The Waterberg Biosphere Reserve:
A land use model for ecotourism development

by

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Submitted in partial fulfilment of the requirements for the degree

MAGISTER SCIENTIAE

In the Faculty of Natural and Agricultural Sciences
(Department of Botany)

University of Pretoria

PRETORIA

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May 2003
"THE WATERBERG IS LIKE INDELIBLE INK -
ONCE EXPERIENCED, NEVER TO BE ERASED"

- CLIVE WALKER -
HIERDIE STUDIE WORD OPGEDRA AAN MY PA!

MEI 2003
ACKNOWLEDGEMENTS

Any project of this significance can only be successful with the support and assistance from other people and authorities. It is therefore a privilege for me to thank the following people and authorities:

1. The Department of Finance, Economic Affairs and Tourism in the Limpopo Province for awarding me a bursary and opportunity to enrol for this study.
2. My supervisor Prof. G.J Bredenkamp for his guidance and encouragement.
3. Mr Clive Walker, the person I worked with on the Waterberg Biosphere Reserve since the end of 1996. Without his support, encouragement and vast knowledge of the Waterberg and its people, I would never have developed the passion I have for the Waterberg.
4. The Waterberg Biosphere Reserve Management Committee representing all the people I have worked with to ensure that the dream materialise. They range from the ordinary people in Bakenberg, dedicated private landowners, non-government organizations, the business sector and my colleagues in government - thank you.
5. Dr Hennie du Preez, for his assistance in compiling the informative maps.
6. My family, Gideon, Marlene and Riadri. Who sacrificed spending time with me due to my dedication for this project.
ABSTRACT

South Africa became part of the international world in 1994, an event that led to its involvement in UNESCO’s Man and Biosphere (MaB) in 1995. The Waterberg Biosphere Reserve in the Limpopo Province in turn received international recognition in March 2001. With its diverse natural and cultural features, low development impact and clear land use zonation pattern, the Waterberg Biosphere Reserve forms an ideal eco-destination as defined by the IUCN.

The Limpopo Province is one of the poorest provinces in the country. As such one of its main objectives is economic growth aim at combating poverty. Tourism has been identified as one of the economic pillars in the Province. To achieve economic growth in the tourism field it must thus be ensured that the tourist destinations are well planned and protected. The Waterberg Biosphere Reserve strategically and physically links the poorer rural communities of Bakenberg in the west to the existing wildlife/game industry on private land, an aspect that provides excellent opportunities to enhance community tourism development initiatives supported by private industry and government. With its large representation of stakeholders on the Waterberg Biosphere Reserve Management Committee, it serves as an ideal forum for discussing the integrated development plan of the Waterberg and devise means to meet the challenges posed by the unique features of the area.

One of the identified challenges is to ensure that the land use zonation pattern in the Waterberg (on which the eco-destination depends) be protected by means of appropriate legislation and land use management practices. Despite the fact that biosphere reserves have not yet been described as a protected area category within the South African legislative framework, a number of prescriptions have been promulgated which directly influence the protection of land uses occurring in a biosphere reserve. These are: the Municipal System Act (South Africa, 2000), the proposed Land Use Management Bill (South Africa, Department of Land Affairs, 2001) and portions of the new National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002) which provide for the protection of "buffer zones".

The Waterberg Biosphere Reserve links the economic strategy of the Limpopo Province with the conservation of its unique conservation features. It further endorses the current zonation
pattern in the Waterberg District where the major developments e.g. mining and large industries, take place on the periphery of the district with the Waterberg Biosphere Reserve forming a natural wilderness zone in the centre. The Waterberg Biosphere Reserve, therefore, serves as an ideal land use model for ecotourism development in the Waterberg.
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<td>CBE</td>
<td>Community-Based Ecotourism (UNEP)</td>
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<td>CHASA</td>
<td>Confederation of Hunters Association of South Africa.</td>
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<td>GGP</td>
<td>Gross Geographic Product</td>
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<tr>
<td>GIS</td>
<td>Geographical Information System</td>
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<td>IDP</td>
<td>Integrated Development Plan</td>
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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

South Africa’s unique biological diversity – the variety of genes, species, ecosystems and ecological processes occurring in the country – is an asset of international, national and local value and significance. Based upon an index derived by the World Conservation Monitoring Centre (1992), South Africa ranks as the third most biologically diverse country in the world, and as such is of major global importance for biodiversity conservation (South Africa, Department of Environmental Affairs and Tourism, 1997b). South Africa has therefore a tremendous responsibility to maintain and improve the management of these natural resources.

The Limpopo Province’s main natural assets are the Waterberg, Soutpansberg, and Drakensberg mountain ranges with their rich wetland habitats. The Province further more has 54 nature reserve areas, which vary in size, biodiversity importance, tourism potential and conservation status. Their capacity to serve as water catchments and reservoirs constitute probably the single most important practical reason for the conservation of the provincial mountain ranges and wetland systems. In the arid Limpopo Province this is a significant attribute because the limited water supplies negatively influence development in the Province. The proper management of water resources, catchments and river systems is thus of major importance to the Province, known as one of the poorest provinces in the country (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 1999a).

South Africa became part of the international world in 1994, an event which led to its involvement in UNESCO’s Man and Biosphere Reserve Programme (MaB) in 1995. The biosphere reserve concept is a well-established international programme that offers, within a wide framework of conservation management strategies, a number of excellent guidelines for forging balanced relationships between formally protected areas and neighbouring communities. Biosphere reserves further deal with one of the most important questions the world faces today: How can we reconcile conservation of biodiversity and biological resources with their sustainable use? (UNESCO, 2002).
The first official reference to biosphere reserves in the international world was made in 1970 (Batisse, 1986). However, only in 1995 did the General Conference of UNESCO adopt the Seville Strategy which recommends the kind of action to be taken for the future development of biosphere reserves in the 21st century. In addition, the Seville Conference helped to finalize a Statutory Framework setting out the conditions for the functioning of the World Network of Biosphere Reserves.

In 1996, a South African delegation (of which I was privileged to form part of), went to the USA on a biosphere reserve study tour. This event marked the official introduction of this concept to South Africa. Although a number of conservation initiatives in South Africa adopted the biosphere reserve concept as part of their project names, they are not registered as biosphere reserves under the Man and Biosphere Reserve (MaB) programme. There are currently only four registered biosphere reserves in South Africa, of which the Waterberg Biosphere Reserve is one. (The list of registered biosphere reserves world wide and in particular in Africa, is available on the internet at: [http://www.unesco.org/mab/brlistAFR.htm]).

At the end of 1996 a participation process with various role players started in the Waterberg District with the objective of exploring ways to establish a biosphere reserve in the area. The nomination process to register the Waterberg as an international biosphere reserve was completed at the end of 1998 and submitted to UNESCO. After an evaluation period of two years, the Waterberg Biosphere Reserve received its international status in March 2001 and now forms part of the World Network of Biosphere Reserves.

On the legal side the concept is currently only recognized in a policy document of the National Department of Environment Affairs and Tourism, named A Bioregional approach to South Africa’s Protected Areas (South Africa, Department of Environmental Affairs and Tourism, 2001). However, new protected area categories as described in the National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002) can be used to protect core areas and buffer zones within biosphere reserves.
The provincial Department of Finance, Economic Affairs and Tourism has identified ecotourism development as one of its key strategic objectives by striving “to make the Limpopo Province the preferred Ecotourism destination in Southern Africa” (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001a). With the understanding that the word “eco-tourism” combines the two broad conceptual areas namely ecology and tourism (Addison, 1997), the Department of Finance, Economic Affairs and Tourism in the Limpopo Province developed the Golden Horse Shoe concept (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 1999a). This describes the huge area of land that lies within the western, northern and eastern borders of the Province. To materialize this vision, the department then established the African Ivory Route and initiated three biosphere reserve initiatives to serve as unique building blocks to develop the Golden Horse Shoe. Map 1 illustrates this provincial vision.

As since the Province is known as one of the poorest provinces in South Africa, it is important to ensure that the rural population benefits from the planned ecotourism initiatives. The economic base of the areas comprising the Golden Horse Shoe currently lies mainly with private investments in the wildlife industry. Findings by Kessel Feinstein (2001) that the most common form of accommodation utilized by foreign air arrivals in the Limpopo Province are game lodges, enforces the importance to further develop these assets in the Golden Horse Shoe on a sustainable way that will contribute to the economic growth of the Province.

However, unrealistically high social expectations and economic pressure can lead to the over demand of products and the depletion of the natural resource base that presents the opportunities for ecotourism development in the Province. The Limpopo Province is in a certain sense privileged not to have over developed areas within the Golden Horse Shoe area. The opportunity to implement strategies that will enhance sustainable development through ecotourism therefore still exists.

This study will apply the biosphere reserve concept to the Waterberg Biosphere Reserve area to demonstrate that it can serve as a land use model for ecotourism development.
1.2 RATIONALE

The protected area category is perhaps the most valuable asset for the maintenance and management of genetic, species, community, and landscape diversity, as well as key ecological processes. However, the role of protected areas exceeds that of nature reserves since they provide valuable services, often beyond their boundaries. For example, they can serve as a catchment area for the provision of clean water, as a propagule bank for rehabilitation, as a refuge for the recovery of species populations and communities, as a site for the replenishment of areas which have lost species through local extinction, and as a site for the future provision of genetic material for medical and horticultural interest (Bridgewater et al., 1998). The influence of protected areas on rural local communities and *vis a vis* has a direct influence on the management of protected areas. The “island” approach has over the last couple of years changed to the mainstream conservation philosophy and entails involving local communities in and around protected areas in all spheres of planning and developing protected areas. As such, it signifies that a much broader approach to the conservation of biodiversity should prevail, including the focus on the landscape scale as a key factor in an overall bioregional approach to land management (Bridgewater et al., 1998). In this regard as the Global Biodiversity Strategy (Courier, 1992) notes: “Protected areas linked by corridors become means of maintaining functioning natural or near-natural ecosystems over large regions”. It is believed that the Biosphere Reserve concept, formulated to wed conservation and sustainable development, that has been developed and championed under UNESCO's Man and the Biosphere Program (MaB) could be used as a tool to implement such a broader approach.

Ecotourism is currently the principal land use in the Waterberg Biosphere Reserve. Sirakaya et al. (1999) remark that the underlying themes in ecotourism definitions are sustainable utilization of the resource base (both natural and cultural) and the involvement of the local community. Queiros and Wilson (2001) in turn include two further aspects, namely those of the ecotourism industry and tourists. In order to become a successful sustainable development tool worldwide, ecotourism requires a thorough investigation into the planning of ecotourism destinations and their long-term management (Wood, 2002). It is believed that this study will add an important
1.3 THE BIOSPHERE RESERVE CONCEPT

1.3.1 Background
The first official reference to biosphere reserves was made in 1970 in the plan submitted to the General Conference of UNESCO for the launching of the MaB programme (UNESCO, 2002). Although the idea and the term “biosphere reserves” were launched, no clear understanding of their exact role and nature existed as emphasis was largely on the conservation of natural resources. This accounts for the fact that the first biosphere reserves registered in the 70s, were national parks and not a biosphere reserve as we currently understand the concept.

It was within this context that the MaB council requested that UNESCO officially set up an advisory committee on biosphere reserves in order to establish clear procedures for listing new sites. Under the advisory committee's leadership an International Conference on Biosphere Reserves was held in Seville (Spain) in 1995 where stock-taking led to the adoption of the Seville Strategy and Statutory Framework which paved the way for future biosphere reserve developments. A vision was formulated to regard biosphere reserves as a concept that should not form islands in a world that is increasingly affected by severe human impacts, but that they should become theatres for reconciling people and nature because by bringing knowledge of the past to the needs of the future, they can demonstrate how to overcome the problems of the sectoral nature of our institutions (UNESCO, 2002). In short, biosphere reserves are much more than protected areas.

The first biosphere reserve was designated in 1976 and by mid 2001 there existed a network of 393 reserves in 94 countries (UNESCO, 2002).

1.3.2 The Concept
Nominated by governments, biosphere reserves are areas of terrestrial, coastal or marine ecosystems that are internationally recognised under UNESCO's MaB
programme. Each biosphere reserve is intended to fulfil the following three complementary functions (UNESCO, 1996).

- a conservation function to contribute to the conservation of landscapes, ecosystems, species, and genetic variation;
- a development function to foster economic and human development which is socio-culturally and ecologically sustainable;
- a logistic support function to support demonstration projects, environmental education and training, research, national and global issues of conservation, and sustainable development.

By combining the three functions biosphere reserves become living examples of the integration of sustainable development and conservation through a bioregional and integrated land use approach, as Figure 1 indicates:

Figure 1: The three functions of a biosphere reserve

To implement the above mentioned functions, biosphere reserves are organized into three interrelated zones known as the core area, the buffer zone and the transition area. Bridgewater et al. (1998) refer to biosphere reserves as a special kind of conservation area, traditionally a nested series of zones with different management objectives (core area, buffer zone and transition area), designated to include people within an overall conservation framework.
UNESCO (2002) describes these zones as follows:

**Core areas** - securely protected sites for conserving biological diversity, monitoring minimally disturbed ecosystems, and undertaking non-destructive research and other low-impact uses.

**Buffer zones** – they usually surround or adjoin the core areas and are used for co-operative activities compatible with sound ecological practices.

**Transition zone** - a flexible zone which may contain a variety of agricultural activities, settlements and other uses, and which local communities, management agencies, scientists, non-governmental organizations, cultural groups, economic interests, and other stakeholders work together to manage and sustainably develop the area's resources.

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**Figure 2: Example of the zonation pattern of a biosphere reserve**

According to the Statutory Framework (UNESCO, 1996), each biosphere reserve should be subjected to a periodic review every ten years, based on a report prepared by the concerned authority, on the basis of the criteria of Article 4 in the Statutory Framework. The International Coordinating Council (ICC) examines the periodic reports. If the ICC finds that the biosphere reserve does not conform to the seven criteria as contained in article 4, it may recommend to the State involved to implement certain measures that might lead to de-registration. The maintenance and
development of a biosphere reserve, therefore, pose enormous responsibilities for all the involved parties.

1.4 OBJECTIVES OF THE STUDY
Due to the fact that a biosphere reserve is a relatively new concept in South Africa, and that the Limpopo Province presents excellent opportunities to implement the concept as a land use model for ecotourism development, it will be appropriate to conduct a study to investigate the concept and the practical implementation thereof within a South African context. This study could further contribute towards future planning and policy initiatives. Therefore, the main objectives of this study are:

a) to apply the biosphere reserve concept to the Waterberg area,

b) to specifically look at the development function in the Waterberg Biosphere Reserve of which ecotourism forms the major component, and

c) due to the fact that biosphere reserves are a relatively new protected area classification in South Africa, the study will investigate current legislation that could be used to secure registered biosphere reserves in future.

1.5 METHODOLOGY

1.5.1 Introduction
It could probably be said that no two biosphere reserves will ever present exactly the same configuration, face the same problems, and require the same management measures since each one of them deals with a specific geographical, historical, human and socio-economic situation (Batisse, 1986). There is further more no single way or written protocol for putting the biosphere reserve concept into practice. Indeed, one of the great strengths of the concept is that it could be adapted to a whole range of local conditions and settings in different parts of the world.

The only guiding documentation that currently assists in defining the biosphere reserve concept in which such a biosphere reserve must function is the Seville Strategy and Statutory Framework of the World Network of Biosphere Reserves (UNESCO, 1996). This document recommends the action to be taken for the future
development of biosphere reserves and sets out the conditions for the functioning of biosphere reserves.

Due to the fact that South Africa only started in 1995 to participate in UNESCO’s MaB programme, and as no registered biosphere reserves had existed in South Africa at that time, no comparisons could be made to evaluate the implementation of the concept during the participation process in the proposed Waterberg Biosphere Reserve which started at the end of 1996. (The Kogelberg Biosphere Reserve was registered in 1998, and became the first biosphere reserve registered in South Africa. Its unique conservation value - representing the Fynbos biome made this biosphere reserve a valuable addition to the World Network of Biosphere Reserves (UNESCO, 2002). Not one other biosphere reserve represented this floral kingdom at that stage).

The Waterberg Biosphere Reserve differs from the Kogelberg in almost every aspect and therefore could not be compared. Apart from the conservation features and administrative structures, the real difference is found in the population dynamics and socio-cultural aspects. It is believed that the Waterberg Biosphere Reserve presents a much more African cultural component. The only guiding documents in the establishment of the Waterberg Biosphere Reserve, therefore used, were the above-mentioned Seville Strategy and Statutory Framework for Biosphere Reserves.

1.5.2 The beginning of an idea.

In July 1996 I was sent on a study tour to the United States to explore the biosphere reserve concept by investigating ways in which to apply it in the Limpopo Province. With a better understanding of the concept and a broad knowledge of the dynamics within the Limpopo Province, this study tour convinced me of the suitability of the Waterberg area as an ideal pilot project to establish a biosphere reserve.

The Waterberg was identified for the following reasons:

- Its unique biodiversity and relatively “under researched” components;
- Its cultural diversity;
- Its population dynamics;
- The organized private and community structures that were in place;
- The land use profile and vastness of the area; and the
- Eagerness of the local people to participate in such a project.
Other areas e.g. the Soutpansberg and Drakensberg were identified as possible biosphere reserve sites too – especially when considering the unique biodiversity of these mountains. However, the population dynamics had a direct influence on the time it needed to get such a project from the ground. In these two areas the communities and private landowners had not yet been organized into representative structures. The participation process in formalizing these structures would have taken a long time, especially when considering the fact that parts of the Drakensberg have the highest human population density in the Province. Further, since the involvement of local communities in resource management was a relatively new idea at that time, the implementation of a concept unknown to the communities, would undeniably have been time-consuming.

However, the implementation of the biosphere reserve concept have since started in these areas through the initiatives of forming conservancies and community structures so that both these areas are currently zoned as potential biosphere reserves in the provincial tourism strategy of the Department of Finance, Economic Affairs and Tourism (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 1999a).

As mentioned, Kogelberg was registered as the first biosphere reserve in South Africa (UNESCO, 2002) with the Waterberg Biosphere Reserve the first savanna biosphere reserve with the involvement of a vast rural community component. This makes the Waterberg an ideal pilot site for exploring the biosphere reserve concept within an African context.

1.5.3 The strategy
To implement a project of this magnitude one must ensure that the main stakeholders in the area are convinced that such a project would benefit the area and its inhabitants. To obtain the necessary relationship of trust, the main community leaders were identified, namely the then Chairperson of the Waterberg Nature Conservancy, Mr Clive Walker, and the Transitional Local Councillor of Bakenberg, Mr Gilbert Pila. The then government authorities involved were the National Parks Board and the provincial Department of Environmental Affairs, both of whom were very positive and supportive of the project.
At the end of 1996 I started negotiations with Mr Walker (Walker, 1998) and Mr Pila. A common vision was shared and an action plan drafted on how to take the process forward. A small technical team was thus formed to do so. Its main objectives were:

- to identify all the relevant role players;
- to involve and inform them about the biosphere reserve concept and its potential benefits;
- to establish a representative steering committee to drive the process; and
- to complete the nomination for international recognition from UNESCO’s Man and Biosphere Reserve programme. This involved considerable information gathering and data processing. In Chapter 3 the seven criteria of a biosphere reserve as determined by UNESCO are applied to the Waterberg that indicate the wide range of information that was needed as well as the processes that should have been in place before the nomination could be finalised.

To achieve the above mentioned objectives the following process was facilitated:

- Information gathering of all aspects pertaining to the Waterberg.
- Identification and involvement of all the relevant stakeholder groups to ensure full participation.
- Detailed inventories of all the actual and potential stakeholders.
- Internal discussions with each group.
- Stakeholder analysis which determined each stakeholder’s future role in the biosphere reserve.
- Information sharing and awareness campaigns.
- Helping stakeholders organize.
- Meetings and workshops to build bridges amongst stakeholders.
- Set up a collaborative management agreement.
- Determine a common vision and objectives.
- Receive endorsements of all the stakeholders involved to continue with the project.
- Finalise the nomination form and submit it to UNESCO via the National Department of Environmental Affairs and Tourism.
The role players involved consisted of local and provincial political leaders, private landowners, the tourism sector, government departments, traditional leaders, and community representatives from 26 rural villages. This led to the completion of the nomination form and the endorsement of the National Minister of Environmental Affairs and Tourism in 2000. In March 2001, the Waterberg Biosphere Reserve received its international status, thereby becoming the first savanna biosphere reserve registered in southern Africa.

1.5.4 Consolidation and updating of information
The information gathered in 1996 and 1997 was consolidated so that it could be incorporated into the study material. However, due to the study's specific reference to ecotourism and legal documentation, a vast amount of new information needed to be gathered. Information from communities and landowners was updated through new questionnaires to ensure that the information in the biosphere reserve reflects the most recent data.

Information pertaining nature reserves (core areas) was obtained from departmental files and verbal discussions with reserve/park managers. Before 1994, the nature reserves were managed by five different administrations (the Lebowa, Gazankulu, Venda governments, the Development Aid, and the Transvaal Provincial Administration). In 1994 the Department of Environmental Affairs and Tourism was formed with the responsibility of managing these resources. This department has been transformed twice since then, an inefficient filing system currently exists. Information was, therefore, mainly obtained from personal files and the questionnaire that were handed out to the reserve managers.

a) Literature Surveys
Due to the relatively unknown concept (especially within an African context) and its functional implementation various literature sources pertaining the biosphere reserve concept were obtained. As a large number of these publications concerning the concept are not readily available in South Africa, they had to be obtained directly from UNESCO or the IUCN.
The Internet and website addresses of UNESCO were often used since only a small number of publications pertaining to our local biosphere reserve initiatives exist.

In the assimilation and collation of general data pertaining the Waterberg area, even less published literature is available. Data were thus assimilated from masters and doctors theses and documentation (policies, business plans and economic studies) available from departmental divisions in provincial and national authorities.

Articles, textbook publications and seminar information pertaining to ecotourism were obtained as well including relevant legal documentation (on provincial and national level) e.g. acts, bills and policies required for the study.

b) Questionnaires

Questionnaires were compiled to obtain information from the five core areas and the buffer zone in the Waterberg Biosphere Reserve. The questionnaires from all five core areas were received and 24 of the 28 landowners in the buffer zone responded. These 24 landowners represent 146 157 hectares of the affected land.

The main reasons for distributing the questionnaires were:

- To update the data that were needed for completing the seven criteria of UNESCO to illustrate that the Waterberg Biosphere Reserve area complies with the set criteria.
- To determine the actual size of the core and buffer zones.
- To determine the type of activities currently undertaken within the core and buffer zones.
- To compare the ecotourism activities within the core and buffer zones with the principles of ecotourism.
- To determine the current economic contribution the buffer and core areas of the biosphere reserve makes to benefit the local economy and local communities.
- To determine the land use changes in the buffer zone over the last few years.
The questionnaire was divided into four sections.

**Section A:** Related to general farm information e.g. the registration name of the farm, the commercial name of farm, the size, how long a landowner had owned his property in the Waterberg, expansion of the property and whether he/she had changed the land use since becoming the landowner.

**Section B:** Intended to obtain information pertaining to the current tourism activities on the property. Questions that were asked related to the number of tourist beds, type of accommodation, markets targeted, tourism activities, including hunting, the game product currently being offered and ecological management.

**Section C:** Related mainly to the socio-economic aspects, for example:
- Current job opportunities on the property.
- Type of jobs provided.
- Recruitment of labour.
- Contracting out of services needed on farm.
- Provision of training and education programmes.
- Long term monitoring and research programmes.

Although information assimilated does not reflect the current tourism scenario in the whole of the Waterberg District area (an aspect that will be broadly dealt with in Chapter 2), it specifically refers to the scenario within the core and buffer zones of the biosphere reserve area.

**Section D:** To obtain all the contact details for all future correspondence.

Graphics, tables and figures were used to present the findings as obtained from the questionnaires.

c) **Geographical Information System (GIS)**

Due to the fact that the spatial configuration of the study area plays an important role in illustrating the biosphere reserve zonation and associated conclusions made, GIS mapping was done. To determine the current land use scenarios GIS data was assimilated to assist in compiling well-illustrated maps.
The information gathered through the questionnaires as discussed above and the information obtained from departmental data were added into the GIS system to ensure an updated version of the current scenario in the Waterberg area.

Information pertaining to current number of exemption farms in the Waterberg region was obtained from the different regional offices of the provincial Department of Finance, Economic Affairs and Tourism (currently responsible for Environmental Affairs). This increased the reliability of determining the land use pattern of the area.

The current zonation pattern in the Waterberg Biosphere Reserve was finally added to the GIS that clearly indicates the different zones and other major developments within the region.

d) Fieldwork

Due to the nature of the study, fieldwork mainly entailed talking to as many stakeholders within the Waterberg Biosphere Reserve area as possible, to obtain their views and aspirations, as well as to determine the viability of the concept in future. The groups addressed or interacted with ranged from politicians, government officials from all relevant departments, local authorities, local community structures, traditional leaders, and private land owners to organized groups, e.g. from agriculture, conservancy members and non government organizations.

These interactions mainly took place within meetings, workshops and one to one discussions. It must be noted that before the initiative started almost no contact had existed between the organized community structures from Bakenberg and the private landowners. Separate meetings were held with the different stakeholders until the time it was felt that all the stakeholders involved were well enough acquainted with the concept and that they respect the views and aspirations of the other stakeholder groups. It was only when the stakeholders could set a common vision to pave the way forward, that joint meetings could be organised.

More detailed work and strategies were also discussed and planned with the Waterberg Biosphere Reserve Management Committee (WBRMC).
Community structures representing the Masebe and Moepel areas form part of the Waterberg Biosphere Reserve Management Committee and are therefore, updated on all aspects pertaining the larger project. A separate working committee was established between the provincial Departments of Finance, Economic Affairs and Tourism, Land Affairs, Agriculture and various community representatives to streamline the process and devise an action plan to develop Masebe and Moepel as a community owned ecotourism project. All the recommendations within this study are therefore in line with the communities’ needs and the working committee's mandate. As such the present study can indeed contribute to illustrating the way forward for the above mentioned initiative.
2.1 GENERAL

The Waterberg District is the largest district in the Limpopo Province and is located in the western side of the Province. Map 2 illustrates the location of the Waterberg District Municipality within the Limpopo Province and includes the Waterberg Mountain Range from where its name originates. During the rainy season there is an abundance of running streams and rivulates in the veld, particularly in the mountainous areas, fed by water seeping freely from many sources and fountains. The sandstone rocks dominating the geology coupled with the mountainous terrain and the high rainfall cause this characteristic feature of the Waterberg. As such, it is an important water catchment area that has unique biodiversity features, which will be discussed in more detail in Chapter 3.

The Waterberg District Municipality (previously known as the Bushveld District) consists of the following six municipalities: Mogalakwena, Bela-Bela, Modimolle, Mookgopong, Lephalale, and Thabazimbi. The district is rural in nature with the urban areas mostly described as dispersed and fragmented (Limpopo Province, Department of Local Government and Traditional Affairs, 2000).

In addition, the district has the lowest population figures in the Province in comparison to the other districts. The total population of the district is 623 354 with an estimated 117 659 households (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001c). This report further states that the unemployment rate is 36.4% while the district has a youthful population of 42.1% (14 years and younger). Taking the percentage of the youth in the district, job opportunities are of vital importance for all future developments in the district.

The municipality within the Waterberg District that has the largest population is Mogalakwena with 281 358 people and 53 860 households. The majority of households in this municipality survive on an income below the poverty line of R800 per month.
(Steyn, 2002). While a portion of the Mogalakwena Municipality forms part of the western transition zone of the Waterberg Biosphere Reserve and presents a challenge to the biosphere to improve economic conditions in these more densely populated areas. In Chapter 4 of this study specific tourism related projects that could enhance economic development in this area will be highlighted.

According to the Gross Geographic Product (GGP) of 1994, the five sectors within the Waterberg District that contribute to the economy are mining, electricity/water, services, trade/catering and agriculture. Mining is currently the largest contributor to the GGP (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001c). Tourism, however, is not regarded as a separate sector in terms of the international classification. Tourism activities are found mainly in the trade, accommodation and catering sector, but also in transport and agriculture, which includes game farming, hunting and forestry. It is, therefore, not possible to determine at this stage what the contribution of tourism and the game industry is to the GGP of the Province. However, when one assesses the current land use in the Waterberg District, illustrated in Map 3 and 4, it is clear that the game farming/tourism industry is playing an enormous role in the district’s economy.

Map 3 illustrates all the current exemption game farms1 and protected areas in the Limpopo Province, thereby clearly indicating the majority land use in the Waterberg District area.

2.2 SPATIAL CONFIGURATION OF THE LAND USE PATTERNS IN THE DISTRICT

The broad spatial configuration of the Waterberg District with specific reference to the current land uses, indicates a fairly natural zonation pattern with the mining sector/industry mainly concentrated on the periphery of the district and the central area

1 Exemption Farm – A landowner receives an exemption permit from the Department responsible for Environmental Affairs in the Province to hunt, capture or sell game without a permit, if the farm meets certain specifications as set by the department.
dominated by the tourism and game industry. Commercial agricultural activities mainly occur within the transition areas of the biosphere reserve or areas adjacent to the biosphere reserve. Map 4 clearly indicates the above mentioned land use pattern.

### 2.2.1 Natural Environment

Since the availability of water is the most crucially limiting resource for the Limpopo Province, the natural environment and the human population suffer as a result of the rather serious shortage of water. As such, this resource is constantly under pressure. The catchment areas of the main rivers flowing through the Waterberg District include the:

- a) the Lower Crocodile River sub-catchment, Crocodile River downstream of the Vaalkop, Rooikoppies and Klipvoor dam including the Matlabas Rivier;
- b) the Mokolo River catchment;
- c) the Laphalala River catchment;
- d) the Mogalakwena River catchment; and
- e) a portion of the Olifants River catchment.

The rivers flowing in the district drain in a north-westerly direction to the Limpopo River that in turn has a direct influence on South Africa’s neighbouring countries.

The Waterberg area is unique due to its geological formations (predominantly sandstone). Further the Waterberg District has a fairly complex geology with a relative high degree of minerals (Limpopo Province, Department of Local Government and Traditional Affairs, 2000). The most important intrusive rock formation is the Bushveld Ingenuous Complex that holds large reserves of platinum (South Africa, Department of Environmental Affairs and Tourism, 1997a).

The area contains a rich diversity of species with numerous endemic forms as well as scarce and/or threatened species. The broad diversity of species covers a full representative range of the mammalian, reptilian, avian, and aquatic species with
sufficient area of habitat still largely intact (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2002b).

Environmental sensitive areas within the district are mainly the wetland habitats that include rivers and riverine vegetation. The Nyl floodplain which covers an area of 16 000 hectares is situated in the district with the Nylosvley Nature Reserve, which encompasses only 10% of the floodplain, and was registered in February 1998, as a Ramsar site (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001b).

Makapansgat near Potgietersus constitutes an important archaeological site in the district. It received National Heritage Status in November 2001, and is nominated for World Heritage status (South Africa, Department of Arts and Culture, 2002). Various examples of rock art (Van de Ryst, 1996) and archaeological sites occur on private properties, for example the Melora Mountain on Laphalala (Boeyens et al., 2002).

The district further more has eight Provincial Nature Reserves and one National Park named Marakele. A more detailed discussion in Chapter 3 will deal with these reserves that were zoned as core areas in the Waterberg Biosphere Reserve. Various other private nature reserves also occur in the area while their number is rapidly increasing.

### 2.2.2 Mining

The Waterberg Municipal area has significant mineral zones. The following are the most important mining activities nearest to the biosphere reserve:

a) Granite mining operations in Bakenberg.

b) A number of tin fields occur in the Waterberg District of which the Potgietersus Tin field deposits in Bakenberg and Rooiberg near Marakele National Park have an influence on the future zonation of the Waterberg Biosphere Reserve.

c) The Waterberg coal field that has about 45% of the total in situ coal reserves of South Africa. However, it should be noted that only a fraction of this coal could be considered recoverable because the bulk is too deep to mine.
economically (Limpopo Province, Department of Local Government and Traditional Affairs, 2000).

d) Platinum. The western sectors of the Bushveld Complex are located in the Limpopo Province. The complex has significant reserves and these two sections are currently exploited by three mines, namely Northam Platinum (Goldfields), Amandelbult (AMPLATS) and the Union section (AMPLATS).
e) The Thabazimbi Iron mine has been in operation since 1934 with a remaining life span estimated at about 10 -12 years (Limpopo Province, Department of Local Government and Traditional Affairs, 2000).

Since mining is currently the largest contributor to the GGP in the Waterberg District as already mentioned (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001c), it is a factor to consider when planning land use activities, especially tourism related activities.

2.2.3 Agriculture

The area contributes significantly towards the activity of agriculture on the provincial level. As the district proportionally has the largest area of land utilized for dryland production. Tobacco, Cotton, Sunflower, Sorghum, and Maize contribute about 25% of the total farm income earned in field crop commodities, while about 41% of the tobacco crop of the Province is produced in the district (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001c). The southern part of the district falls on the so-called Springbuck flats, on which nearly 50% of the domestic cotton crop is produced. However, Although, due to the acute water shortage in some areas, the optimization of the agricultural potential in the region will be difficult. Because the Waterberg proportionally has the largest area that can be used for grazing in the Province, it makes an extremely significant contribution to the production of red meat and the game industry (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001c).
Map 4 illustrates that commercial irrigation is mostly found in the Alma Valley near Vaalwater and Sterkriver in the western side near Entabeni and Doorndraai Dam with degraded areas (overgrazing) mainly occurring in the western side of the district.

2.2.4 Tourism
The Limpopo Province’s natural and cultural features have unequalled potential for tourism. One of the Province's main assets is its large areas which are relatively unspoilt, particularly the Waterberg, Soutpansberg, and Drakensberg mountain ranges. The splendour and beauty of these mountains, coupled with their wilderness atmosphere and rich habitat diversity, provide unmatched opportunities for ecotourism development (Henning, 2002).

The Waterberg area is well known for being a very scenic environment. Since the Waterberg and its surrounding areas are vast and are rapidly becoming one of the best known tourist destinations in the country, especially so in the Limpopo Province (Steyn, 2002). Since prospective buyers of land have become increasingly aware of the value of land in this area, land is being reverted rapidly into game farms. This has led to a remarkable expansion of game farming and tourism in the area.

Notwithstanding the absence of precise tourism statistics for the district, game farming and ecotourism related activities are reckoned to be the backbone of the Waterberg District’s economy. In the survey conducted for the completion of this study, 1240 exemption farms were recorded for the year 2001 from information obtained from the provincial Environment Division while eight hundred and ninety nine hunting licenses were issued in 2001, which indicates that hunting still constitutes a major part of tourism in the Waterberg.

Map 3 clearly reflects that the number of exemption farms proves that the hunting industry is well developed. Four thousand and twenty hunting clients registered in the 1999/2000 financial year with the Limpopo Province and the Eastern Cape obtaining the largest number of hunting tourists (PHASA, 2000). PHASA (2000) further more
estimates that the hunting industry generated R238 million from daily rates and trophy fees from foreign and domestic hunters in South Africa during the 1999/2000 financial year. This is a substantial increase from 1997, when the professional hunting industry generated R175 million (PHASA, 1998). Kessel Feinstein (2001) roughly estimated the hunting industry in the Limpopo Province at R71 million. This does not include income from related activities such as taxidermy, transportation, personnel expenses, as well as pre and post tour income generated by these hunters.

The ability to offer a large diversity of game species makes South Africa and particularly the Limpopo Province a popular tourist destination. Various forms of hunting are also performed in the Province e.g. trophy hunting, meat hunting, bird hunting and bow hunting. The real impact of the hunting industry on the economy of the Limpopo Province has, unfortunately, not yet been determined, which is a real shortcoming in the economic strategy of the Province when one considers the number of game farms in the Limpopo Province.

The fact that the Waterberg area is malaria free and has a rather mild climate, further contributes to its tourism appeal. As a tourist destination, the Waterberg is suitably located with a two to three hours’ drive by tarred road from the large city centra of Gauteng, which is one of the reasons why it has become so popular not only amongst tourists, but also amongst people interested in buying developed game farms as well as land that could be converted into game farms (Walker, 1998).

A wide variety of game related tourist activities are available in not only the Waterberg Biosphere Reserve, but also in areas in close proximity. Not only Bela-Bela (Warmbaths) in the south with its well-known Spa resort with hot springs, are hotel, chalets and bungalows as well as a caravan park and camping facilities, Modimole (Nylstroom), Mookgopong (Naboomspruit), Vaalwater, Thabazimbi and Lephalale (Ellisras) have become well-known tourist destinations in the Limpopo Province (Steyn, 2002). Mookgopong too have hot spring resorts, the provincial Nature Reserve Nylsvley, which
is internationally known due to the ecosystem (wetland) research (Huntley et al., 1978) undertaken there, as well as the Marakele National Park near Thabazimbi.

As already mentioned, the real impact of the Waterberg District on the tourist market has not yet been established, especially the impact of the hunting industry of the district. However, this study will contribute in giving more information that was assimilated with specific reference to the biosphere reserve area.
CHAPTER 3:  THE WATERBERG BIOSPHERE RESERVE

3.1  LOCATION AND SIZE OF THE BIOSPHERE RESERVE

The proposed area lies between latitude 27° 30'S and 28° 40'S and longitude 23° 10'E and 24° 40'E. The Waterberg Biosphere Reserve embraces an area from the Marakele National Park, up to the north eastern side of the mountain range to include twenty-six rural villages in the Bakenberg area which forms part of the Mokgalakwena Municipality.

The size of the biosphere reserve is 417 406 hectares of which the core areas are 121 249 hectares, the buffer zone is 146 157 hectares and the transition zone ± 150 000 hectares. Map 5 refers to the location of the Waterberg Biosphere Reserve.

Figure 3: (a) Gateway to the Waterberg Biosphere Reserve towards Vaalwater depicting the Seven Sisters of the plain.
Figure 3: (b) Gateway to the Waterberg Biosphere Reserve on the road from Mokopane towards Marken, linking the rural Bakenberg area with the vast wildlife areas to the east.

3.2 CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE

A Statutory Framework for the World Network of Biosphere Reserves has been formulated with the objective of enhancing the effectiveness of individual biosphere reserves and strengthening common understanding, communication and co-operation at regional and international levels. The Statutory Framework is further intended to contribute to the widespread recognition of biosphere reserves and to encourage and promote good working examples of conservation. Rather than forming islands in a world increasingly affected by severe human impacts, they can become theatres for reconciling people and nature. In short, biosphere reserves are much more than just protected areas (UNESCO, 1996).

Article 4 of the Statutory Framework of the Seville Strategy presents seven general criteria for an area to be qualified for designation as a biosphere reserve. Information pertaining to the Waterberg Biosphere Reserve area was used and applied accordingly.
3.2.1 Criterium 1: The area should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human intervention

a) Topography
The most noticeable topographic feature of the biosphere reserve is the Waterberg Mountain range. The elevation of the range above sea level within the Waterberg Biosphere Reserve area varies between 807.7 meters (lowest point) in Wonderkop Nature Reserve (De Klerk and Loubser, 1989) and 2 100 meters (highest) in Marakele National Park (Van Staden, 2002). The mountainous area of the Waterberg forms a large plateau with steep escarpments to the south and east. The mountain range has predominantly sandstone hills and mountains. The area receives between 650 and 900 mm of rain annually (Van Rooyen and Bredenkamp, 1996). It is characterized by numerous streams and small rivers, rock-pools, deep and large pools in the stream and river beds, fountains, marshes, and other features associated with the high rainfall on the rocky areas of the mountains. The bare and beautiful sandstone cliffs so typical of the Waterberg mountains and other adjacent hills or koppies can be described as a major characterizing feature of the biosphere reserve as well.

b) Vegetation
The World Network of Biosphere Reserve Map classifies the vegetation of the area as savanna. The Waterberg Biosphere Reserve represents a considerable area of the savanna biome of Southern Africa. Although the conservation status of savanna is in principle good, less than 5% of the biome is formally protected (Rutherford and Westfall, 1986). Savanna vegetation types are inadequately conserved within formally proclaimed nature reserves.

According to Acocks (1988), there are five different veld types represented in the biosphere reserve, of which the most common are Sour Bushveld (veld type 20) and Mixed Bushveld (veld type 18), typical savanna vegetation types. To the north there is also a small component of Acock’s veld type 14 (Arid Sweet Bushveld). A number of
smaller areas to the south and centrally on the highest parts of the Waterberg are covered by one of the most threatened veld types in the Limpopo Province, namely veld type 8 (North-Eastern Mountain Sourveld). In the extreme south veld type 19 (Sourish Mixed Bushveld) occurs to a limited extent. The clear gradient in the vegetation, from sour in the south and on high elevations, to sweet in the north on lower elevations, is linked to the variation in annual precipitation as determined by elevation and latitude (more moist to the south, drier to the north).

The Waterberg has the largest portion of the Sour Bushveld veld type, which characterizes mountainous savanna areas. A large diversity of habitat types can be found in the Waterberg plateau, valleys, cliffs, and slopes (Henning, 2002). Deep sandy soils alternated by shallow and rocky soils occur on the flats and plateau, while in the valleys the vegetation changes from riparian vegetation (amongst others riparian woodlands and near-forests, reed beds and marshes/vleis) to the predominantly thornveld on the loamy alluvial valley floors. The grassveld is particularly rich floristically, while the woody component is divers. Apart from the termitaria patches on the slopes, where near-forests develop, there is a great wealth of forbs and bushy plants, including stragglers of the southern (fynbos) flora. The savanna biome is home to a wide variety of large herbivores, which, together with fire, play a decisive role in ecosystem processes, and the maintenance of plant species diversity (Henning, 2002).

The Mixed Bushveld veld type is found at lower elevations than the Sour Bushveld, and occurs as a maze of variations and transitions. They vary from rather dense short savanna to tall, sparser savanna, and generally provide better grazing to the large herbivores than the Sour Bushveld.

According to another South African veld type classification, that of Low and Rebelo (1996), the Waterberg Biosphere Reserve is mostly covered by veld type 12, Waterberg Moist Mountain Bushveld (equivalent to Acock’s veld type 20). In 1996, about 28% of this veld type had been transformed by human activities, while 8.55% had been conserved. The rest of the Waterberg Biosphere Reserve consists of veld types 17,
Sweet Bushveld (equivalent to Acock’s veld type 14) (28% transformed, 2.34% conserved) and veld type 18, Mixed Bushveld (60% transformed, 3.05 conserved).

Different phytosociological studies have contributed to a knowledge of the vegetation of the Waterberg. However, neither a vegetation map, nor an in-depth synthesis of the vegetation of the Waterberg region has been done (Henning, 2002). A more detailed overview classification and description of the Waterberg vegetation was thus undertaken by Henning (2002). Aspects of vegetation science such as diversity and diversity indices, apart from vegetation classification, will undeniably provide important guidelines to tourism planning and management in sensitive areas. The application of these principles will further emphasize the important role of vegetation science in the planning and development of tourism in the Waterberg region (Henning, 2002).

c) River systems and wetlands

The following four main drainage rivers exist within the area, namely the Lephalala, Mokolo, Matlaba, and the Mogalakwena. These rivers, together with numerous smaller rivers and streams, constitute a major water catchment area for the Limpopo basin (the border between South Africa, Botswana and Zimbabwe). The National Water Act (South Africa, 1998c) requires that a “reserve” be set for each and every river and wetland in the country. The White Paper on a National Water Policy (South Africa, Department of Water Affairs and Forestry, 1997) recognizes the importance of natural ecosystems with the water cycle and as such, provide a legal mandate to protect these ecosystems in a pre-defined ecological management class. To date no reserve has been proclaimed for any system occurring in the Mokgalawena Catchment area. It is, therefore, of vital importance that the status of the streams and wetlands within this part of the Waterberg Biosphere Reserve be protected (Angliss, 1996).

When looking at the larger Waterberg District and the concept of promoting the biosphere reserve model as an important bioregional plan (Bridgewater and Cresswell, 1998), strongly advocates the integration of the Nylsvley floodplain (of which a part was been proclaimed as a Ramsar site in 1998) in the future zonation pattern of the Waterberg Biosphere Reserve (Limpopo Province, Department of Finance, Economic
The Nyl River floodplain stretches for 67 km between Middelfontein (east of Modimole) and Moordrift (south of Mookgopong) in the Limpopo Province. It is up to 6 km wide in places and has been described as the largest inland floodplain in South Africa (Noble and Hemens, 1978). The seven attributes, which drain into the Nyl River, are situated in the foothills of the Waterberg Mountains while the Nyl River floodplain occupies almost one third of the catchment area of the Nyl River system, which converges into the Mokgalakwena River to finally form part of the larger Limpopo River basin (Frost, 1987). Currently only 4% of the floodplain area is under official protection, namely the part that falls within the Nylsvley Nature Reserve.

Wetlands play an important hydrological and ecological role, because they perform a number of functions, such as water storage, stream flow regulation, flood attenuation, water purification, nutrient assimilation, sediment accretion, and the provision of habitat for a wide variety of plant and animal species (Begg, 1986). The inclusion of the Nyl River floodplain into the zonation of the Waterberg Biosphere Reserve will thus certainly add to the reserve’s conservation status.

d) Geology
The main mass of the Waterberg consists of sedimentary rock, and is bounded by escarpments on the north, east and south with the central portion forming the Palala Plateau. These sediments are entirely detritus and consist of sandstones, mudstones, shales, conglomerates, and lenses of grits (Truswell, 1977; SACS, 1980). However, the Waterberg Group of Sandstone is almost entirely limited to the Waterberg Biosphere Reserve.

The Bushveld Igneous Complex, the bedrock of the Waterberg mountains, was formed 1,954 ± 30 million years ago while the Waterberg System or Super Group was formed some 1 790 million years ago following an extensive period of levelling due to the erosion of the Bushveld Igneous Complex (Truswell, 1977; SACS, 1980).
E) Soil

Due to the domination of quartzitic sandstone, the nature of the soil is predominantly sandy. Sandy soils are very leached due to the relatively high rainfall and are, therefore, mostly of a distrophic nature. As a result of the predominantly hilly and mountainous nature of the terrain, a large portion of the soils are very shallow and rocky (Low and Rebello, 1996), and can therefore be classified according to the South African soil classification system of McVicar et al. (1977) as being of the Glenrosa and Mispah soil forms. Dominant soils found on the flat areas such as the plateau and lower lying plains are of the Clovelly and Avalon forms. Although these soil forms are also found in the valleys and drainage lines, other soil forms with a higher clay and nutrient content and generally with a better developed structure are more common. The following soil forms frequently occur in these landscapes: Hutton, Dundee, Oakleaf, Katspruit, Westleigh, Champagne, Cartref, Inanda, Kranskop, Magwa, Griffin, Longlands, and Fernwood (Land Type Survey Staff, 1988).

f) Human interventions

The current human communities in the Waterberg Biosphere Reserve consist mainly of white farmers and black rural, mainly Pedi speaking people. The town Vaalwater has a small, mixed ethnic population.

The Waterberg has a long history of human occupation and has been inhabited by a succession of people over hundreds of thousands of years. If we include the remains of the early Hominids, its history spans more than a million years. Excavations at the Olieboompoort Shelter in the north-western part of the Waterberg have yielded tools which display a large degree of specialisation and skill in stoneworking, and are representative of the Middle Stone Age (Woodhouse, 1987). The people of the Late Stone Age included the San (Bushmen), who were indigenous hunter gatherers, as well as Khoikhoi herders who came from Eastern Africa with their sheep, cattle and goats, and preferred the wetter coastal areas. Some material remains of the Khoikhoi may be found on the inland plateau (Palala), since they may even have passed through the Waterberg, where paintings of fat-tailed sheep occur. Within the last two thousand years, however, the San were displaced when the first Iron Age people moved into the
area (Van der Ryst, 1996). These people owned cattle and practised subsistence farming on the deep red soils which surface along the river valleys.

It was at this time that the Agro Pastoralists from the lowlands moved into the Waterberg. Auckema (1991) is of the opinion that this move was prompted by the spread of tsetse fly into the lowveld areas where these early farmers had lived for centuries. Their farming were successful and their cattle herds increased on the sweetveld. This caused overgrazing and resulted in encroachment by pioneer thorn bush, a suitable habitat for tsetse flies. According to Auckema (1991), the Waterberg Plateau was also inhabited by another group, who were Nguni speaking and who selected hilltop sites for settlement. These settlements may have been built by the ancestors of the Northern Transvaal Ndebele, who now live further east. Boersema (1996) states that these Northern Ndebele people have lived in the Mokopane (Potgietersrus) area since approximately 1750. Also of Northern Ndebele origin are the Langa of Mapela and Bakenberg. These facts concerning human history are important for the current study because Khosi Langa of Bakenberg is currently the traditional representative of the rural communities which are involved in the Waterberg Biosphere Reserve (Boersema, 1996).

The remote and inaccessible Waterberg was one of the last regions in the geographical area formerly known as the Transvaal to be permanently occupied by white farmers (Van der Ryst, 1996). Although the first Voortrekker farmers moved into the Waterberg during the 1850s, the region has been increasingly occupied on a regular basis only since the early part of the twentieth century (Van der Ryst, 1996).

The Waterberg area was predominantly used for seasonal game hunting or cattle pasturage. According to historical sources and local oral tradition hunter-gatherers had been living in the region until after the turn of the century. Hunter-gatherers have consequently been in contact with black and white farmers in the Waterberg till recently. According to Van der Ryst (1996), archaeological evidence for social and economic change at the Later Stone Age sites has been linked to the above mentioned
contact period. Given our knowledge of the human occupation of the Waterberg, it
nevertheless appears to have been unoccupied for many thousands of years, an aspect
that will continue to intrigue archaeologists. Part of the complexity and fascination of
the Waterberg history, nevertheless, lies in the interaction of the culturally diverse
groups who have been living here during the last couple of centuries (Van der Ryst,
1996).

g) Current human activities
Human interventions are part and parcel of the history of the Waterberg area. A
considerable area of land has been altered by human activities, of which commercial
and subsistence crop cultivation is the most important human activity in this regard. In
the past commercial dryland cultivation was extensively applied to the land, but because
of its erratic rainfall and the nutrient poor soils of the area this practice has decreased
considerably. A fair number of old abandoned fields in varying degrees of recovery thus
still exist. Currently, however, commercial irrigated cultivation, especially alongside the
river courses in the Waterberg, is the most extensive ongoing land use practice and
account for positive alterations to the vegetation. To a lesser, but still considerable
extent, is the effect of subsistence crop farming, as well as overgrazing by cattle or
game with resulting vegetation changes. The growing tourism and hunting industry also
influences current human activities. Map 3 thus indicates the distribution of exemption
farms in the area. In addition, the infrastructure, like roads and lodges is constantly
changed that the influx of tourists to the region could cause concern if not probably
managed (UNEP/CBD, 2002).

The current influence of infrastructure in the Waterberg Biosphere Reserve, for instance
the development of towns, villages and roads with their associated impact, is not as
extensive as the other land uses e.g. mining and irrigation, which impact is both drastic
and irreversible. There is also a clear indication that the impact of overgrazing is more
severe around the villages (as Figure 4 illustrates), while erosion, both sheet and donga,
occurs mainly around these rural human settlements (De Klerk, 2001).
Figure 4: Overgrazing in and around villages in Bakenberg zoned as part of the transition zone of the Waterberg Biosphere Reserve

Mining activities do not currently occur within the Waterberg Biosphere Reserve area, but mainly on the periphery of the zoned biosphere reserve area as illustrated in Map 4. They must, however, be considered as important interventions that should be managed and zoned accordingly. These mining activities do have an influence on certain tourism activities as well as on the water resource utilization within the biosphere reserve area.

The mining activities within the Mokgakawena Municipality, that partially forms part of the Waterberg Biosphere Reserve area, also have a direct influence on the rural communities since a resettlement of villages takes place when the mines need to expand. This has a direct social and environment impact on the Waterberg Biosphere Reserve that will need management in future while the long term effect of such
resettlements could influence the land use zonation plans of the municipalities and the biosphere reserve itself.

3.2.2 Criterium 2: Be of significance for biological diversity conservation

Taking the general information provided under Criterium 1 into account, the following features could be identified as being significant features within the Waterberg Biosphere Reserve.

a) Sandstone features

The sandstone, shale and conglomerate rocks of the range are rather unique to this area. The occurrence of the geological formation that underlies the area, namely the Waterberg Group of Sandstone, is almost entirely limited to the Waterberg Biosphere Reserve.

![Sandstone features at Masebe Nature Reserve, unique to the Waterberg](Foto: Department of Finance, Economic Affairs and Tourism)

Figure 5: Sandstone features at Masebe Nature Reserve, unique to the Waterberg

b) Species

Of significance for the development of tourism and game farming are the reintroduction of a number of game species as depicted in the rock paintings in the Waterberg. According to Van der Ryst (1996) these include Eland (*Taurotragus oryx*), Elephant (*Loxodonta africana*), Kudu (*Tragelaphus stresiceros*), Giraffe (*Giraffa*
cameleopardalis), Reedbuck (Redunca sp), carnivores, and reptiles.

The following information was compiled from species lists available from the Provincial Nature Reserves within the Waterberg Biosphere Reserve and the lists received from Marakele National Park. At least eighteen threatened or scarce species of plants, eleven bird species, four reptile species, four species of fish, one butterfly species, and eighteen mammals occur in the Waterberg Biosphere Reserve. This list probably does not reflect all the endemic and scarce species within the biosphere reserve. A detailed list of the above mentioned species has not yet been compiled for the Waterberg.

The numerous wetlands, streams and rivers that exist within the Waterberg Biosphere Reserve’s boundaries form part of a very important conservation priority not only in the Limpopo Province, but also in the Republic of South Africa, namely the aquatic systems. When considering the Nyl floodplain as part of a newly proposed zonation of the Waterberg Biosphere Reserve, the biodiversity is exceptional. The Nyl floodplain is rich, not only in bird numbers, but in diversity as well. According to Duthie and Tarborton (2000) 104 different species of waterbirds have been recorded on the floodplain. Eighty-seven of the 94 waterbird species known to breed in southern Africa have occurred on the Nyl floodplain at one time or another, a feature that no other South African wetland can claim. In addition, it however supports a large number of waterbirds classified as Red Data Species in South Africa. More than three-quarters of the 23 currently listed waterbird species occur here. Eight of them breed on the floodplain while a few of these are not known to breed anywhere else in South Africa (Duthie and Tarborton, 2000). In addition, the Nylsvley Nature Reserve serves as a refuge for seventy seven mammal, fifty eight reptile and twenty eight amphibian species. Up to sixteen species of fish have been recorded in the Nyl River system (Duthie and Tarborton, 2000). The endangered Roan antelope (Hippotragus equinus) and rare Tsessebe (Damaliscus lunatus) too occur in this reserve.
c) Veldtypes
The Waterberg Moist Mountain Bushveld (Low and Rebelo, 1996) which is synonymous to Acocks’s (1988) Sour Bushveld is largely limited to the Waterberg mountains, with the Waterberg Biosphere Reserve including the majority of this veld type. Bredenkamp and van Rooyen (1996) also indicate the economic uses in this veld type as game and cattle farming as well as ecotourism.

Phytosociological studies contributing to the vegetation knowledge of the Waterberg Moist Mountain Bushveld (Coetzee et al., 1977; Westfall et al., 1985) and the recent study of Henning (2002) stress the importance in conserving this veldtype, not only through the legal proclamation of establishing protected areas but also through proper planning and management in relation to its utilization e.g. tourism. This, therefore, reinforces the fact that the Waterberg Biosphere Reserve has a significant conservation role to play in this regard. Map 8 indicates the veldtypes which occur in the Waterberg Biosphere Reserve area according to Acocks (1988).

d) Unique land use practices
The fact that the land use has changed over the last 21 years (Walker, 1998) from crop and irrigation practices to cattle and game farming indicates a natural tendency to utilize the natural resources of the Waterberg optimally. The dry seasons also contributed to these changes. The vast open spaces currently under conservation/game farming/ecotourism are, nevertheless, significant in themselves since one does not easily find natural areas of this size in other parts of South Africa. As already mentioned in Chapter 2, the Waterberg has the lowest human population density in the Province mainly due to the large farming community. The majority of villages are found to the north-eastern side of the Waterberg Biosphere Reserve as indicated on Maps 4 and 6. Under the dispensation of the previous government, this north-eastern area was formally part of the Lebowa homeland and its inhabitants have been mainly cattle and subsistence farmers who are still practising the same land uses. The only difference today is the expansion of villages. It must, however, be noted that the lack of water in the area hampers large developments. The influx of people would rather settle close to the town of Mokopane. It must, however, be noted that the villagers within the zoned
Waterberg Biosphere Reserve area are still conducting dry land cultivation in the traditional way cultivating family plots, a feature that makes the area unique. Within the Waterberg Biosphere Reserve framework these traditional systems are thus extremely useful for conserving ancient breeds of livestock, and old land races of crops, which are invaluable gene pools for modern agriculture (UNESCO, 1995)

e) Rock Art
Numerous paintings of people in trance positions, dance scenes of men and women, men with hunting equipment, a large variety of antelope and other animals, imaginary rain animals, handprints, and geometric designs form part of the contents of the rock art of the Waterberg (Van der Ryst, 1996). In conversations with landowners while conducting the fieldwork for this study, it became evident that the Waterberg is rapidly emerging as a rock art area. Almost all the landowners indicated that there is some form of rock art or archaeological artefacts on their properties. Many, if not most of these are still undiscovered and have certainly not been described. Of special significance is the area along the steep gorges of the Lephalalala River as described by Woodhouse (1987) and the rock shelter at Masebe Nature Reserve, which represents one of the larger Stone Age shelters yet identified in the Waterberg (Boeyens et al., 1996).

Two traditions of Rock Art occur in the Waterberg. First the more “naturalised” form of art, which includes skilled depictions of animals and people and is attributed to the San and is closely linked to Shamanism. Second, the more geometric, schematic art tradition, which includes the so-called “late white” paintings, and finger painting is found. This tradition is associated with negroid farmers who painted for different reasons. The San people further possessed powers of healing, rainmaking and control of animal movements, all of which we find depicted in San Art (Van der Ryst, 1996).

3.2.3 Criterion 3: Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale.

At an operational level sustainable development has four interlinked dimensions namely economic, environmental, social, and cultural. (UNESCO, 2002). However, sustainable
development can have a working sense only when these four dimensions of
development are of equal importance and strength. No one country or region has
reached an acceptable dynamic balance of the four legs. In the late 1970s and early
1980s, the conservation role had been kept prominent in the designation of the vast
majority of biosphere reserves (Batisse, 1986) with the environmental dimension as
referred to above as the main focus. However, in November 1995, the UNESCO
General Conference approved the Seville Strategy for Biosphere Reserves and adopted
the Statutory Framework of the World Network, which define the principles, the criteria
and the designation procedure for biosphere reserves (UNESCO, 1996). With these
documents the philosophy and concepts underpinning biosphere reserves have
continued to spread into the broader international context, so that protected areas are
being considered as integral to socio-economic development.

Biosphere reserves are increasingly regarded as practical examples of where the
conservation and development roles are integrated (UNESCO, 2001).

All too often conservation programmes focus on areas that are too small to meet the
habitat requirements of all species. In addition, conservation and resource management
goals are often too narrowly formulated to make either economic or biological sense.
However, biosphere reserves provide frameworks for practising biodiversity
conservation and resource management on a larger scale.

The Waterberg Biosphere Reserve represents the savanna biome that extends into the
Limpopo Province’s and South Africa’s neighbouring countries namely Botswana,
Zimbabwe and Namibia (Low and Rebelo, 1996). The two ecosystem types, namely
Tropical Dry or Deciduous Forest and Tropical Grasslands and Savanna, as indicated on
the map of the World network of Biosphere reserves, are found in this eco-region which
flows over into Zimbabwe, Botswana and Mozambique. As such, the Waterberg
Biosphere Reserve would be an ideal pilot site that represents the savanna biome on a
regional scale.
Since tourism is one of the fastest growing industries in the world (World Tourism Organization, 2002), the Limpopo Province capitalized on this tendency, by identifying tourism as one of the economic pillars that need to be developed as a priority. The two transborder initiatives, namely the Mapungubwe and Greater Limpopo, are currently engaged in unlocking the Province’s tourism potential as well as those of its neighbouring countries. The Waterberg Biosphere Reserve has thus been identified as one of the provincial building blocks of the Golden Horseshoe that links with the two transborder initiatives.

The Waterberg Biosphere Reserve is therefore positioned in a way that provides an opportunity to demonstrate sustainable development on a regional scale. This aspect will be discussed in more detail in Chapter 4.

3.2.4 **Criterium 4: Have an appropriate size to serve the three functions of biosphere reserves**

In combining the three functions of biosphere reserves, these reserves should strive to be sites of excellence for exploring and demonstrating approaches to conservation and sustainable development, as referred to in Article 3 of the Statutory Framework (UNESCO, 1996; UNESCO, 2000). To accomplish this goal a biosphere reserve must have an appropriate size to serve the three functions.

The Waterberg Biosphere Reserve is currently ± 414 571 hectares in size, of which the five core areas are 114 571 hectares, the buffer zone 150 000 hectares and the transition also ± 150 000 hectares.

It must, however, be clearly stated that the Waterberg Biosphere Reserve’s boundary was identified according to a participation process with all the relevant stakeholders at the time when the nomination form was completed. During the negotiation process it
was agreed that the Waterberg Biosphere Reserve’s boundary must not be seen as cast in stone but that the zonation pattern would be re-investigated in future.

Two additional core areas within the Waterberg District that need to be incorporated into the new zonation pattern of the Waterberg Biosphere Reserve are Nylsvley Nature Reserve and the Makapan Caves. Other provincial Nature Reserves also to be included are D’Nyala Nature Reserve and Doorndraai Dam Nature Reserve. This will have a direct influence on the size and zonation pattern of the Waterberg Biosphere Reserve in future.

3.2.5 Criterium 5: It should include the three functions of a biosphere reserve through appropriate zonation, recognizing:

a) a legally constituted core area or areas devoted to long term protection, according to the conservation objectives of the biosphere reserves, and of sufficient size to meet these objectives;
b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place;
c) an outer transition area where sustainable resource management practices are promoted and developed;

In many parts of the world, natural ecosystems have been largely converted or transformed into agricultural systems of various kinds, or have been replaced by cities, towns, industrial complexes, and other man made infrastructures. This process has in particular been noticeable in those parts of the world that have long been inhabited by high densities of human populations, and is in a process that has accelerated over the last few centuries (UNESCO, 2002). In South Africa, and in particular in the Limpopo Province, the position is the same. However, the land changes as a result of agricultural practices and densely populated rural areas as a result of mainly previous land policies that were set to develop the homeland system, is still felt. The lack of proper land use zonation legislation further contributes to the current mismanagement of the natural
resource base. This will be discussed in Chapter 5 as an important factor that needs to be considered in biosphere reserve planning.

Appropriate land use zonation principles are currently of the utmost importance as the implications of a poorly defined, implemented and regulated planning framework will result in uncontrolled development (Wilson, 1997). With the provincial Economic Development Strategy in place as a tool to combat poverty, economic development is encouraged in all sectors (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 1999a). This strategy is driven by the need for job opportunities and access to services. Within the Waterberg Municipality, in which the Waterberg Biosphere Reserve is located, all three economic pillars namely Agriculture, Mining and Tourism are competing for space. More ever, municipalities are at present forced to develop and implement an Integrated Development Plan (South Africa, 2000). It is thus within this planning framework that the zonation criteria for the development of the biosphere reserve concept will play a major role.

a) Zonation of the core areas.

The core areas within the Waterberg Biosphere Reserve were identified according to their legal status, their long term role as protected areas and according to the participatory approach of the stakeholders. The last point refers to the fact that other protected areas just outside the Waterberg Biosphere Reserve, e.g. D’Nyala Nature Reserve, Doorndraai Nature Reserve and Nyilsvley Nature Reserve, have not yet been zoned as core areas due to the fact that the negotiations with the private landowners surrounding these reserves have not yet been conducted.

There are currently five core areas in the Waterberg Biosphere Reserve, of which only one, Marakele, is proclaimed a National Park, Wonderkop and Mokolo Dam are proclaimed provincial nature reserves, and Masebe is proclaimed a communal owned nature reserve. Moepel is not proclaimed and is earmarked for a community owned nature reserve with specific reference to ecotourism development. Map 6 indicates the current zonation pattern of the Waterberg Biosphere Reserve with its distinct core areas.
Core area 1: MARAKELE NATIONAL PARK

Marakele National Park is situated in the south-western corner of the Limpopo Province and is bounded by longitudes 27E 30' and 27E 45' E and latitudes 24E 15' and 24E 30'S. Marakele is one of seventeen National Parks in South Africa, currently covering an area of ± 68 000 ha in the south-western part of the Limpopo Province. It has been managed as a National Park since 1988, but was officially proclaimed a National Park on 11 February 1994 (South Africa, Department of Environmental Affairs and Tourism, 1994). Marakele consists of some of the most rugged mountain scenery in this country and is situated mainly in the Waterberg Moist Mountain Bushveld in the savanna biome which is synonymous to Acocks (1988) Sour Bushveld, which was listed by Edwards (1983) as one of the 52 of South African veld types extremely lacking in conservation (Van Staden, 2002). The Sour Bushveld covers 18 306 km², occurring in mountainous areas in the Limpopo Province (Low and Rebelo, 1996). This park aims at conserving components of pristine natural ecosystems, reintroducing rare and endangered species that previously occurred in the area and making the park more accessible to tourists. Bordering Marakele is the Welgevonden Private Game Reserve, currently consisting of 33 000ha. This Big Five reserve is zoned as part of the buffer zone.

Core area 2: MOKOLO DAM NATURE RESERVE

The Mokolo Dam is situated in the north-western part of the Waterberg Biosphere Reserve, approximately 70 kilometers north-west of the town Vaalwater. The dam is characterized by densely wooded mountains which mainly comprise of sandstone and surrounding cliffs. This Nature Reserve plays an important role in providing outdoor recreation, including both land and water orientated activities. Mokolo Dam was proclaimed as a provincial nature reserve in 1993 and covers an area of 4 600 hectares which includes the dam surface area of 914 hectares (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 1994). The current objectives for the Nature Reserve are to conserve the biodiversity of the area and develop the area as a tourist destination.

Core area 3: WONDERKOP NATURE RESERVE
The Wonderkop Nature Reserve is situated in the north-western part of the Waterberg District, about 130 km north of the town Mokopane. Low rainfall and high summer temperatures are characteristics of the area. The vegetation can broadly be described as Sweet Bushveld (Acocks, 1988) although certain areas of the Reserve are somewhat sour, especially where sandy soils occur. The Reserve also adjoins the Glen Alpine Dam, which forms 11 km of the eastern boundary of Wonderkop Nature Reserve which was proclaimed as a provincial nature reserve in June 1994 with an area size of 16100ha (Limpopo Province, Department of Environmental Affairs and Tourism, 1994). The objectives of this reserve are to conserve the biodiversity of the area, specifically the conservation of the Roan antelope and to promote the sustainable utilization of natural resources from which the direct surrounding communities can benefit (Limpopo Province, Department of Environmental Affairs and Tourism, 1994). This is the only core area without a buffer zone contiguous to it but and therefore has a major challenge of including the surrounding rural villages in its objectives and future developments.

Core area 4: MASEBE NATURE RESERVE
The Masebe Nature Reserve forms part of the north-eastern side of the Waterberg escarpment. Geological formations comprise of sandstone and conglomerate into which water erosion had carved the valleys and interesting forms as seen today. The veldtype is Sour Bushveld (Acocks, 1988) on the high elevations and Sourish Mixed Bushveld (Acocks, 1988) on the low-lying areas. Streams of water flow freely down the mountain to form beautiful waterfalls in the rainy season. Due to the topography of the area, there is a rich variety of habitat types that can accommodate a variety of game and bird species. The inaccessiveness of the area kept it in a pristine state so that well-conserved rock paintings and other archaeological sites still exist at Masebe Nature Reserve (refer to point 3.2.2.). The land incorporated into Masebe Nature Reserve is communal land of which government has always been the legitimate owners with the right to utilization. These farms were previously utilized as grazing for the community’s cattle. In 1984, negotiations with the affected communities and the traditional authority of Bakenberg resulted in a tribal resolution which granted the authorities of the then Lebowa Nature Conservation the right to develop and proclaim the area as a nature reserve. All affected communities and authorities are satisfied with this land use option and the continued
cooperation of the affected communities is dependent upon the economical, sustainable and responsible utilization of the Reserve’s natural resource potential. The seven villages that donated their land for the establishment of Masebe are structured into an association that will be the legal authority responsible for the Reserve in partnership with the relevant government authority. Masebe is 4 541,85 hectares in size and aims at conserving its natural biodiversity and features with the emphasis on economic benefits through tourism development to the communities involved. The reintroduction of game species, especially White Rhinoceros, is currently under investigation.

Core area 5: THE MOEPEL FARMS
The Moepel farms are situated 75 km north-west of Mokopane and 20 km south-east of Marken. The farms form part of the Waterberg mountain and extend onto the plains below the escarpment while the area is mostly inaccessible for any kind of vehicles due to its topography. The Moepel farms are currently state owned land put aside for conservation purposes but have not yet formally protected. However, there now exists an opportunity to proclaim this area as a communal nature reserve that is described as a new type of protected area in the proposed Limpopo Province Environmental Management Bill (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2002). This may be regarded as an advantage as the local community can get involved in its development from the initial stages. These farms could previously not be developed into a nature reserve or park due to a lack of funds. Involved provincial departments and local municipalities, however, have recently prioritized it to develop the area as a “Big Five Reserve” owned by the surrounding communities (De Klerk, 2002). The Moepel farms are 28 330 hectares in size and adjacent to Masebe Nature Reserve. To link these two reserves to be managed as a single unit has great potential.

Apart from conserving the rich biodiversity that occurs in this mountainous reserve the main objective is water conservation which is of extreme importance due to the fact that the rural villages in the plains below the escarpment have an extremely serious water shortage due to drought and incorrect land use practices. Very remote and distinct wilderness areas are zoned within these farms. Because little information is currently available regarding all the biological components, it would be an ideal site for research.
and monitoring programmes that could be launched with the involvement of the adjacent communities. Conversations with a number of local villagers revealed the existence of undiscovered archeological sites in these mountains. As such, the Moepel farms constitute a very important core conservation area within the Waterberg Biosphere Reserve.
Figure 6: Features found on the core areas of the Waterberg Biosphere Reserve
b) A buffer zone or zones.
The buffer zone has been clearly identified as areas adjacent to or nearby the core areas. It is, therefore, not necessary for all the land surrounding the core areas to be zoned as a buffer (UNESCO, 1996). The land use activities should rather be taken as criteria that depict activities compatible with the conservation objectives of the core areas.

The buffer zone is owned by 28 private landowners whose land constitute the Waterberg Nature Conservancy. This explains why the boundaries of the buffer zones were drawn alongside private farm boundaries and not vague concentric rings. The importance of zoning the properties of members of the Waterberg Nature Conservancy as the buffer zone in the Waterberg Biosphere Reserve was that:

aa) It was easier to talk to a collective group of people about the biosphere reserve concept than to start a process of negotiation with individual landowners. This would have taken even longer than an already time consuming process.

bb) The Waterberg Nature Conservancy had already identified a common vision for the area they live and work in. They are further bound by a constitution to ensure that they fulfil certain objectives. Common ground was therefore found that greatly assisted the initial stages of establishing the biosphere reserve.

cc) Criterium 7 of the Statutory Framework (UNESCO, 1996) refers to mechanisms that need to be in place to manage human use and activities in the buffer zone or zones. The Waterberg Nature Conservancy, representing the private landowners involved, seemed to be an authority that could be responsible for managing the buffer area.

dd) The landowners that are members of the Waterberg Nature Conservancy further endorsed the biosphere reserve initiative and are committed to implement the criteria set down by UNESCO’s MaB program.

The Waterberg Conservancy initiative started in 1982 (Walker, 1998). The Conservancy currently has 30 members (of which 28 are private landowners) who control more than 146 157 hectares while the following large private game farms form an integral part of the Conservancy: Lapalala Wilderness, Touchstone Game Ranch, Kwalata Wilderness,
Keta Private Nature Reserve and Welgevonden Private Nature Reserve. Table 2 refers to different landowners and the sizes of their farms. Apart from tourism and hunting, mixed farming practices such as cattle and game farming, are found on some of the buffer zone farms. Other activities within the buffer zone include a number of extensive environmental education programmes currently conducted by the Wilderness Trust of Southern Africa (Walker, 1998). A more detailed discussion in regard to the tourism activities within the core areas and buffer zone will be presented in Chapter 4.

A portion of the communal land in the Bakenberg area has also been zoned as a buffer zone strip specifically as an area where ecotourism activities could be developed to enhance the economic potential within the adjacent transitional zone that includes 26 rural villages. The main activity currently practiced in the Bakenberg buffer zone is cattle grazing while a portion of this buffer zone is mountainous and difficult to access.

c) An outer transition area

The Seville Strategy (UNESCO, 2002), gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. The transition area is by definition not delimited in space, but rather to be changed in size according to the problems that may arise over time. In addition, is a zone where sustainable resource management practices are promoted and developed.

The main activities that are currently taking place within the transition zone are:

aa) Game and cattle farming. Not all the game farms in the area form part of the Waterberg Nature Conservancy. They are therefore not part of the buffer zone but constitute the transition zone. Overgrazing is one of the problems within the zone, especially in the area that includes the rural areas of Bakenberg (De Klerk, 2001).

bb) Various small and low impact tourism activities are found within the buffer and transitional zones. Figure 9 (Chapter 4) indicates the type of tourism activities within the buffer zone. These kinds of activities are also dominant in the transitional
zone area. However, in the transitional zone and on the periphery of the current boundary of the Waterberg Biosphere Reserve larger tourism operations such as holiday resorts, hotels and large operations providing conference facilities are found. Steyn (2002) refers to this as a mass tourism node.

cc) Hunting, especially trophy hunting, is regarded as a major attraction due to the fact that the majority of the operators cater for overseas hunters. Based on the survey conducted by Kessel Fenstein (2001), the Limpopo Province captured 30% of the total hunting days sold in South Africa. Map 3 that refers to the amount of exemption farms in the Province clearly indicates that the Waterberg region has the majority of exemption farms recorded. The data assimilated for this study from surveys of the departments involved, indicates that it is estimated that the Waterberg region currently has 1240 exemption farms, excluding farms where hunting takes place but did not request an exemption permit from the department. Hunting, therefore, does not only take place on exemption farms. In the year 2001, 899 hunting permits were issued in the Waterberg region of which 39 permits were issued for Leopard hunts, a major contributor to the trophy hunting industry. When considering the above information, it is clear that within the transition and buffer zones of the Waterberg Biosphere Reserve, game farming linked with tourism activities and hunting, remains the major type of land use.

dd) Irrigation farms. The most important field crop commodities are tobacco, cotton, sunflower, sorghum, and maize of which the tobacco industry is an important industry within the transition zone and contributes significantly to the local economy. The majority of these farms border the Mokolo River and extends over ± 1750 hectares (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2001c). However, within the Waterberg Biosphere Reserve with its commitment to sustainable development, the major water extraction from the Mokolo River by this industry needs to be monitored closely since this could have an effect on the future sustainability of the tobacco industry as well as on the Mokolo River system.
The following human settlements form part of the Waterberg Biosphere Reserve: The town Vaalwater and 26 rural villages within the Bakenberg area of the Mokgalakwena Municipality. A large number of these rural villages are situated on the plains below the escarpment as clearly demonstrated in Maps 6 and 7. Issues that need to be taken into account within these areas are:

- The Bakenberg area has a relatively high population density in comparison to the other areas within the biosphere reserve.
- The area has a relatively low level of economic activities.
- It has inadequate water resources and water supply systems.
- It contains poorly developed rural energy supply systems and is thus a concomitant to the exploitation of local woody vegetation to supply local energy needs.
- The area has a lack of local employment opportunities.
- It has inadequately developed infrastructure and services.

3.2.6 Criterium 6: Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and carrying out of the functions of a biosphere reserve

The Waterberg Biosphere Reserve committee was formalized after a participatory process had started towards the end of 1996. This initial phase of participation had taken almost two years until it was decided that role players who contributed land to the initiative, the tourism industry and the then four transitional local government structures would be part of the steering committee (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 1999b). All the other relevant role players, for instance the different government departments, would form part of the technical committees that are also represented on the steering committee. The aim was to finalise the nomination form to UNESCO for registration first, before concentrating on specific project or programme implementation. To ensure active participation and decision making, the steering committee was kept as small as possible.
An area as big as the Waterberg Biosphere Reserve involves various stakeholders. To ensure that the people within the biosphere reserve should take ownership of the project was a challenge in itself. The only aspect that will still change, will be the number of people participating in the initiative as the biosphere reserve grows in size. Experience within the Waterberg Biosphere Reserve initiative over a period of five years has indicated that as people start to understand the concept and its benefits, they become more positive to get involved. Munro (1995) indicates that people support what they believe to be valuable. People are usually most positive and active in their support if the values that they perceive accrue to themselves. The values may be concrete and easy to quantify, such as the provision of employment or other income; tangible but less easy to put into monetary terms, such as opportunities for recreation; and quite intangible and un-quantifiable, such as wilderness experience.

The involvement of all the relevant stakeholders at all times is therefore of the utmost importance for the long-term survival of the Waterberg Biosphere Reserve. Due to the uniqueness of each biosphere reserve the stakeholder composition will differ from one reserve to the other since the biosphere reserve concept allows a flexible approach to a biosphere reserves’ structural arrangements.

Within the Kogelberg Biosphere Reserve and the Waterberg Biosphere Reserve a representative management committee of stakeholders including the landowners, local authorities, government departments, statutory boards and local communities is in place. Non governmental organisations (NGO’s) that are active within the Waterberg area also form part of the management committee while the mining sector plays an important role in the committee as well. Although mining is not a prominent land use within the Waterberg Biosphere Reserve area, it is of major importance in developments on the periphery of the biosphere reserve, which have direct and indirect effects.

It is at this stage envisaged that the management committee will register a non-profit legal entity to assist in management and fundraising. Other biosphere reserve initiatives
in the country, for instance the West Coast and Kogelberg Biosphere Reserves, have been managed with good results through a Section 21 company.

Figure 7: Current structural arrangement of the Waterberg Biosphere Reserve

** COMMITTEE MEMBERS

Members of the Management Committee are elected at stakeholder representative level while each of the following stakeholder groups is asked to appoint a representative to the Management Committee. This appointment must be confirmed in writing.

- National Parks Board
- Provincial Parks and Tourism Board
- Provincial Department responsible for Environmental Affairs
- Provincial Department responsible for Tourism.
- Provincial Department responsible for Agriculture
- Provincial Department responsible for Education
- Portfolio committee in Provincial Legislature responsible for Environment and Tourism
- Waterberg District Municipality
- The six local Municipalities within the Waterberg District
- Bushveld Regional Tourism Forum
- The Waterberg Nature Conservancy
- Transvaal Agricultural Union
- Agric SA
- Game Breeders Association
- Tribal Authorities
- Bakenberg Community
- Mining sector
- Business sector
- NGOs
- Other relevant private sector representation
- Representative of the Development Finance Institutions (DFIs)

Note: The Waterberg Biosphere Reserve Constitution states that there must always be a balance between government, community and private representation on the Waterberg Management Committee (Limpopo, Department of Finance, Economic Affairs and Tourism, 2002a).
3.2.7 Criterium 7: Other provisions a biosphere reserve should have in place:

a) Mechanisms to manage human use and activities in the buffer zone or zones.
b) A management plan or policy for developing the area as a biosphere reserve.
c) A designated authority or mechanism to implement this policy or plan.
d) Programmes for research, monitoring, education, and training.

a) Mechanisms to manage human use and activities in the buffer zone or zones.

The only direct form of regulating use and activities in the buffer zone is through the implementation of existing legislation. Administrative mechanisms to manage human use and activities in the buffer zone are, therefore, mainly built into the structure and function of the Waterberg Biosphere Reserve Management Committee. All the government roleplayers who are involved in any of legislation implementation are represented on the committee where issues pertaining to human activities are identified and dealt with. There is no legislation that currently guide any development or activity within a biosphere reserve. However, in the new proposed National Protected Area Bill, biosphere reserves and all issues pertaining to the concept will be addressed. In Chapter 5 this study will broadly investigate the legislative aspects to be considered when dealing with biosphere reserves. The local and district municipalities involved will be the most prominent roleplayers with appropriate legislative powers to deal with development, activities and land use changes or influences. The Municipal Systems Act (South Africa, 2000) will guide an Integrated Development Plan (IDP) that needs to be drafted for each municipality against which developments or activities will be evaluated.
The Waterberg Biosphere Reserve, however, endeavours to let all members and roleplayers involved endorse the objectives and principles of the biosphere reserve as contained in the constitution. These objectives are founded on the Seville Strategy and Statutory Framework for Biosphere Reserves as approved by UNESCO (UNESCO, 1996). The Waterberg Biosphere Reserve further took the initiative to look at a zonation mechanism that could be used as a self-regulatory mechanism to encourage landowners to become part of the Waterberg Biosphere Reserve out of their own free will since it will provide the landowners with certain incentives that will rate his/her property. A gold rating will mean that the landowner conforms to all the criteria set for this status within the Waterberg Biosphere Reserve. There are four levels before reaching gold status, starting with an entry level (Baber, 2002). This mechanism has only recently been finalized and it is hoped that with appropriate funding the implementation thereof could start as soon as possible. This kind of initiatives will hopefully enable the biosphere reserve concept to encourage its participants to be self regulators and watchdogs over their own natural resources. Chapter 6 will further discuss legislative issues for dealing with biosphere reserves in the future.

b) A management plan or policy for developing the area as a biosphere reserve.

The Waterberg Biosphere Reserve does not yet have a detailed management plan. With the recent changes in local government and its associated legal framework the Waterberg Biosphere Reserve Management Committee suggested to look at all the local government requirements as set out in the Integrated Development Plan (IDP) for the Waterberg District, before detailing a management plan for the Waterberg Biosphere Reserve. It is, therefore, imperative for any biosphere reserve initiative at this stage to be involved with the IDP process of the municipalities to ensure that the biosphere reserve principles and zonation are incorporated. If not done, it could mean that the Waterberg Biosphere Reserve at a later stage does not comply with the MaB programme as a result of conflicting interests. The integration of the Waterberg Biosphere Reserve’s plans into the IDP of the municipalities is, therefore, crucial for the future existence of this biosphere reserve.

c) A designated authority or mechanism to implement this policy or plan
This point was discussed in detail under Criterium 6.

d) Programmes for research, monitoring, education, and training

Ongoing environmental education and training programmes are conducted from the Wilderness School at Lapalala to assist in communicating the biosphere reserve concept to the local communities. This is of vital importance as the majority of the learners in the Bakenberg area have never even seen an elephant or undisturbed wilderness area. They are also not familiar with the tourism and game industry, but ironically, the area adjacent to their village is thriving economically because of this wildlife industry. A bridge between the known and unknown, poor and rich and cultural diversity was built in the Waterberg Biosphere Reserve through this programme. Representatives from both parties are now sitting around the same table planning their future as partners in the Waterberg Biosphere Reserve.

Various monitoring programmes, are currently conducted especially in the core zones throughout the year. These include veld monitoring, scarce species monitoring, aquatic system monitoring as well as monitoring utilization of firewood and grass. However, conservation and resource management programmes within the larger Waterberg Biosphere Reserve have not yet reach a satisfactory level. Major programmes could be initiated with regard to erosion control, bush encroachment and proper ecological management, especially within the core and buffer areas. The only large conservation project with a positive impact within the Waterberg Biosphere Reserve area up to date has been was the Work for Water Project (Walker, 2002) conducted under the Department of Water Affairs and Forestry to eradicate alien vegetation in river and wetland systems on which R2,4 mil was spent in 2001 while 360 job opportunities were provided. Various individual conservation projects that are undertaken on private land, need to be coordinated and assisted where possible.

Within the framework of monitoring and research it was decided to establish a coordinating office at Melkrivier's Cultural and Rhino Museum established by Clive Walker in 1997 (Wilderness Trust of Southern Africa, 1997). The cultural museum is linked to a Natural History Museum and a Rhinoceros Museum, devoted to the world’s five species of
Rhinoceros. In addition, it is planned to establish the Waterberg Ecological Institute, which will have its headquarters at Melkrivier for all researchers conducting research in the Waterberg Biosphere Reserve. There they will be engaged in the compilation of all research material conducted within the Waterberg mountains while simultaneously encourage private landowners in developing ecological research programs for the sustainable development of their reserves. This will enable the Waterberg Biosphere Reserve to have a permanent office from where all the administration could be handled.
CHAPTER 4: ECOTOURISM DEVELOPMENT IN THE WATERBERG BIOSPHERE RESERVE

4.1 FULFILMENT OF THE DEVELOPMENT FUNCTION IN THE WATERBERG BIOSPHERE RESERVE

Each biosphere reserve is intended to fulfil three complementary functions as discussed in Chapter 1. Its conservation function is to protect those genetic resources, species, ecosystems and landscapes that require protection. Its development function is to foster sustainable economic and human development compatible with the first function while its logistic function is to facilitate demonstration projects, environmental education and training, research and monitoring in support of the first two functions (UNESCO, 2002).

Since Chapter 3 specifically addressed the application of the seven criteria of a biosphere reserve in the Waterberg, it touched on the three functions within the Waterberg Biosphere Reserve. This chapter will thus specifically deal with the development function within the Waterberg Biosphere Reserve, which is mainly based on tourism. It is further argued that the type of tourism within the Waterberg Biosphere Reserve is ecotourism, which enhances sustainable development and community participation.

4.2 WHAT IS ECOTOURISM?

As the evolution of ecotourism has provided new potential for conservation initiatives, careful attention should be paid to a number of important details. Valentine (1997) mentions that the term “ecotourism” refers to tourism based on the natural environment and conducted in an ecologically sustainable manner. The idea of ecotourism is to develop a form of tourism, which is based on enjoying nature but while simultaneously, helping to protect the environment.
As the world’s largest industry with an average annual growth rate of 7% (World Tourism Organization, 2002) ecotourism naturally forms a major part of this growing tendency. Wood (2002) in turn defines ecotourism as a form of nature-based tourism, which is a rapidly growing industry working within a niche market.

It is known that various debates have been published in defining ecotourism. However, for describing tourism in the Waterberg and the evaluation of tourism activities in the Waterberg Biosphere Reserve, the following definition as by the IUCN (now called the World Conservation Union) will suffice:

Ecotourism is environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features – both past and present) that promotes conservation, has low negative visitor impact, and provides for beneficially active socio-economic involvement of local populations.

This definition has been published by the United Nations Environment Programme (UNEP) in collaboration with the International Ecotourism Society (TIES) in the 2002 publication, *Ecotourism: Principles, Practices and Policies for sustainability*. This was the latest publication with regard to defining ecotourism that could be found while completing this study.

### 4.3 DESCRIBING AN ECO-DESTINATION

Market research shows that ecotourists are particularly interested in wilderness settings and pristine areas (Wood, 2002). According to the fifth meeting of the Conference of the Parties to the Convention on Biological Diversity, ecotourism furthermore has an unique role to play in educating travellers about the value of a healthy environment and biological diversity. Ecotourists, therefore, expect that eco-destinations will represent areas where natural resources are protected and utilized in a sustainable way.
The process of establishing a biosphere reserve in the Waterberg has direct linkages with the creation of the Waterberg as an unique ecotourism destination. The planning of an eco-destination depends on baseline data of social and environmental factors, zoning strategies, regulations that can prevent the deliberate abuse of fragile ecosystems, local participation in developing a set of standards for limits of acceptable change, and long-term monitoring (Wood, 2002).

Wood (2002) further indicates that any destination that seeks to attract tourists must protect its resources while facilitating a sense of integration with the local community. The Biosphere reserve concept includes the above aspect within criterium 6 of the Statutory Framework, that is referred to in point 4.5.2 of this chapter.

To illustrate the clear relationships between the criteria of setting up a biosphere reserve according to article 4 of the Statutory Framework of the World Network of Biosphere Reserves (UNESCO, 1996) and an eco-destination as characterized in the UNEP publication (Wood, 2002), Table 1 was compiled. The principles were then summarized from the relationships that depict the Waterberg Biosphere Reserve as an ecotourism destination.
Table 1: Relationships between the seven criteria of UNESCO in designating a biosphere reserve, planning guidelines for eco-destinations and eco-destination characteristics as compiled by UNEP

<table>
<thead>
<tr>
<th>GENERAL CRITERIA FOR AN AREA TO QUALIFY FOR DESIGNATION AS A BIOSPHERE RESERVE (UNESCO, 1996)</th>
<th>ECO-DESTINATION PLANNING GUIDELINES (UNEP, 2002) INCLUDING THE ECO-DESTINATION CHARACTERISTICS (CHARACTERISTICS REFERRED TO AS ©)</th>
<th>RELATIONSHIPS IDENTIFIED BETWEEN COLUMN 1 AND 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human interventions.</td>
<td>• Natural features conserved within a protected landscape © • Low density development, where natural areas are abundant and the built landscape does not dominate. ©</td>
<td>The natural features and the human dimensions of an area must be integrated with an emphasis on limited human interventions.</td>
</tr>
<tr>
<td>2. It should be of significance for biological diversity conservation</td>
<td>• Evidence that tourism is not harming natural systems such as waterways, coastal areas, wetlands and wildlife areas. ©</td>
<td>The protection of the unique natural features of an area must be evident.</td>
</tr>
<tr>
<td>3. It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale.</td>
<td>• Integrated natural resource planning should offer residents a variety of sustainable economic development alternatives beyond ecotourism.</td>
<td>Promotion of sustainable development.</td>
</tr>
<tr>
<td>4. It should have an appropriate size to serve the three functions of biosphere reserves.</td>
<td>• Thriving small community businesses, including food stands and other types of craft enterprises owned by local people. © • Thriving, locally owned lodges, hotels, restaurants and businesses that provide genuine hospitality with friendly, motivated staff. © • A variety of local festivals and events that demonstrate an ongoing sense of pride in the local community’s natural environment and cultural heritage. © • Clean and basic public facilities for tourists and locals to share, such as public showers and toilets. © • Friendly interaction between local people and visitors in natural meeting places, such as</td>
<td>Logistic and training support to enhance, conserve and promote the sense of place and quality services.</td>
</tr>
</tbody>
</table>
Table 1 clearly illustrates that direct relationships can be found between an area registered as a biosphere reserve under UNESCO’s MaB programme and an eco-destination as characterized by UNEP and TIES.
4.4 THE CURRENT TOURISM SCENARIO IN THE WATERBERG BIOSPHERE RESERVE

Information was gathered from the five core areas consisting of a total of 121 249 hectares, and the buffer zone in the Waterberg Biosphere Reserve consisting of 28 private landowners. Twenty-four landowners responded which represents 146 157 hectares. The information does, however, not reflect the current tourism scenario in the whole Waterberg District area, which has been dealt with in Chapter 2, but specifically refers to the scenario within the core and buffer zones of the Waterberg Biosphere Reserve area.

4.4.1 Land Ownership and expansion

Core areas:
All five core areas are state (government) owned land but differ in types of state land e.g. Marakele National Park was proclaimed a National Park and therefore under National Government control while Mokolo Dam, Wonderkop and the Moepel farms are provincial government properties and Masebe Nature Reserve is so called communal land. The only core area currently expanding is Marakele National Park.

Buffer zone:
Land in the buffer zone is primarily privately owned. Ownership varies from individual landowners to corporate companies or a collective group of landowners owning property. The majority, however, are individual owners. Current land ownership in the buffer zone dates from 3 years to 112 years ago with the Baber family owning land in the Waterberg since 1886. On average the landowners in the Waterberg (particularly the buffer zone) had been staying there for ten years.
4.4.1 Current land use

Core areas:
The majority land use prior to the proclamation of the core areas was cattle farming. Mokolo Dam Nature Reserve was established in 1978 and Masebe Nature Reserve in 1984, while Wonderkop Nature Reserve and Marakele National Park were proclaimed in 1994, although Wonderkop has been developed as a nature reserve since 1989. The Moepel farms are not proclaimed as a nature reserve yet.

Buffer zone:
The major land use within the buffer zone is wildlife orientated. This differs from consumptive e.g hunting to non-consumptive utilization such as ecotourism activities. Eight private landowners in the buffer zone indicated that they had purchased their farms as already established game farms with the other sixteen landowners indicating that they had changed the land use from cattle or mixed farming practices to mainly game farming. One could, therefore, assume that 67% of the land within the buffer zone has changed to mainly game farming over an average period of ten years. Nine landowners (37.5%) in the buffer zone also indicated that they had recently expanded their properties.

![Figure 8: Reintroduced game species since the establishment of game farming in the buffer zone](image-url)
As Figure 8 indicates, the majority of game introduced are Giraffe, Eland, Nyala, Common Reedbuck and Rhinoceros. The big five game and scarce species e.g. the Black Rhinoceros and Roan antelope also occur on some of the properties.

4.4.2 Tourism activities and facilities

**Core areas:**

**Facilities:** The core areas are in general terms underdeveloped. Marakele National Park is still expanding with a tented camp and bushcamp that cater for 58 beds in total. The other core area, Masebe Nature Reserve has 29 beds with the current lodge facilities not up to standard due to a lack of maintenance over the last few years. However, a ten bed Ivory Route tent camp is also available which links Masebe Nature Reserve with the African Ivory Route along the Golden Horse Shoe of the Province. Wonderkop has six beds that are mainly occupied when hunters visit the Reserve while Mokolo Dam only caters for campers and day visitors. In total 103 beds are currently available for tourist accommodation in the core areas. No “up market” lodge accommodation exists within any core area at present.

**Activities:** The activities are restricted in the core areas as one can expect. The main activities are overnight accommodation, self-game drives, bird watching and day visitors. Masebe, however, offers some conference facilities that are occasionally used for training courses and team building.

Hunting is offered in some of the provincial nature reserves as part of the provincial game reduction programme. Wonderkop and Masebe are sometimes included in this programme when determined by the provincial authorities. No hunting is conducted in Marakele National Park.

**Buffer zone:**

**Facilities:** The facilities in the buffer zone can be extremely rustic or very luxurious. The facilities are mainly low impact type of bush camps, general game
lodges or corporate lodge accommodation and are mostly owner operated. In total there are 1340 tourist beds catered for in the buffer zone. With eight landowners in the buffer zone that do not cater for any tourists, only the data of the remaining sixteen landowners were used. Currently an average of 101 hectares per bed is available in the buffer zone with two landowners (Number 1 and Number 21) catering for 856 (64%) of the beds (Table 2). When excluding landowner Number 1 and Number 21 from the calculations, the average number of hectares per bed is 211,86 ha, which double the size of hectares available per bed. This clearly reflects that the majority of landowners are seeking low impact tourism. It must, however, be mentioned that although landowner Number 1 caters for 460 beds, it has still got 75 hectares per bed available due to the size of the property.

Activities: Five landowners (21%) in the buffer zone indicated that they did not cater for tourists since these properties are mainly for private use. Eleven landowners (46%) catered for hunters and saw hunting as an important part of their tourism activities, while the remaining eight (33%) of landowners just concentrated on non consumptive related ecotourism activities and did not cater for the hunting industry at all.

Figure 9 indicates the type of tourism activities offered in the buffer zone. The five main activities offered are: overnight facilities, game drives, bird watching, photo safaris, and night drives. Cultural tours are not yet offered as a main attraction in the buffer zone although the landowners in close proximity to the Bakenberg area currently offers cultural experiences to their visitors. When implementing the zonation map, it becomes clear that cultural experiences within the Waterberg Biosphere Reserve are limited to the eastern boundary where one finds unique cultural features and landscapes. Although archaeological sites are seen as cultural features, and found on various properties, the questionnaire did not specify archaeological aspects, but rather referred to the traditional cultural experiences one usually finds in rural communal areas. To enhance the cultural
experiences within the Waterberg Biosphere Reserve, Boonzaaier (2001) recommends an integrated tourism approach as prerequisite. The lack of knowledge and available information in regard to the cultural aspects in the rural areas contributes to the fact that limited tours or activities are currently being offered in the Waterberg Biosphere Reserve. Other specific activities offered are boat trips (restricted to the buffer zone area adjacent to Mokolo Dam) and horse trails that are linked with wildlife and agricultural experiences.

Figure 9: Tourism activities currently being offered within the buffer zone of the Waterberg Biosphere Reserve
Table 2: Number of beds, hectares and hunting activities in the Buffer zone (Waterberg Nature Conservancy) of the Waterberg Biosphere Reserve.

<table>
<thead>
<tr>
<th>BUFFER ZONE MEMBERS (CONSERVANCY)</th>
<th>FARMS SIZE IN HECTARES</th>
<th>NUMBER OF BEDS</th>
<th>HECTARE/BED</th>
<th>HUNTING ON THE FARM?</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMBER 1</td>
<td>33 000ha</td>
<td>460</td>
<td>72</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 2</td>
<td>2 000ha</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MEMBER 3</td>
<td>550ha</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MEMBER 4</td>
<td>251ha</td>
<td>10</td>
<td>25</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 5</td>
<td>1 850ha</td>
<td>-</td>
<td>-</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 6</td>
<td>3 600ha</td>
<td>31</td>
<td>116</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 7</td>
<td>7 000ha</td>
<td>12</td>
<td>583</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 8</td>
<td>1 112ha</td>
<td>-</td>
<td>-</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 9</td>
<td>3 000ha</td>
<td>20</td>
<td>150</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 10</td>
<td>1 300ha</td>
<td>8</td>
<td>163</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 11</td>
<td>2 800ha</td>
<td>10</td>
<td>280</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 12</td>
<td>1 500ha</td>
<td>-</td>
<td>-</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 13</td>
<td>51ha</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MEMBER 14</td>
<td>10 000ha</td>
<td>16</td>
<td>625</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER</td>
<td>Area (ha)</td>
<td>Beds</td>
<td>Visitors</td>
<td>Catering</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>MEMBER 15</td>
<td>8 897</td>
<td>50</td>
<td>178</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 16</td>
<td>2 300</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MEMBER 17</td>
<td>1 374</td>
<td>28</td>
<td>49</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 18</td>
<td>14 000</td>
<td>22</td>
<td>636</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 19</td>
<td>860</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MEMBER 20</td>
<td>9 000</td>
<td>150</td>
<td>60</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 21</td>
<td>390</td>
<td>396</td>
<td>0.9</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 22</td>
<td>2 270</td>
<td>20</td>
<td>114</td>
<td>YES</td>
</tr>
<tr>
<td>MEMBER 23</td>
<td>35 382</td>
<td>92</td>
<td>385</td>
<td>NO</td>
</tr>
<tr>
<td>MEMBER 24</td>
<td>3 670</td>
<td>15</td>
<td>244</td>
<td>YES</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>146 157</td>
<td>1340 beds</td>
<td>21% (members) do not cater for tourists or hunters.</td>
<td>46% YES 33% NO</td>
</tr>
</tbody>
</table>
4.4.4 Marketing

*Core areas:*

Since Marakele National Park is marketed as one of the South African National Parks, it has been incorporated into a network of destination opportunities. As one of the more recently established Parks, Marakele has not yet been optimally developed for tourism. It is believed that Marakele in future is going to play a major role in the destination building programmes of the Limpopo Province in particular and South Africa as a whole. Its close proximity to Botswana and the North West Provinces Heritage Park concept, which includes Pilansberg and Madikwe, will add substantial value in developing a Marakele tourism cluster. The provincial nature reserves (remaining core areas) have never been marketed intensively while a marketing strategy does not exists for these nature reserves. Established in May 2002, the provincial Tourism and Parks Board is mainly responsible for the marketing and development of provincial reserves. It is believed that after the current tourist facilities have been upgraded, an intensive and very needed marketing strategy will be compiled for each reserve. In the meantime these reserves draw attention due to their role as core areas within the Waterberg Biosphere Reserve as well as their potential as investment opportunities in the tourism sector.

*Buffer zone:*

Sixteen of the twenty-four landowners in the buffer zone actively cater for the tourism market while eleven (68,75%) of the sixteen cater for both local and international tourists and only two landowners cater specifically for the international market and three for the local market. All the landowners indicated that they market their own products directly.

4.4.5 Socio-economic aspects

*Core areas:*

There currently exist 230 direct job opportunities in the core areas which amounts to one job opportunity on 527 hectares. These jobs are mainly conservation
related such as game guards, general assistants and reserve managers. This indicates that the activities offered in the core areas are not yet focused on tourism activities and economic related programmes and development. This might change when the core areas are developed to their full potential and where specific types of tourist services need to be rendered.

The Park Manager of Marakele, Mr Norman Johnson, nevertheless indicated in the questionnaire that several services are sourced out to local contractors, for instance construction work, alien control, technical services, bush encroachment, tour guiding, and entertainment.

**Buffer zone**

**Job opportunities:** Table 3 refers to the current job opportunities in the buffer zone. Each landowner was requested to tick off the current job opportunities offered on his property. In total 1015 job opportunities are currently provided within the buffer zone of the Waterberg Biosphere Reserve which calculates to one job opportunity per 144 hectares.

**Recruitment of labour:** The fact that nineteen landowners (79%) in the buffer zone indicated that they sourced their labour from local communities in the Waterberg area already indicates a sense of economic responsibility to the local needs. In addition, Five (21%) indicated that they sourced their labour from local communities and from neighboring provinces.

**Outsourcing of support services:** In answering the question if whether they outsourced support services to local communities, for instance for the control of alien vegetation, bush encroachment, tour guiding, cultural dance entertainment, thatching of roofs and building. Thirteen (54%) indicated that they did while eleven (46%) responded negative. In verbal conversations with some of the landowners they all indicated that they were more than willing to support local contractors, especially within the spirit of the Waterberg Biosphere Reserve. It
became clear that the main constraints in this regard are that the type of work required by a contractor is of such a nature that the local community contractors are usually too small to complete the work within a certain time frame. They also find it difficult to identify local contractors due to the lack of organization or marketing in the rural areas, which deal with these aspects. They reported that they did not know where to start looking for them. If the biosphere reserve could find a way of dealing with these aspects, it is believed that the outsourcing of services to the local communities could double and therefore have a direct influence on the local economic opportunities.

**Training:** In providing training opportunities to their staff, seven (29%) indicated that they rendered training courses to their staff, four (17%) that they provided training opportunities on an *ad hoc* basis and thirteen (54%) that they did not render training opportunities other than in-service training. The majority, however, reported that they required such a service to be rendered. In addition training currently being conducted on properties within the buffer zone are: game scout training, tracking courses, shooting proficiency, welding, first aid, driver licenses, cooking, technical services and hospitality. With the current proposal to transform the old Melkrivier School into a training while serving as an ecological institute in the Waterberg Biosphere Reserve, organized and accessible training opportunities for all parties in the Waterberg Biosphere Reserve will be available. This initiative is far advanced and it is believed that it will contribute to the awareness of training.
Table 3: Current job opportunities in the buffer zone or conservancy of the Waterberg Biosphere Reserve

<table>
<thead>
<tr>
<th>JOB DESCRIPTION</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Farm/Project Manager</td>
<td>26</td>
</tr>
<tr>
<td>2. Tourism Manager</td>
<td>25</td>
</tr>
<tr>
<td>3. Technical Manager</td>
<td>11</td>
</tr>
<tr>
<td>4. Administrative support</td>
<td>46</td>
</tr>
<tr>
<td>5. Game Guards</td>
<td>95</td>
</tr>
<tr>
<td>6. Tour guides and trackers</td>
<td>87</td>
</tr>
<tr>
<td>7. Professional Hunters</td>
<td>9</td>
</tr>
<tr>
<td>8. Cook/Chefs</td>
<td>70</td>
</tr>
<tr>
<td>9. Barman</td>
<td>17</td>
</tr>
<tr>
<td>10. Waiters</td>
<td>71</td>
</tr>
<tr>
<td>11. Cleaners</td>
<td>101</td>
</tr>
<tr>
<td>12. Gardeners</td>
<td>95</td>
</tr>
<tr>
<td>13. Other Permanent Staff</td>
<td>278</td>
</tr>
<tr>
<td>14. Temporary Staff</td>
<td>66</td>
</tr>
<tr>
<td>15 Other personnel</td>
<td>18</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>1015</strong></td>
</tr>
</tbody>
</table>

4.5 OPPORTUNITY FOR COMMUNITY BASED TOURISM IN THE WATERBERG BIOSPHERE RESERVE

4.5.1 Introduction

The socio-economic involvement of local communities in the ecotourism development of the Waterberg Biosphere Reserve could best be illustrated by the inclusion of the Masebe Nature Reserve and the Moepel farms that have been earmarked for community based ecotourism. When looking at the spatial configuration, it is evident that economic benefits need to be developed in these areas.

The highest concentration of people in the Waterberg Biosphere Reserve is found to the eastern side (the Bakenberg area) of the Waterberg Biosphere Reserve area. As referred to in Chapter 2, the population density in this area is high. The area, however, lacks basic infrastructure, such as the supply of electricity and water.
The poverty level is high with an average of R500 per household per month (Statomet, 1999).

Map 3 clearly indicates that game farming is currently the dominant land use in the Waterberg area. It is therefore important to link the industry with the current socio-economic aspects found in the Bakenberg area.

Apart from economic benefits, landownership is of great importance for the future development of the area. The majority of landownership in the Waterberg Biosphere Reserve area is private. It has become virtually impossible for communities to participate actively in the game and tourism industry as such, proactive facilitation in this regard must be a priority within the Waterberg Biosphere Reserve. Without tangible economic benefits and landownership, the partnership that has been established between private landowners and the communities in the Waterberg Biosphere Reserve will not hold in the long run.

It is, therefore, important to actively facilitate community owned projects within the Waterberg Biosphere Reserve. It is within this context that the Masebe/Moepel community tourism initiative will be discussed.

**4.5.2 The Moepel/Masebe Community Based Tourism Development**

**4.5.2.1 General: Community Based Tourism Development**

Many years of experience in development and conservation initiatives have shown that conservation and the needs of local people cannot be addressed independently of one another (Borrini-Feyerabend, 1997). Combining the two – by pursuing conservation and providing for local needs through the same initiatives and activities calls for great ingenuity, socio-cultural sensitivity, sound economic judgment and sufficient time to develop the optimum solutions that work in unique contexts. Only local people, in fact can effectively identify both
their needs and specific compromises that would satisfy them while safeguarding conservation (Borrini-Feyerabend, 1997).

One approach in coupling the interests of the local communities with conservation objectives is to stimulate community ecotourism initiatives because ecotourism generates revenues as long as the local environment is well preserved and well visited. Selling game trophies to hunters is viable and lucrative only as long as the local habitat is capable of sustaining an abundant wildlife population and medicinal plants can be collected in the wild and sold as long this practice is not over-exploited. One could also include initiatives such as game-ranching or wildlife-raising projects. The raising of a population of a wild and possibly endangered species in captivity may be a positive contribution to maintaining that species in the wild (Borrini-Feyerabend, 1997).

Although there are promising possibilities of involving local communities in ecotourism ventures, it is no easy task to identify ways in which conservation initiatives can produce benefits and economic returns. A constraining factor is that rural communities have never been actively part of the wildlife and ecotourism industry with local communities usually absorbed in service providing jobs such as porters or food and souvenir vendors. In addition, they are not assured of year-round employment since workers may be laid down in the off-season. In addition, most money in this industry made by foreign airlines, tourism operators, and developers who repatriate profit to their own more economically advanced countries (Valentine, 1997).

The challenge thus is to get community owned tourism projects from the ground that will change the face of tourism as described above. Wood (2002) refers to Community-Based Ecotourism (CBE) as a concept, which implies that the community has substantial control over and involvement in the ecotourism project, and that the majority of benefits remain in the community. Three following main types of CBE enterprises have been identified.
• The purest model suggests that the community owns and manages the enterprise and that all community members are employed by the project using a rotation system, while profits are allocated to community projects.
• The second type of CBE enterprise involves family or group initiatives within communities.
• The third type of CBE is a joint venture between a community or family and an outside business partner.

It is within the development role of the Waterberg Biosphere Reserve and the above discussion on Community-Based Ecotourism that the Masebe Nature Reserve and Moepel farms will be dealt with.

4.5.2.2 Background: Masebe Nature Reserve and the Moepel development

Masebe Nature Reserve and the Moepel farms were zoned as core areas within the Waterberg Biosphere Reserve for the following reasons:
• The area is predominantly mountainous which offers diverse habitats for various fauna and flora species and archaeological sites.
• The mountain serves as an important water catchment for the known dry lowland and rural area of Bakenberg.
• It forms an important physical and mental link between the poor rural component in the Waterberg Biosphere Reserve and the rich established wildlife industry.
• It provides an ideal Community-Based Ecotourism project, which could be an important monitoring site under the MaB programme for sustainable development.
• It is a large area in comparison with other areas, earmarked for conservation and ecotourism development.

4.5.2.2.1 The Moepel farms:
The Moepel farms comprise an area of 28 330 hectares state land, and consist of steep hills that grade into plains below the escarpment. Large portions of this area
are inaccessible for vehicles. The area is rich in biodiversity, and forms an integral part of the Waterberg catchment area. These state-owned Moepel farms were reserved for development as a nature reserve, to be handed over to the former Lebowa Government. This, however, never materialised (due to the new dispensation that came into place in 1994, and the lack of adequate government funding). The farms are currently administered by the provincial department of Agriculture. The Moepel farms are mostly underdeveloped, with infrastructure limited to old farmhouses and cattle fences. Unspoilt wilderness areas exist which enhance the tourism potential of the area. The Moepel farms further lie in a malaria-free zone. The area is large enough to accommodate the “Big Five” game. Moepel includes a significantly higher than average diversity of habitat types and lies amid an area where game farming and tourism are the most important land use form. It is a three-hour drive from the central areas of Gauteng to Moepel on comfortable tarred road surfaces. It further lies along one of the main routes from Gauteng to Botswana, a very popular tourist destination.

4.5.2.2.2 Masebe Nature Reserve

Adjacent to the Moepel farms in the north lies Masebe Nature Reserve. The reserve consists of 4 500 hectares of communal land, which were donated by seven villages for tourism and wildlife development in 1984. Masebe is known for its cultural and archaeological features and was established with the agreement that the provincial government (the then Lebowa administration) would contribute to the infrastructure development and all the profits will be shared on a 50-50 basis. This arrangement was honored until 1994, when new departments were created. Due to various administrative constraints, these communities involved did not receive their 50% share that has impacted negatively on the communities' attitude towards tourism. It must, however, be mentioned that the situation is currently under serious review.
4.5.2.3 Communal area adjacent to Moepel and Masebe:

Twenty-six villages are involved in the Waterberg Biosphere Reserve and specifically the Masebe/Moepel ecotourism project. They are represented on various forums and play an active role in the Waterberg Biosphere Reserve management committee. Map 7 clearly delineates the area as described above for further reference. In 2001 a survey was conducted by Boonzaaier (2001) in the Mabetha village of Bakenberg. This survey revealed that there are quite a number of very interesting traditional products and activities that could be presented as well as cultural products that could be sold. However, it is the opinion that tourism in the rural areas will only come off the ground if it could be approached within the broader context of the Waterberg region and the history of the North Ndebele. Boonzaaier (2001) therefore proposed that an old North Ndebele archaeological site be identified and excavated to serve as an example for the construction of a living museum where local North Ndebele people can display the life of a North Ndebele family during their time of arrival in the Limpopo Province. The large number of rock paintings in the near vicinity is impressive and of great significance for tourism. It is, therefore, believed that with the commercial development of the Masebe/Moepel complex in addition to the cultural attractiveness in Bakenberg, the area could become an exciting tourism destination within the Waterberg Biosphere Reserve. This could further add to the emerging trend that overseas tourists visiting South Africa are expressing interest in combining game viewing with a cultural experience (SATOUR, 1997).

4.5.2.3 Current strengths and weaknesses of the Moepel/Masebe CBE initiative

Strengths:

- The Moepel/Masebe complex has scenic beauty, offers a wilderness experience while containing a unique cultural component as well.
- It serves as the eastern gateway to the Waterberg Biosphere Reserve.
Communities are already part of the broader Waterberg Biosphere Reserve initiative and are actively participating.

An important communication channel and trust relationship has been established between the rural community structures in Bakenberg and private landowners involved in an established tourism and wildlife industry.

Communities in the area have already indicated their willingness to participate in tourism and wildlife through donating their land for the establishment of Masebe Nature Reserve. Although under pressure, this land use practice is still intact.

The Moepel farms are totally underdeveloped and thus offers an opportunity to involve the adjacent communities from the initial stages. They could, therefore, be equal partners in both planning and implementation (Queiros and Wilson, 2001).

The potential exist to develop the cultural attractiveness of the area that is currently not well known.

An aspect of major importance is the fact that the local communities could own land in the Waterberg Biosphere Reserve (in total 32830 hectares) on which they can run their own ecotourism enterprise. This will also be a first in its kind for the area that is predominantly developed as a wildlife and ecotourism destination.

The area’s unemployment rate is high. Economic development initiatives such as the proposed Masebe/Moepel development is of utmost importance to assist in the area’s economic growth.

Support structures already exist in the Waterberg Biosphere Reserve while the establishment of a Community-Based Ecotourism venture is well encouraged by all the stakeholders in the Waterberg Biosphere Reserve.

The establishment of a Community-Based Ecotourism project on Masebe and Moepel is supported by government authorities as well since it fits in with policy programmes of the provincial department and is supported by the Public Management Finance Act, which caters for the creation of Community-private-public partnerships in section 16.
Weaknesses:

- The situation on Masebe, where government is currently not complying with the 50/50 agreement, can hamper the process of developing Masebe and Moepel as prime Community-Based Ecotourism projects.
- The land transfer process to empower communities with landownership is extremely time constraining. This could dampen the enthusiasm that currently exists.
- Moepel has three land claims registered on two farms. The Land Claims process is known to be very time constraining a factor that could have a negative effect on the project.
- Moepel has never been developed due to the costs involved. As much the area has not been identified as a priority nature reserve so that no permanent staff have been appointed to manage Moepel. Law enforcement officers and agriculture personnel are only visiting the area on an ad hoc basis. This could lead to the uncontrolled invasion of people.
- Overgrazing and erosion problems are expanding day by day due to the lack of efficient management. This adds to the ultimate costs involved to rehabilitate the area to be utilized as a profitable community owned ecotourism project.

4.5.2.4 Proposed development

A study conducted by De Klerk (2002) clearly indicates that the Moepel farms are not suitable for cattle farming or the division of the farms into separate smaller game farm units. It has been proposed that the Moepel farms be developed as a nature reserve, but with specific emphasis on the objective of generating income and creating a development and economic node from which the communities east of Moepel, in particular the Waterberg Biosphere Reserve, but also the region and the Province at large, can benefit optimally.

In the initial phases of development the following short term opportunities for jobs and small enterprises exist on Moepel, which could result in the payment of up to R1,6 million in wages:
C breaking down the 230 km fences around and inside of Moepel;
C erecting the perimeter fence;
C demolishing buildings and ruins;
C clearing rubbish from the veld;
C bush clearing;
C erosion control and rehabilitation;
C upgrading roads and creating new roads; and
C eradicating exotic species.

During this initial phases, up to 130 or more short term jobs, mostly for labourers, could created. Hereafter the creation of infrastructure for the further phases could result in opportunities due to:
- building of offices, housing, stores etc.;
- building of tourism infrastructure;
- construction of roads;
- provision of accommodation;
- provision of other infrastructure e.g. hides, picnic sites etc.

On the long term, an estimated 150 to 200 permanent job opportunities could emanate from the development of Moepel into a game reserve and tourist destination. The salaries and wages involved could be in between R2,5 to R3 million per year, excluding the job opportunities that will be generated by the private sector in developing and managing tourism enterprises within Moepel.

To implement the above proposals a well considered process and representative community structures are needed. De Beer and Eliffe (1997) proposed a number of conceptual models for promoting local participation in tourism development projects, for example community-owned ventures and a partnership between the community and the state; lease agreements between the community, the private sector and the commercial sector; each with its own philosophy and objectives.

The ideal is to give total ownership to the community in which they own the land and drive the development process to empower the community, one of the major aims of the current government. However, within the context of the
Moepel/Masebe project it will not be ideal for the community to take total ownership of the process since the local authorities and communities have neither been empowered within the tourism sector nor financially, institutionally and technically, to enable them to drive these types of development processes.

The model - Communal Land – Alternative 4 (De Beer and Eliffe, 1997) has been adapted to identify a suitable model for the Masebe/Moepel scenario. Figure 10 schematically presents such a model.

![Diagram](image)

Figure 10: Community development model as proposed for the Masebe/Moepel ecotourism project as adapted from de Beer and Eliffe (1997)

It is proposed that a well represented community structure should be adopted to drive the process of mobilizing assistance from the private sector by going into partnership with them to develop the tourism potential of the project. Because this will be a first for the
community it is further proposed that the government should assist in the facilitation of setting up such a partnership. It will be of great advantage to include the Waterberg Biosphere Reserve Management Committee to assist with the facilitation. As mentioned before, the success of the project will be of the utmost importance for the Waterberg Biosphere Reserve as well since the latter will bring in a variety of expertise to the tourism business by using that expertise of the people who know the area and kind of venture. The assistance from government and the Waterberg Biosphere Reserve will further protect the community against exploitation.

In 1996 the Cabinet of the Limpopo Province adopted a process of commercialization of provincial nature reserves (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2000). A large number of lessons were learned that could be of value for communities involved with nature reserves. Moreover the transferring of land from the state to a recognized community structure will need the assistance of appropriate government departments such as the department of Land Affairs and the Land Claims Commissioner. Within the Request for Proposal (RFP) document for the Manyeleti Game Reserve, financial empowerment for the communities involved with the commercialization process was identified as: equity shareholding, concession fees payable by the investor plus a percentage of turnover that will ensure that in good years the community and government (if the land remains government owned) will still benefit from the profits, and not only the investor (Limpopo Province, Department of Finance, Economic Affairs and Tourism, 2000). This financial structure has also been adopted and approved by the National Treasury who plays a significant role in monitoring and regulating the commercialization processes pertaining to government (state) land. The Waterberg Biosphere Reserve Management Committee could, therefore, assist the community in requesting government to speed up the commercialization processes of provincial nature reserves, in particular Moepel and Masebe, so that the community can start benefiting from its commercial potential.

Another important aspect within the biosphere reserve context is environmental management. With the depletion of government budgets for conservation and
environmental programmes, the main role of government departments has shifted from being an implementer to being a regulator. The partnership will, therefore, be responsible for environmental management with government regulating their actions. The advantage of the Masebe/Moepel project is that it has been zoned as a core area within the Waterberg Biosphere Reserve. As such, it is situated in a support base of private sector in the environmental field, tourism business in the Waterberg and the Man and Biosphere Programme of UNESCO.

The fact that the Waterberg Biosphere Reserve could serve as an entity to facilitate the process on behalf of the community, strengthens the proposed model. The Waterberg Biosphere Reserve as an independent stakeholder could also serve as a monitoring agent to ensure that the principles involved be adhered to by all parties involved. Within the Waterberg Biosphere Reserve a pool of expertise exists that could serve as a basis to assist the newly established community/private partnership, hereby reinforcing and utilizing local knowledge.
CHAPTER 5: LEGISLATION AND AUTHORITIES HAVING A DIRECT INFLUENCE ON THE FUTURE PROTECTION AND LAND USE PLANNING OF BIOSPHERE RESERVES.

5.1 INTRODUCTION

Since 1994, South Africa’s legal system entered into a new era with the enactment of its new Constitution. The formulation of new acts is still in a process that will take some considerable time, especially in the environmental and conservation fields.

Every country that is a signatory to international agreements, treaties, conventions and programmes needs to meet certain obligations. Countries differ in strategies in how to implement and monitor these obligations. Usually it become part of a country’s legislative framework or departmental policies. As legislation pertaining to biosphere reserves are not yet part of South Africa’s legislative framework, current legislation that might be used to ensure that a biosphere reserve is protected and maintained should be evaluated. However, during the finalization of this study, the National Department of Environmental Affairs and Tourism started to redefine the protected area categories that have been used to proclaim protected areas so that “buffer zone” areas can also receive protection status under the new proposed National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002). It will have a direct influence on the protected area status of the core and buffer zone areas in the biosphere reserve.

It is not the intention of this study to discuss all legislation that might have an effect on a biosphere reserve or the protection of the environment and biodiversity. The study rather aims at assessing legislation and authorities that will have a direct influence on the protection of the current land uses and spatial zonation pattern of a biosphere reserve. As discussed in Chapter 4 it is a fact that the broader land use protection of pristine and vast open areas determines a preferred eco-destination, and that it is, therefore, of the utmost
importance for the future existence of such an ecotourism destination to enforce legislation.

Wood (2002) argues that if no effective regulation or enforcement of environmental laws exists, and if natural areas are developed without foresight, facilities will in certain instances be improperly constructed. Even in remote areas, where ecotourism is often developed, it is still necessary to set development standards that are approved in coordination with local stakeholders, in particular with representatives of local communities. In order to become a successful sustainable development tool worldwide, ecotourism requires a thorough investigation into the planning of ecotourism destinations and their long term management. Wood (2002) further more indicates that adequate government funds must be made available for the planning of destinations. Budgets need to properly acknowledge the important role of conserving areas, both cultural and environmental, for ecotourism development.

In November 1995, the UNESCO General Conference approved the Seville Strategy for Biosphere Reserves (UNESCO, 2002). The General Conference also formally adopted the Statutory Framework of the World Network which defines the principles, criteria and designation procedure for biosphere reserves. Although it is not a binding text for states/countries (as would be the case of a convention), the Statutory Framework applies to all biosphere reserves designated within the framework of the MaB Programme. The relevant resolution of the UNESCO General Conference invited all member states/countries to take account of this text when establishing new biosphere reserves. The these documents, therefore, provide the basic texts shaping and guiding the further development of the World Network of Biosphere Reserves and its component parts.

5.2 SPATIAL LAND USE FRAMEWORKS AND LEGISLATION

According to the White Paper on Land Policy (South Africa, Department of Land Affairs, 1997) all three spheres of government (local, provincial and national) and traditional authorities have functions, which require land administration. However, at present most
of the legislation dealing with land administration has been assigned to the Ministers of Agriculture and Land Affairs on national level. National Parliament has the power under certain circumstances to legislate on matters falling within the functional areas of exclusive provincial legislative competencies where applicable. Close cooperation is necessary in the carrying out of the respective functions of national, provincial and local governments to ensure the most appropriate and effective use of land. However, since the existing legislative framework for land development is fragmented, uncoordinated and inappropriate, it has resulted in a lack of effective, integrated environmental management. Moreover, because the responsibility for natural resource management is assigned to different national and provincial ministries, different approaches are practiced as specified by the specific Acts pertaining to that area. This means that the institutional framework, as well as the administrative system, fails to facilitate integrated approaches to land use, including the protection of the natural environment. The Physical Planning Act (South Africa, 1991b), the Environmental Conservation Act (South Africa, 1989) and the Conservation of Agriculture Resources Act (South Africa, 1983) endorse the principle of the integration of environmental management in land use planning. However, at the administrative level, environmental management practices remain sectoral and fragmented.

In the absence of current legislation to give formal protection status to a biosphere reserve, the following legislation pertaining to spatial land use plans is applicable. It has been summarized as follows:


As discussed above, various environmental legislation exists to ensure that the environment is protected. This, however, only refers to the direct impact and not the spatial configuration of the resource base. NEMA does refer to landscape protection, as well as to Integrated Environmental Management and the Integrated Environmental Management (IEM) plans, but does not define it in such a way that it could serve as appropriate legislation to protect the spatial environment. It does, nevertheless, provide for the Minister, in concurrence of the Member of the Executive Council (MEC) of the
Province to “identify geographical areas in which specified activities may not be commenced without prior authorization from the Minister or provincial MEC”. As regulations or policy with regard to the implementation of this act had not yet been determined at the time of completing this study, it could not regard this as legislation currently protecting the "spatial land use" of the environment.


In a certain sense the above Act makes provision for the protection of “the protected natural environment” because it aims at promoting the preservation of specific ecological processes, natural systems, natural beauty or species of indigenous wildlife or the preservation of biodiversity in general. On the date of the commencement of the Act, land reserved as a nature area in terms of the Physical Planning Act (South Africa, 1991b) was deemed to be declared a protected natural environment (Kidd, 1997).

Environmental evaluations have become an established part of good development planning throughout the world, and can be defined as an “activity designed to identify and predict the impact on health and well-being of legislative proposals, policies, programmes, projects and operational procedures, and to interpret and communicate information about impacts”. An Environmental Impact Assessment (EIA) is the administrative or regulatory process by which the environmental impact of a project is determined. There are a number of provisions in the Environment Conservation Act (South Africa, 1989) which relate to land use, particularly those that deal with limited development areas and identified activities. This Act therefore provides a practical tool to protect or change certain land use development patterns.


The objective of this Act is to “ensure the orderly physical development of the Republic”, through certain specified planning processes, although it does not lay down any direct land-use control measures.
D) **Subdivision of Agricultural Land Act 70 of 1970 (South Africa, 1970).**

The purpose of this act is to control the subdivision and, in connection therewith, the use of agricultural land. The rationale behind the Act is to prevent the subdivision of agricultural land into uneconomic units. The principal aim of the Act is to operate as a zoning regulation and prevention of land subdivision for residential purposes, which will authorize the change of use. According to the White Paper on South African Land Policy (South Africa, Department of Land Affairs, 1997), the Subdivision of Agricultural Land Act (South Africa, 1970) should be replaced with the type of zoning regulations, which can prevent unauthorized loss of precious agricultural land or damage to other natural resource areas. It thus accentuates the principle that zoning regulations should be based on national norms, monitored and enforced at provincial and local level by appropriate government bodies.

E) **Less Formal Township Establishment Act 113 of 1991 (South Africa, 1991a)**

The primary objective of this act is to provide for shortened procedures for the designation, provision and development of, and the establishment of townships, for less formal forms of residential settlement. This Act will thus have a direct influence on especially the development priorities in rural areas.

F) **Development Facilitation Act 67 of 1995 (South Africa, 1995)**

The policy of the state is that “current legislative incoherence must be transformed into an integrated, efficient and equitable planning and development system that establishes a balance between the public interest and private property rights”. As such, the Development Facilitation Act (South Africa, 1995) is seen as a key means of achieving this objective since the Act provides that competent local government bodies may set land development objectives for the area in question. The act has the potential to usher in a new era of principle-led planning by formulating general principles relating to land development have been formulated to promote efficient and integrated land development. The subject matter of the land development objectives includes the sustained utilization of the environment, and the optimum utilization of natural resources.

Local Government is a key role-player in the development process of South Africa. With the local government elections held in December 2000, the transitional phase came to an end so that the local government system currently has the task to operate on a solid basis. A new legal framework, established through the launching of the Municipal Structures Act (South Africa, 1998b) and the Municipal Systems Act (South Africa, 2000) was put in place. As described in Chapter 5 this integrated development and planning (IDP) of the Municipal Systems Act (South Africa, 2000) was made a legal requirement for municipalities. It thus needs to reflect the municipal council’s vision for the long term development of the municipality and should include a spatial development framework for the municipality, subject to section 27 in the Act, which states:

the spatial development framework set out in a municipality’s integrated development plan must relate the development priorities and objectives to different geographic areas of the municipality, and indicate how the various development strategies will be coordinated in relation to, and impact on, those different geographic areas.

It is therefore clear that the spatial development framework, with the IDP, will be a legally binding document for all land-use management decisions in accordance with the new spatial planning legislation under preparation.

Section 35 of the Act refers to the fact that a district municipality must plan integrated development for the area of the district municipality as a whole but in close consultation with the local municipalities in the area. As mentioned further in this section a municipality must comply with any provincial and national planning legislation promulgated before this Act took effect, to the extent that such legislation is consistent with the planning provisions in the Act.

Section 37 of this Act further refers to the legal consequences of adopting the integrated development plan status by stating:

An integrated development plan adopted by a municipality – is the principle planning instrument which guides and informs all planning and development, and all decisions with regard to planning and development, in the municipal area; and binds all persons except to the extent of any inconsistency between a
municipality’s integrated development plan and national or provincial legislation, in which case such legislation prevails.

A spatial development framework contained in an integrated development plan prevails over a plan as defined in section 1 of the Physical Planning Act (South Africa, 1991b).

H) **Land Use Management Bill of 2001 (South Africa, Department of Land Affairs, 2001)**

The Minister of Land Affairs, as the minister responsible for land, proposed to introduce new legislation to parliament that will provide a uniform, effective and efficient framework for spatial planning and land use management in both urban and rural contexts. The most dramatic effect of the White Paper is that it will rationalize the existing plethora of planning laws into one national system that will be applicable in each province in order to achieve the national objective of wise land use.

The basis of the system will be principles and norms aimed at achieving sustainability, equality, efficiency, fairness and good governance in spatial planning and land use management. The decisions of planning authorities, whether related to the formulation of plans such as IDPs or the consideration of land development applications such as rezoning, must all be consistent with these principles and norms. An authority’s failure to affect this will enable the Minister to intervene in the decision either by requiring that it is reconsidered or, in extreme cases, taking the decision by him or herself.

Section 16 of this Bill specifically makes reference to Spatial Development Frameworks, thus linking this Bill directly to the Municipal Systems Act (South Africa, 2000) by ensuring that the Spatial Development Frameworks of the Integrated development plans of the municipalities be consistent with

a) the directive principles,

b) any national land use framework applicable in the area of the municipality, and

c) any national and provincial plans and planning legislation.

The Spatial Development Framework must include:

a) a land use policy;
b) a plan visually indicating, or where appropriate describing, the desired spatial form of the municipal area;

c) basic guidelines for a land use management system in the municipal area;

d) a capital expenditure framework for the municipality’s development programmes;

and

e) a strategic assessment of the environmental impact of the spatial development framework.

Section 24 of the above mentioned Bill states that “a land use scheme promulgated in terms of section 23, has the force of law and binds the owners of land to which the scheme applies, including any other persons having a right or interest in that land”.

According to the Land Use Management Bill (South Africa, Department of Land Affairs, 2001) the land use regulator will have influence on the change of use of a specific piece of land. Currently the land use regulator is the municipality to which an applicant applies for approval of change in land use.

The opportunity for a biosphere reserve is to take part in the land use committee or land use advisory committee as provided for by Section 40 of this Bill, exists. This will add the necessary expertise that is contained within the biosphere reserve sphere of thinking.


Other legislation that can influence the spatial planning of a biosphere reserve is the proposed provincial Environmental Management Bill (Limpopo Province, Department of Finance and Economic Development, 2002) and the proposed National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002).

The Provincial Member of the Executive Council may by notice in the Provincial Gazette register an area specified in the notice as –

- a biosphere reserve, taking into account the criteria set out in item 4 of Schedule I
(stipulated UNESCO's criteria for establishing a biosphere reserve);

- amend the size or composition of a biosphere reserve; or
- withdraw the registration of a biosphere reserve.

However, due to the national importance of a biosphere reserve, and international agreements between UNESCO and South Africa, biosphere reserves should be directed on national level through appropriate national policies and strategies. It is foreseen that the appropriate Provincial Authorities will mainly be responsible for the application evaluation of a biosphere reserve, monitoring and the alignment of provincial policies and strategies with these of the National Authority.

J) National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002)

The National Department of Environmental Affairs and Tourism started to redefine the protected area categories that have been used to proclaim protected areas. “Buffer zone” areas can also receive protection status under this new Bill. This Bill will therefore have a direct influence on the protected area status of the core and buffer zone areas in a biosphere reserve.

It is believed that the core areas within the Waterberg Biosphere Reserve need to be re-assessed according to the new classification of protected areas as set out in the new Bill.

The fact that a biosphere reserve represents such a large area, which includes not only state land but also private land and communal owned land, makes it difficult to proclaim the whole area under one protected area category. However, the Bill makes provision for landowners who participate in conservation related activities, to proclaim their properties accordingly. The new Bill makes provision for the Minister or provincial MEC to declare an area a “protected environment”. An area can be declared as a protected environment or as part of an existing protected environment for any of the following reasons:

a) to regulate the area as a buffer zone for a special nature reserve, national park or nature reserve in order to prevent undesirable development;
b) to enable owners of land to take collective action to conserve biodiversity on their land and seek legal recognition therefore;

c) to protect a specific ecosystem outside of a special nature reserve, national park or nature reserve;

d) to protect the area if the area is sensitive to development
   i. due to its biological diversity;
   ii. due to its natural characteristics;
   iii. due to its scientific, cultural, historical or archeological value; or
   iv. for aesthetic reasons;

e) to ensure the sustainable use of natural resources in the area; or

f) to limit land use in the area if the area is earmarked for declaration as or inclusion in a national park or nature reserve.

The buffer zone area within the Waterberg Biosphere Reserve could, therefore, receive protection status under this legislation.

K) White Paper on South Africa's Land Policy (South Africa, Department of Land Affairs, 1997)

Land is an important and sensitive issue to all South Africans because it is a finite resource which binds all the people together. One of the aspects the policy deals with is a system of land management which will support sustainable land use patterns and rapid land and registering rights in property, establish broad norms and guidelines for land use planning, effectively manage public land and develop a responsive, client-friendly land administration service. This policy will, therefore, directly influence biosphere reserve policies and management plans.
LAND USE MANAGEMENT BILL
(Set National Spatial Framework and land use management principles)

PROVINCIAL ENVIRONMENTAL MANAGEMENT BILL
(Monitor and regulate biosphere reserves)

MUNICIPAL SYSTEMS ACT
(Set Spatial development framework and an Integrated Development Plan for Municipal area)

BIOSPHERE RESERVE
Influencing spatial zonation of the biosphere reserve and land use development objectives in the area

NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREA BILL
(Proclamation and declaration of core and buffer areas in a biosphere reserve)

National

Provincial

Local and District (Municipality)

Figure 11: Legislation that will directly influence the spatial zonation and land use management in biosphere reserves.

5.3 AUTHORITIES RESPONSIBLE

A number of organs of the state are responsible for the administration of environmental legislation (Table 4). Throughout the world, environmental legislation largely depends for its effectiveness on the authorization, permitting or licensing of persons to carry out certain activities (Kidd, 1997).

There are a number of different ways in which the state can ensure that individuals comply with legislative control provisions. Models that are used are the so-called “command and control” or the “self regulation”. “Command and control” refers to a system where the authorities strictly monitor whether the law is being followed and where offenders are prosecuted, by applying criminal law. “Self regulation”, on the other
hand, would typically involve a situation where individuals monitor their own operations and submit to the authorities periodic audit results in which their environmental performance set out (Kidd, 1997).

Both these models are applicable to a biosphere reserve. Due to the distinct zones and associated functions within a biosphere, internal monitoring and evaluation criteria need to be set. In addition, a biosphere reserve’s performance in regard to the implementation of these functions will have to be evaluated by the authorities responsible for the Man and Biosphere (MaB) programme which, in this case, is the National Department of Environmental Affairs and Tourism and the provincial department responsible for Environmental Affairs.

For biosphere reserve structures that would be responsible for "self regulation", the implementation of the ISO (International Organization for Standardization) 14001 is proposed. This will assist the various roleplayers within a biosphere reserve to monitor their own environmental performance that will ultimately link up with the requirements of the National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002).

To summarize, this chapter has stressed the importance of clear role clarification and division of responsibilities amongst all the authorities involved in pertaining the protection of the biosphere reserve. With the diversification of functions and responsibilities within a biosphere reserve, proper coordination amongst all involved is of the utmost importance.

If biosphere reserves with international status are incorporated in the proposed National Land Use Management Bill (South Africa, Department of Land Affairs, 2001) and the spatial frameworks of the local Municipal IDPs, biosphere reserves will have appropriate legal protection. The new National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002) could provide the necessary policy and guidelines pertaining to the management of biosphere reserves.
Table 4 illustrates the responsibilities of the different authorities according to the current legislation.

**Table 4:** A summary of the responsibilities of the different spheres of government and the biosphere reserve management committee according to the current legislative framework.

<table>
<thead>
<tr>
<th>AUTHORITY</th>
<th>RESPONSIBILITY</th>
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| National Government level        | • Set policy and legal framework to regulate the Man and Biosphere programme in SA.  
                                         • Set a National Spatial Framework for land use management.  
                                         • Develop guidelines to include biosphere reserves in national conservation and development strategies.  
                                         • Establish links with international recognized biosphere reserves.                                                                                                                                                                                                                     |
| Provincial Government level      | • Monitor and evaluate the implementation of the Man and Biosphere programme at provincial level.  
                                         • Develop links between provincial biosphere reserves.  
                                         • Include biosphere reserves in the provincial conservation and development strategies of the Province.  
                                         • Align provincial policies and strategies pertaining biosphere reserves with those of national authorities.                                                                                                                                                               |
| Local Government level (Municipalities) | • Set spatial frameworks and land use planning and development objectives for the municipality.  
                                         • Incorporate biosphere reserve as a land use model for the promotion of sustainable development within the municipality.  
                                         • According to legislation – municipalities need to serve as the local land use regulator, using its IDP as guiding document.                                                                                                                                                                           |
| Biosphere Reserve level          | • Implement and manage the biosphere reserve concept as set by MaB’s principles and guidelines.  
                                         • Ensure continuation of stakeholder participation, consultation and liaison.  
                                         • Maintain the biosphere reserve coordinating/management committee.  
                                         • Set "self regulatory" guidelines and programmes to ensure effectiveness and ownership of the programme.                                                                                                                                                                                                         |
CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

The Waterberg Biosphere Reserve complies with the criteria set out in the Statutory Framework for Biosphere Reserves and, therefore, received international recognition from UNESCO in 2001. After re-applying the criteria and adding new information obtained during the study period, the study concludes that the Waterberg Biosphere Reserve has unique conservation features with a rural community component that enhances the tourism development objectives of the biosphere reserve. The biosphere reserve concept further provides a land use zonation model that integrates the conservation of the environment with the development plans of the Waterberg District area.

The Waterberg Biosphere Reserve is currently 417 406 hectares in size. It is mainly vast open spaces due to the dominant land use of conservation and wildlife related activities. Apart from the above, the study identified the following unique characteristics within the Waterberg Biosphere Reserve:

a) The mountainous area forms a large plateau with steep escarpments to the south and east that are characterised by beautiful sandstone cliffs.

b) The biosphere reserve area is rich in various forms of water features from which the Waterberg derived its name while the numerous wetland habitats within the area make it an important priority for wetland conservation, currently a national conservation priority.

c) Centrally on the highest parts of the Waterberg, the most threatened veld type in the Limpopo Province, namely the North-eastern Mountain Sourveld, occurs.

d) The diverse habitat types of the plateaus, valleys, cliffs, and slopes make the Waterberg home to a wide variety of plant and animal species. Although it is a relatively under-researched area and available data had not yet been co-ordinated, more and more researched is being initiated. It is believed that the study of Henning (2002) will contribute towards a more common approach in synthesising an understanding of the vegetation of the Waterberg.
e) The history of the human occupation and land use changes in the Waterberg since the twentieth century contributes significantly to its uniqueness. The fascinating history of the Waterberg is gradually uncovered through archaeological surveys and recent discoveries of numerous rock art paintings occurring in the biosphere reserve.

f) The Waterberg Biosphere Reserve Management Committee that was recently established serves as an important tool to improve the coordination of conservation and development planning activities. This is possible due to the partnerships created between government, private landowners, community structures, and non-governmental organizations, which are all members of the Waterberg Biosphere Reserve Management Committee.

The land use assessment conducted during the study for the zonation of the Waterberg Biosphere Reserve highlights the spatial configuration of the current land use patterns in the Waterberg. Maps were drawn up to visually illustrate these land use dynamics in the biosphere reserve and larger Waterberg area. It was established that 67% of the landowners within the buffer zone of the Waterberg Biosphere Reserve, had changed land use to game farming over a period of ten years and that 37% of the landowners had indicated that they had recently expanded their properties. Within the transitional zone of the Waterberg Biosphere Reserve, the main land use activities identified were game farming, tourism and agriculture. No major developments, such as mining, currently occur in the zoned biosphere reserve area, although they do occur on the periphery of the Waterberg Biosphere Reserve boundary.

Moreover, the Waterberg Biosphere Reserve forms a clear wilderness area in the centre of the Waterberg District while the majority of the current activities and land uses in the Waterberg Biosphere Reserve area are nature orientated. These activities include ecotourism related activities, game farming, hunting and conservation projects. Tourist facilities within the core and buffer zones focus on bush camps that are usually low impact developments.
The study further clearly identified ecotourism as the main economic activity within the core and buffer zones of the Waterberg Biosphere Reserve. The core and buffer zones of the Waterberg Biosphere Reserve represent 267 406 hectares of land with a total number of 1 443 tourist beds. This represents an average of 1 bed/185 hectares which indicates a relatively low tourist carrying capacity if one compares it with one of the more highly visited tourist operations in the buffer that caters for 1 bed/ 0.9 hectares. There are currently 1 245 people employed (within the tourism and conservation fields) in the core and buffer zones of the Waterberg Biosphere Reserve.

In addition, the study concludes that the Waterberg Biosphere Reserve provides an ideal site to develop a community ecotourism project in the form of the Moepel/Masebe core area in the Limpopo Province. Limited opportunities exist where rural communities can obtain ownership of such a large area (33 000 hectares) of land earmarked for ecotourism development. A community ecotourism project of this size, its strategic location within an existing tourism industry and its association with the Waterberg Biosphere Reserve, makes it an ideal opportunity to create sustainable economic opportunities in the poorer parts of the Waterberg Biosphere Reserve. The Moepel/Masebe community ecotourism project is furthermore a vital link for developing the region for culture tourism due to the rich cultural history of the area and numerous archaeological sites which occur in the area. The project could also assist the land reform process by giving the communities total land ownership and full partnership in the ecotourism project.

The above mentioned characteristics thus make the Waterberg Biosphere Reserve an ideal ecotourism destination according to the definition for ecotourism formulated by the United Nations Environment Programme and the International Ecotourism Society (Wood, 2002).

In comparing the characteristics of an eco-destination as defined by the UNEP (Wood, 2002) and the criteria according to the Seville Strategy to comply with in designating a biosphere reserve (UNESCO, 2002), the following comparisons between the above were summarised as follows:

- The natural features and the human dimensions of an area must be integrated.
• The protection of the unique features of an area must be evident.
• Sustainable development must be promoted.
• Logistic support is needed to enhance and promote the sense of place and quality services.
• Proper zonation plans must be in place for all types of development.
• Stakeholder involvement and community empowerment are essential.
• Long and medium action plans must be in place to be monitored and assessed regularly.

Through identifying these comparisons, it became clear that the biosphere reserve model can be used in the Waterberg as a successful tool for defining and protecting the Waterberg area as an important eco-destination.

To ensure that the Waterberg Biosphere Reserve can serve as a land use model to protect the Waterberg as a unique eco-destination for future generations, the study furthermore assessed appropriate legislation that could enforce such protection. Since without the necessary legislative tools, the future existence of a specific land use that needs to be protected, is in danger. This can especially be seen in the last years where uncontrolled and unauthorised development projects have been constructed to fulfil the economic development objectives without an approved land use development framework. Biosphere Reserves as a unique protected area category are not yet protected through legislation. However, provision has been made in the proposed National Environmental Management: Protected Area Bill (South Africa, Department of Environmental Affairs and Tourism, 2002) for declaring an area a protected environment to regulate the area as a buffer zone for a special nature reserve, national park or nature reserve in order to prevent undesirable development. This legislation will, therefore, assist in protecting the current core and buffer zone areas within a biosphere reserve.

Apart from stressing the validity of the above mentioned legislation, the study concludes that the Municipal Systems Act (South Africa, 2000) and the Land Use Management Bill (South Africa, Department of Land Affairs, 2001), would form the main legislative framework to protect the spatial land use pattern of the area, thereby
directly protecting the biosphere reserve's land use zonation pattern if included within
the integrated development plan (IDP) of the Waterberg District municipality. The
most important aspect of the Municipal Systems Act (South Africa, 2000) from a
spatial planning point of view is the requirement that all local authorities in South
Africa have to do future planning. Statutory provision is, therefore, made in the Act
for the compilation of an integrated development plan since such an integrated
development plan has to include a component on the compilation of a spatial
development framework and land use management system for the local municipal
area.

Once promulgated, the Land Use Management Bill (South Africa, Department of
Land Affairs, 2001) will repeal and replace most of the planning related laws and
regulations dealing with spatial planning since the main objective of the Bill was to
lay down basic principles that would guide spatial planning, land use management
and land development in South Africa. Another important objective is the adoption of
a municipal spatial development framework and land use schemes for municipal areas
to provide the necessary guidelines for decision-making by the local municipalities
that are the current land use regulators.

The biosphere reserve model also serves as an ideal tool for implementing a “self
regulating” mechanism as discussed in the study. This mechanism encourages
landowners to participate in conservation related programmes according to certain
standards that can be beneficial to them as land owners as well as to the biosphere
reserve as a whole.

It is within this context that the study concludes that the future protection of the
Waterberg Biosphere Reserve's zonation pattern and its natural and cultural resources
will mainly depend on the regulatory authority, currently the local municipality, and a
“self-regulatory” mechanism within the biosphere reserve which will encourage
sound land use management practices.

With all the information assimilated, assessed and processed during the study, it is
clear that this study can contribute to the spatial development framework of the
Waterberg District Municipality that has not yet been finalised. It is, moreover,
undeniable that the Waterberg Biosphere Reserve as a land use model can be used as a tool to assist the Waterberg Municipality in protecting and developing its own unique eco-destination for the future.

For those striving to test and implement the biosphere reserve concept at a concrete field level, the whole process is one of continuing education, learning and patience, especially when establishing a biosphere reserve within an environment that has the following constraints:

   a) the Biosphere Reserve concept was generally unknown;
   b) two different worlds of society (which had previously hardly communicated with each other) needed to solve problems and implement projects together;
   c) local government structures had not been set up and lacked the capacity to assist in these development processes; and
   d) where appropriate legislation that should have served as important policy and guidelines pertaining to spatial land use planning, were non-existent.

Despite all these constraints, the Waterberg Biosphere Reserve had for six years survived these debilitating factors. Under the leadership of an active management committee, mainly driven by private sector and community leaders with the support of government since 1996, and the findings and recommendations of this study, the Waterberg Biosphere Reserve can undoubtedly serve as an ideal land use model for ecotourism development that can be incorporated into the IDP of the Waterberg District of the Limpopo Province.
RECOMMENDATIONS

Within the context of this study the following immediate challenges exist in the Waterberg Biosphere Reserve:

- The Waterberg Biosphere Reserve Management Committee needs to pioneer an incentive approach for private landowners involved with conservation related programmes on their properties that is more effective and financially efficient. This will ensure an ongoing cohesive support for the biosphere reserve concept of all the relevant stakeholders in the Waterberg Biosphere Reserve.

- Clear role identification between the different stakeholders must be set, especially taking cognisance of the applicable legislation and policies on local, provincial and national level. This will ensure continued involvement of all the relevant stakeholders.

- Ensure that the land use zonation pattern of the Waterberg Biosphere Reserve be adopted as part of the District Municipality’s Spatial Development Framework. Only through this action can the Waterberg Biosphere Reserve currently be protected.

- The Moepel/Masebe ecotourism project must be implemented as an economically sustainable project of which the local communities are the main beneficiaries. This will not only enhance the local community’s involvement in the tourism industry but will support the land reform process in a practical way.

- Obtain financial support to ensure the long term logistic support needed to implement and coordinate all the efforts of the Waterberg Biosphere Reserve. Fulltime “champions” or leaders will ensure commitment and proper management.

- Encourage the relevant government departments to finalise the necessary legislative framework in which biosphere reserves, within a South African context, can be designated, protected and managed.
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MAPS

MAP 1
Illustration of the tourism vision (The Golden Horseshoe) of the Limpopo Province

MAP 2
Location of the Waterberg District Municipality within the Limpopo Province

MAP 3
Exemption farms and protected areas within the Limpopo Province

MAP 4
The current land use pattern in the Waterberg district area

MAP 5
Location map of the Waterberg Biosphere Reserve

MAP 6
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MAP 7
Moepel Masebe Community Ecotourism development area

MAP 8
Acoks Veld types
Map 1: Illustration of the tourism vision (The Golden Horseshoe) of the Limpopo Province
Map 2: Location of the Waterberg District Municipality within the Limpopo Province
Map 3. Exemption farms and Protected areas within the Limpopo Province

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Map 5: Location map of the Waterberg Biosphere Reserve.