
- Where possible, **regional agreements or protocols** should be developed to assist and promote the formation of partnerships (i.e., bilateral agreements). For example, the SADC Wildlife Protocol makes specific reference to transboundary management, and there has been some discussion at SADC fora to develop a specific multisectoral protocol for TBNRM (to cover a variety of cross-border issues, such as trade and NRM).
- In addition to regional protocols, individual countries interested in transborder cooperation should strive to **harmonise their policy and legislative positions** on key issues, including: customs and immigration formalities; defence and security issues, including anti-poaching and human border movements; and veterinary control issues. Some of the prime TBNRM initiatives will be thwarted if these veterinary issues are not resolved. Moreover, the value-added of joining contiguous land areas and expanding habitats will be meaningless if fences or animal diseases restrict the anticipated re-established traditional wildlife movement patterns.
- Where they occur, **perverse incentives need to be reduced or eliminated**. This is closely linked with the efficiency and sustainability principles outlined earlier. For

example, subsidised costs for livestock management, irrigation, and dryland cropping (see above) may lead to unsustainability.

- Wherever possible it is necessary to identify and support appropriate land-use policies. The goal of TBNRM is to be a land-use practice that is sustainable for both humans and the ecological systems that they inhabit and use. It is therefore critically important to determine whether the most appropriate land use is being utilised in a given area. In particular, agriculture as a dominant land use needs to be assessed to determine if it is the most appropriate, sustainable land use of the ecosystem. Considering the ecological/natural resource situation in the SADC region (see Section 3), the pursuit of this seemingly unsustainable practice of allowing agriculture to be the dominant land use needs to be questioned.

### 5.3.5 Resource availability and use

The TBNRM process, like any other initiative, requires adequate financial, human, organisational, and informational resources. Availability of and access to these resources by and for all stakeholders is critical to the process. At each stage, stakeholders must be able to identify which resources are needed, which can be provided, and which are unavailable. To ensure adequate resource distribution, it is important to remember the principles set out earlier and to develop mechanisms to ensure equitable relationships in the provision of resources between public, private, and community levels. These mechanisms include:

- **Developing a TBNRM network** and a useable forum for communication to move the process of dissemination further. To establish the network, the existing and interested parties need to determine the following: roles and responsibilities of the players and guidelines for establishing subgroups. Methods for developing effective communication systems need to be addressed. To work effectively, the regional process may require a neutral TBNRM coordinator to assist in the network and communication development. Individual TBCA/TBNRMA initiatives can be linked with others in the region in order to promote exchange of experiences, lessons learned, and synergies (including exchange visits). This will facilitate exchange of experiences and lessons learned, as well as the updating of TBNRMA development knowledge in the region. The work of the TBFA working group, established under SASUSG or a similar group, should be continued and strengthened. Links to SADC-NRM programs and ties to SADC need to be integrated with TBNRM initiatives.
- **Establishing a resource centre of reference materials** to house information materials, contact lists, etc. This requires determining a mechanism for storing and providing information. Location of this resource centre still has to be determined, but it should be in keeping with the principles in Section 5.1 (e.g., neutrality is important). Possible locations include Southern African Regional Documentation Centre (SARDC), PPF, an NGO such as WWF or IUCN, and SADC NRMP.
- **Establishing, developing, and managing a directory and clearinghouse for expertise** (legal, facilitation, planning, and technical NRM issues) on TBNRM. Available material should include a list of experts, their skills and experience, and their availability (supply).

- **Developing capacity** in order that the process work on a small-scale or at the local level. CBOs are effective advocates and representatives of community interests at all levels (local, national, and regional) and must be developed and strengthened. Particular CBO strengths include encouraging the formation of community-based producer associations; fostering the formation of national associations for community-based producer groups (including special interest groups, such as traditional leaders, healers, and user group representatives); enabling national community representatives to meet other national leaders and participate in regional fora (as a stakeholder group); and ensuring that important planning meetings do not take place without direct community representation.
- **Enhancing financial resources** to achieve a clearer vision of donor funding and interest in the TBNRM process. In order to support small or immediate needs, it would be helpful to develop a small-grant facility (from donors and international and national NGOs) to assist stakeholders in implementing certain aspects of the TBNRM process (e.g., hold meetings to reach agreements, conduct exchange visits, hire legal services when an agreement needs to be signed). For existing or potential funding sources, it is necessary to investigate bureaucratic impediments to the flow of funds (whether investments or donations) and to lobby to streamline or remove restrictions (within government and lending organisations).

To encourage private-sector involvement, many governments will need to address development of legislation in order to formally create or recognise strong private-property rights. Where applicable, innovative financing mechanisms for TBNRM need to be developed (i.e., investigate the potential for debt-for-nature swaps and trust structures). One particular need is investigating the possible creation of “hybrid” financial instruments that can tap the demand for donations and commercial investments (i.e., create instruments that can deliver steady, below-market financial returns without creating a conflict of interest between donation components and commercial components).

Overall, it is necessary to promote flexibility in funding. Donors need to consider how they can best support the TBNRM process in the region, given their comparative advantages and regional priorities. Flexibility in providing funding will be an advantage as funding needs will change as TBNRM develops in the region.

### 5.3.6 Promotion of TBNRM dialogue

Once activities are up and running, there is the recurrent need to arrange and support meetings for working groups of stakeholders from both sides of the border of a given TBCA or TBNRM area to meet in order to actually manage the TBNR.

- **Strategic and project plans** need to be developed, incorporating logical planning processes that involve both objectives and activities. Communities need to participate in these exercises to clarify their own needs, and to compare them with non-community stakeholders.

- **TBNRM discourse** needs to be expanded. It was recognised that the process of conducting this study served as a vehicle to enhance the ongoing regional discourse on TBNRM. The momentum that this discourse has sparked should not be held back, but should instead be expanded into more and different stakeholder groups. One point highlighted during the study was to determine how to get communities more actively involved in the TBNRM discourse.

Possible future activities in the discourse include holding a ministerial-level SADC meeting to advocate TBNRM and increase awareness, laying the groundwork for a specific SADC TBNRM Protocol, and working to integrate other SADC sectors besides wildlife further into the TBNRM discourse (e.g., fisheries, forestry, ELMS [water], tourism, customs and immigration and other sectors, especially SADC TCUs). Where possible, representatives from Angola and the Democratic Republic of Congo should be incorporated into discussions (depending on the political situations in the two countries), as should the United Nations Centre for Regional Development (UNCRD). Whenever possible, TBNRM needs to be incorporated into conservation and land-use related, international conferences and fora, such as the World Parks Conference, the CBD and Global Biodiversity Forum (GBF), NRM biennial meeting, World Conservation Congress (WCC), and Pan-African Sustainable Use Symposium.

#### **5.4 Summary: A Positive Outlook for TBNRM and Its Benefits**

There is good ecological, cultural, economic, and political rationale for TBNRM, and the current climate is generally favourable for transboundary development in the region. There is a remarkable amount of support, enthusiasm, and political will at most levels, and in nearly all stakeholder groups. Opportunities for TBNRM development are being explored and recognised rapidly by stakeholders. At the same time, the constraints are many and varied. In some cases, the transaction costs of overcoming the constraints will be too high to be worthwhile. It may be that a large proportion of transboundary collaboration will remain at a local and less formalised level rather than proceeding to a centrally recognised and formal stage. Given the huge range of complex individual circumstances in transboundary areas, there is no one ideal formula for TBNRM development. Experimentation, flexibility, and variety; in addition to open communication and access to information, results, and lessons; will be important ingredients in TBNRM development in southern Africa over the next few years and decades.

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## Appendix 1. People Consulted During the Study

*Note: Information is given for the organisations where individuals were consulted during the study. The list does not reflect any job changes that have occurred since the study.*

| Last Name     |                     | Organisation  | Country        |
|---------------|---------------------|---|----------------|
| Addy          | Joanne              | Kalahari Conservation Society                               | Botswana       |
| Akashambatwa  | Mr.                 | Department of National Parks and Wildlife Management        | Zimbabwe       |
| Alavian       | Vahid               | Rankin International  | United States  |
| Alcorn        | Janis               | Biodiversity Support Program                                | United States  |
| Almeida       | Luzia               | World Bank  | Angola         |
| Anderson      | Jeremy              | International Conservation Services                         | South Africa   |
| Anstey        | Simon               | IUCN  | Mozambique     |
| Bandula       | Defrair             | SADC FSTCU (fishery)  | Malawi         |
| Bantsi        | Bantsi              | Department of Wildlife and National Parks                   | Botswana       |
| Bergin        | Patrick             | African Wildlife Foundation                                 | Tanzania       |
| Bisson        | Jerry               | USAID Global Bureau   | United States  |
| Bojo          | January             | World Bank  | United States  |
| Borquin       | Dr. O.              | Game Rangers Association                                    | South Africa   |
| Brown         | Chris               | Namibia Nature Foundation                                   | Namibia        |
| Brumme        | Janet               | DBSA  | South Africa   |
| Buzberger     | Marcus              | Helvetas  | Mozambique     |
| Buzzard       | Candace             | USAID/RCSA  | Botswana       |
| Carroll       | Richard             | WWF-US  | United States  |
| Cassels       | Kent                | World Conservation Monitoring Centre                        | United Kingdom |
| Chang         | Elsa                | World Resources Institute                                   | United States  |
| Chapeyama     | Oliver              | USAID/RCSA  | Botswana       |
| Child         | Brian               | LIRD  | Zambia         |
| Chingoko      | Hastings            | IUCN-ROSA   | Malawi         |
| Chirongo      | Mr.                 | NPWLM   | Zimbabwe       |
| Cohen         | Gary                | USAID   | Namibia        |
| Cuco          | Arlito              | Direcção Nacional de Florestas e Fauna Bravia               | Mozambique     |
| Culverwell    | James               | Consultant  | Mozambique     |
| da Silva      | Armindo Mário Gomes | OKACOM  | Angola         |
| de la Harpe   | Derek               | Malilangwe Conservation Trust                               | Zimbabwe       |
| de Morais     | Júlio               | Sector de Agricultura e Pescas, Delegação da União Europeia | Angola         |
| de Vletter    | Rod                 | World Bank  | Mozambique     |
| deVilliers    | Noel                | Open Africa   | South Africa   |
| du Toit       | Johan               | Tropical Resource Ecology Program                           | Zimbabwe       |
| Duarte        | Maria da Luz        | IUCN  | Mozambique     |
| Ellenbogen    | Nicholas            | Theatre for Africa  | South Africa   |
| Engelbrecht   | Dries               | Kalahari Gemsbok NP   | South Africa   |
| Fakir         | Saliem              | IUCN – South Africa   | South Africa   |
| Fearnhead     | Peter               | S.A. National Parks   | South Africa   |
| Ferraz        | Bernado             | Ministry of Environment                                     | Mozambique     |
| Foggin        | Chris               | Department of Veterinary Services                           | Zimbabwe       |
| Foster-Turley | Pat                 | USAID/RCSA  | Botswana       |
| Friedman      | Russel              | Wilderness Safaris  | South Africa   |
| Freudenberger | Mark                | Chemonics   | Madagascar     |

| Last Name           |  | Organisation   | Country        |
|---------------------|--|--|----------------|
| Gamassa             | Deo – Grati                              | Vice President's Office  | Tanzania       |
| Geach               | Howard                                   | Elephant Coast Company   | Mozambique     |
| Gill                | Cynthia                                  | USAID Global Bureau  | United States  |
| Gouws               | Eugene                                   | Elephant Coast Company   | Mozambique     |
| Hall-Martin         | Anthony                                  | South Africa National Parks  | South Africa   |
| Hanks               | John                                     | Peace Parks Foundation   | South Africa   |
| Hannah              | Lee                                      | Conservation International Africa Program                          | South Africa   |
| Hansell             | Jon                                      | DFID   | Zimbabwe       |
| Harrison            | Jeremy                                   | World Conservation Monitoring Centre                               | United Kingdom |
| Hartley             | Dawn                                     | NES  | Lesotho        |
| Heath               | Ernie                                    | University of Pretoria   | South Africa   |
| Holden              | Phillipa                                 | Independent Consultant   | South Africa   |
| Hough               | John                                     | UNDP/GEF   | United States  |
| Hughes              | George                                   | KwaZulu-Natal Parks Conservation Service                           | South Africa   |
| Isola               | Daniela                                  | Cooperation for Development of Emerging Countries                  | Namibia        |
| Jackson             | Rodney                                   | The International Snow Leopard Trust                               | United States  |
| Jiah                | Ramosh                                   | SADC NRMP  | Malawi         |
| Johnson             | Steve                                    | SADC NRMP  | Malawi         |
| Johnson             | Bruce                                    | Land Tenure Center   | United States  |
| Kahatano            | Deborah                                  | EPIQ NRM Project   | Tanzania       |
| Kanyamibwa          | Sam                                      | World Conservation Monitoring Centre                               | United Kingdom |
| Kasere              | Steve                                    | Campfire Association   | Zimbabwe       |
| Katerere            | Yemi                                     | IUCN-ROSA  | Zimbabwe       |
| Kayukwa             | G.                                       | Wildlife Conservation Society                                      | Zambia         |
| Kock                | Mike                                     | Ministry of Agriculture, National Veterinary Dept.                 | Botswana       |
| Kuenda              | Soki                                     | Ministry for Environment   | Angola         |
| Ledger              | John                                     | Endangered Wildlife Trust  | South Africa   |
| Leleka              | Bataung                                  | SADC-ELMS CU   | Lesotho        |
| Lewanika            | Manyananda                               | SADC Traditional Leaders Association for NRM                       | Zambia         |
| Ligomeka            | Elijah                                   | SADC NRMP  | Malawi         |
| Lindeque            | Malan                                    | Ministry of Environment and Tourism                                | Namibia        |
| Lusigi              | Walter                                   | GEF Secretariat  | United States  |
| Mabunda             | David                                    | Kruger SANDP   | South Africa   |
| Macdonald           | Ian                                      | WWF-South Africa   | South Africa   |
| Machena             | Cecil                                    | DNPWLM   | Zimbabwe       |
| Magane              | Samiro                                   | Direcção Nacional de Florestas e Fauna Bravia                      | Mozambique     |
| Makombe             | W.                                       | NPWLM  | Zimbabwe       |
| Maluleke            | Lamson                                   | Endangered Wildlife Trust  | South Africa   |
| Maluleke            | R.                                       | Endangered Wildlife Trust  | South Africa   |
| Mamba               | Siriaye                                  | Swaziland National Trust Commission                                | Swaziland      |
| Mambo               | Chieftainess<br>Chiyaba Christine<br>Eva | Traditional leader for Zambezi River area                          | Zambia         |
| Marks               | Stuart                                   | Safari Club International  | United States  |
| Marques             | Ana Lúcia Guerra                         | Universidade Agostinho Neto  | Angola         |
| Martin              | Rowan                                    | SASUSG   | Zimbabwe       |
| Masule              | Sub-chief<br>Luckson                     | Sub-chief, Botswana  | Botswana       |
| Mbano               | Bakari                                   | Ministry of Natural Resources and Tourism –<br>Wildlife Department | Tanzania       |
| McDermott<br>Hughes | David                                    | University of California – Berkeley,<br>Anthropology Department    | United States  |
| Menchini            | Piergiorgio                              | Legambiente  | Italy          |
| Miller              | Kenton                                   | World Resources Institute  | United States  |

| Last Name   |                 | Organisation  | Country        |
|-------------|-----------------|---|----------------|
| Miranda     | Lucas           | Ministry for Environment  | Angola         |
| Mishra      | Hermanta Raj    | GEF Secretariat   | United States  |
| Modise      | Sedia           | Department of Wildlife and National Parks                               | Botswana       |
| Moffat      | David           | Secretariat for Eastern African Coastal Area Management (SEACAM)        | Mozambique     |
| Monro       | Robert          | Zimbabwe Trust  | Zimbabwe       |
| Morrison    | Karl            | Conservation International  | Botswana       |
| Morton      | Raymond         | USAID/RCSA  | Botswana       |
| Motsamai    | Bore            | National Environment Secretariat  | Lesotho        |
| Msibi       | Valencia        | USAID/RCSA  | Botswana       |
| Munslow     | Barry           | Environment and Development Consultant to the Swedish Embassy in Angola | United Kingdom |
| Munthali    | Simon           | TFCA Project, Direcção Nacional de Florestas e Fauna Bravia             | Mozambique     |
| Murombedzi  | James           | Ford Foundation   | South Africa   |
| Murphree    | Marshal         | CASS, UZ  | Zimbabwe       |
| Murphree    | Mike            | SASUSG  | Zimbabwe       |
| Mwima       | Henry           | NPWS  | Zambia         |
| Nera        | Calvin          | CASS, UZ  | Zimbabwe       |
| Newman      | Kate            | WWF-US  | United States  |
| Nkala       | Herbert         | Rainbow Tourism Group   | Zimbabwe       |
| Nsanjama    | Henri           | WWF-US  | United States  |
| Nshala      | Rugemeleza      | Lawyers Environmental Action Team (LEAT)                                | Tanzania       |
| Nuvunga     | Milagre         | Ministério da Coordenação de Acção Ambiental                            | Mozambique     |
| Nyasulu     | Kenneth.        | SADC FSTCU (Forestry)   | Malawi         |
| Orians      | Gordon          | Department of Zoology, University of Washington                         | United States  |
| Osofsky     | Steve           | WWF-US  | United States  |
| Pacheco     | Fernando        | ADRA  | Angola         |
| Pienaar     | Danie           | Kruger National Park  | South Africa   |
| Pollard     | Nigel           | Grupo Madal   | Mozambique     |
| Pratt       | Jane D.         | The Mountain Institute  | United States  |
| Quotosakane | Thulo           | National Environmental Secretariat                                      | Lesotho        |
| Reddy       | Sanath ("S.K".) | USAID/RCSA  | Botswana       |
| Reina       | Antonio         | Endangered Wildlife Trust   | Mozambique     |
| Resch       | Timothy         | USAID Africa Bureau   | United States  |
| Renzi       | Mark            | EPIQ NRM Project  | Tanzania       |
| Ross        | Karen           | Conservation International  | Botswana       |
| Russo       | Vladimir        | Juventude Ecológica Angola  | Angola         |
| Ruybal      | Ronald          | USAID NRMP SO2  | Tanzania       |
| Saiwana     | Dr. Lewis       | Department of National Parks and Wildlife                               | Zambia         |
| Sambo       | Samson          | Endangered Wildlife Trust   | South Africa   |
| Sandwith    | Trevor          | Kwazulu Natal National Conservation Service - Queen Elizabeth Park      | South Africa   |
| Sefu        | Leonard         | SADC NRMP   | Malawi         |
| Seródio     | João            | Ministry for Environment  | Angola         |
| Sherpa      | Mingma          | WWF-US  | United States  |
| Sichilongo  | Mwape           | NPWLM   | Zimbabwe       |
| Siegl       | Paul            | WWF Tanzania  | Tanzania       |
| Simwanda    | L.              | Environmental Conservation Society of Zambia                            | Zambia         |
| Sithole     | Abraham         | Chiredzi RDC  | Zimbabwe       |
| Skottke     | Martin          | GTZ-SADC Forestry   | Malawi         |
| Small       | Kenneth         | Development Bank of South Africa (DBSA)<br>OUZIT SDI                    | South Africa   |

| Last Name     |            | Organisation  | Country       |
|---------------|------------|---|---------------|
| Soderstrom    | Elizabeth  | USAID/RCSA  | Botswana      |
| Somé          | Laurent    | Biodiversity Support Program c/o WWF-US                     | United States |
| Soto          | Bartolomeu | TFCA Project, Direcção Nacional de Florestas e Fauna Bravia | Mozambique    |
| Sparrow       | Alan       | CESVI & BFA   | Zimbabwe      |
| Spriggs       | Ed         | USAID/RCSA  | Botswana      |
| Stauffer      | Donna      | USAID/RCSA  | Botswana      |
| Steenkamp     | Conrad     | Endangered Wildlife Trust                                   | South Africa  |
| Steiner       | Achim      | World Dams Commission                                       | South Africa  |
| Stockil       | Clive      | Save Valley Conservancy                                     | Zimbabwe      |
| Storm         | Jennie     | NNF   | Namibia       |
| Stormark      | Kare       | NORAD   | Zimbabwe      |
| Stowell       | Yoland     | IUCN  | South Africa  |
| Sturgeon      | Julian     | Africa Resources Trust                                      | South Africa  |
| Symington     | Meg        | WWF-US  | United States |
| Tanner        | Chris      | Consultant  | Mozambique    |
| Tava          | Dina       | Direcção Nacional de Turismo                                | Mozambique    |
| Taylor        | Russell    | World Wide Fund for Nature                                  | Zimbabwe      |
| Tiemroth      | Mads       | Direcção Nacional de Turismo                                | Mozambique    |
| Tilley        | Peter      | Consultant  | Mozambique    |
| Toima         | Peter      | Maasai Advancement Association (MAA)                        | Tanzania      |
| Turnbull      | March      | Peace Parks Foundation                                      | South Africa  |
| Van der Heide | Jan        | Royal Netherlands Embassy                                   | Zimbabwe      |
| Van der Merwe | Johaas     | South Africa National Parks                                 | South Africa  |
| Vance         | Anthony    | USAID/RCSA  | Botswana      |
| Venter        | Freek      | Kruger National Park  | South Africa  |
| Viljoen       | Leon       | Department of Foreign Affairs                               | South Africa  |
| Waugh         | John       | IUCN-US   | United States |
| Weaver        | Chris      | WWF   | Namibia       |
| Wyckoff-Baird | Barbara    | Consultant  | United States |
| Wetterberg    | Gary       | USDA Forest Service   | United States |
| Weyl          | Uli        | GTZ - Malawi  | Malawi        |
| Williamson    | Douglas    | Food and Agriculture Organisation                           | Italy         |
| Wilson        | Ed         | WWF - SARPO   | Zimbabwe      |
| Zbicz         | Dorothy    | Duke University,<br>Nicholas School of the Environment      | United States |
|               |            | Campfire Association  | Zimbabwe      |
|               |            | Chiredzi & Chipinge Rural District Councils                 | Zimbabwe      |
|               |            | Malilangwe Conservancy                                      | Zimbabwe      |
|               |            | Save Valley Conservancy                                     | Zimbabwe      |
|               |            | Wildlife Producers Association                              | Zimbabwe      |
|               |            | World Wide Fund for Nature Harare Office                    | Zimbabwe      |
|               | staff      | Zimbabwe Trust  | Zimbabwe      |

# Appendix 2. A Global List of Adjoining Protected Areas

by Dorothy C. Zbicz, Duke University

## 1. Introduction

In recent years, the concept of transboundary protected areas has gained increasing international attention, being promoted as a potential vehicle for both biodiversity conservation and advancement of peaceful relations across international boundaries. New emphases on ecosystem and community-based approaches to natural resource management and conservation have reiterated the obvious fact that political boundaries rarely coincide with ecological boundaries, and ecosystems are often severed by political borders. Nowhere is this more true than in Africa. Community-based approaches to natural resource management involving multiple stakeholders and divergent land uses are already difficult, but when conservation area boundaries are international, the process becomes even more complex as all the political, security and cultural issues of international boundaries are included. In order to examine transboundary cooperation on natural resource management and conservation and to explore where it might be successfully implemented, a baseline is needed. One such starting point is all places in the world where officially designated protected areas adjoin across international boundaries. In most cases, these provide evidence of transboundary ecosystems and often of shared natural resources. The table included in this Appendix contains a *Global List Of Adjoining Protected Areas*, also referred to as transfrontier protected area complexes<sup>1</sup>, as of mid-1998 (Zbicz and Green 1997a). Although ever-evolving, this list is a useful place to begin an analysis of transboundary conservation and natural resource management.

## 2. Compiling the Global List of Adjoining Protected Areas

Compiling a comprehensive list of adjoining protected areas involved over two years of effort on the part of the author and the assistance of countless protected area experts and professionals. The process began with a list of 70 pairs of "Border Parks" compiled by Jeremy Harrison and Jim Thorsell for the Border Parks Workshop held at the first Global Conference on Tourism in Vancouver in 1988. (Thorsell and Harrison 1990). This list was updated with other regional lists from various sources and from the many individuals at Duke University working with protected areas around the world, as well as with input from protected area professionals attending the IUCN World Conservation Congress in Montreal in October 1996. In the spring of 1997, the author spent several weeks at the World Conservation Monitoring Centre (WCMC) in Cambridge, UK verifying this compiled list with the Centre's Protected Areas Database and its Geographic Information System Biodiversity Map Library. The staff of the Protected Areas Unit also offered assistance and regional expertise. The list was then taken to the World Conservation Union (IUCN) headquarters in Switzerland where the Steering Committee of IUCN's World Commission on Protected Areas was meeting. The WCPA vice chairs from each region and the Protected Areas team at IUCN examined the list, making further corrections and

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<sup>1</sup> This term was used in the draft version of the list and an accompanying paper by the author and Michael J. B. Green that was presented at the International Conference on Transboundary Protected Areas as a Vehicle for International Cooperation in Somerset West, South Africa 16-18 September 1997.

additions. Throughout the process, international correspondence through fax, mail, and electronic mail permitted groundtruthing of the list by hundreds of protected area managers and professionals around the world. Finally, the list was then updated in 1998 with information received from responses to a global survey mailed, with the assistance of IUCN, to the managers of the adjoining protected areas.

### **3. Defining Adjoining Protected Areas**

One challenging in compiling the list was deciding which protected areas to include. Many names have been used for these areas, including peace parks, transfrontier nature reserves, transborder or transboundary protected areas, border parks, etc. Some of these terms imply a level of transboundary cooperation which may or may not exist. In many cases, all that is "transboundary" about the protected areas is a shared ecosystem, certainly not cooperation or management. For this reason, the term *adjoining protected areas* was selected to describe all those places in the world where protected areas physically meet or nearly meet across international boundaries. Only international boundaries have been included - not internal boundaries within countries.

A second criterion for inclusion on the list relied on the 1994 IUCN definition of protected area. as "an area of land and/or 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). Areas included on the list must qualify as protected areas by this definition and be assigned one of the six IUCN protected area management categories (I-VI). In order to meet this criterion, a protected area must be so designated by its host government and must be of a size of at least 1,000 hectares. Since WCMC maintains the official government reports for compiling the UN List of Protected Areas, the WCMC database was used as the authority for official protected area status.

These criteria meant that many complexes of proposed or smaller sites were omitted. A large number of situations exist where a protected area exists on an international boundary, but no protected area exists in the adjoining country. In many of these cases, protection has been proposed on the other side or even be in the process of establishment. For this reason, a second list was created, containing sites where one side of the border has only a proposed protected area or one without an IUCN category (I-VI). This second list of sites which could not be verified in the WCMC database is not included in this Appendix. The *Global List Of Adjoining Protected Areas* included here was compiled before the TFCA Working Group was convened and therefore is perhaps more limited in the sites it includes. The Working Group has considered potential TBCA sites in Southern Africa that might appear on either of the two lists.

### **4. A Global Portrait of Adjoining Protected Areas**

The *Global List* includes 488 different protected areas that adjoin others both within countries and across international frontiers, often providing contiguous habitat for species. These clusters often contain more than two individual protected areas, up to as many as 13. Twenty-seven of these clusters or *transfrontier protected areas complexes* contain protected areas in three different countries. In this list, 136 such complexes have been identified involving 98 different countries, or almost half of the world's 224 countries and dependent territories. An additional 69 complexes are included on the list of potential adjoining protected areas.

Together these existing and proposed complexes offer 205 potential opportunities for transboundary natural resource management. (see Map 14, WCMC map of the transfrontier protected areas in Africa).

**Table A. Transfrontier Protected Areas Complexes by Regions - 1998**

| <b>Regions</b>             | <b>Transfrontier PA Complexes</b> | <b>Protected Areas</b> | <b>Proposed Complexes</b> | <b>Complexes with 3 Countries</b> |
|----------------------------|-----------------------------------|------------------------|---------------------------|-----------------------------------|
| <b>N. America</b>          | 8                                 | 42                     | 4                         | 0                                 |
| <b>C. &amp; S. America</b> | 24                                | 93                     | 15                        | 6                                 |
| <b>Europe</b>              | 45                                | 154                    | 26                        | 6                                 |
| <b>Africa</b>              | 34                                | 123                    | 12                        | 9                                 |
| <b>Asia</b>                | 25                                | 76                     | 12                        | 3                                 |
| <b>TOTAL</b>               | <b>136</b>                        | <b>488</b>             | <b>69</b>                 | <b>27</b>                         |

One important component of TBCAs is that they involve a transboundary ecosystem. A question on the survey mentioned above asked if the adjoining protected areas shared an ecosystem. Surveys were sent to 132 of the 136 complexes that met the requirements of the study, although 5 were returned undelivered. A total of 120 responses were received. In spite of the fact that the question is somewhat subjective, all 120 of the responding complexes said that at least two of the protected areas in the complex share ecosystems. Even if all 16 of the other complexes did not share ecosystems, which is highly unlikely, at least 88% of all transfrontier protected areas complexes do. This suggests that adjoining protected areas are indeed usually an indication of transboundary ecosystems.

## **5. Adjoining Protected Areas - A Place to Begin**

One difficulty that has plagued the Working Group has been agreeing on the definition of a TBCA. Is it a geographical entity or a management regime? Over the past several months, less emphasis has come to be placed on "conservation areas" and more on "transboundary natural resource management." This might suggest that the subject of this study is more about management institutions than about geographical identities. Nevertheless, transboundary natural resource management cannot occur unless some geographical region is identified in which to implement it. David Cumming's chapter in this report addresses both of these aspects in defining ecological criteria for establishing TBCAs. However, his first "coarse filter" or criterion for inclusion of land in a TBCA is geographical:

Existing designated national park, protected area, game or wildlife management area, indigenous forest area on an international boundary, or sufficiently close to a boundary to be part of a larger transboundary ecosystem, where there is a protected area on the boundary, or within the same ecosystem, in a neighbouring country (Cumming 1998).

This *Global List of Adjoining Protected Areas* provides a set of potential geographical areas which satisfy this first "coarse filter." It identifies 136 complexes around the world where protected areas adjoin across international boundaries. As mentioned earlier, this project was begun before the TBCA Working Group began its work. The list was compiled as the first step

in a larger study which is examining factors that contribute to or inhibit transboundary cooperation between adjoining protected areas, which included the earlier mentioned survey mailed to the adjoining protected area managers around the world. The survey results should complement this TBCA study and provide global lessons learned about cooperation between adjoining protected areas which may be applied to promoting transboundary natural resource management in southern Africa.

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## References

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## Global List of Adjoining Protected Areas

Note: Complexes may include proposed protected areas and areas designated under national legislation that have not been assigned an IUCN Category (i.e. unassigned), provided that there is at least one established protected area adjacent to another either side of an international boundary.

| Countries            | WCMC Code   | Designated Areas  | IUCN Category                        |
|----------------------|---|---|--------------------------------------|
| <b>North America</b> |   |   |                                      |
| Canada/              | 612<br>18707<br>7406                                      | Kluane National Park & Preserve<br>Kluane Wildlife Sanctuary<br>Tatshenshini-Alsek Wilderness Park/   | II<br>IV<br>II                       |
| US                   | 13038<br>1005<br>35387<br>22490<br>1010<br>22485<br>35382 | Tongass National Forest<br>Wrangell-St Elias National Park<br>Wrangell-St Elias Wilderness Area<br>Wrangell-St Elias National Preserve<br>Glacier Bay National Park<br>Glacier Bay National Preserve<br>Glacier Bay Wilderness Area | IV<br>II<br>Ib<br>V<br>II<br>V<br>Ib |
| Canada/              | 626<br>21193  | Waterton Lakes National Park<br>Akamina Kishinena Provincial Park<br>Flathead Provincial Forest Reserve/  | II<br>II                             |
| US                   | 973<br>100967   | Glacier National Park<br>Flathead National Forest   | II<br>VI                             |
| Canada/              | 100672<br>100673<br>101594                                | Ivvavik National Park<br>Vuntut National Park<br>Old Crow Flats Special Management Area/  | II<br>II<br>Ib                       |
| US                   | 2904  | Arctic National Wildlife Refuge   | IV                                   |
| Canada/              | 66395   | Quetico Wilderness Provincial Park<br>Neguaguon Lake Indigenous   | II                                   |
| US                   | 21322<br>100955<br>988                                    | Boundary Waters Canoe Area Wilderness Area<br>Superior National Forest<br>Voyageurs National Park   | Ib<br>VI<br>II                       |
| Canada/              | 4185<br>18646<br>101678<br>65159                          | Cathedral Provincial Park<br>E. C. Manning Provincial Park<br>Skagit Valley Recreation Area<br>Cultus Lake Provincial Park<br>Neguaguon Lake Indigenous   | II<br>II<br>II<br>II                 |
| US                   | 979<br>21389  | N. Cascades National Park<br>Pasayten Wilderness National Forest  | II<br>Ib                             |
| Mexico/              | 101431<br>101457  | Sierra de Maderas del Carmen National Park<br>Cañón de Santa Elena National Forest/   | VI<br>VI                             |
| US                   | 976   | Big Bend National Park  | II                                   |
| Mexico/              | 34862   | Sierra de los Ajos National Park/   |                                      |
| US                   | 100881  | Coronado National Forest  |                                      |
| Mexico/              | 32971<br>18091<br>101409                                  | El Pinacate y Gran Desierto de Altar National Biological Reserve<br>Sierra del Pinacate Refugio<br>Alto Golfo National Biological Reserve/  | VI<br>IV<br>VI                       |
| US                   | 13771<br>35472<br>35977<br>1020                           | Cabeza Prieta National Wildlife Refuge<br>Cabeza Prieta Wilderness Area<br>Organ Pipe Cactus Wilderness Area<br>Organ Pipe Cactus National<br>Tohono O'odham Reservation  | IV<br>Ib<br>Ib<br>III                |
| <b>Latin America</b> |   |   |                                      |
| Belize/              | 20224<br>61957  | Rio Bravo Conservation Area Private Reserve<br>Aguas Turbia National Park/  | IV<br>II                             |
| Guatemala/           | 26621<br>30604<br>102817                                  | Maya Biosphere Reserve<br>El Mirador - Río Azul National Park<br>Naachtún - Dos Lagunas Protected Biotope/  | n/a<br>Ia<br>II                      |
| Mexico               | 19570   | Calakmul Biological Reserve   | VI                                   |

| Countries    | WCMC Code                            | Designated Areas  | IUCN Category              |
|--------------|--------------------------------------|---|----------------------------|
| Belize/      | 20230<br>3314<br>116297<br>28850     | Chiquibul National Park<br>Columbia River Forest Reserve<br>Vaca Forest Reserve<br>Maya Mountains Forest Reserve/     | II<br>VI<br>VI<br>VI       |
| Guatemala    |                                      | Complejo III - Reserva de Biosfera Montañas Mayas Chiquibul   |                            |
| Costa Rica/  | 167<br>30599<br>12493                | Tortuguero National Park<br>Tortuguero Protected Zone<br>Barro del Colorado National Wildlife Reserve/                | II<br>VI<br>IV             |
| Nicaragua    | 30628<br>20220                       | Río Indio-Maíz Biological Reserve<br>San Juan Delta   | Ia<br>Pr                   |
| Colombia/    | 142                                  | Los Katios National Park/   | II                         |
| Panama       | 236<br>102255                        | Darién National Park<br>Punta Patiño Nature Reserve   | II                         |
| Costa Rica/  | 2553<br>12491                        | La Amistad National Park<br>Las Tablas Protected Zone/  | II<br>VI                   |
| Panama       | 2552<br>17185<br>102253              | La Amistad National Park<br>Palo Seco<br>Lagunas de Volcán  | II<br>VI<br>IV             |
| Costa Rica/  | 19402                                | Gandoca y Manzanillo National Wildlife Refuge/  | IV                         |
| Panama       | 16787                                | Isla Bastimentos Marine National Park   | II                         |
| El Salvador/ | 9638                                 | Montecristo National Park/  | IV                         |
| Guatemala/   | 102815                               | Fraternidad o Trifinio National Biosphere Reserve/  | n/a                        |
| Honduras     | 18804                                | Montecristo Trifinio National Park  | II                         |
| El Salvador/ |                                      | Proposed/   | Pr                         |
| Honduras/    | 40996                                | Río Negro Biological Reserve/   | IV                         |
| Nicaragua    | 12652                                | Estero Real Natural Reserve   | II                         |
| Guatemala/   |                                      | Lacandón National Park/   |                            |
| Mexico       | 14305<br>67671                       | Montes Azules Biological Reserve<br>Bonampak National   | Ia<br>III                  |
| Honduras/    | 41014<br>41045<br>41013<br>41034     | Río Plátano National Park<br>Tawasha Indigenous Reserve<br>Patuca National Park<br>Río Coco Natural Monument/         | Pr<br>II<br>Pr             |
| Nicaragua    | 2650                                 | Bosawas National Reserve  | VI                         |
| Argentina/   | 15<br>61817                          | Iguazú National Park<br>Iguazú Strict Nature Reserve/   | II<br>Ia                   |
| Brazil/      | 60                                   | Iguaçu National Park/   | II                         |
| Paraguay     |                                      | M.S. Bertoni  |                            |
| Argentina/   | 97490<br>97523                       | Nahuel Huapi National Park<br>Nahuel Huapi Strict Nature Reserve/   | II<br>Ib                   |
| Chile        | 90<br>88                             | Puyehue National Park<br>Vicente Perez Rosales National Park  | II<br>II                   |
| Argentina/   | 7<br>61820<br>2497<br>30844<br>16875 | Lanín National Park<br>Lanín Strict Nature Reserve<br>Lanín Natural<br>Complejo Islote Lobos<br>Chañy Forest Reserve/ | II<br>Ia<br>II<br>IV<br>VI |
| Chile        | 91<br>10706<br>9418                  | Villarrica National Park<br>Villarica National Reserve<br>Huerqueque National Park                                    | II<br>IV<br>II             |
| Argentina/   | 6<br>4329                            | Los Glaciares National Park<br>Los Glaciares Strict Nature Reserve/   | II<br>Ia                   |
| Chile        | 9414<br>89                           | Bernardo O'Higgins National Park<br>Torres del Paine National Park  | II<br>II                   |

| Countries                             | WCMC Code | Designated Areas  | IUCN Category |
|---------------------------------------|-----------|---|---------------|
| Argentina/                            | 16873     | Copahue -Caviahue Provincial Park/                      | II            |
| Chile                                 | 111       | Ñuble Reseserva Nacional                                | IV            |
| Bolivia/                              | 20049     | Iténez Reserva Fiscal/                                  | VI            |
| Brazil                                | 5126      | Guaporé Federal Biological Reserve                      | Ia            |
|                                       | 41090     | Baixo Sao Miguel State Extractive Forest                | VI            |
|                                       | 34028     | Pedras Negras State Extractive Forest                   | VI            |
| Bolivia/                              | 36        | Eduardo Avaroa National Reserve/                        | IV            |
| Chile                                 | 94112     | Liancabor National Park                                 | II            |
|                                       | 30043     | Los Flamencos National Reserve                          | IV            |
| Bolivia/                              | 33        | Sajama National Park                                    | II            |
|                                       | 20030     | Sajama Integrated Management                            |               |
|                                       | 20035     | Altamachi Vicuña Reserve/                               | IV            |
| Chile                                 | 86        | Lauca National Park                                     | II            |
|                                       | 9435      | Las Vicuñas National Reserve                            | IV            |
| Bolivia/                              | 98183     | Madidi National Park/                                   | II            |
| Peru                                  | 7460      | Pampas de Heath National Sanctuary                      | III           |
| Brazil/                               | 101760    | Tucumaque Forest Reserve/                               | VI            |
| Suriname                              | 276       | Sipaliwini Nature Reserve                               | IV            |
| Brazil/                               | 54        | Pico da Neblina National Park/                          | II            |
| Venezuela                             | 4367      | Serranía La Neblina National Park                       | II            |
| Colombia/                             | 9400      | La Paya National Park/                                  | II            |
| Ecuador/                              | 2499      | Cuyabeño Reserva Faunistica                             | VI            |
|                                       | 186       | Yasuni/   | II            |
| Peru                                  | 98245     | Guepí National Reserve                                  | Un            |
| Colombia/                             | 144       | Tamá Natural National Park/                             | II            |
| Venezuela                             | 322       | El Tamá National Park                                   | II            |
|                                       | 101129    | Cerro Machado- El Silencio                              | VI            |
|                                       | 30640     | San Antonio- Ureña Protected Zone                       | V             |
| Colombia/                             | 19993     | Catatumbo-Bari National Park/                           | II            |
| Venezuela                             | 318       | Perijá National Park                                    | II            |
|                                       | 20068     | Región Lago de Maracaibo -Sierra de Peri Protected Zone | V             |
| <b>Europe</b>                         |           |   |               |
| Albania/                              |           | Prespa Lake National Park/                              |               |
| Greece/                               | 674       | Prespes National Park/                                  | II            |
| Former Yugoslav Republic of Macedonia | 2516      | Galichica National Park                                 | II            |
|                                       | 1056      | Pelister National Park                                  | II            |
| Austria/                              | 102736    | Thayatal Protected Landscape Area                       | V             |
|                                       | 103578    | Thayatal Nature Reserve/                                | IV            |
| Czech Republic                        | 30721     | Podyjí National Park                                    | II            |
|                                       | 4280      | Podyjí Protected Landscape Area                         | V             |
|                                       | 61419     | Palava Protected Landscape Area                         |               |
| Austria/                              | 102882    | Lainsitzniederung Strict Nature Reserve                 | V             |
|                                       | 5425      | Blockheide Eibenstein Nature Park                       | V             |
|                                       |           | Blockheide Eibenstein Nature Reserve                    |               |
|                                       |           | Northern Waldviertel Area/                              |               |
| Czech Republic                        | 2558      | Trebonsko Protected Landscape Area                      | V             |
| Austria/                              |           | Bayerischer Wald, Böhmerwald, Sumava National Park/     | Pr            |
| Czech Republic/                       | 4282      | Šumava CHKO Protected Landscape Area                    | V             |
|                                       | 26059     | Šumava National Park                                    | II            |
|                                       | 26059     | Sumaveská Raselinisté/                                  | II            |
| Germany                               | 67870     | Bayerischer Wald Nature Park Deißlandregion             | V             |
|                                       | 64659     | Böhmerwald Biosphere Reserve                            | Pr            |
| Austria/                              | 31402     | Kalkhochalpen Nature Reserve/                           | IV            |
| Germany                               | 688       | Berchtesgaden National Park                             | II            |

| Countries                   | WCMC Code | Designated Areas                                  | IUCN Category               |
|-----------------------------|-----------|---|-----------------------------|
| Austria/                    | 1218      | Neusiedlersee Nature Reserve                      | IV                          |
|                             | 62709     | Neusiedlersee - Seewinkel National Park           | II                          |
|                             | 102857    | Neusiedler See und Umgebung Protected Landscape   | V                           |
| Hungary                     | 9566      | Fertő Hanság National Park                        | II                          |
| Austria/                    | 18769     | Donau-Auen National Park                          | II                          |
|                             | 31412     | Donau-March Protected Landscape Area              | V                           |
|                             | 68341     | Auen Protected Landscape Area                     | V                           |
|                             | 1220      | Marchaven-Marchegg NSG Nature Reserve             | Un                          |
|                             | 31408     | Untere Marchauen Nature Reserve/                  | IV                          |
| Slovakia                    | 19034     | Slovakia Zahorie CHKO Protected Landscape Area    | V                           |
|                             | 12155     | Male Karpaty Protected Landscape Area             | V                           |
| Belarus/                    | 1985      | Belovezhskaya Pushcha National Park/              | II                          |
| Poland                      | 854       | Bialowiecki National Park                         | II                          |
| Belarus/                    | 1644      | Pripiatsky National Park/                         | Ib                          |
| Ukraine                     | 1749      | Polesky Nature Reserve                            | Ia                          |
| Belgium/                    | 18950     | Hautes Fagnes Eifel Nature Park/                  | V                           |
| Germany                     | 6971      | Nordeifel Nature Park                             | V                           |
|                             |           | Deutsch-belgischer Naturpark Hohes Venn-Eifel     |                             |
| Bosnia-Herzegovina/         | 1055      | Sutjeska National Park/                           | II                          |
| Yugoslavia, FR (Montenegro) | 15596     | Tara National Park                                | II                          |
|                             | 1051      | Durmitor National Park                            | II                          |
| Croatia/                    | 15605     | Kopacki Rit Special Reserve                       | Ia                          |
|                             | 15602     | Kopacki Rit Nature Park/                          | V                           |
| Hungary                     | 9683      | Mohacsi Tortenelmi Emlekhely Nature Conservation  | IV                          |
|                             | 100798    | Duna-Drava National Park                          | V                           |
| Czech Republic/             | 4275      | Protected Landscape Area Labské Pískovce/         | V                           |
| Germany                     | 32666     | Sächsische Schweiz National Park                  | V                           |
|                             |           | Sächsische Schweiz Protected Landscape Area       |                             |
| Czech Republic/             | 61421     | Luzické Hory PLA                                  |                             |
| Germany                     | 20920     | Zittauer Gebirge PLA                              | V                           |
| Czech Republic/             | 645       | Krkonoše National Park                            | V                           |
|                             |           | Protected Landscape Area Iser Mountains/          |                             |
| Poland                      | 852       | Karkonoski National Park                          | II                          |
| Czech Republic/             | 4267      | Beskydy Protected Landscape Area/                 | V                           |
| Poland/                     | 12270     | Zywiecki Park Krajobrazowy/                       | V                           |
| Slovak Republic             | 11812     | Protected Landscape Area Kysuce CHKO              | V                           |
| Czech Republic/             | 12154     | Protected Landscape Area White Carpathians/       | V                           |
| Slovak Republic             | 12159     | Biele Karpaty Protected Landscape Area            | V                           |
| Denmark/                    | 92491     | Waddensea Nature Reserve                          |                             |
|                             | 5762      | Vadehavet Wildlife Reserve                        | IV                          |
|                             | 17703     | Vadehavet Conservation Area                       | V                           |
|                             | 64575     | Vadehavet National Nature Area/                   | IV                          |
|                             | Germany/  | 4380  | Rantumbecken Nature Reserve |
| 1541                        |           | Nord-Sylt Nature Reserve                          | IV                          |
| 33391                       |           | Holsteinische Schweiz Nature Park                 | V                           |
| 32669                       |           | Schleswig-Holsteinisches Wattenmeer National Park | V                           |
| 11837                       |           | Niedersaahsisches Wattenmeer National Park        | V                           |
| 30116                       |           | Dollart Nature Reserve                            | IV                          |
| 82256                       |           | Nordfriesisches Wattenmeer Nature Reserve/        | IV                          |
| Netherlands                 |           | 64617   | Dollard Nature Reserve      |
|                             | 12754     | Waddensea Area Biosphere Reserve                  | n/a                         |
| Finland/                    | 654       | Lemmenjoki National Park/                         | II                          |
| Norway                      | 822       | Ovre Annarjakka National Park                     | II                          |

| Countries   | WCMC Code   | Designated Areas  | IUCN Category                                    |
|---|---|---|--|
| Finland/<br>Norway  | 12297   | Kasivarsi Wilderness Area/<br>Reisa National Park<br>Raisdoutterhaldi Protected Landscape Area  | II   |
| Finland/<br>Norway/<br>Russian Federation                         | 832<br>62446  | Vätsäri Wilderness Area/<br>Ovre Pasvik National Park & Reserve/<br>Pasvik Zapovednikovednik  | II<br>Ia   |
| Finland/<br>Russian Federation                                    | 656<br>68351  | Oulanka National Park/<br>Paanajärvi National Park  | II<br>II   |
| Finland/<br>Russian Federation                                    | 2561<br>1700  | Urho Kekkonen National Park/<br>Laplandskiy Zapovednik  | IV<br>Ia   |
| Finland/<br><br><br><br><br><br><br>Russian Federation            | <br><br><br><br><br><br><br>1523<br>102007<br>102041<br>13988 | Friendship Nature Reserve, Kainou Park<br>Elimussalo Nature Reserve<br>Lehtua Nature Reserve<br>Ulvinsalo Strict Nature Reserve<br>Juortansalo-Lapinoo Protected Mire<br>Lososuo-Saarijarvi Protected Mire<br>Iso-Palonen & Maariansarkat Nature Reserve/<br>Kostomukskiy Zapovednik (Friendship Nature | <br><br><br><br><br><br><br>Ia<br>IV<br>IV<br>Ia |
| Finland/<br>Sweden  | 40928<br>30811<br>1397<br>106872                              | Perameri National Park/<br>Haparanda Archipelago National Park<br>Haparanda-Sandskar Nature Reserve<br>Haparanda Skärgård National Park   | II<br>Pr<br>IV<br>II                             |
| France/<br>Germany  | 6307<br>81245   | Vosges du Nord Regional Nature Park/<br>Pfälzerwald Nature Park   | V<br>V   |
| France/<br>Italy  | 661<br>10350<br>718   | Vanoise National Park<br>Vanoise National Park Buffer Zone/<br>Gran Paradiso National Park  | II<br>V<br>V                                     |
| France/<br>Italy  | 664<br>14618  | Mercantour National Park/<br>Maritime Alps National Park  | II<br>V  |
| France/<br>Spain  | 662<br>703151<br>893  | Pyrenees Occidentales National Park<br>Pyrennes Occidentales National Park BZ/<br>Ordessa y Monte Perdido National Park   | II<br>II<br>II                                   |
| Hungary/<br>Slovak Republic                                       | 13652<br>4376   | Aggtelek National Park/<br>Slovenský Kras CHKO Protected Landscape Area   | II<br>V  |
| Hungary/<br>Slovak Republic                                       | 30853<br>680<br>14146   | Karancs-Madves Protected Area<br>Bükki National Park/<br>Protected Landscape Area Cerová Vrchovina  | V<br>II<br>V                                     |
| Italy/<br>Slovenia  | 15346<br>2517   | Foresta Di Tarvisio Nature Reserve<br>Regional Park Alpi Giulie/<br>Triglavski National Park  | Un<br>II   |
| Italy/<br>Switzerland   | 717<br>915  | Stelvio National Park/<br>Suisse National Park  | V<br>Ia  |
| Lithuania/<br>Russian Federation                                  | 31552<br>68348  | Kursiu Nerija National Park/<br>Kurshaskayja Kosa National Park   | II<br>II   |
| Former Yugoslav Republic of Macedonia/<br>Yugoslavia, FR (Serbia) | 1050  | Mavrovo National Park/<br>Shara Mountains National Park   | II<br>II   |
| Norway/<br>Sweden   | 829<br>905<br>906<br>3998<br>30818                            | Rago National Park<br>Pr. Tysfjord Hellebotn National Park/<br>Padjelanta National Park<br>Sarek National Park<br>Stora Sjöfallet National Park<br>Sjaunja Nature Reserve   | II<br>II<br>II<br>V<br>Pr                        |

| Countries               | WCMC Code | Designated Areas   | IUCN Category |
|-------------------------|-----------|--|---------------|
| Norway/                 | 826       | Femundsmarka National Park                                   | II            |
|                         | 9906      | Femundsmarka Protected Landscape Area                        | V             |
|                         | 833       | Gutulia National Park/                                       | II            |
| Sweden                  | 10401     | Rogen Nature Reserve   | IV            |
|                         | 30816     | Rogen-Langfallet National Park<br>Töfsingdalen National Park | Pr            |
| Norway/                 | 125857    | Lunddsneset Nature Reserve/                                  | Ia            |
| Sweden                  | 30821     | Tresticklan National Park                                    |               |
| Poland/                 | 848       | Tatranski National Park/                                     | II            |
| Slovak Republic         | 1975      | Tatranský National Park                                      | II            |
| Poland/                 | 106887    | Babiogorski National Park/                                   | II            |
| Slovak Republic         | 12160     | Horná Orava CHKO Protected Landscape Area                    | V             |
|                         | 14115     | Babia Hora National Nature Reserve                           | Ia            |
| Poland/                 | 857       | Pieninski National Park/                                     | II            |
| Slovak Republic         | 646       | Pieninskiy National Park                                     | II            |
| Poland/                 | 851       | Bieszczadzski National Park<br>Magura National Park          | II            |
| Slovak Republic/        | 67746     | E. Carpathian - E Beskeid? Biosphere Reserve/                | n/a           |
|                         | 67750     | E. Carpathians Biosphere Reserve                             | n/a           |
|                         | 12157     | Vychodne Karpaty CHKO Protected Landscape                    | V             |
| Ukraine                 | 1990      | Karpatskiy National Biosphere Reserve, Zapovednik            | Ia            |
|                         | 1745      | Karpatskiy National Nature Park                              | II            |
| Portugal/               | 860       | Peneda-Geres National Park/                                  | II            |
| Spain                   | 71215     | Baixa-Lima-Serra do Xures Natural Park                       | V             |
| Romania/                | 28791     | Danube Delta Biosphere Reserve                               | n/a           |
|                         | 31702     | Rosca-Buhaiova National Reserve                              | Ia            |
|                         | 31703     | Letea Nature Reserve/  | Ia            |
| Ukraine                 | 4814      | Dunaiskie Plavni Nature Zapovednik.                          | Ia            |
| Romania/                | 11150     | Cazanele Forest Reserve/                                     | IV            |
| Yugoslavia, FR (Serbia) | 2522      | Djerdap National Park  | V             |
| <b>Africa</b>           |           |  |               |
| Angola/                 | 347       | Iona National Park   | VI            |
|                         | 2251      | Mocamedes Parital Reserve/                                   | IV            |
| Namibia                 | 885       | Skeleton Coast Game Park                                     | II            |
| Angola/                 | 4493      | Mucusso National Park<br>Luiana Partial Reserve/             | IV<br>IV      |
| Namibia/                | 7442      | W. Caprivi Game Reserve/                                     | VI            |
| Zambia                  | 30052     | Mamili National Park   | II            |
| Angola/                 | 4493      | Luiana Partial Reserve/                                      | IV            |
| Zambia                  | 1087      | Sioma Ngweze National Park                                   | II            |
|                         | 4081      | West Zambezi Game Management                                 | VI            |
| Benin/                  | 597       | Boucle de la Pendjari National Park                          | II            |
|                         | 2253      | Pendjari Hunting Zone  | VI            |
|                         | 2254      | Atakora Hunting Zone/  | VI            |
| Burkina Faso            | 3228      | Pama Partial Faunal Reserve                                  | IV            |
|                         | 3226      | Arly Total Faunal Reserve                                    | IV            |
|                         | 9264      | Arly Partial Faunal Reserve                                  | IV            |
|                         | 4488      | Kourtiagou Partial Faunal Reserve                            | IV            |
| Benin/                  | 12201     | "W" du Benin National Park/                                  | II            |
| Burkina Faso/           | 1048      | "W" du Burkina Faso National Park                            | II            |
|                         | 4488      | Kourtiagou Partial Faunal Reserve/                           | IV            |
| Niger                   | 818       | "W" du Niger National Park                                   | II            |

| Countries                 | WCMC Code | Designated Areas   | IUCN Category |
|---------------------------|-----------|--|---------------|
| Botswana/                 | 7508      | Gemsbok National Park/   | II            |
| Namibia/                  | 97586     | Kalahari Private Reserve/                                      | Un            |
| South Africa              | 874       | Kalahari Gemsbok National Park                                 | II            |
| Botswana/                 |           | Northern Tuli Game Reserve/                                    |               |
| South Africa/             | 21174     | Vhembe-Dongola Nature Reserve<br>Limpopo Valley National Park/ | IV            |
| Zimbabwe                  | 3059      | Tuli Safari Area   | VI            |
| Burundi/                  | 9161      | Kibira National Park/  | IV            |
| Rwanda                    | 9148      | Nyungwe Forest Reserve   | IV            |
| Cameroon/                 |           | Lake Lobeke/   | Pr            |
| Central African Republic/ | 31458     | Dzanga-Ndoki National Park                                     | II            |
|                           | 31459     | Dzanga Sangha Forest Special Reserve/                          | VI            |
| Republic of Congo         | 72332     | Nouabalé Ndoki National Park                                   | II            |
| Cameroon/                 | 20058     | Korup National Park/   | II            |
| Nigeria                   | 20299     | Cross River National Park                                      | II            |
| Central African Republic/ | 2261      | Yata-Ngaya Faunal Reserve/                                     | IV            |
| Sudan                     | 5090      | Radom National Park  | II            |
| Côte d'Ivoire/            | 1295      | Mont Nimba Strict Nature Reserve/                              | Ia            |
| Guinea/                   | 29067     | Mont Nimba Strict Nature Reserve/                              | Ia            |
| Liberia                   | 9176      | E. Nimba National Forest                                       | Un            |
|                           | 20175     | W. Nimba National Forest                                       | Un            |
| The Gambia/               | 2290      | Niomi National Park/   | II            |
| Senegal                   | 866       | Delta (Iles) du Saloum National Park                           | II            |
| Guinea/                   | 29069     | Badiar National Park   | II            |
|                           | 29409     | Badiar-Sud Classified Forest/                                  | Un            |
| Senegal                   | 865       | Niokola Koba National Park                                     | II            |
| Kenya/                    | 1297      | Maasai Mara National Park/                                     | II            |
| Tanzania                  | 7437      | Maswa Game Reserve   | IV            |
|                           | 916       | Serengeti National Park  | II            |
|                           | 918       | Ngorongoro Crater Conservation Area                            | VI            |
| Kenya/                    | 2417      | Boni Dödori National Reserve/                                  | VI            |
| Somalia                   | 13715     | Juba Left Controlled Hunting Area                              | Un            |
|                           | 872       | Lag Badana National Park                                       | Pr.           |
|                           | 13710     | Bushbush Game Reserve  | VI            |
|                           | 13714     | Bushbush Controlled Hunting                                    |               |
| Kenya/                    | 19564     | Tsavo West National Park/                                      | II            |
| Tanzania                  | 1402      | Mkomazi Game Reserve   | IV            |
|                           | 7433      | Umba Game Reserve  | IV            |
| Kenya/                    | 758       | Amboseli National Park   | II            |
|                           | 7633      | Loitokitok Forest Reserve/                                     | Un            |
| Tanzania                  | 922       | Kilimanjaro National Park                                      | II            |
|                           | 31593     | Kilimanjaro Game Reserve                                       | IV            |
| Kenya/                    | 760       | Mount Elgon National Park/                                     | II            |
| Uganda                    | 9179      | Sebei Controlled Hunting Area                                  | VI            |
| Malawi/                   | 779       | Nyika National Park/   | II            |
| Zambia                    | 1102      | Nyika National Park  | II            |
| Malawi/                   | 4648      | Vwaza Marsh Wildlife Reserve/                                  | IV            |
| Zambia                    | 4102      | Musalangu Game Management                                      | VI            |

| Countries                                | WCMC Code | Designated Areas  | IUCN Category |
|--|-----------|---|---------------|
| Malawi/                                  | 780       | Kasungu National Park/  | II            |
| Zambia                                   | 1088      | N Luangwa National Park   | II            |
|  | 1086      | S Luangwa National Park   | II            |
|  | 1100      | Luambe National Park  | II            |
|  | 1091      | Lukusuzi National Park  | II            |
| Mauritania/                              | 9310      | Diawling National Park/   | II            |
| Senegal                                  | 867       | Djoudj National Park  | II            |
|  | 11653     | Gueumbeul Special Faunal Reserve  | IV            |
| Mozambique/                              | 4652      | Maputo Game Reserve/  | IV            |
| South Africa/                            | 116329    | Ndumu Game Reserve  | II            |
|  | 39758     | Tembe Elephant Park Reserve/  | IV            |
| Swaziland                                |           | Hlane National Park, Mlawula Nature Reserve   |               |
| Mozambique/                              | 20295     | Limpopo Valley Wildlife Utilization Area -- Coutada 16                                    | VI            |
|  | 800       | Zinhave National Park   | II            |
|  | 799       | Banhine National Park/  | II            |
| South Africa/                            | 873       | Kruger National Park/   | II            |
| Zimbabwe                                 | 1104      | Gonarezhou National Park  | II            |
| Namibia/                                 | 8785      | Ai-Ais Hot Springs Game Park<br>Fish River Canyon/  | II            |
| South Africa                             | 30851     | Richtersveld National Park  | II            |
| Rwanda/                                  | 863       | Volcans National Park/  | II            |
| Uganda/                                  | 18436     | Mgahinga Gorilla National Park  | II            |
|  | 18437     | Bwindi Impenetrable Forest National Park/   | II            |
| Democratic Republic of Congo (Zaire)     | 1081      | Virunga National Park   | II            |
|  | 20331     | Rutshuru Hunting  | VI            |
| Sudan/                                   | 904       | Nimule National Park/   | II            |
| Uganda                                   | 7933/     | Otze- Dufile Wildlife Sanctuary   | IV            |
|  | 31275     | Otze Forest Forest Reserve  | Un            |
|  | 64700     | Mount Kei White Rhino   | IV            |
|  | 3276      |   | IV            |
| Sudan/                                   | 1369      | Kidepo Game Reserve/  | VI            |
| Uganda                                   | 958       | Kidepo Valley National Park   | II            |
| Sudan/                                   | 10737     | Lantoto National Park/  | Pr.           |
| Democratic Republic of the Congo (Zaire) | 1083      | Garamba National Park   | II            |
|  | 20036     | Mondo Misso Hunting   | VI            |
| Uganda/                                  | 18438     | Rwenzori Mountains  | II            |
|  | 9184      | Semliki Controlled Hunting Area<br>Semliki National Park<br>Queen Elizabeth National Park | VI            |
|  | 1446      | Kyambura Game Reserve/  | II            |
| Democratic Republic of the Congo (Zaire) | 1081      | Virunga National Park   | IV            |
| Zambia/                                  | 7692      | Lower Zambezi National Park/  | II            |
| Zimbabwe                                 | 2531      | Mana Pools National Park  | II            |
|  | 2524      | Charara Safari Area<br>Sapi , Chewore, Dande Special Areas                                | VI            |
| Zambia/                                  | 2347      | Mosi-oa-Tunya National Park   | III           |
|  | 62183     | Victoria Falls National Monument/   | III           |
| Zimbabwe                                 | 1993      | Victoria Falls National Park  | III           |
|  | 2530      | Zambezi National Park   | II            |
| <b>Asia</b>                              |           |   |               |
| Bangladesh/                              | 4478      | Sundarbans W. Wildlife Sanctuary/   | IV            |
| India                                    | 9960      | Sundarbans National Park/   | Ia            |

| Countries          | WCMC Code | Designated Areas  | IUCN Category  |
|--------------------|-----------|---|----------------|
| Bhutan/            | 7996      | Royal Manas/  | II             |
| India              | 1818      | Manas Sanctuary   | IV             |
|                    | 9232      | Buxa Sanctuary  | IV             |
|                    | 62663     | Buxa National Park  | Un             |
| Brunei Darussalam/ | 39641     | Labi Hills  | Ia             |
|                    | 18035     | Labi Hills<br>Labi Hills/   | V<br>Un        |
| Malaysia           | 3790      | Gading Forest Reserve   |                |
|                    | 3939      | Gunung Gading National  | II             |
| Brunei Darussalam/ | 32948     | Sungei Ingei Conservation Area                                    | Ia             |
|                    | 3937      | Ensengi Forest Reserve/   | Un             |
| Malaysia           | 787       | Gunung Mulu National  | II             |
| Cambodia/          | 12249     | Preh Vihear Protected Landscape/                                  | V              |
| Thailand           | 1415      | Yot Dom<br>Phanom Dong Rak Wildlife                               | IV             |
| Cambodia/          | 68862     | Virachey National Park/   | II             |
| Laos/              | 18872     | Dong Ampham Nature Reserve<br>Nam Kong Nature Reserve<br>Altopeu/ | VI<br>Pr<br>Pr |
| Vietnam            | 12171     | Mom Ray Nature Reserve  | IV             |
| China/             | 95461     | Jingpo Lake Nature Reserve  | II             |
|                    | 95460     | Mudan Peak Nature Reserve   | VI             |
|                    | 96016     | Changbai Mountains Biosphere Reserve/                             | n/a            |
| N. Korea/          | 17908     | Paekdu Mountain Nature Protection Area/                           | IV             |
| Russian Federation | 1726      | Kedrovaya Pad Zapovednik  | Ia             |
| China/             | 96064     | Dalai Lake Nature Reserve/  | IV             |
| Mongolia/          | 93538     | Mongul Daguur Strict Protected Area/                              | Ib             |
| Russian Federation | 62684     | Daurskiy Zapovednik   | Ia             |
| China (Tibet)/     | 95785     | Zhu Feng Nature Reserve   | Ib             |
|                    | 95784     | Jiang Cun Nature Reserve/   | VI             |
| Nepal              | 804       | Sagarmatha National Park  | II             |
|                    | 803       | Langtang National Park  | II             |
|                    | 26606     | Makalu-Barun National Park  | II             |
|                    | 26605     | Makalu-Barun Conservation Area                                    | IV             |
| China/             | 96118     | Ta Shi Ku Er Gan Nature Reserve/                                  | Ib             |
| Pakistan           | 836       | Khunjerab National Park   | II             |
| China/             | 95476     | Xing Kai Lake Nature Reserve/                                     | VI             |
| Russian Federation | 62691     | Khankaiskiy Zapovednik  | Ia             |
| China/             | 95471     | Hunhe Nature Reserve<br>Hong River Nature Reserve/                | VI             |
| Russian Federation | 1715      | Bol'shekhkhtsizkiy  | Ia             |
| China (Guangxi)/   | 95872     | Gu Long Mountain Shui Yuan  | VI             |
|                    | 95618     | Xia Lei Shui Yuan Lin Nature Reserve/                             | VI             |
| Vietnam            | 10360     | Trungkhanh  | IV             |
| China/             | 99776     | Guan Yin Mountain Nature Reserve                                  |                |
|                    | 95742     | Fen Shui Ling Peak Nature Reserve/                                | VI             |
| Vietnam            | 10357     | Hoang Lien Son #2   | IV             |
| India/             | 1807      | Katarniaghat Sanctuary  | IV             |
|                    | 691       | Dhudhwa National Park/  | II             |
| Nepal              | 1308      | Royal Bardia National Park  | II             |

| Countries               | WCMC Code | Designated Areas  | IUCN Category |
|-------------------------|-----------|---|---------------|
| India/                  | 4578      | Valmiki Sanctuary                                       | IV            |
|                         | 12414     | Sohagibarwa Sanctuary                                   | IV            |
|                         | 4543      | Udaipur Sanctuary/                                      | IV            |
| Nepal                   | 805       | Royal Chitwan National Park                             | II            |
| India/                  | 19683     | Kachchh Desert Sanctuary/                               | IV            |
| Pakistan                | 6684      | Rann of Kutch Wildlife                                  | IV            |
| Indonesia (Kalimantan)/ | 8673      | Gunung Bentang Karimunjaya National                     | II            |
| Malaysia (Sarawak)      | 1300      | Lanjak Entimau Wildlife                                 | IV            |
|                         | 12250     | Batang Ai National Park                                 | II            |
| Indonesia/              | 29966     | Wasur National Park/                                    | II            |
| Papua New Guinea        | 4200      | Tonda Wildlife Management Area                          | VI            |
|                         | 4202      | Maza Wildlife Management Area                           | VI            |
| Kyrgyz Republic/        | 1675      | Besharalsky Zapovednik/                                 | Ia            |
| Uzbekistan              | 1761      | Ugam-Chatkal National Park                              | Ia            |
| Laos/                   | 18893     | Phou Xiang Thong National biodiversity Conservation     | VI            |
| Thailand                | 39518     | Pha Tam National Park                                   | II            |
|                         | 4674      | Kaeng Tana  | II            |
| Laos/                   | 61496     | Nam Et National Biodiversity Conservation Area/         | VI            |
| Vietnam                 | 10363     | Sop Cop Nature Reserve                                  | IV            |
| Laos/                   | 12182     | Phou Dene Dinh National Biodiversity Conservation Area/ | VI            |
| Vietnam                 | 10362     | Muong Nhe Nature Reserve                                | IV            |
| Malaysia (Sabah)/       | 793       | Pulau Penya Park/                                       | II            |
| Philippines             | 14758     | Turtle Island Marine Sanctuary                          | IV            |
| Mongolia/               | 93566     | Uvs Nuur Basin Strict Protected Area/                   | Ia            |
| Russia                  | 67722     | Ubsunurskaya Kotlovina                                  | Ia            |
| Mongolia/               | 93579     | Khovsgul Nuur National C Park/                          | II            |
| Russian Federation      | 68356     | Turkinskiy National Park                                | II            |

#### Key to IUCN category field:

Pr proposed protected area

n/a not applicable (as in the case of internationally designated sites, such as biosphere reserves)

Un unassigned (not assigned to a category because the designation/site does not meet IUCN's definition of a protected area)

blank category not yet assigned (often due to inadequate information)

#### Acknowledgements

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## Appendix 3. Total Economic Value

### Analytical Framework

The discipline of natural resource economics provides a useful framework within which to analyse the rationale for TBCAs and TBNRM. Apart from conventional financial costs and benefits, conservation-related activity is associated with numerous broader social costs and benefits, many of a nonpecuniary nature (e.g., ecological and cultural benefits).

An example of a nonpecuniary ecological benefit is watershed protection. Proper management of water-catchment areas can save millions of dollars in downstream flood protection. Where water catchments straddle international boundaries (e.g., Lesotho/Kwazulu Natal), there are potential benefits from transboundary catchment management. Cultural benefits may exist where, for example, a community has been divided by the imposition of a political boundary during the colonial era. By softening or removing the boundary, communities can be reunited culturally, which may be of great personal value to them. An example of this is provided by the Makuleke community in the far-northern Kruger National Park, who were separated from their family in neighbouring Zimbabwe and Mozambique.

In recent years, the natural resource economics literature has explored this full range of economic values in some detail. There have been attempts to quantify some of the less tangible costs and benefits of conservation, using such techniques as contingent valuation; but these methods are somewhat controversial and not universally accepted. Nonetheless, they draw attention to the fact that such values exist and are significant; the exact measures of the values are less important than the principle of taking them into account when making land-use policy decisions.

The resource economics approach assumes that economic values (as broadly defined by the discipline) are positive indicators of human welfare and that our broader societal goal is to improve human welfare, directly and indirectly. Direct improvements to human welfare are obvious and widely dealt with by conventional economics, but the indirect improvements to human welfare that flow from an activity such as conservation are less obvious, although significant. Improvements in human welfare are treated as economic benefits, and welfare losses as costs. Thus, to measure changes to human welfare, we use the concept of cost-benefit analysis, and the related concept of Total Economic Value (TEV).

TEV is simply the sum total of all net economic benefits. It is intended to include the full spectrum of potential economic benefits and costs, ranging from the direct and easily measurable (e.g., financial returns) to the indirect and intangible (e.g., existence values); from those that are purely private (e.g., trophy fees to a safari operator) to those that must be shared (social values/public goods, e.g., watershed protection).

Within the broad goal of improving human welfare (as measured by TEV), there are three distinctive aspects: efficiency, equity, and sustainability (see Box below). One or more of these three aspects typically form the basis for most policy decisions.

## Efficiency, Equity, and Sustainability

Using the broad economic criteria encapsulated in the concept of TEV, the rationale for TBNRM is to achieve one or more of the following three objectives:

1. **Gains in economic efficiency.** This refers simply to any increases in net TEV. Gains from trade and new ventures that add economic value lead to improvements in efficiency, as do the removal of economic distortions, such as subsidies. In the case of TBNRM, examples of efficiency gains could include:

- Elimination of subsidies to conventional agriculture that encourage excessive land conversion and discourage conservation.
- Creation of new business and employment opportunities, by allowing free movement of goods and services across boundaries.

2. **Improvements in equity.** This refers to the fairer distribution of resources between people (within the current generation). The main concern here is to uplift disadvantaged people. TBNRM could improve equity by providing opportunities for local communities to trade with one another across boundaries. There are many instances where a community on one side of a boundary is disadvantaged by, for example, lack of access to resources or infrastructure in its own country, but could benefit greatly from interacting with neighbours in other countries.

3. **Improved sustainability.** This refers to the fair use of resources between current and future generations. The main concern here is to ensure that future generations are at least as well off as the current generation. TBNRM can lead to improvements in sustainability by creating larger, more coherent units of land under uniform management. Increasing the size of such areas may also increase their resilience to ecological stresses.

These three objectives can complement one another; for example, gains in efficiency can bring about greater prosperity to poor people and provide the means to protect the environment for future generations. However, there are instances where pursuing one objective can compromise another; for example taxes and subsidies designed to redistribute economic resources may create market distortions that lower economic efficiency. The extent to which this is desirable is a matter of much debate.

A classic example of this issue is the underpricing of access to protected areas. There is a popular argument that access fees to protected areas should be kept low to enable all members of society to enjoy these public goods. In reality, it is mostly affluent members of society who visit protected areas. Many poor people cannot even afford to travel to the entrance gates, so the state effectively subsidises holidays for wealthy people. In addition, conservation agencies lose out on revenue-earning possibilities, and the private sector is discouraged from entering the nature tourism industry, because it is unable to compete with the unnaturally low rates of return. Consequently, the whole industry is depressed, and opportunities for growth and job creation are forgone.

## Total Economic Value of Conservation Areas

### A USE VALUES

#### *Direct-use values*

- Recreation (tourism)
- Sustainable consumptive use (harvesting) of natural resources
- Education
- Research

#### *Indirect-use values*

- Maintenance of biodiversity as insurance
- Maintenance of evolutionary processes
- Ecosystem services
  - Watershed protection
  - Groundwater recharging
  - Nutrient fixing and recycling
  - Carbon sequestration
  - Climate stabilisation

#### *Option values*

- Future-use values (as above)
- Future information

### B NONUSE VALUES

#### *Bequest values*

#### *Existence values*

- Aesthetic
- Cultural (heritage, community)
- Spiritual

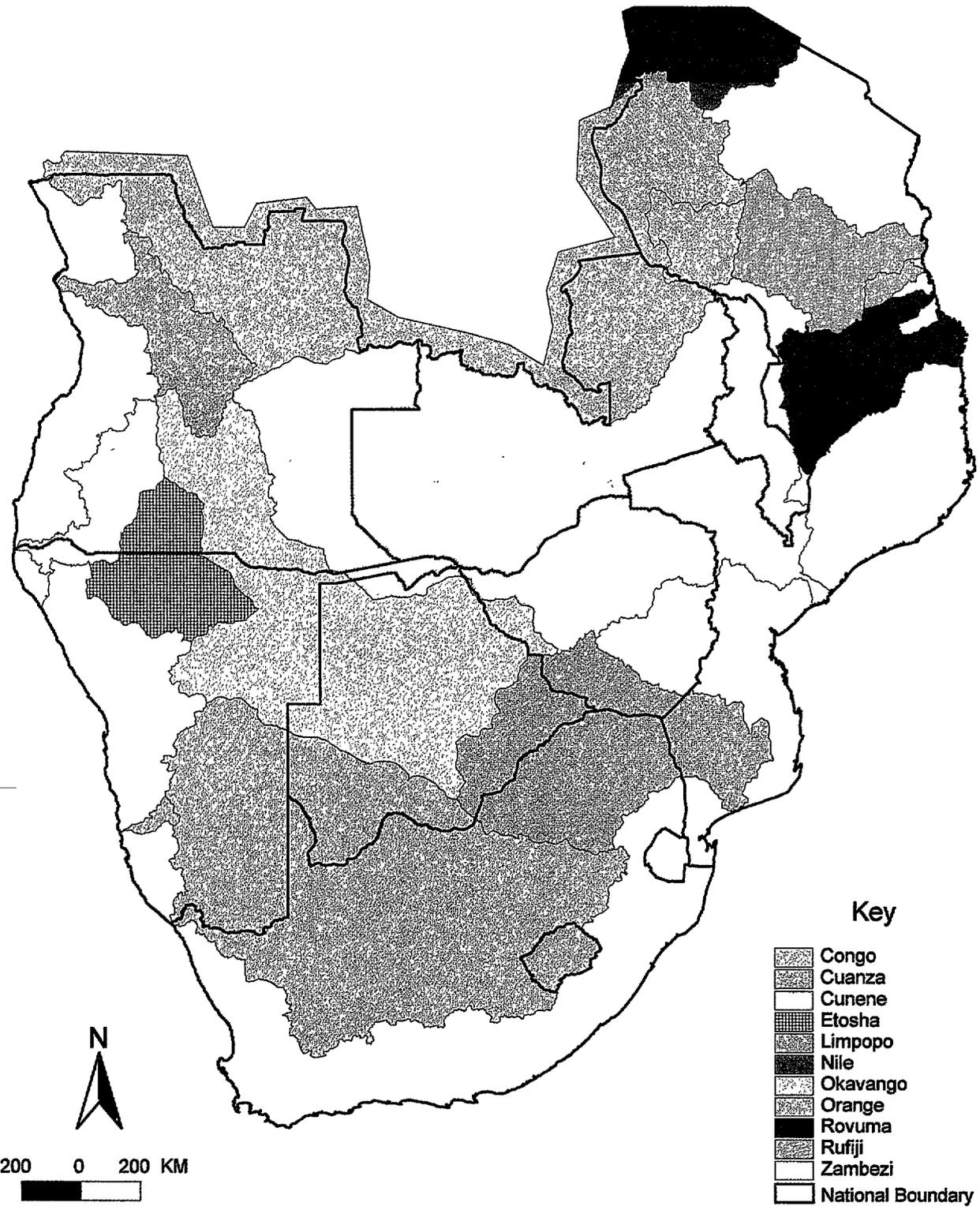
The potential economic benefits and costs of protected areas are discussed widely in the literature (see, for example, Dixon and Sherman 1990, Wells 1997, and Phillips 1998). This figure provides a broad classification of the types of benefits and costs that may be associated with protected areas. This will form the basis for considering the economic rationale for TBNRM.

## MAPS



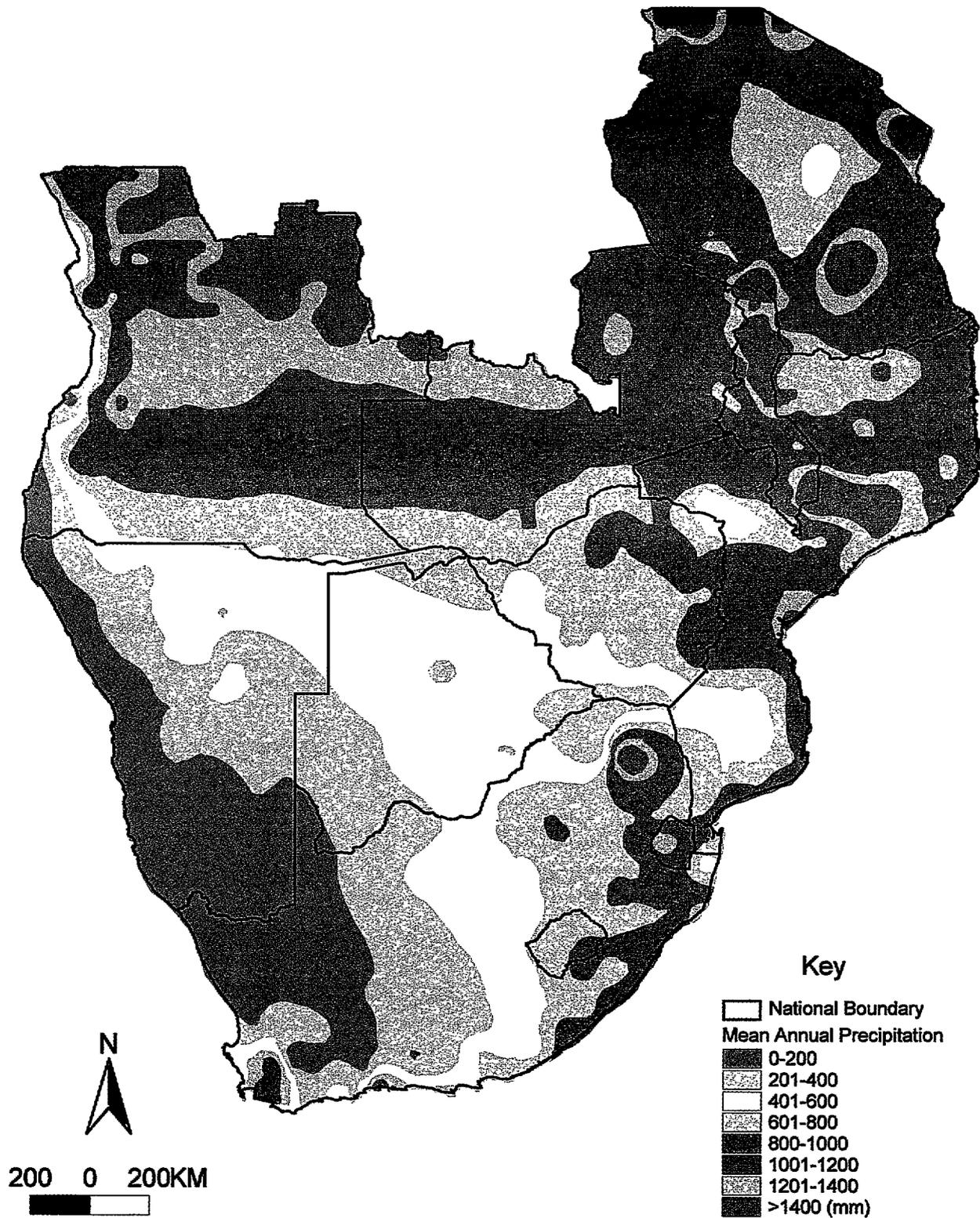
MAP 1 Political boundaries of mainland southern Africa covered in this report.

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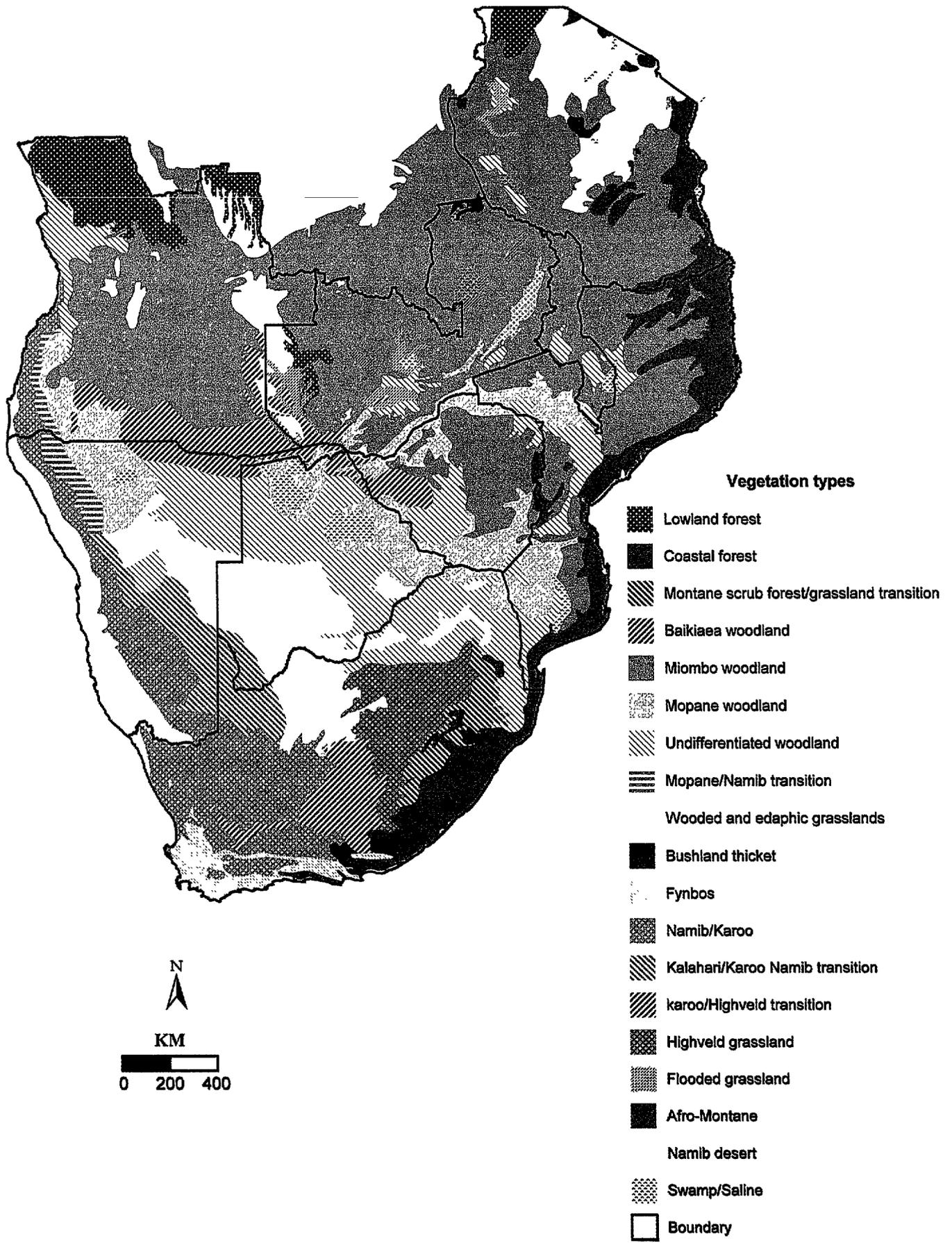
MAP 2 Major drainage basins of southern Africa.

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MAP 3 Mean annual rainfall in southern Africa (WWF-SARPO derived from rainfall data from Hutchinson *et al*, 1996).

1996

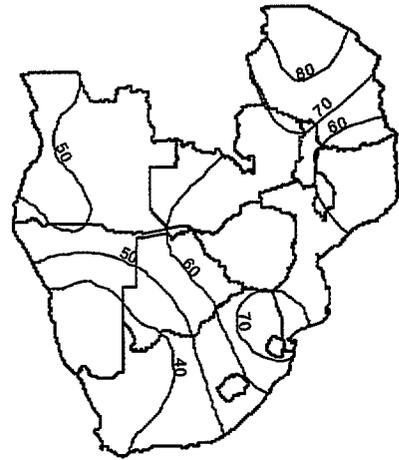


MAP 4 Simplified vegetation map of southern Africa (Adapted from White, 1983).

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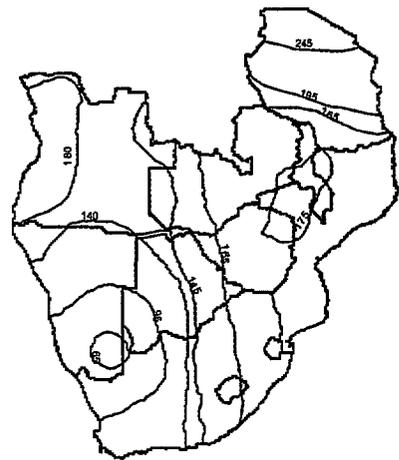
Butterfly species richness



Mammal species richness



Passerine species richness



Non-passerine species richness

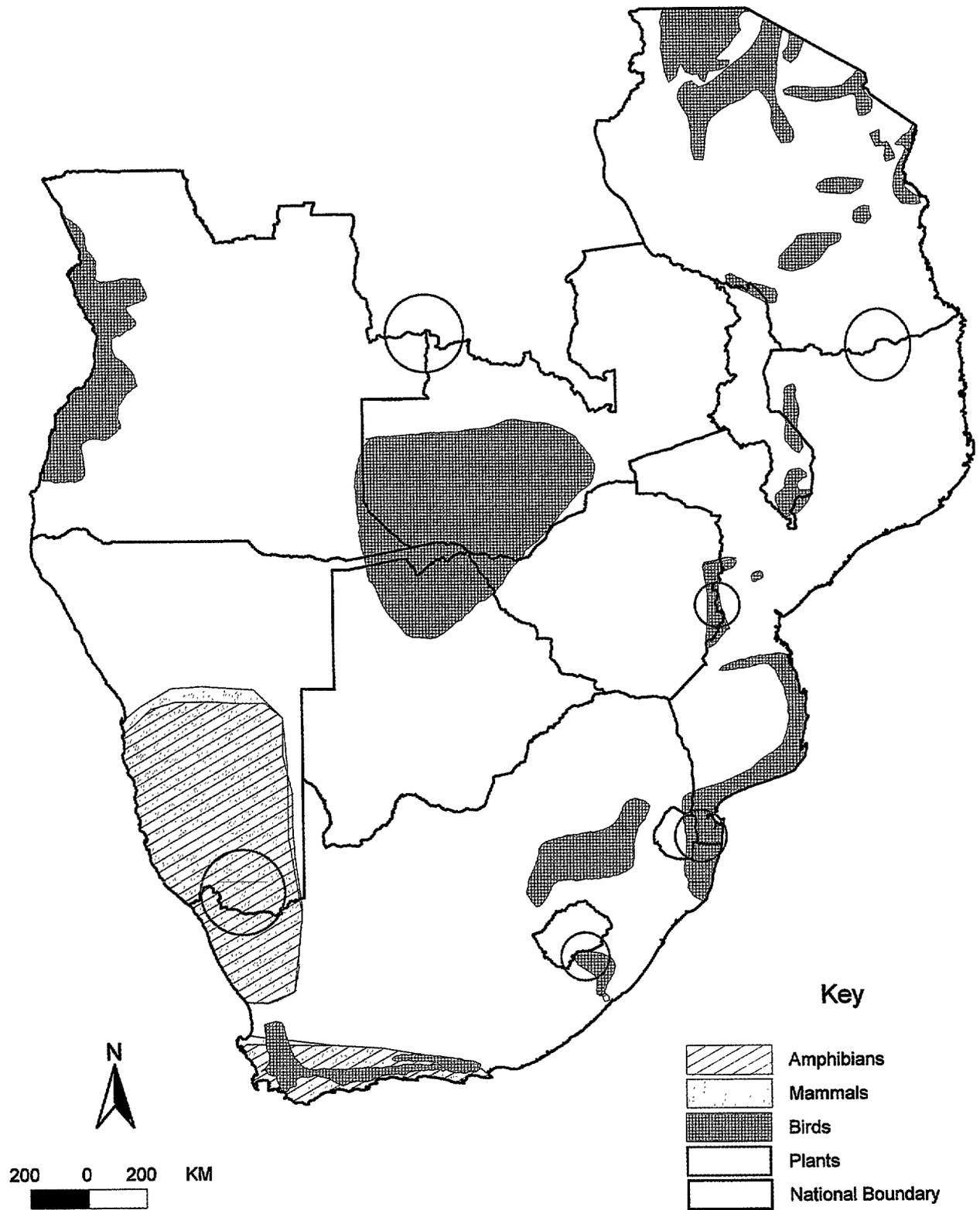


Plant species per 10 000 km2

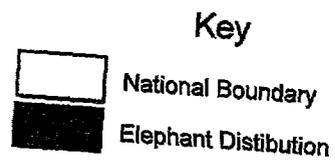
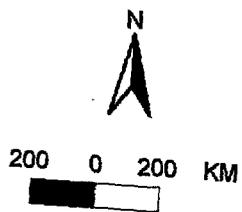
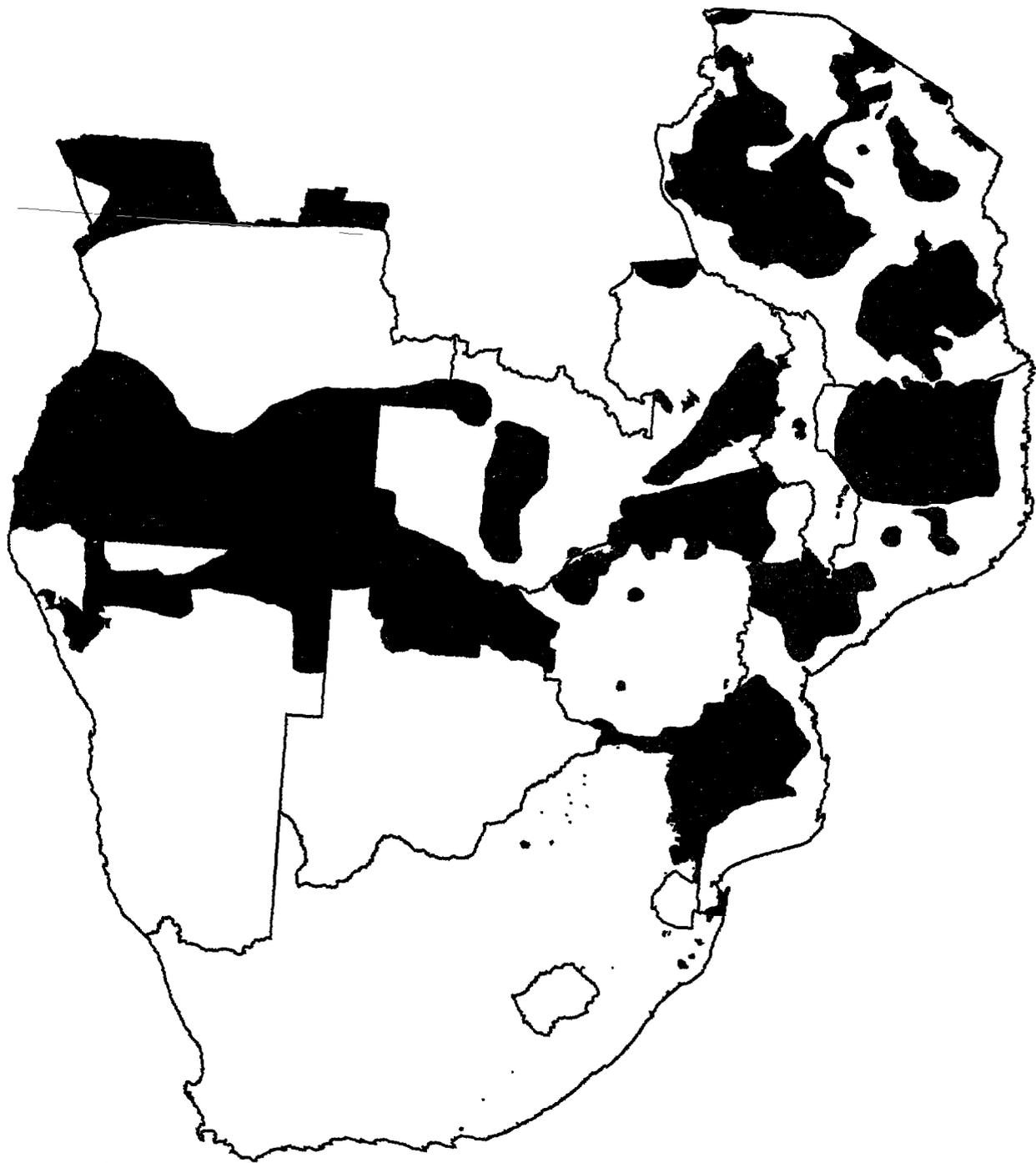


Waterbird species richness

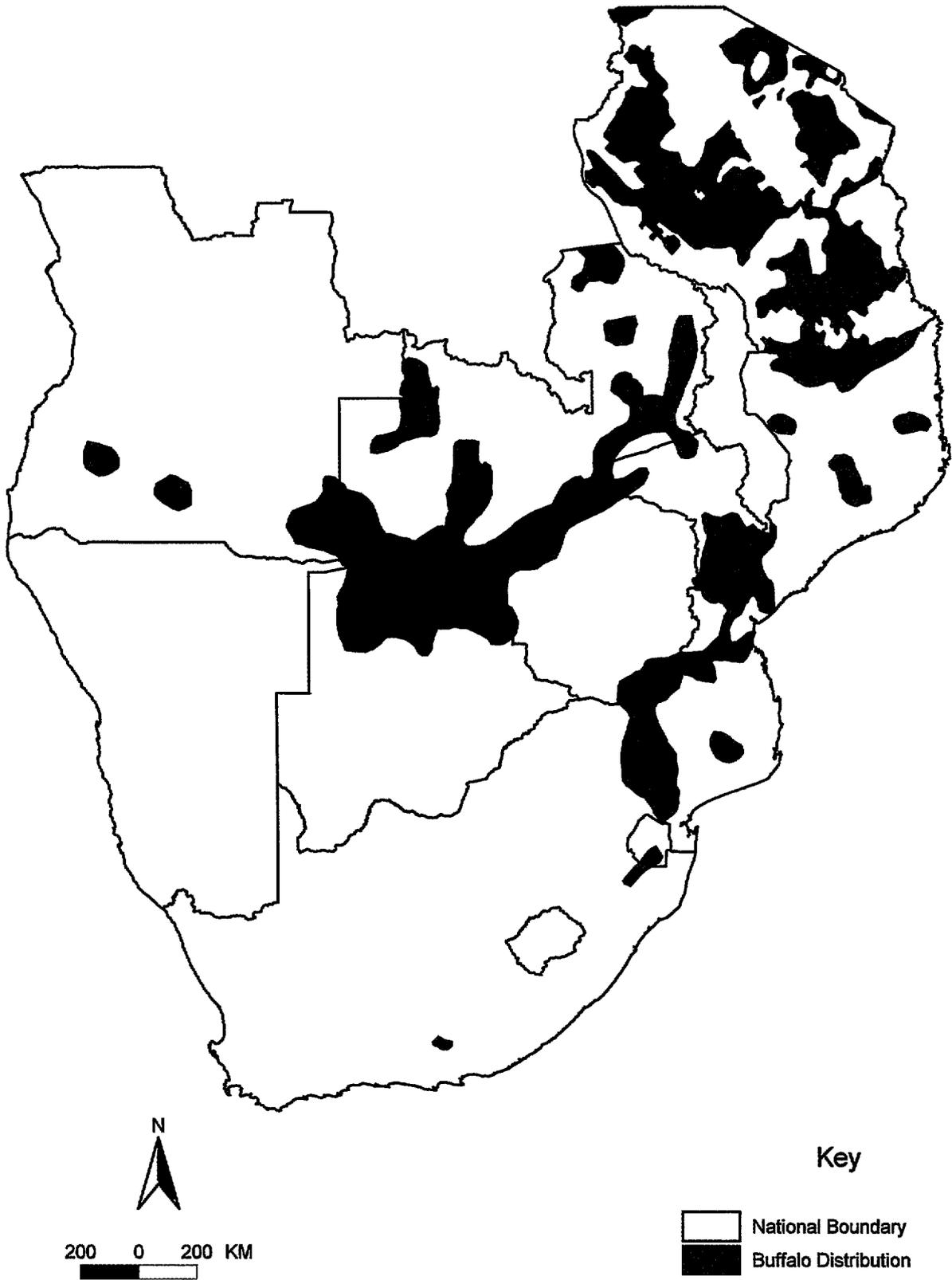
**MAP 5** Distribution of species richness for selected taxa. Isolines represent number of species. (Data drawn from Carcasson 1964, MacKinnon and MacKinnon 1986, Crowe and Crowe, Turpie and Crowe 1994, Guillet and Crowe 1985, Groombridge 1992).



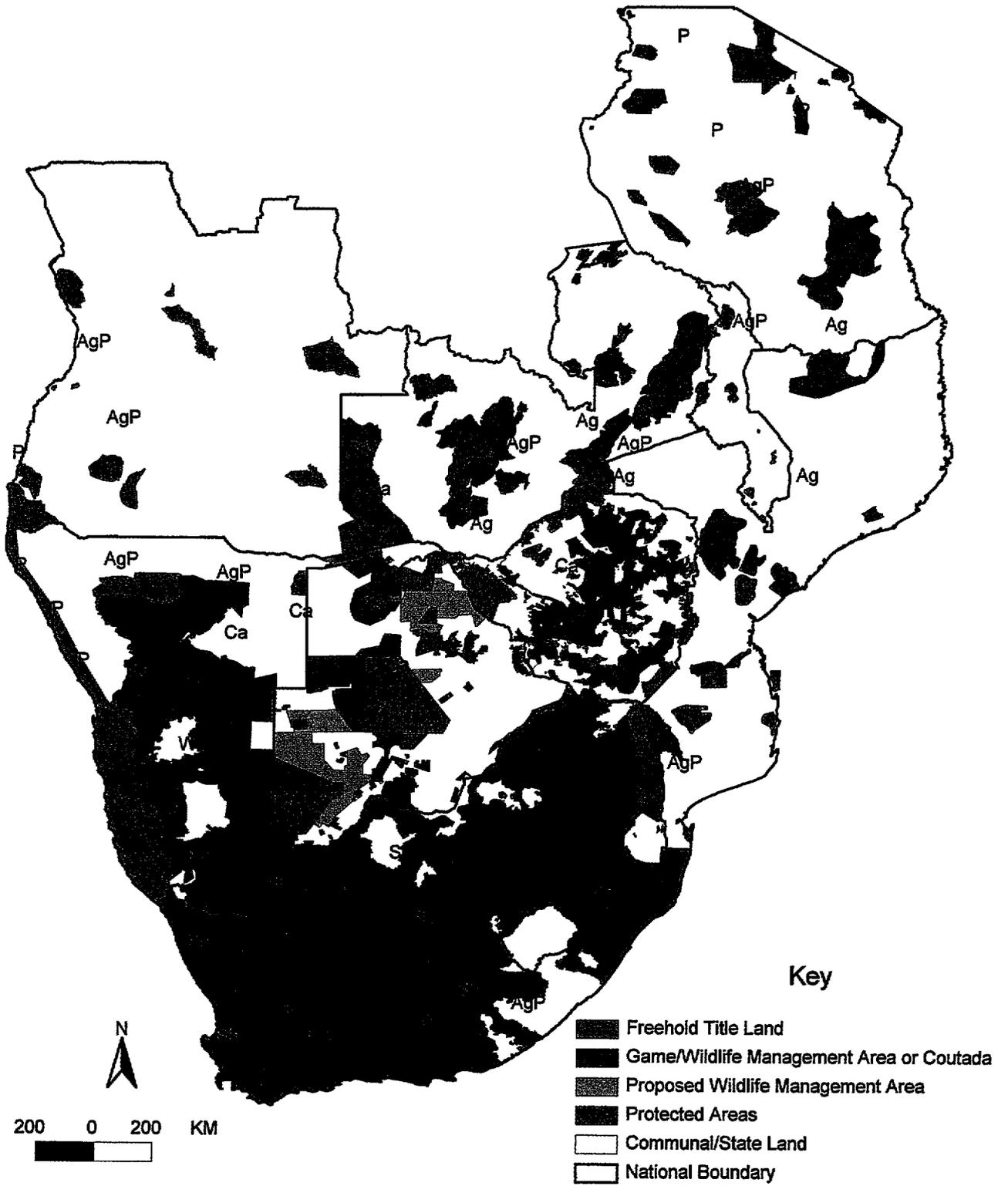
**MAP 6** Centres of endemism for mammals, birds, and amphibians in southern Africa. Areas of plant endemism are shown *only* where they occur in transboundary areas (Based on Groombridge 1992 and Bibby *et al* 1992).



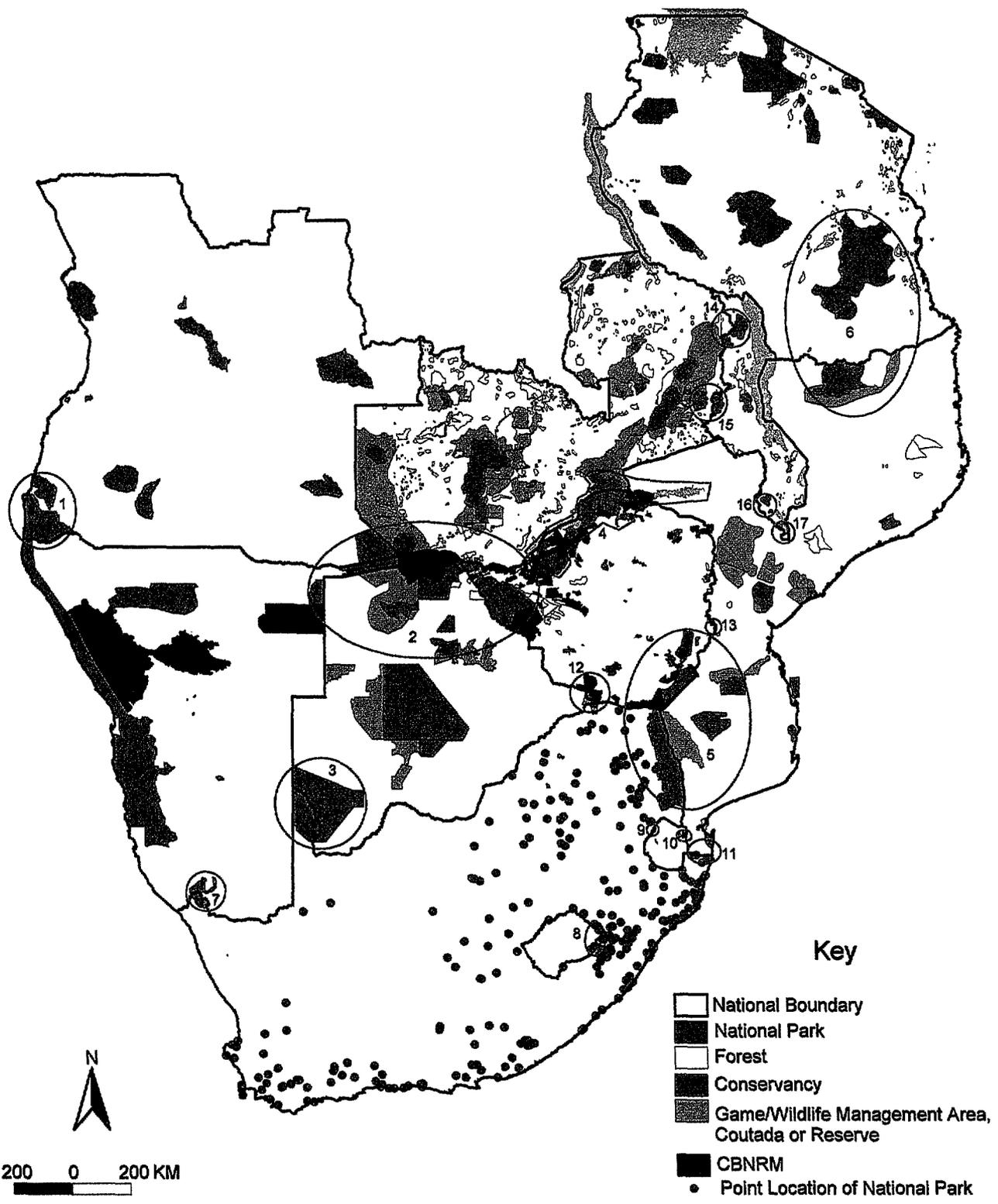
MAP 7 Distribution of elephant in southern Africa (Redrawn from Said *et al*, 1995).



MAP 8 Distribution of buffalo in southern Africa (From R. D. Taylor 1984; J Kingdon 1982 for Tanzania).

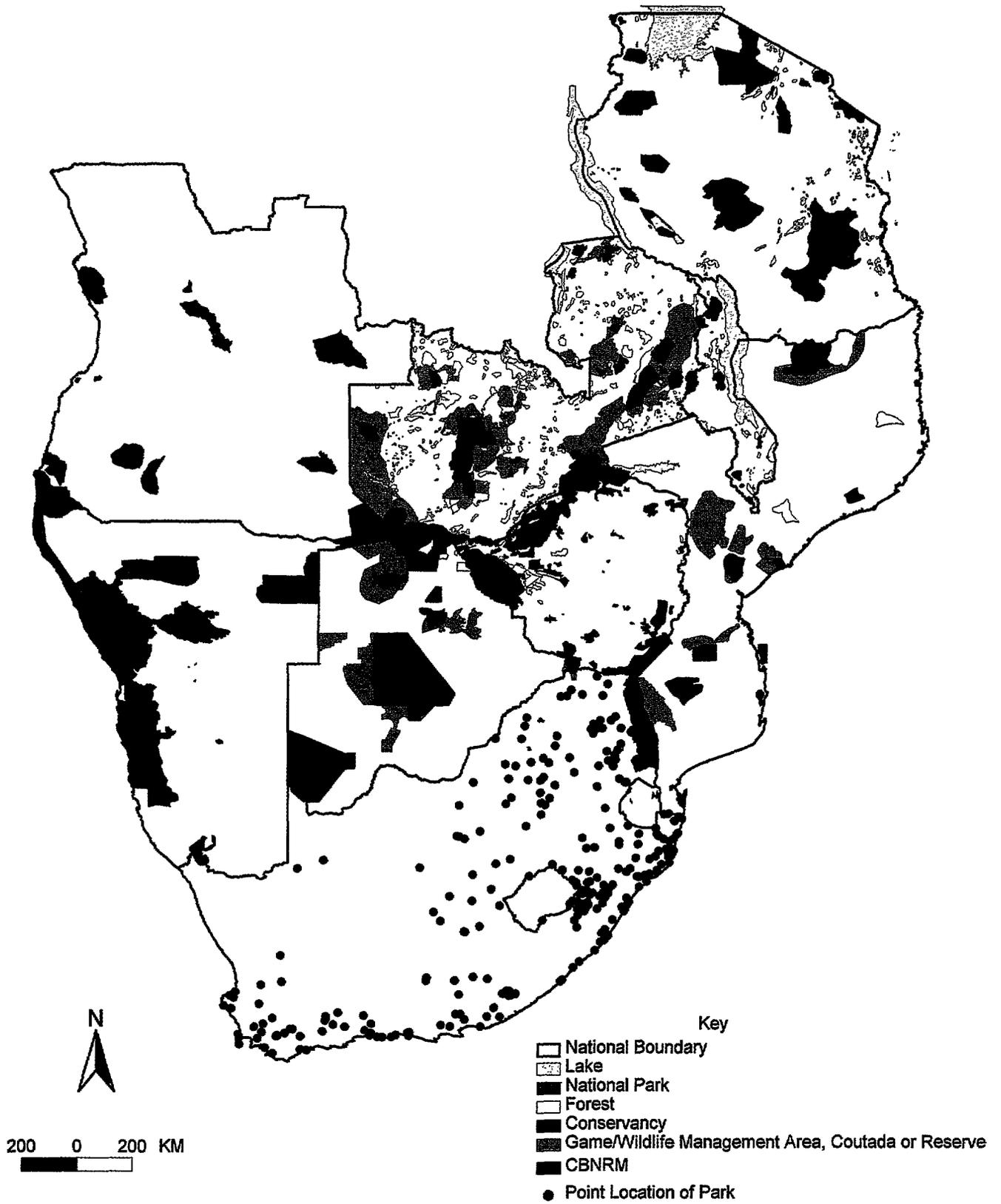


**MAP 9** Land tenure and distribution of extensive landuses in southern Africa (Redrawn from Cumming and Bond 1991). AgP = Agro-pastoral; Ca = Cattle ranching; P = Traditional pastoral systems; S = Sheep farming; W = Wildlife ranching.

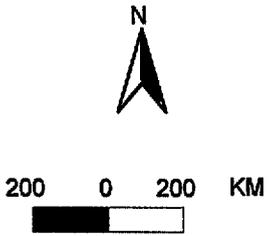
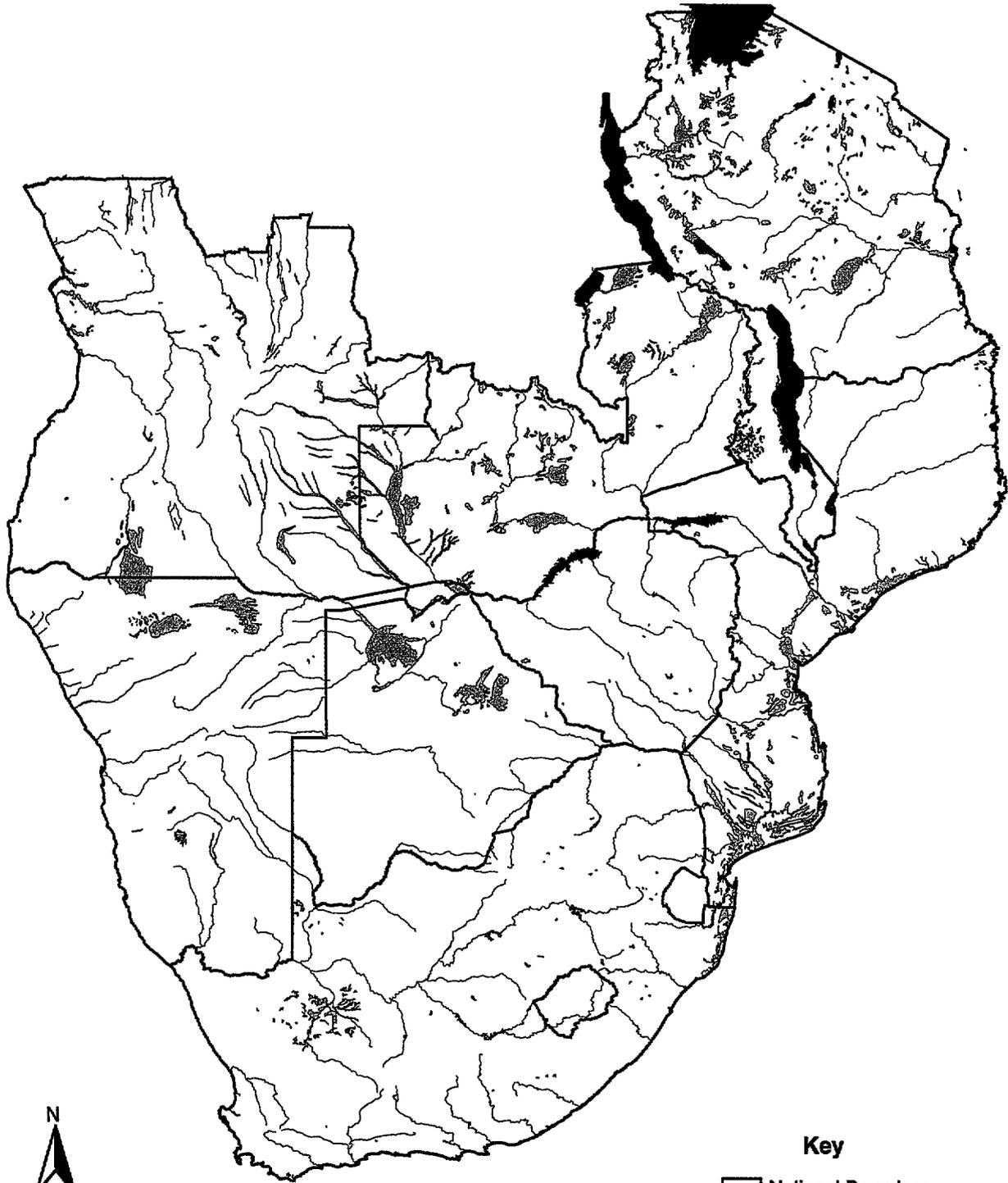


MAP 10 Potential TBNRM areas in southern Africa (WWF-SARPO, compiled from various sources)(lakes and marine areas not included). 1 Iona/Skeleton Coast; 2 Okavango/Capriivi-/Chobe/Hwange; 3 Kgalagadi; 4 Mana/Zambezi/Cahora Bassa; 5 Kruger/Zinave /Banhine -/Gonarezhou; 6 Niassa/Selous; 7 Ais Ais/Richtersveld; 8 Drakensberg/Maloti; 9 Malolotja; 10 Maputo/Mlawula 11 Ndumu/Tembe/Maputo; 12 Tuli block; 13 Chimanimani; 14 Nyika/Nyika; 15 Kasungu/Lukusuzi; 16 Lengwe; 17 Mwabvi

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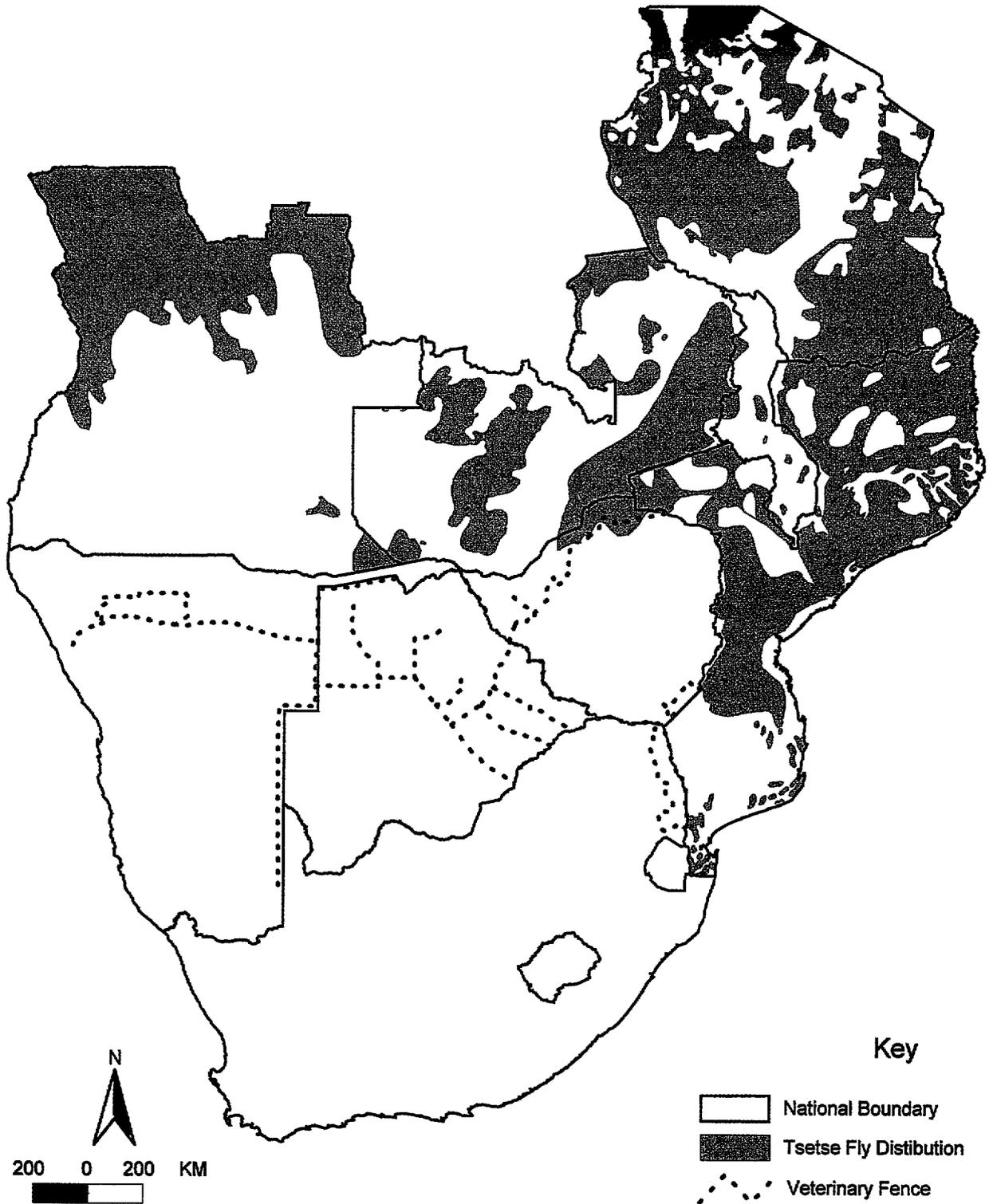
MAP 11 Protected areas and wildlife areas in southern Africa (WWF-SARPO, compiled from various sources).



**Key**

-  National Boundary
-  Wetland
-  Lake
-  Major River

MAP 12 Major lakes, rivers, and wetlands in southern Africa (Source: WCMC ADS).



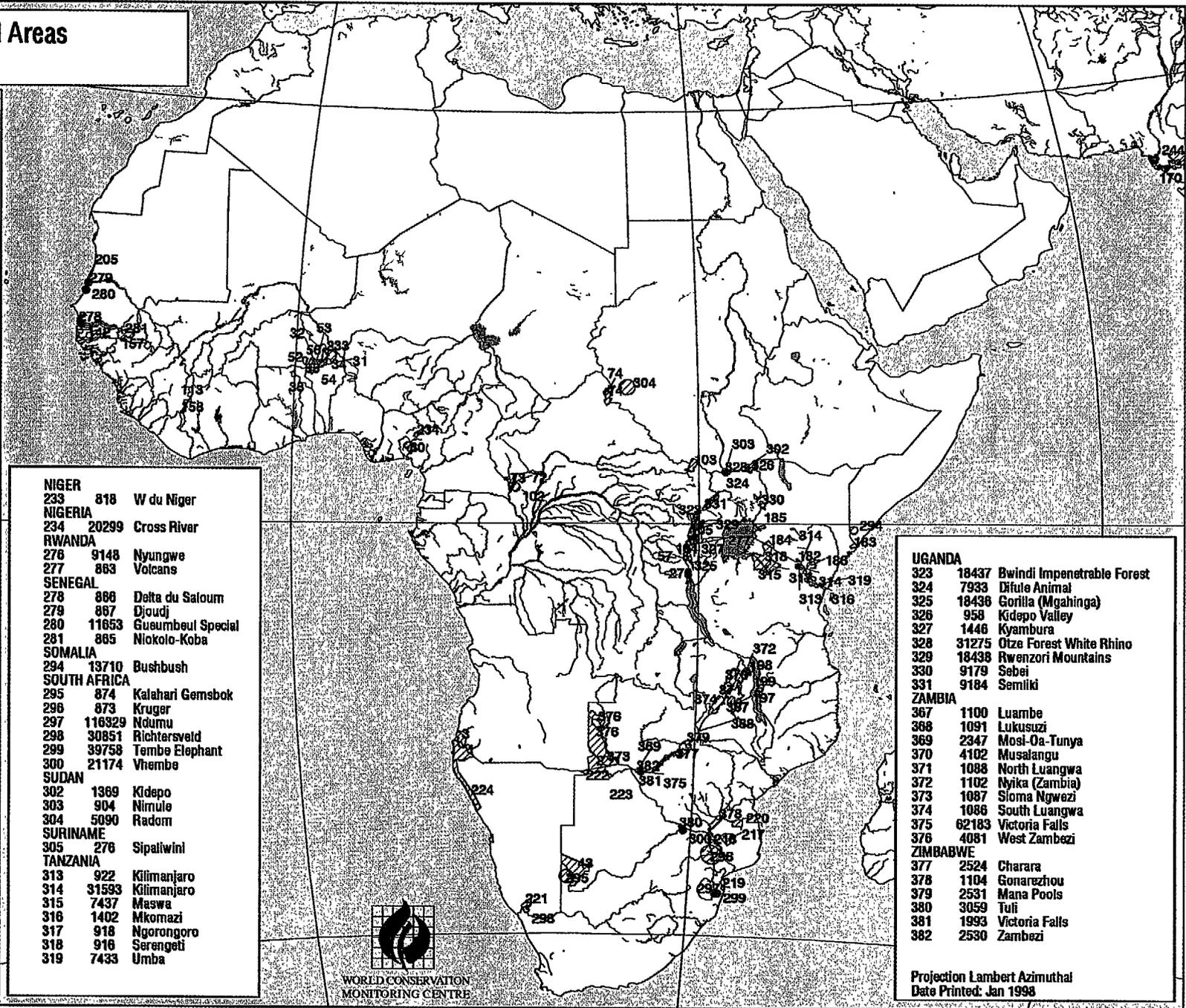
MAP 13 Distribution of major veterinary disease control fences and tsetse fly in southern Africa (Sources: WWF-SARPO, Regional Tsetse & Trypanosomiasis Control Programme, Kingdon 1982).

# Transfrontier Protected Areas Africa

| Map Ref.                                   | Sita Code | Name of Area          |
|--|-----------|-----------------------|
| <b>ANGOLA</b>                              |           |                       |
| 1  | 347       | Iona                  |
| 2  | 4493      | Lulana                |
| 3  | 2251      | Mocamedes             |
| <b>BENIN</b>                               |           |                       |
| 31   | 2254      | Atakora               |
| 32   | 597       | Boucle de la Pendjari |
| 33   | 2253      | Pendjari              |
| 34   | 12201     | W (Benin)             |
| <b>BOTSWANA</b>                            |           |                       |
| 43   | 7508      | Gemsbok               |
| <b>BURKINA FASO</b>                        |           |                       |
| 52   | 9204      | Arly                  |
| 53   | 4488      | Arly                  |
| 54   | 3226      | Kourtiagou            |
| 55   | 3228      | Pama                  |
| 56   | 1048      | W du Burkina Faso     |
| <b>BURUNDI</b>                             |           |                       |
| 57   | 9161      | Kibira                |
| <b>CAMEROON</b>                            |           |                       |
| 60   | 20058     | Korup                 |
| <b>CENTRAL AFRICAN REPUBLIC</b>            |           |                       |
| 72   | 31458     | Dzanga-Ndoki          |
| 73   | 31459     | Dzanga-Sangha         |
| 74   | 2201      | Yeta-Ngaya            |
| <b>CONGO</b>                               |           |                       |
| 102  | 72332     | Nouabalé-Ndoki        |
| <b>CONGO, DEM. REP of (formerly ZAIRE)</b> |           |                       |
| 103  | 1083      | Garamba               |
| 104  | 20331     | Rutshuru              |
| 105  | 1081      | Virunga               |
| <b>CÔTE D'IVOIRE</b>                       |           |                       |
| 113  | 1295      | Mont Nimba            |
| <b>GAMBIA</b>                              |           |                       |
| 142  | 2290      | Niumi/Sine Saloum     |
| <b>GUINEA</b>                              |           |                       |
| 157  | 29089     | Badjar                |
| 158  | 29067     | Mount Nimba           |
| <b>KENYA</b>                               |           |                       |
| 182  | 758       | Amboseli              |
| 183  | 2417      | Boni                  |
| 184  | 1297      | Masai Mara            |
| 185  | 780       | Mount Elgon           |
| 188  | 19584     | Tsavo West            |
| <b>MALAWI</b>                              |           |                       |
| 197  | 780       | Kasungu               |
| 198  | 779       | Nyika                 |
| 199  | 4648      | Vwaza Marsh           |
| <b>MAURITANIA</b>                          |           |                       |
| 205  | 9310      | Dialling              |
| <b>MOZAMBIQUE</b>                          |           |                       |
| 217  | 799       | Banhine               |
| 218  | 20295     | Limpopo Valley        |
| 219  | 4652      | Maputo                |
| 220  | 800       | Zinave                |
| <b>NAMIBIA</b>                             |           |                       |
| 221  | 8765      | Ai-Ais Hot Springs    |
| 222  | 7442      | Caprivi               |
| 223  | 30052     | Mamili                |
| 224  | 885       | Skeleton Coast        |

|                     |        |                   |
|---------------------|--------|-------------------|
| <b>NIGER</b>        |        |                   |
| 233                 | 818    | W du Niger        |
| <b>NIGERIA</b>      |        |                   |
| 234                 | 20299  | Cross River       |
| <b>RWANDA</b>       |        |                   |
| 276                 | 9148   | Nyungwe           |
| 277                 | 863    | Volcans           |
| <b>SENEGAL</b>      |        |                   |
| 278                 | 888    | Delta du Saloum   |
| 279                 | 867    | Djoudj            |
| 280                 | 11653  | Gusumbeul Special |
| 281                 | 865    | Niokolo-Koba      |
| <b>SOMALIA</b>      |        |                   |
| 294                 | 13710  | Bushbush          |
| <b>SOUTH AFRICA</b> |        |                   |
| 295                 | 874    | Kalahari Gemsbok  |
| 296                 | 873    | Kruger            |
| 297                 | 116329 | Ndumu             |
| 298                 | 30851  | Richtersveld      |
| 299                 | 39758  | Tembe Elephant    |
| 300                 | 21174  | Vhembe            |
| <b>SUDAN</b>        |        |                   |
| 302                 | 1369   | Kidepo            |
| 303                 | 904    | Nimule            |
| 304                 | 5090   | Radom             |
| <b>SURINAME</b>     |        |                   |
| 305                 | 276    | Sipaliwini        |
| <b>TANZANIA</b>     |        |                   |
| 313                 | 922    | Kilimanjaro       |
| 314                 | 31593  | Kilimanjaro       |
| 315                 | 7437   | Maswa             |
| 316                 | 1402   | Mkomazi           |
| 317                 | 918    | Ngorongoro        |
| 318                 | 916    | Serengeti         |
| 319                 | 7433   | Umba              |

|                 |       |                            |
|-----------------|-------|----------------------------|
| <b>UGANDA</b>   |       |                            |
| 323             | 18437 | Bwindi Impenetrable Forest |
| 324             | 7933  | Difule Animal              |
| 325             | 18436 | Gorilla (Mgahinga)         |
| 326             | 958   | Kidepo Valley              |
| 327             | 1446  | Kyambura                   |
| 328             | 31275 | Otze Forest White Rhino    |
| 329             | 18438 | Rwenzori Mountains         |
| 330             | 9179  | Sebei                      |
| 331             | 9184  | Semliki                    |
| <b>ZAMBIA</b>   |       |                            |
| 367             | 1100  | Luambe                     |
| 368             | 1091  | Lukusuzi                   |
| 369             | 2347  | Mosi-Oa-Tunya              |
| 370             | 4102  | Musalangu                  |
| 371             | 1088  | North Luangwa              |
| 372             | 1102  | Nyika (Zambia)             |
| 373             | 1087  | Sioma Ngwezi               |
| 374             | 1086  | South Luangwa              |
| 375             | 62183 | Victoria Falls             |
| 376             | 4081  | West Zambezi               |
| <b>ZIMBABWE</b> |       |                            |
| 377             | 2524  | Charara                    |
| 378             | 1104  | Gonarezhou                 |
| 379             | 2531  | Mana Pools                 |
| 380             | 3059  | Tuli                       |
| 381             | 1993  | Victoria Falls             |
| 382             | 2530  | Zambezi                    |



WORLD CONSERVATION  
MONITORING CENTRE

Projection Lambert Azimuthal  
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MAP 14 Transfrontier protected areas of Africa (WCMC 1998).

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