

KALAHARI GEMSBOK

NATIONAL PARK

MARCH 2008

PARK MANAGEMENT PLAN



South African National Parks would like to thank everybody who participated and had input in the formulation of this document.



AUTHORISATION

This management plan is hereby internally accepted and authorised as the legal requirement for managing Kalahari Gemsbok National Park as stated in the Protected Areas Act.

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EXECUTIVE SUMMARY

The Kalahari Gemsbok National Park (KGNP) is an integral part of the Kgalagadi Transfrontier Park which together with the neighboring wild life management areas in Botswana forms one of the largest contiguous conservation areas in the world. Its major biodiversity characteristics are a large herbivore migratory and nomadic arid ecosystem, which supports a fully functional large carnivore predator/prey system and an important refuge for a large raptor community. It is also an important cultural heritage area for the Khomani-San people. The area is characterized by a striking landscape of wide vistas, attractive red sand dunes, large camelthorn trees and a dessert bloom.

The KGNP is situated in the Northern Cape Province, between Namibia and Botswana in an area characterized by sparse populations of people and long distances for infrastructural lines of support. There is a high level of poverty in the surrounding area, with the main income-generating activities being small-stock herding, craft manufacturing and cultural performances.

The desired state of the Park is based on a mission, vital attributes, objectives and acceptable endpoints all specified in this plan. It is primarily set around the conservation of the unique biodiversity characteristics of the area, with the large herbivore movements and attendant large carnivores as the central components. The use of the provision of water as a management strategy is the most contentious biodiversity issue that needs to be addressed and balanced between biodiversity and tourism interests. The apparent decline in the nomadic species such as springbok and red hartebeest is a concern and needs to be investigated as a matter of urgency. The KGNP is the traditional home of the Khomani San people. The implementation of the cultural heritage plan is therefore also a high priority. Here the joint management as a protected area of the land successfully claimed by the Khomani San and Mier Communities within the park in conjunction with SANParks and the unpacking and implementation of the Ae!Hai Kalahari Heritage

Agreement are the central themes. Tourism is well developed in the KGNP and it will continue to ensure that this park remains a flagship product, which is financially sustainable, and to offer tourists a quality experience. With regard to building cooperation the objectives seek to develop and nurture relationships between Park Management and stakeholders that promote the long-term social sustainability of the park. Collaborating with neighboring communities in the management of problem causing animals that move out of the park is possibly the priority here. Important objectives to ensure effective park management include addressing the situation regarding drinking water at the rest camps and developing the research and inventory and monitoring program to provide information relevant to park management. A preliminary suite of thresholds is presented, for monitoring performance relative to the desired state, but these need to be developed further.

A set of appropriate programs has been set up to achieve the desired state. The strongest emphasis falls on biodiversity and cultural heritage management. However, the tourism program, programs to build cooperation with stakeholders, including environmental education, and to enhance affective park management of which the problem animal program and certain infrastructural development programs are important, as well as programs to enhance corporate support, are presented and discussed.

Finally, generic guidelines for the all-important learning pathways, represented by the various feedbacks in the adaptive management cycle, are presented. These need to be made more explicit for the likely scenarios that could unfold as SANParks manages the KGNP.



OVERVIEW OF THE SANPARKS MANAGEMENT PLANNING PROCESS

Process overview

South African National Parks (SANParks) has adopted an overarching park management strategy that focuses on developing, together with stakeholders, and then managing towards a 'desired state' for a National Park. The setting of a park desired state is done through the adaptive planning process (Rogers 2003). The term 'desired state' is now entrenched in the literature, but it is important to note that this rather refers to a 'desired set of varying conditions' rather than a static state. This is reinforced in the SANParks biodiversity values (SANParks 2006) which accept that change in a system is ongoing and desirable. Importantly, a desired state for a park is also not based on a static vision, but rather seeks refinement through ongoing learning and continuous reflection and appropriate adaptation through explicit adoption of the Strategic Adaptive Management approach.

The 'desired state' of a park is the parks' longer-term vision (30-50 years) translated into sensible and appropriate objectives through broad statements of desired outcomes. These objectives are derived from a park's key attributes, opportunities and threats and are informed by the context (international, national and local) which jointly determine and inform management strategies, programmes and projects. Objectives for national parks were further developed by aligning with SANParks corporate strategic objectives, but defining them in a local context in conjunction with key stakeholders. These

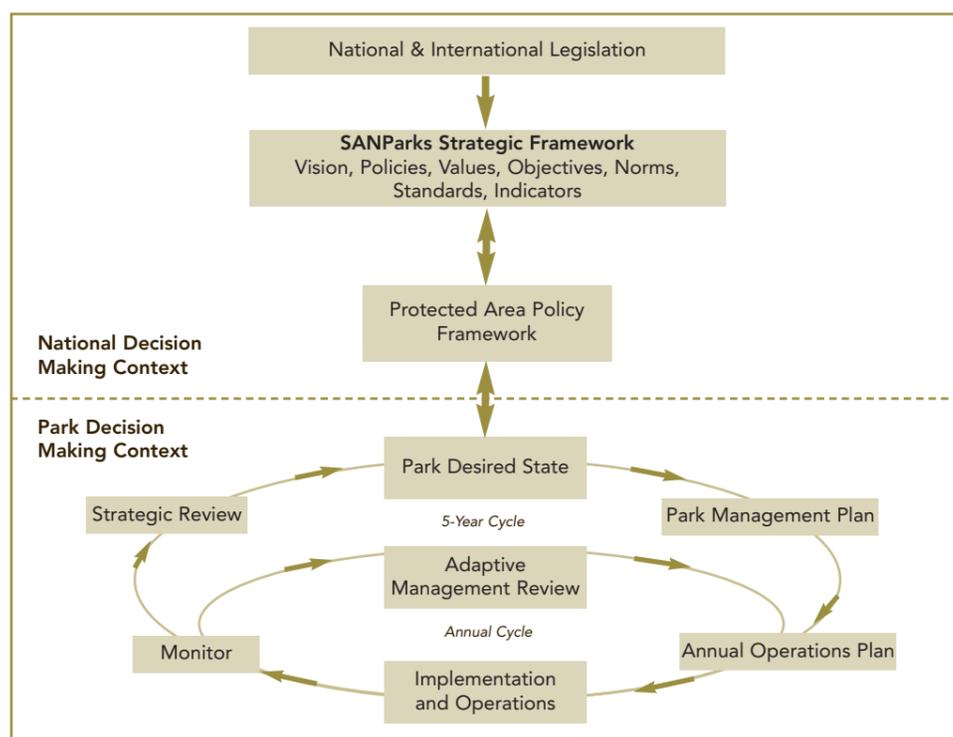


Figure 1: Protected Areas planning framework

objectives are clustered or grouped into an objectives hierarchy that provides the framework for the Park Management Plan. Within this document only the higher level objectives are presented. However, more detailed objectives, down to the level of operational goals, have been (or where necessary are currently being) further developed in conjunction with key stakeholders and specialists.

This approach to the management of a National Park is in line with the requirements of the National Environment Management: Protected Areas Act No. 57 of 2003 (NEM: PAA). Overall the Park Management Plan forms part of a National Planning framework for protected areas as outlined in the figure on the left.

Park Management Plans were not formulated in isolation of National legislation and policies. Management plans comply with related national legislation such as the National Environmental Management: Biodiversity Act, national SANParks policy and international conventions that have been signed and ratified by the South African Government.

Coordinated Policy Framework Governing Park Management Plans

The SANParks Coordinated Policy Framework provides the overall framework to which all Park Management Plans align. This policy sets out the ecological, economic, technological, social and political environments of national parks at the highest level. In accordance with the NEM: Protected Areas Act, the Coordinated Policy Framework is open to regular review by the public to ensure that it continues to reflect the organisation's mandate, current societal values and new scientific knowledge with respect to protected area management. This document is available on the SANParks website.

Key functions of Park Management Plans

The key functions of this management plan are to:

- ensure that the Park is managed according to the reason it was declared;
- be a tool to guide management of a protected area at all levels, from the basic operational level to the Minister of Environmental Affairs and Tourism;
- be a tool which enables the evaluation of progress against set objectives;
- be a document which can be used to set up key performance indicators for Park staff;
- set the intent of the Park, and provide explicit evidence for the financial support required for the Park.

This Management Plan for Kalahari Gemsbok National Park comprises four broad sections:

1. The background to and outline of the desired state of the Park and how this was determined.
2. A summary of the management strategies, programmes and projects that are required to move towards achieving the desired state (obviously these strategies, programmes and projects can extend over many years but here we present the management focus until 2010).
3. An outline of the Strategic Adaptive Management methodology and strategies that will ensure that the Park undertakes an adaptive approach to management. It focuses park management on those critical strategic issues, their prioritisation, operationalisation and integration, and reflection on achievements to ensure that the longer-term desired state is reached.
4. Presentation of a high level budget.



INTRODUCTION

1. BACKGROUND TO AND FORMULATION OF THE PARK DESIRED STATE

This section deals with the setting of a park desired state from the general to the specific through the adaptive planning process (Rogers 2003), focusing on unique attributes of the South African side of the Kalahari Gemsbok National Park (KGNP). Although now entrenched in the literature, the “state” in desired state in no way implies a static state, but rather refers to a “desired set of varying conditions” – in fact SANParks biodiversity values (SANParks 2006) accept that change in a system is ongoing.

1.1 The fundamental decision-making environment

The three pillars of the decision-making environment are the mission statement, the context and the values and operating principles. As the KGNP is an integral part of the much larger KTP and has in ecological terms been so for over 50 years, the process through which the mission has been developed and much of the supporting material which helped form it captured under other headings further down in the document are nested in the KGNP management plan (SANParks & DWNP 2003). Certain in-house revisions were subsequently made to the detail of biodiversity objectives, in the light of the recent appearance of biodiversity values in SANParks and full biodiversity custodianship framework (SANParks 2006). These will be presented as part of an integrated proposal of the management plan at a public meeting held in terms of the Protected Areas Act on 17 August 2006.

1.1.1 Mission

The Kalahari Gemsbok National Park, as an integral part of the Kgalagadi Transfrontier Park, will be managed by SANParks to maintain and/or recreate the ecological processes, faunal and floral assemblages, landscape characteristics and cultural resources representative of the area, to foster international co-operation through a transfrontier conservation area, and offer long-term benefit to the people of the area.

The explicit inclusion of the fact that the KGNP is an integral part of the KTP signifies the central importance of this relationship and underlies the predominant value of the park. However, there are also unique and important cultural heritage attributes with the Khomani-San and Mier Community that need concerted attention. These should not oppose the biodiversity attributes, so that the cornerstones of the mission statement (namely maintenance of ecological and cultural attributes, transfrontier co-operation, and human benefits) can be effectively supported in an integrated way.

1.1.2 Context

1.1.2.1 Location and Boundaries

The KGNP is situated in the Northern Cape Province from approximately 22° 10” east, 20° 0” west, 24° 6” north and 26° 28” south. The western border is the international boundary with Namibia and the eastern border along the Nossob River is the international border with Botswana, where it adjoins the Botswana section of the KTP (Appendix 2 Map 1).

Points of entry (and number) into the KGNP have been classified as: Tourist Access Facilities (1), Entrance Gates (2) and Border Posts (2). Each type of park entry point has its own specific management guidelines. The KTP has 5 pay points (KAA, Mabuasehube, Two Rivers, Twee Rivieren and Mata Mata).

The headquarters of the KGNP are at Twee Rivieren at the southern entrance. The closest town is Askham (72 km from Twee Rivieren), but Upington (260 km from Twee Rivieren) is the real source of goods and services for the park. The KTP has been *de facto* in existence since 1948 through a verbal agreement between the South African and Botswana conservation authorities. In recognition of the arrangement no barrier to wildlife movement existed along the international boundary separating the 9 591 km² KGNP in the Republic of South Africa from the 28 400 km² Gemsbok National Park in Botswana. The park manager and some of the rangers of the KGNP have been *ex officio* honorary game wardens in Botswana since 1964. The area, which measures 37256km², represents a large ecosystem relatively free of human influence – an increasingly rare phenomenon in the world.

Twee Rivieren reception operates from 07:30 until half an hour after gate closing time and is the southern entry into the park on the South African side. The Mata Mata Access Facility on the western border between South Africa and Namibia operate from 07:30 until 17:30 all year around. All vehicles except commercial traffic are allowed. The southern entry to the park on the Botswana side is at Two Rivers for all vehicles. Mabuasehube on the eastern boundary of Botswana is 4x4 vehicle access only. The Kaa gate in Botswana operates on the north-easterly side of the park.

Gate times for Botswana reception and to enter the KTP wilderness area is:

January & February	06:00 until 19:30
March	06:30 until 19:00
April	07:00 until 18:30
May	07:00 until 18:00
June & July	07:30 until 18:00
August	07:00 until 18:30
September	06:30 until 18:30
October	06:00 until 19:00
November & December	05:30 until 19:30

Border control and immigration and SAPS are present at the Twee Rivieren/Two Rivers border posts. SAPS are present at the

Mata Mata Access facility on South African side. At Kaa and Mabuasehube only Botswana reception officials are present. Immigration services at Twee Rivieren are only available until 16:00 in the afternoons.

An unregistered airstrip is present at Twee Rivieren. Only light aircraft weighing less than 2600kg and not seating more than six people are permitted. The operating hours are between 08:00 and 17:00. It is essential that all use of the airstrip be pre-arranged and approved by Management.

1.1.2.2 History

Before White settlements or exploitation, the area now included in the KGNP was part of the San people’s domain for hunting and gathering food. For years, no government claimed the land and the San were the only people residing here. Eventually the land became attached to the Cape Colony. The government, from 1897, began to survey the land and subdividing it into farms for White settlers. However, the White settlers were slow to take advantage of the newly surveyed farms and the Cape Government decided to give them to Coloured (“Basters”) farmers instead.

With the outbreak of World War 1 in 1914, the Union of South Africa Government drilled a series of boreholes along the Auob River bed in case of an invasion of South West Africa. Guards were recruited from the local community to protect and maintain the boreholes. They were permitted to settle next to the holes with their families and livestock. This corridor was never used to invade South West Africa and the borehole guards stayed on, largely forgotten by the authorities. Instead, the Government appointed a land surveyor to survey the area and divide it into farms. About this time the Government decided that Coloured people should rather settle the region. The British Government, then already in control of Bechuanaland, had already settled Coloured people on the east bank of the Nossob between Rooiputs and its confluence with the Auob River.

Biltong hunters penetrated the area and by the late 1920s game numbers had deteriorated. Accordingly in 1931 the area between the Nossob and Auob rivers and the SWA Border was proclaimed a national park. Land was purchased south of the Park to resettle “Coloured” people and the borehole structures were abandoned.

The first warden of the park with one assistant became involved in the protection of wildlife in the area. In 1934 they both died from malaria after the park experienced an exceptional rainy season, His successor, Joep le Riche, stayed in the post for 36 years. He re-commissioned the old boreholes in the riverbeds in order to “persuade” the animals to remain in the Park instead of leaving the unfenced boundaries where they were poached.

In 1938 the British Government proclaimed a new game reserve across the Nossob in Bechuanaland (Botswana). After World War II, game fences were erected along the Kalahari Gemsbok



Park's western and southern boundaries. The eastern boundary remained unfenced leaving this border open to animals that needed to migrate from east to west. In Botswana Mabuasehube Game Reserve was added in 1971 and was incorporated into Gemsbok National Park in 1992.

On 7 April 1999 the respective presidents signed a treaty that would link the Gemsbok National Park and the Kalahari Gemsbok National Park under one unifying name – The KTP. It was officially opened on 12 May 2000 as the first formally declared transfrontier park in Africa.

In March 1999, the Khomani San community of some 300 people won a land claim over 25 000ha of the KGNP with the proviso that joint management, between the Khomani San and SANParks, of a continuing protected area would occur. The Khomani intend using this restitution to recapture their language and culture and reconstruct their identity. The Mier Community's land claim of land adjacent to the Khomani San land claim, was also successfully claimed in 1999 and settled with the same proviso of joint management as a protected area. A joint Management Board with representation by the Mier community (3-5 members), Khomani San (3-5 members) and SANParks (3-5 members) oversee the implementation of the *Management Plan* for the relevant area.

1.1.2.3 Physical environment and land use

The Kalahari is a large sand filled basin in the west of the southern African subcontinent, covering nearly one third of the area and forming what is probably the largest sand-veld area in the world. It stretches from 1°S in the Democratic Republic of the Congo to the Orange River in the south (29°C) and from 14°E in Angola to 28°E in Zimbabwe. The KGNP is situated in the arid to semi-arid southern Kalahari region. The annual rainfall increases from 150 mm in the south-west of the KGNP to 350 - 400 mm in the north-east. Annual rainfall has a high coefficient of variation and the rain often falls as short-duration, high-intensity, thunderstorms. The relative humidity is low and the annual evaporation rate is high. Summer air temperatures are high (over 35°C) although, in winter it often falls to below freezing at night.

The sands are predominantly of aeolian origin, emanating from within the basin itself. In the drier south-west the sands are piled into vegetated linear or seif dunes. They break down into a more gentle undulating terrain about 40 km east of the Nossob River. Immediately beneath the sand lies a vast sheet of calcareous or silicified sand or sandstone which contains grits and minor conglomerates. The soils can be divided into sandy and fine soils. The sandy soils can be subdivided into red, pink and white sands and the fine soils into alluvial, river and pan soils. The red soils are notably infertile with low levels of phosphate, magnesium, potassium, sodium and carbon, and when less than 2 m deep an incapacity to hold water. The yellow soils of the pans and river beds have higher clay components, and are less permeable to

water. The variability in fertility and water holding capacity between the two major soil types has a direct effect on the vegetation and hence animal utilization.

The southern Kalahari lies at about 900 m above sea level with a gentle south westerly slope. The area is drained by the Nossob, Auob, Molopo and Kuruman Rivers. Both the Nossob and Auob Rivers have their sources in the Anas Mountains near Windhoek, Namibia. They flow south east joining 6 km north of Twee Rivieren and continue on as the Nossob to the Molopo and Kuruman Rivers outside the park 60 km to the south, which flow in from the east. There they become the Molopo River continuing to flow south towards the Orange River. At Noenieput sand dunes have blocked its course for at least the last 1000 years. The rivers are predominantly dry, only flowing for short periods after abnormally high rainfall.

The Auob and Nossob rivers differ in that the Auob cuts a steep sided, narrow valley (100-500 m wide) through the calcrete along its entire course, while the Nossob flows in a shallow, sandy trough until it cuts through the calcrete near Kameelsleep windmill south of which it continues in a similar form to the Auob. A characteristic of the Kalahari is the number of large shallow depressions or pans, which hold water periodically during the wet season. The riverbeds have many features in common with the pan ecosystems, but their differences are significant enough for them to be placed in separate habitat categories. The most important and fundamental difference between rivers and the pans is that the rivers have open drainage as opposed to the endorheic drainage of the pans. Although the pans and rivers are normally dry they have many features not found in the sand-veld, and so form important subsystems in the overall ecosystem.

Within the predominantly sandy southern Kalahari the availability of natural supplies of drinking water is strictly seasonal, being restricted to the harder bottomed pans and fossil riverbeds for short periods during the rainy season. In historical times the region was generally devoid of water in the dry season. The indigenous wildlife had to either move to permanent sources of drinking water or use alternative sources such as underground storage organs or melons. Increasing human settlement around the periphery of the park interferes with the natural movement

patterns of wild life. It was believed that this interference prevented access to permanent natural water sources and, to compensate, artificial water points, fed from boreholes, was introduced. To date 88 boreholes have been erected within the KGNP predominantly along the riverbeds.

1.1.2.4 Biological environment

The whole area of the KTP is fairly homogenous and can broadly be classified as a bioregion characterized by *Acacia erioloba*, *Rhigozum trichotomum* and *Schmidtia kalihariensis*. However, the area can be divided into dunes, sandy plains and valleys on red to pinkish sand with *Stipagrostis amabilis*, *Centropodia glauca* and *Acanthosicyos naudinianus* the diagnostic species, and rivers and pans (including terraces and calcrete outcrops) on whitish, compact calcareous sand and clay, with *Leucosphaeria bainesii*, *Enneapogon desvauxii*, *Eragrostis truncata* and *Chloris virgata* the diagnostic species.

The dunes, sandy plains and valleys are divided into the Gemsbok National Park (Botswana) side characterised by *Acacia luederitzii* and *Cadaba aphylla* and the KGNP (South Africa) side characterized by *Acacia haematoxylon* and *Ipomoea hackeliana*. Although the broad habitat types of the two parks are basically the same, the species characteristic for the Gemsbok National Park and those characteristic for the KGNP, separate the dune veld of the two parks. The difference in the floristic composition is probably the result of the less pronounced dunes and extensive plains of the Gemsbok National Park and the sharp increase in the rainfall gradient to the north-east.

The rivers and pans are divided into rivers characterized by *Panicum coloratum* and *Eragrostis rotifer*, and pans with *Sporobolus rangei* and *Salsola etoshensis* the diagnostic species. Although the dune veld of the KGNP differs floristically and structurally from the Gemsbok National Park, there are more similarities between the communities of rivers and pans on both sides.

The KTP is an important refuge for large raptors and bustards. The introduction of the permanent water supplies within the KGNP has probably also artificially increased the number and species composition of water dependent bird species, such as



doves and sandgrouse species.

Sixty mammal species have been recorded from the KGNP with Rodentia (27%) and Carnivora (33%) the largest families. Ecological conditions dictate that the large herbivores need to be highly mobile giving rise to a nomadic existence for many species. Of the larger herbivorous animals gemsbok, blue wildebeest and ostrich are the more sedentary, whereas springbok, red hartebeest and eland numbers fluctuate widely within the KGNP as they move between it and the Gemsbok National Park. Herbivores tend to concentrate along the riverbeds during the wet season and disperse in the dry season. It is essential for the continued existence of these herbivore populations and their unique ecological relationships with the system for the KGNP to maintain its ecological relationship with the Gemsbok National Park through the joint management of the KTP.

Mammalian carnivores are well represented in the KGNP. Because of its size, habitat and pristine status the KTP is one of the few areas where these species can exist under near natural conditions and exhibit their full range of behavioural and ecological evolutionary adaptations in the purest form of biodiversity conservation. Here again through its incorporation into the KTP, the KGNP plays crucial role in maintaining a natural predator-prey system. Two threatened species, lion and cheetah, and a unique gemsbok hunting spotted hyaena population are important components of this system.

Alien plant threats are generally low but need to be monitored. Although not part of a priority biodiversity area in the recent classification by the South African National Biodiversity Institute, the unique arid region system dynamics, which still exist, need to be conserved. A major reason for this is the large size of the area. In spite of this human pressures and fences have already disturbed the system and may still be having an insidious impact on populations of nomadic species like springbok and red hartebeest. In an attempt to counter these impacts a campaign of water provision through boreholes in the KGNP has been implemented since its inception. Permanent standing water is not a feature of this ecosystem and the impacts of the provision of water need to be better established as do the factors involved in the apparent steady decline of nomadic species.

1.1.2.5 Social, economic and political context

The KGNP is situated in the municipal districts of the Mier Municipality and the Siyanda District Municipality. The Integrated Development Plans of the Mier Municipality describe the KGNP as an important draw-card for tourism in this area. No provincial government planning or development plans currently exists in the Northern Cape that can be taken into account by the park management plan. The area around the KGNP is characterized by sparse populations of people, and long distances for infrastructural lines of support. The nearest large town is Upington. The Khomani San and the Mier are two of communities bordering the park. The Khomani represent the last indigenous South African San. There is a high level of poverty within the group. Their recent history is one of dispossession in terms of land and

access to natural resources, and of disempowerment resulting in the loss of language and culture. Main income-generating activities are small-stock herding for farmers of the Mier community, craft manufacture and cultural performances.

The Mier community consists of six communities of which Rietfontein is the largest. Major employers of the Mier are the government, the local council, local commercial farmers and SANParks. Subsistence livestock farming is also practised. Along the Namibian border and further to the South in South Africa are a number of commercial stock farmers.

1.1.2.6 International and national context

As part of the KTP and extending into neighbouring wild life management areas in Botswana, the KGNP forms part of one of the largest conservation areas in the world of approximately 80

000 km². The name "Kalahari" is also well known internationally, not least because of its association with the San (Bushmen) people. International tourists make up 27% of the park's visitors, showing that the park is important for both international and local tourists. As in all parks, a wide range of national legislation (SANParks 2006) is relevant to the KGNP.

1.1.3 Values and Operating Principles

These primarily follow the generic list of SANParks values (Rogers 2003; SANParks 2006). The SANParks overarching biodiversity values are provided here to stress their relevance:

- We adopt a complex systems view of the world while striving to ensure the natural functioning and long term persistence of the ecosystems under our care.
- Recognising that ecosystems and biodiversity are complex, and that we will seldom have all the information we want to make decisions, we adopt a "learning by doing" approach to their management
- We aim at persistent achievement of biodiversity representivity and complementarity to promote resilience and ensure ecosystem integrity.
- We can intervene in ecosystems responsibly and sustainably, but we focus management on complementing natural processes under a "minimum interference" philosophy.
- We accept with humility the mandate of custodianship of biodiversity for future generations while recognising that both natural and social systems change over time.
- We have mutual respect for cultural, economic and environmental differences within the partnership.
- We have a culture of honesty, cooperative sharing of expertise, and of empowerment and advancement of all parties.
- Clear definition of each stakeholder group's expectations, and how we balance the distribution of costs and benefits, helps us avoid conflict.
- We keep our expectations and the distribution of costs and benefits within the partnership explicit, transparent and within biodiversity constraints.

1.2 Vital attributes underpinning the value proposition of the Park

The following vital attributes have been identified as making this park unique, or at least very special in its class. Each is discussed along with important factors determining/strengthening or threatening/eroding these attributes. Using this information helps focus the exact formulation of park objectives, which must strengthen positive determinants and weaken or remove negative ones, so that objectives are appropriate to the uniqueness and special nature of this national park. In this way the management plan is customized in its fullest local extent, without detracting from some of its more generic functions along with certain other parks. These vital attributes help us develop the real value proposition of the park.

- *An intrinsic part of one of the largest contiguous conservation areas in the world that allows for a fully functioning large predator-prey system*

The KGNP, as part of the KTP and including the neighbouring wild life management areas in Botswana, (the Greater Kgalagadi Conservation Area) is an intrinsic part of one of the largest contiguous conservation areas in the world and is one of the last ecosystems in South Africa that is partially open. As a result it provides a template for a functioning arid region, large herbivore nomadic ecosystem system, once a feature of the vast arid regions of southern Africa and today almost completely non-existent. The associated large carnivore community in this area allows for a fully functioning large predator-prey system to exhibit its full range of ecological, behavioural and evolutionary attributes, including a unique gemsbok hunting spotted hyaena population.

These vital attributes are determined by the particular geographical location of the area. The fact that they are still relevant today is a function of the fact that the area has a low population density because of its remoteness. However, human activity has damaged the system, initially through over hunting, and latterly, through the erection of fences and the sinking of boreholes to accommodate domestic livestock farming. The establishment of the KTP is obviously a vital key to the partial preservation of these ecological systems. The optimum use of artificially provided drinking water for wild life, especially in the KGNP where the program is most intense, and the development of management strategies to limit conflict between wild life and an increasing number of herders and livestock in surrounding areas are the keys to maintaining and even improving these attributes. Ideally, the removal of fences would increase the size of the area and even possibly open up some important habitats to wildlife, but this needs to be balanced with the needs of stock farmers and could only be realized if there was a change in land use policy for areas presently outside the Greater Kgalagadi Conservation Area.

- *Cultural heritage for the Khomani San people*
The KGNP is the traditional home of the Khomani San people. In March 1999, the Khomani San community of some



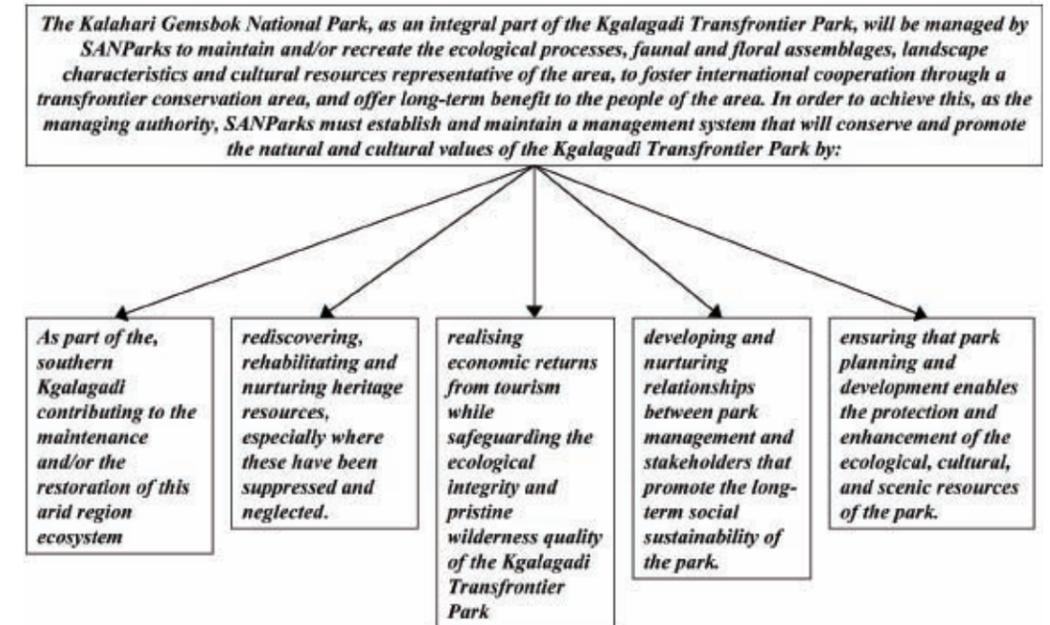
300 people won a land claim over 25 000ha of the KGNP with the proviso that joint management, between the Khomani San and SANParks, of a continuing protected area would occur. The Khomani intend using this restitution to recapture their language and culture and reconstruct their identity. The Mier Community's land claim of land adjacent to the Khomani San land claim, was also successfully claimed in 1999 and settled with the same proviso of joint management as a protected area. The agreement whereby the land restitution claims of the two communities were finalized was reached in 2002 (Anon 2002). A joint Management Board with representation by the Mier community (3-5 members), Khomani San (3-5 members) and SANParks (3- 5 members) oversee the implementation of the *Management Plan* for the relevant area.

- *The above attributes in turn create another key attribute of this park, namely a major opportunity for appreciation and learning*
This is determined by the presence of the landscape and associated wildlife, as well as the cultural attributes, to a potentially willing or receptive audience, some of whom are prepared to visit the park, and by the appropriate ambience and infrastructure we can provide to facilitate this; by attractiveness of and access to the localities or general area; societal attitudes; and by appropriate resourcing to develop facilities. Special stakeholder subgroups are ecological researchers, - whose activities both enhance our ability to manage the area and also, through articles and other publications, to add to the value of the experience of visitors and the public at large by enhancing their understanding of the natural phenomena they experience, and photographers, - as the area provides exceptional opportunities for wildlife photography and filming.
- *Aesthetics/scenery*
This is a major draw card to the area and constitutes a large part of the "macroambience" upon which we can build the biodiversity and cultural attractions. It is determined by a strong wilderness component with wide vistas, attractive red sand dunes, large camelthorn trees and dessert bloom after rain and should not be easily threatened, although the wilderness component must be preserved. We should market the mystique and beauty of the landscape.
- *Remoteness from main centres*
This is a key attribute which needs recognition in that we need to manage both the positive ('wide open spaces far from anywhere' appeal) and negative (ensure reasonable access and market special attractions) aspects of this factor.

1.3 Setting the details of the desired state for KGNP

Using the above mission, context and values, and bearing in mind particularly the vital attributes above, the following set of park objectives has been determined.

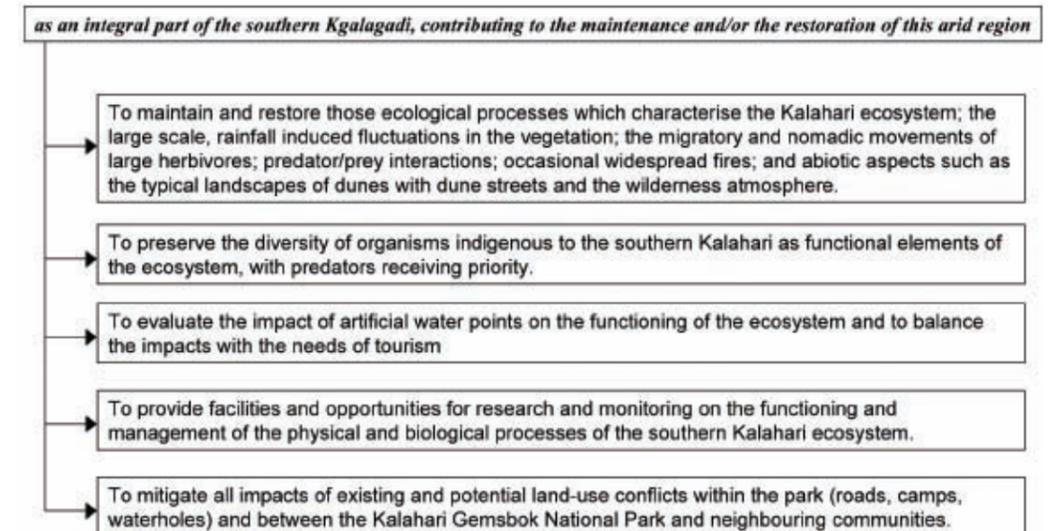
Objective hierarchy for Kalahari Gemsbok National Park



1.3.1 An objectives hierarchy for KGNP

These objectives have been taken to the next level and sub-objectives for each of the five objectives have been developed. Although considerable progress in achieving the sub-objectives has been made, the process of further developing and formalizing these objectives is ongoing.

Sub-objective – Biodiversity





Sub-objective – Cultural heritage

rediscovering, rehabilitating and nurturing heritage resources, especially where these have been suppressed and

- To consider the expression and celebration of the diverse cultures and spiritual significance associated with the park
- To ensure that the permitted managed use of biological resources occurs on a sustainable basis.
- To facilitate the recognition of the cultural linkages of the park with surrounding communities.
- To conserve and restore natural and cultural landscapes and scenic resources of the park.

Sub-objective – Sustainable tourism

realising economic returns from tourism while safeguarding the ecological integrity and pristine wilderness quality of the Kgalagadi Transfrontier Park

- To provide a unique experience and world-class service and facilities to visitors and users of the park.
- To manage visitor access on an equitable basis within the accepted carrying capacity of the park and its facilities.
- To manage visitor activities in order that there is no or minimal impact on the visitor experience, ecological, heritage or scenic resources of the park
- To create effective mechanisms for ongoing marketing and communications of the park.
- To manage concessionaires and commercial tourism operators in the park to ensure that ecological, cultural and scenic resources and visitor experience are maintained and enhanced.

developing and nurturing relationships between Park Management and stakeholders that promote the long-term social sustainability of the park

- To realize opportunities for, and equitable distribution of, benefits to surrounding communities.
- To develop an awareness among visitors, staff, contractors, private landowners and other users of the Kgalagadi Transfrontier Park about the park and its policies and plans.
- To provide educational and interpretative programs for visitors aimed at fostering a better understanding and appreciation of the Kalahari ecosystem.
- To institutionalize a mechanism of representative and accountable participation in advisory structures for the park.
- To seek to ensure that local and provincial authorities and all stakeholders share, and contribute to the attainment of, the vision and goals for the park.
- To plan proactively and strategically, in collaboration with relevant local, provincial and national authorities and stakeholders, for any potential development within, or affecting, the park.
- To collaborate with neighboring communities in the management of problem causing animals which move out of the park.

Sub-objective – Effective park management

ensuring that park planning and development enables the protection and enhancement of the ecological, cultural, and scenic resources of the park.

- To follow the Integrated Environmental Management Principles and Procedures for all development and planning in order to optimize benefits and prevent or minimize negative impacts. Improving the quality of drinking water at the rest camps and the upgrading of staff housing are priorities.
- To ensure that a research and inventory and monitoring program is designed and implemented to provide
- To strive to diversify the park's income base and cost-effectiveness of its operations.
- To implement relevant training programs for Park Management staff, contractors and volunteers to give effect to the policies and plans for the park.



1.3.2 Thresholds of concern and other exact conservation targets

In the adaptive management of ongoing change in ecological systems, thresholds of concern (TPC's) are the upper and/or lower limits of flux allowed, literally specifying the boundaries of the desired state. If monitoring (or better still monitoring in combination with predictive modelling) indicates certain or very likely exceedances beyond these limits, then mandatory management options of the adaptive cycle are prompted for evaluation and consideration. TPC's have not been specified in any detail yet in the KGNP, but will be established over the next five years as a priority. Aspects that will receive attention will include the following:

a) **Herbivore numbers and herbivory:** In attempting to maintain or even reconstruct the nomadic large herbivore movement patterns of the southern Kgalagadi it is inconceivable under the conditions applying today for herbivore numbers to ever become "too high", except for the possible increase in the resident wildebeest population along the river beds through the provision of artificial water. This species is the most likely large herbivore to take advantage of this management strategy and should a large resident population establish itself it could affect the vegetation along the riverbeds. On the other hand low numbers of nomadic species may well become a factor as already appears to be the case for springbok and red hartebeest.

b) **Large carnivore numbers:** As predators are highlighted in a high level objective, large carnivores in particular are most sensitive to unnatural disturbances especially with regard to conflict with stock farmers. Low numbers are more likely to become an issue than high numbers, except that the establishment of resident populations of large herbivores, in particular wildebeest, might favour lions to the detriment of cheetahs and brown hyaenas.

c) **Fire.** Although fire is recognized as an unusual but natural event, increasing human pressures around the park may cause the timing and even frequency of fires to impact negatively on the vegetation. The large camelthorn trees in the river beds have an aesthetic value to many people and the impact of fire on these trees needs to be evaluated and balanced with the natural impacts of removing old and dying tress, recruitment of younger tress and specific habitats that dead, burnt tress provide.

d) **Alien biota.** TPC's for alien biota should be applied as per perceived risk. This includes TPC's for any new invasions, as well as for spread and densification of already present species, especially those that are classified as aggressive invaders.

e) **Water provision.** A balance must be achieved between the ecological effects of water provision for wildlife and the requirements of tourism. This in addition the rate of rain recharge in relation to the rate of exploitation, should determine the number of water points to be uti-

lized for both human and animal use through setting a TPC.

1.3.3 Conservation Development Framework

A full Conservation Development Framework for the KGNP has not been set. Based on the biophysical, cultural heritage, socio-economic and land use context of the park, park management will refine and update the current land use plan, zoning categories and zoning policies to align with the corporate Conservation Development Framework (CDF) format. The wilderness concept needs to be given careful consideration, especially with regard to including an area of riverbed. The CDF will then provide an updated overarching spatial planning framework for the KGNP comprising use zones, with management guidelines and broad conservation and tourism infrastructural requirements (e.g. camps, fences, roads) designated for

each use zone. The development nodes, services and facilities identified in the CDF will undergo detailed local area planning prior to development. In the meantime a practical intermediary joint zoning plan (Appendix 1) is available and in use to guide development.

The zoning of KGNP was a joint exercise between the South Africa and Botswana, with the assistance of the Peace Parks Foundation, and forms part of an Integrated Tourism Plan. The zoning was based on an analysis and mapping of the sensitivity and value of a park's biophysical, heritage and scenic resources; an assessment of the regional context; and an assessment of the park's current and planned infrastructure and tourist products; all interpreted in the context of park objectives (Appendix 2 Map 4 & 5).



PROGRAMMES TO ACHIEVE THE DESIRED STATE

2. PROGRAMMES TO ACHIEVE THE DESIRED STATE

This section deals with all the discrete, but often interlinked, programs that make up the approaches to issues, and lead to the actions on the ground. Together they are the Park's best attempt to achieve the desired state specified in Part 1 above. Each subsection in this management plan is a summary of the particular program, invariably supported by details in what are called *lower-level plans*, referred to in appendices but not included here.

The various programs are classified into the five "real-world" activity groupings as reflected in the SANParks biodiversity custodianship framework (SANParks 2006), namely Biodiversity and Heritage Conservation, Sustainable Tourism, Building Cooperation, Effective Park Management, and Corporate Support. Corporate SANParks policies provide the guiding principles for most of the subsections, and will not be repeated here, except as references and occasionally key extracts. Not all plans for the KGNP have been developed to the same degree and nearly all, like most plans, need to be refined and expanded on during the next five years.

2.1 Biodiversity and Heritage Conservation

2.1.1 Zonation Programme

The rationale for and standard zonation criteria are contained in the SANParks zonation policy. Ideally the zonation should be based on a full Conservation Development Framework, not yet available for KGNP. In the meantime, the best available relevant information shaping the zonation was based on an analysis and mapping of the sensitivity and value of the biophysical, heritage and scenic resources of the park as shown in Appendix 2, Map 4 & 5. Full details of the use zones, the zoning process, and the underlying landscape analyses are included in the KGNP Zoning Document (Appendix 1). As the park is jointly managed, the SANParks zoning scheme used elsewhere in SANParks could not be applied directly to the KTP.

The following zoning categories were recognized:

1. **Wilderness Experience:** The experience is of complete solitude with no facilities and access is only on foot.
2. **Primitive:** The prime characteristic of the zone is the experience of wilderness qualities with access controlled in terms of numbers, frequency and size of groups. No facilities or only very basic facilities are provided and access roads are restricted to only those visitors with bookings. The numbers of vehicles and visitors are kept to a minimum.
3. **Comfortable:** An experience of solitude is provided in small self-catering camps with access roads only open to visitors with bookings for the facilities. Facilities are fully equipped and visitors only need to provide and prepare their own food.
4. **Developed:** Access is by sedan vehicles with larger camps providing self-catering accom-

modation. Additional facilities such as shops, restaurants and fuel are available.

Special management overlays, which designate specific areas of the park, that require special management interventions were identified. Three areas were designated:

1. **Community Use:** Community owned areas in the south-west, included within the park, are zoned to allow controlled community use.
2. **Special Conservation Areas – River and riverine habitats:** These sensitive habitat types were identified for special protection in order to reduce any potential loss and to prioritize rehabilitation work in these areas.

Special Conservation Areas – Pans: This sensitive habitat type was identified for special protection in order to reduce any potential disturbance especially by motorized access.

3. **Rehabilitation Areas:** The sensitive riverbed and riparian habitat areas, where much of the tourism activity and vehicle traffic is currently concentrated, were identified as rehabilitation areas. Detailed investigations of road re-alignment and rehabilitation requirements have been initiated.

2.1.2 Park Expansion Programme

Although there are still a few limited opportunities for the ongoing expansion of the KGNP (e.g. co-management or contractual agreements with game farms between Twee Ndabas and Lorette in the Mier Settlement) park management will however direct its capacity and resources to strengthening the newly developed and evolving institutional and management arrangements to support collaborative management between SANParks, the Khomani San community, the Mier community and the Botswana Department of Wildlife and National Parks (DWNP). In addition some thought should be given to the feasibility of expanding the extent of areas available to the nomadic herbivores, if not to the expansion of the park *per se*.

2.1.3 Land Restitution Programme

An important priority for the immediate future is the implementation of the Ae!Hai Kalahari Heritage Agreement (Anon 2002), which is the tri-lateral agreement drawn up at the finalization of the joint land claims.

The agreement, signed by the Minister for Land Affairs, the Minister for Environment and Tourism, and the duly nominated representatives of the Mier and Khomani San Communities, commits the parties to the establishment and development of the Contractual Park. The spirit and letter of the agreement contribute towards the fulfilment of several obligations, including current legislation (NEMA: Protected Areas Act 57 of 2003; The Restitution of Land Rights Act 22 of 1994), relevant SANParks policies; and South Africa's formal endorsement of international instruments including the IUCN Durban Accord on the promotion of Community Conserved Areas and the co-management of

Protected Areas, as well as the UN Declaration on the Rights of Indigenous Peoples

The First Edition of the Joint Management Plan was prepared in March 2002 and appended to the Contractual Agreement. This provides the basis for the lower-level, operational plan required to ensure effective co-management of the Contractual Park, in line with the above statutory requirements.

The Joint Management Plan contains the Vision for the Contractual Park; objectives; functions of the Joint Management Board; conservation principles resonant with the rights and obligations of the parties and emphasizing sustainability; tourism development guidelines including codes of conduct for tourism operators and visitors alike; community development objectives and priorities; personnel, infrastructure and security arrangements; and research protocols (a key consideration given the importance of indigenous knowledge systems and intellectual property rights of the San and Mier people).

2.1.4 Transfrontier Conservation Area Programme

A management plan for the KTP was drawn up in 1997 and revised in 2003. The management plan sets out the framework for joint management of the area as a single ecological unit by the Department of Wildlife and National Parks of Botswana, and SANParks. It provides a basis for promoting co-operative tourism ventures, although each country provides and maintains its own tourism facilities and infrastructure.

The KTP has been *de facto* in existence since 1948 through a verbal agreement between the South African and Botswana conservation authorities, sufficient to maintain the area as a single ecological unit. Since June 1992 a transfrontier management committee, with representatives from the conservation authorities of both countries, has been addressing the formalization of the agreement. In formalizing this agreement, the two countries stand to benefit through:

1. Guaranteeing essential long term conservation of the wildlife resources in the southern Kalahari
2. Pooling of expertise and experience on a good neighbourly basis between the conservation authorities of the two countries.
3. Increasing the international profile of this important conservation area, thereby greatly enhancing its potential as a tourist destination.
4. Full realization of the economic potential of the Transfrontier Park and surrounding areas, which will bring economic benefits to both countries, especially to the local communities adjacent to the park.
5. The co-operative development of promotional campaigns that stimulate a two-way flow of tourists, thereby increasing the potential of both countries. The agreement requires only that the governments of Botswana and South Africa establish a joint border control facility in the park to ensure the smooth flow of tourists from one country to the other through the Transfrontier Park.



2.1.5 Cultural Resource Program

This program is advised by SANParks policy on cultural resource management (SANParks 2006). The successful land claims by both the Mier and Khomani San Communities necessitated the preparation of, and credible responsibility for, an excellent set of principles and plans around the cultural resources of the KGNP and the AelHai Kalahari Heritage Contractual Parks. As can be read in these overall principles, authenticity, integrity and effective protection, preservation and sustainable utilization of the resources are cornerstones. Efforts are also being made to nominate the area as a potential World Heritage Site.

The Kgalagadi Cultural Resource Program highlights the necessity for acquisition of adequate funding, consolidation of appropriate resource databases, site and resource management, rehabilitation, oral history and indigenous knowledge, and ongoing monitoring to check compliance with the desired state. In addition, interactions with stakeholder interests have highlighted appropriate tourism plans, and maintenance of appropriate ambience to sustain the all-important sense of place. Further details of activities can be accessed via the low-level plan for cultural resources for KGNP.

As stated earlier an important goal for the KGNP in the next five years will be the unpacking and implementation of the AelHai Kalahari Heritage Agreement (Anon 2002). Issues of ecotourism, cultural and symbolic rights i.e. traditional hunting and medicinal resource use will be addressed. Each issue will contain a statement of significance, site information, sensitivities and threats, details of existing site management, as well as management objectives and monitoring measures.

The current plan requires revision and refinement and this will be addressed by the Joint Management Board as a priority, together with the development of an operational or implementation plan. Instances where general KGNP and KGNP Regulations do not harmonise with the rights of the Contractual Park land owners as entrenched in the trilateral agreement will be addressed (i.e. including traditional hunting and other sustainable resource use). In the case of the Khomani San, rights of symbolic and cultural use of resources exist. This includes medicinal plant utilization and also traditional hunting. Refer to Appendix 2 Map 3 in the defined "V" (Voorkeur) and "S" (Symbolic Use) Zones in addition to those rights existing in their section of the Contractual Park, and provision will be made for the exercising of these rights.

Resource use protocols are being drafted through the Joint Management Board and should be ready for implementation in 2008. Monitoring and evaluation systems are being developed between SANParks Scientific Services and the Khomani San. As soon as funding becomes available an Implementation Officer will be appointed. This person will monitor compliance with the agreements/norms and standards that will be set. In the interim the

Joint Management Board will monitor the compliance. The monitoring and evaluation system will also monitor the impact of commercial and resource use activities.

In addition, responsibilities and timeframes will be made explicit. Additional to the contractual Park issues, the KGNP aims to map all known sites of cultural significance, draw up management plans for these sites and develop cultural exhibits at various information centres.

To this end assessment of historic buildings and structures on old farmsteads located along the Auob River has already been done by the National Cultural History Museum as part of a DANCED sponsored project. The study included the history of the farms on which the buildings are located, provided an inventory of assessed sites and their associated cultural resources projected on maps and suggested a restoration plan for buildings that have the potential to be used for tourism. Cultural mapping has also been done by the South African San Institute (SASI) on cultural sites related to the Khomani San. The documentation received to date consists of a map of indigenous place names within the park.

2.1.6 River, Wetland and Groundwater Program

2.1.6.1 Human Use

Water is currently needed for use at nine rest camps and four picnic places. Of the camps five are small wilderness camps with only eight beds each. The largest consumption of water is therefore at the larger rest camps. Apart from problems of delivery there is also the very important issue of water quality as the water at the three camps is unfit for human consumption. This is especially relevant for staff that utilise the water for long periods (Meyer & Casey undated). This issue requires urgent attention (see Infrastructure Development Program).

2.1.6.2 Animal Use

The reason for only exploiting underground water for whatever purpose in the KNP is that no dams or rivers exist in this dry environment for use in the extraction of water. Motivation for the erection of permanent waterholes in the KGNP arose from the apparent hindrance to the nomadic/migratory movements of the indigenous ungulates by increased human activities to the south and west of the park and the later fencing of the South African/Namibian and Botswana/Namibian borders, as well as the erroneous perception that the wildlife needed drinking water. Since the 1930s a total of 88 waterholes (fed with borehole water) and a number of excavation dams on pans have been constructed within the KGNP. The provision of water is one of the most intensive and controversial management inputs in the park and its potential effects on ecosystem function and usefulness have been questioned. The impact of water provision for animals on the ecosystem needs to be carefully evaluated and balanced with the fact that the quality of the tourist experience while visiting the KGNP may be enhanced as animals tend to concentrate in the vicinity of the water points. In addition the rate of rain recharge in relation to the rate of exploitation, as

well as the interrelationships between these factors and water quality, needs further investigation.

Pending a better understanding of the effects of the provision of water for wildlife the following general principles are recommended:

1. It will not be necessary to establish more artificial water points. Should an additional water point be needed for tourism purposes, it should replace an existing waterhole, not be an additional one.
2. Bore holes that dry up in the dune veldt should not be replaced.
3. Pan surfaces should not be artificially altered to hold rain water on a more permanent basis.
4. All artificial excavations on pans designed to hold rain water should be levelled.
5. All solar pumps must have reservoirs to ensure a constant supply of water.
6. The water at saline water-holes should be either directly pumped into larger shallow drinking troughs or sealed reservoirs. Where troughs are fed with reservoir water the overflow from the reservoir should be directed into the trough in order to help reduce the salt concentration.
7. The appearance of reservoirs and water troughs should be improved so that they are aesthetically appealing and less obtrusive.

2.1.7 Invasive Biota Programme

The principles concerning invasives are well-established in SANParks (2006) and Working for Water, whose co-operation plays a critical role in the control of alien plants. Alien plants do not constitute as serious a threat to the KGNP as to many other national parks, but the situation needs careful surveillance and the formal establishment of TPC's. Nine alien plant species have been recorded in the KGNP. Of these *Prosopis glandulosa* (mesquite), *Schinus molle* (pepper tree), *Argemone ochroleuca* (Mexican poppy) and *Salsola kali* (Russian tumbleweed) are considered to be aggressive invaders of indigenous vegetation. Mesquite and pepper trees as well two species of tree indigenous to South Africa but alien to the southern Kalahari (*Rhus pendulina* and *Euclea pseudobenus*), have been planted in the camps for shade purposes because they are fast growers and frost resistant. A request for a survey to be done within the park boundaries of woody invasive alien species by the Agriculture Research Council (ARC) has been made.

Exotic plants present in the park

Mesquite – *Prosopis glandulosa* var. *glandulosa* A multi-stemmed scrub, or small to large tree, 3 – 7 m tall. Branches armed with paired straight spines. Leaves twice compound with one pair of pinnae, hairless leaflets widely spaced with 7-18 pairs per pinna. Flowers are cream to yellow and borne in axillary spikes. The straight pods are woody, slender, cylindrical and slightly constricted between the seeds. Flowering time is in early summer. Originally imported from America for its potential to provide fodder (pods), shade and firewood in arid areas. Bees



produce a good honey from the floral nectar. It is a declared invader in South Africa. Mesquite invades rivers and drainage lines, forming dense thickets. Occurring in and around dry riverbeds and rest camps inside the park. The control of *Mesquite* is successful but should be monitored carefully.

Peper tree – *Schinus molle* A medium to large evergreen tree with a short, gnarled trunk and milky latex with drooping branches and foliage. Leavelets up to 18 pairs plus a terminal one up to 70mm long, greyish to light green and produce a strong pepper smell when crushed. Flowers small and creamy white and fruit pinkish red drupe, globose. A native of South America and cultivated for ornament and shade. Dried fruit has a peppery taste and both fruit and leaves are used in curries. The control is successful but should be monitored carefully.

Mexican Poppy – *Argemone ochroleuca* An erect, exotic and noxious weed, up to 1 m in height. Leaves are deeply lobed, thick-textured and spiny with a bluish colour. The white to yellowish flowers are furnished with spiny bracts. The capsule is also armed with many stout spines. Flowering time is from spring into summer and autumn. The plants exude a yellow latex when cut and have a distinctive odour when crushed. Plants are highly unpalatable and toxic to humans and stock. Occurring widespread in disturbed areas and dry riverbeds. Occurring in the dry riverbeds. Control is done on a small scale close to the Twee Rivieren rest camp only. Control should be extended to other parts of the park too. Herbicide Mamba is effectively used on young plants near Twee Rivieren. Due to unknown climatic conditions in the summer of 2007, no plants are to be seen as yet.

Goosefoot - *Chenopodium album*. An un-branched, annual herb, up to 1.5 m tall. The leaves are extremely variable, from egg-shaped to lance-shaped, margins entire to shallowly irregularly toothed. The inflorescence is a panicle composed of numerous small, spicately arranged clusters of minute, grey to green flowers. Seeds are black and shining. Flowering time is in early summer. A cosmopolitan weed, found in sandy soils commonly beneath trees and larger shrubs. Occurring very widespread in the shade provided by other plants inside the dry riverbeds as well as in the dunes. No control is done since the plant occurs widespread throughout the park. Control is impossible because of the very large surface area (almost 1 million ha)

Russian tumble weed – *Salsola kali*. An annual, spiny weed and aggressive invader, up to 500mm tall. Leaves are triangular with entire margins and a spiny apex. Flowers are yellow-brown to brown with bracts as long as or longer than the perianth. Perianth composed of 5 segments, united below and furnished with a horizontal wing, which hardens around the fruit. Flowering time is in early summer. A tough and unpalatable plant but grazed when young. A cosmopolitan weed often found along roadsides, on flood plains and in disturbed areas. Occurring in and around the rest camps. Control takes place on a small scale at the Twee Rivieren rest camp as well as up to *Samevloeijing*, which is 5 km to the north. Mamba is used successfully on young plants.

Wild sunflower – *Verbesina encelioides*. A naturalized weed, up to 600mm in height. The toothed leaves are 3-veined from the base, the flower surfaces softly hairy and whitish. Toothed triangular stipules are attached to petioles. Large flower heads are composed of bright yellow ray florets and raised disc florets. Fruit with papery pappus. Flowering time is in late summer. Can occur along roads and disturbed areas. Absent inside the park but plentiful 10 km away at the Welkom settlement. A threat of invading the park does therefore exist and should be monitored carefully. No control is currently needed. If necessary, plants can be hoed before they produce any seeds.

The status of Milkweed – *Asclepias fruticosa*, is unsure. It is classified as an exotic plant but not as an exotic invader. However, in the area between the Twee Rivieren rest camp and the confluence of the two dry riverbeds, the Milkweed grows in abundance, which could indicate that it should have invasive status.

The following principles should be applied:

1. All plants alien to the southern KTP growing within the KGNP, outside or inside camps, should be destroyed using appropriate methods. Exceptions may be made in the case of alien trees that provide useful shade within rest camps. These should nevertheless be gradually replaced with trees that are indigenous to the region. Biological control is an option in the case of *Prosopis* spp.
2. The use of certain non-invasive aliens will be permitted in private gardens within the KGNP (a list of species not permitted is supplied in the management plan).
3. Indigenous tree species suitable for planting in rest camps should be identified and a planting program should be started.

Two indigenous plants have been listed as potential opportunistic invaders, namely *Rhigozum trichotomum* (driedoring) and *Galinia africana* (kraalbos). Both these are noted as potential invaders along road vergers and areas of disturbance. A monitoring program of these species needs to be established and consideration given to formalizing TPC's on their spread.

No control plan of exotic plants currently exists since the infestation of all exotic plants present in the park, with exception of the Russian Tumble weed, is constant, and does not increase. The TPC (Threat of potential concern) therefore, is low except for the Russian Tumble weed.

The potential for the domestic cat to become an aggressive invader has been noted because of this species' ability to hybridize with the indigenous African wild cat. The threat of domestic and/or feral cats on the periphery of the park is cause for concern and all such cats encountered should be exterminated. A research study on the conservation genetics of the African wild cat is presently being conducted in order to evaluate the extent of the problem. Rules regarding the keeping of certain domestic species as pets by staff members have been formulated.

2.1.8 Disease Management Programme

In the KGNP sarcoptic mange, anthrax, rabies and canine distemper are the most visible wild life diseases. Mange and anthrax are indigenous diseases as is rabies (although it might be enhanced by domestic animals), but canine distemper is alien. Anthrax, rabies and canine distemper are inherently fatal, although with the possible exception of rabies in spotted hyenas, none has been found to be important in limiting populations. No specific disease management program has yet been developed for the park, but the corporate policy on animal disease management provides SANParks with guiding principles to:

1. maintain the natural fluxes of indigenous diseases as a component of biodiversity
2. where possible avoid the introduction and/or limit the impact of alien diseases
3. minimize the spread of disease from National Parks to neighbouring communities and commercial agriculture.

2.1.9 Rehabilitation Programme

A lower level plan has not yet been drawn up. An aspect that needs particular attention is the identification and rehabilitation of borrow pits used in road making and maintenance. A preliminary list of sites has been drawn up and includes sites at Dikbaardskolk, Urikaruus, Marie se Draai, 14th Borehole and Haagner's.

In addition during the grading of tourist roads regular outlets should be provided to minimise erosion of road shoulders and the damming up of water. Tire grading will be used as an alternative to machine grading when needed for certain roads as a more economic way of improving road surfaces.

2.1.10 Fire Programme

Fire is a rare but quite natural phenomenon in the southern Kalahari, occurring predominantly in above average rainfall years after sufficient fuel loads have accumulated. The estimated rate of occurrence is approximately every 11 years. Natural fires occur during the summer months in association with electric storms. Outside of this period they are normally started by man. Man-induced fires have in all probability also played an important role since prehistoric times. However, as the human population around the KGNP increases, permitting all anthropogenic fires to penetrate the KTP could lead to an excessive frequency of burning, so some fire control might be necessary. As a general rule of thumb it is recommended that all fires that occur out of the rainy season, and which are not associated with electric storms, should be controlled as far as possible. The impact of fires on large camelthorn trees *Acacia erioloba* in the riverbeds is contentious and needs to be assessed. For some stakeholders, this affects the aesthetic appeal of the riverbeds; hence the policy recommends that all fires in these habitats will be controlled. This needs to be re-evaluated in line with biodiversity principles as well.



Fires that leave the KGNP into neighbouring human occupied areas may represent a threat to surrounding people. It is therefore recommended that outgoing fires be controlled where the circumstances warrant it.

2.1.11 Threatened Species Programme

Wild dogs are the only globally endangered mammal to occur in the KGNP, but the area is marginal for this species and they are vagrants, so no specific management program is needed. Lion and cheetah are vulnerable. A study of lions has been completed with management recommendations. A similar cheetah project has been initiated in 2006. The conservation status of other taxonomic groups needs to be assessed before management programs are initiated.

2.2 Sustainable Tourism

This section cross-links to the Zonation Program provided in 2.1.1, as well as to the CDF, once completed.

2.2.1 Sustainable Tourism Programme

Visitor management is a process of balancing nature conservation and visitor satisfaction. Park managers have to protect fauna and flora for the future and still meet the needs and experiences of tourists today without losing sight of their future needs. Tourism is well developed in the KGNP with three fully equipped and fenced rest camps and six wilderness camps. One of the main objectives is to ensure that this park remains a flagship product, which is financially sustainable, and to further develop the tourism brand in order to offer tourists a quality experience.

A SWOT analysis identifies as the major strengths of the KGNP the fact that it is part of the first transfrontier park in Africa and is politically well accepted, its biodiversity and wilderness features, a very informative park brochure, the variety of products and facilities offered, and the tourism training programs for local communities. Weaknesses are lack of finances with regard to tourism funding, resulting in poor maintenance of infrastructure, especially the roads in the park, and lack of trained staff, especially from the local communities. Opportunities include expanding cultural tourism as a result of the rich history and culture of the community, improving marketing especially in untapped markets and expanding the economic side of the parks activities. The major threats are the slow pace at which the contractual land development with the local community is moving, the very hot summers, the scarcity of fresh water and high petrol prices, which will have an effect on visitor numbers.

The specific objectives, nested in the sub-objectives in Section 1.3.1, listed in the Tourism plan for the KGNP are:

- To market the park effectively in order to increase unit occupancy rate to over 75%. Here the establishment of a regional tourism route to link the Arid Cluster (Richtersveld, National Park, Namaqua National Park, Augrabies National Park as well as the KGNP) would be an important component.
- To upgrade and expand infrastructure/facilities, including the recent opening of the Mata Mata gate into Namibia on 12 October 2007.
- To expand and develop more tourism activities and to attract more tourists to partake in the latter
- To enhance the quality of service by means of training
- A concessionaire (Global Images) for !Xaus community lodge has been contracted.

The Tourism Plan 2006 (Institute for Tourism & Leisure studies) does include development of tourism, local socio-economic and local economy. Training of local staff and Community guides also makes a contribution to the local economy.

2.3 Building co-operation

2.3.1 Co-operative Governance and Community Participation Programme

There are two co-management agreements in the KGNP between the:

- Ae!Hai Kalahari Heritage Park Contractual agreement - Mier and Khomani San communities and SANParks are involved.
- Xaus Lodge Concessionaire agreement – Global Images, Mier, Khomani San and SANParks are involved and it is a 20 year contract.

The two contractual Parks which make up the Ae!Hai Kalahari Heritage Park are on the southern boundary of the KTP (Appendix 2 Map 3) The Joint Management Board (JMB) oversees all matters with regards to the Ae!Hai Kalahari Heritage Park and the Concessionaire reports to the JMB. SANParks remains responsible for the management of biodiversity within the Contractual Park. Nine percent of the Gross turnover per annum is paid over by the concessionaire to the JMB which is then equally divided between the Mier, Khomani San and SANParks.

A key objective is to develop a co-operate governance system for the park with the focus on improving relationships with government/governing bodies in compliance with legislation and to be totally inclusive. Park Forums and Joint Management Board (JMB) meetings are held quarterly with the understanding that more meetings can be held should that be necessary. All members can submit agenda points. Minutes are taken and copies of minutes are distributed to all members. Marketing

and promotion of the park, takes place through the Siyanda Municipality's The Green Kalahari Tourism Committee. Liaisons take place with the Northern Cape Tourism Authority in terms of exhibitions at National and International level.

- The Park Forum (PF) is represented by the:
 - Mier Municipality
 - Khomani San
 - SAPS (Twee Rivieren & Witdraai)
 - Immigration (Twee Rivieren)
 - Government Communications (GCIS)
 - Community Reps (Welkom, Askham, Philandersbron, Rietfontein, Loubos, Klein Mier & Groot Mier)
 - SANParks

The Joint Management Board (JMB) is represented by the:

- Mier Municipality
- Khomani San
- CPA
- SANParks

To increase future functioning between the stakeholders and representatives portfolio groups will be formed. A Charter will be drawn up for the Park Forum including an Information/Communications protocol and also a Code of Conduct. It is anticipated to increase Community Representatives attending PF meetings. An Implementation Officer will be appointed for the JMB as soon as funding is available. The Park Management Plan is being revised for the Ae!Hai Kalahari Heritage Park which will more clearly stipulate roles and responsibilities of members.

2.3.2 Environmental Education and Interpretation Programme

The EIE program within the Park involves developing an understanding of the unique environment and its issues, developing values, skills and a passion that will help learners to contribute to the protection and improvement of the environment. The program includes slide and video shows, guided tours, overnight educational visits by local schools, educational visits to schools by People and Conservation staff, and the celebration of environmental calendar days such as Water Week, Earth Day, Arbour Day, and Heritage Day, both throughout the Park and at local schools. An Environmental Centre was developed in 2005 that accommodates overnight school groups/interest groups. The Kids in Parks program is an important part of the EIE program. EIE program material has been developed for each grade (Grades 1-7), focusing on specific windows/themes for each grade.

Environmental interpretation is also provided to visitors to the park through three environmental interpretation centres at the three main camps. Twee Rivieren, Mata Mata and Nossob.

Other forms of environmental education in the KGNP include nightdrives, guided day walks and a guided three-night 4x4



trail. These activities are conducted by field guides.

The Imbewu program or a similar program will be initiated when funding is available to ensure that age-old skills such as story-telling/tracking, medicinal plant knowledge and cultures are instilled and maintained by present and future generations. Camps for youths will be held within the !Ai!Hai Kalahari Heritage Park, led by wise elders from the Mier and Khomani San communities.

2.3.3 Constituency Building Programme

The purpose of this program is to establish and maintain meaningful and beneficial relationships with identified/interested stakeholders. The Park Forum, which was officially established in 2004 to facilitate constructive interaction between the Park and surrounding communities/stakeholders and act as a vehicle towards developing strategic partnerships with stakeholders, meets once every four months. The Park Forum is represented by Department of Wildlife and National Parks (DWNP) Botswana, South African Police Service - Twee Rivieren and Witdraai, Dept. Home Affairs and Immigration, Directorate of Environment and Conservation, Mier Municipality, Community/Communal Property Association (CPA), Khomani San, Mier, Mier Farmers Union, Siyanda District Municipality, Green Kalahari Tourism and local representatives from each of the seven towns. The Joint Management Board (JMB) for the !Aa!Hai Kalahari Heritage Land (Contractual Parks of Khomani San and Mier), was established in 2003 and meets every two months. The JMB governs the land that consists of three stakeholders, Khomani San, Mier and SANParks. The three stakeholder groups are represented on the JMB. All issues pertaining to the !Ai!Hai Kalahari Heritage Park are discussed at the JMB. Through the JMB, training will be provided to improve the understanding of the !Ai!Hai Kalahari Heritage Park Bundle by each stakeholder.

2.3.4 Communications Programme

The Park Manager has monthly staff meetings at Twee Rivieren involving the senior staff from all camps and quarterly meetings at all three rest camps involving all levels of staff. This is also captured in the Balanced Scorecard (BSC). All department heads follow the same procedure. Furthermore, there is ongoing communication with staff via telephone or e-mail on a daily basis as well as with the regional manager. A telephone conference is held with Head Office in Pretoria every Monday morning, involving senior management and including the COO, CEO and other directors. Regional meetings and Park Managers Meetings are held once a quarter with all other PM's and senior directors. Monthly meetings with Botswana colleagues and Transfrontier Park Bi-lateral meetings are held two or three times per annum.

2.4 Effective Park Management

The Park management plan is well integrated and in harmony with NEMA and the regional IDP for the Mier Municipality which refers to the Park as an important area for tourism. At this stage no provincial government planning and development plans for this part of the Northern Cape exist. It also supports and is in harmony with the various IUCN Species Survival Commission's species action plans and Red List of Threatened Species, and the action plans and objectives of other IUCN Commission, especially the World Commission on Protected Areas.

2.4.1 Environmental Management Programme

The KTP is fortunately placed with respect to having no peripheral industrial development and pollution. The greatest threat comes from internal pollution generated within the rest camps and picnic spots.

1. All sources of pollution will be limited as far as possible.
2. Visitors and staff will be expected to adhere to acceptable practices of waste disposal in the KTP.
3. A comprehensive pollution-monitoring program will be instituted.
4. An education program will be instituted to inform visitors and staff of acceptable practices. Recycling should be encouraged and where feasible immediate separation of certain articles, e.g. cans and glass should also be encouraged. The use of plastic packaging at tourist camps should be halted.
5. The necessity for waste water treatment in rest camps and the prevention of contamination of ground water reserves should be investigated, e.g., the correct placement of sewerage soak ways in or close to river beds

2.4.2 Infrastructure Development Programme

An infrastructure development program for the period 2005 – 2010 has been drawn up. Improving the quality of the drinking water at the three main camps, which at present constitutes a health hazard, particularly to staff, is the priority. In addition, up grading of tourism facilities and especially staff accommodation is planned, as is the building of the main entrance gate into the KGNP at Twee Rivieren, the construction of three overland camping facilities, three overnight bush camp sites, a wilderness camp at Sewe Panne, additional picnic/ablution facilities and a new 40 km stretch of road next to the Auob River.

Current infrastructure and staffing:

The park currently has 92 staff on its permanent establishment table, this includes two regional positions based in Upington namely, Regional Manager (Arid Parks) and Marketing and Communications Manager (Arid Parks). The Park expects to add 4 positions to this in 2008/2009 as the Field Guides in the Park is moved from contract positions to Permanent positions. Additional to this the Park is forecasting to add 10 permanent positions over the period 2009 – 2012 in the Tourism depart-

ment to facilitate the expansion of Mata Mata Rest camp as well as to provide much needed relief staff in Wilderness camps. Currently the Park utilizes an average of 9 to 10 temporary staff members in the Tourism section, especially in peak times, with the number being slightly lower out of season. The aim would be to have some of these temporary positions made permanent as part of the expansion of the establishment table as well.

2.4.3 Safety and Security Programme

The safety and security plan for the KGNP is set within the framework set out by the SANParks Security Plan. The remoteness of the area has been a deterrent to any would-be law-breaker. Serious crimes are almost unheard of, although small scale rule breaking does take place and measures are needed to combat this activity while proactive and reactive measures of safety and security need to be in place to ensure that we deliver on our mandate.

The strategic intent of the safety and security plan is to:

- ensure that effective visitor safety measures are in place,
- ensure the safety and security of SANParks employees and concessionaires,
- ensure that tourist perceptions are managed in order to protect the brand and reputation of SANParks and SA Tourism at large.

The plan is informed by analysis of the following aspects:

- The identification of high risk/use areas.
- Associated crime statistics for each identified area.
- The associated risks and criminal behaviour for each area.

A SWOT analysis revealed the remoteness of the area and long travel distances as both a strength and a weakness. The police presence at Twee Rivieren and the small infrastructure as strengths, however the size of the area and difficulties in covering it, and the fact that few patrols are carried out with poor infrastructure and budget as weaknesses. Major opportunities were seen as improving relationships with surrounding communities and staff capacity building and the main threats as increased incidents of environmental crime, insufficient or lack of training, corruption and intimidation of staff, storage and transportation of money, poor socio-economic groups outside the Park and along the boundary and predator transgressions in neighbouring communities and countries. The program is supported by operational plans for each of the three rangers' sections.

2.4.4 Damage-causing Animal Programme

The existing program includes:

- The provision and maintenance of effective boundary fences along all the park boundaries in the medium to long term where they are already in place or where they still need to be put into place. The ideal is to monitor boundary fences on at least a weekly basis, although a shortage of vehicles and staff makes this very difficult to accomplish.
- To relocate damage causing animals that have left the park,



especially the threatened species, lion and cheetah, back into the park as soon as possible, either on information received from neighbouring communities or observations made during staff patrolling the park boundary fences.

- To destroy animals identified as habitual problem animals or to remove them from the system by translocating them elsewhere.
- To have regular communication with local communities regarding damage causing animals.
- To encourage and facilitate local communities to modify their stock raising and herding management practices to lessen conflict.
- Not to compensate losses incurred by local communities.

2.4.5 Staff Capacity Building Programme

The objective of this program is to attract and retain the human capital, meeting the required skills required in all the disciplines of the park, through the implementation of structured remuneration packages and relevant training programs for Park Management staff, contractors and volunteers. Training needs of all staff are continually assessed to ensure that those responsible for implementation of the park objectives possess the necessary skills to do so. Training needs of SMMEs and Poverty Relief workers are also assessed in order to affect capacity building through the Poverty Relief Program. A Work Place skills Development Plan is also produced for the park every year as required by legislation. This is coordinated at head office level, with input from the park and the Employment Equity Forum. Most of the staff is involved and encouraged to make inputs into the plan.

2.4.6 Financial Sustainability Programme

Table 1 provides an estimation of the costs involved in striving towards the desired state for KGNP over the next 5-year period through all of the objectives and associated program detailed in this management plan. The allocated costs account for Infrastructure Development Plans, Extended Public Works Program and the KGNP operational budgets. It is significant to note that there is shortfall of approximately R154 million over the next five years.

Table 1: Management Plan Budget Summary for 2007 - 2012

Cat 1	Cat 2	2007-2008 (R'000)	2008-2009 (R'000)	2009-2010 (R'000)	2010-2011 (R'000)	2011-2012 (R'000)
KTFP: Current Operating Budget						
A. Income	Conservation Fees	-852 939.98	-912 510.00	-980 948.250	-1,054 519.369	-1133 608.321
A. Income	Concession Fees	-475 865.00	-528 402.00	-554 822.100	-582 563.205	-611,691.365
A. Income	Retail Gross Profit	-616 846.02	-665 638.52	-715 561.409	-765 650.708	-819246.257
A. Income	Tourism income	-12 254 846.52	-13,797 644.96	-14 832 468.332	-15 870 741.115	-16 981 692.993
A. Income	Other income	-312 892.34	-314 409.92	-337 990.664	-361 650.010	-386 965.511
B. Expenditure	Human resource costs	6 204 607.49	7 583 965.11	8 342 361.621	9 093 174.167	9 729 696.359
B. Expenditure	Maintenance costs	910 987.16	1 021 038.03	1 092 510.692	1 168 986.441	1 250 815.491
B. Expenditure	Depreciation	1 501 566.24	1 698 000.00	1 816 860.000	1 944 040.200	2 080 123.014
B. Expenditure	Operating Costs	3 774 917.56	3 995 000.00	4 274 650.000	4 573 875.500	4 894 046.785
B. Expenditure	Finance Costs	772 108.48	701 415.00	750,514.050	803 050.034	859 263.536
Total Operations		-1 349 202.93	-1 219 187.26	-1 144 894.39	-1 051 998.07	-1 119 259.26
Extended Public Works Program						
C. EPWP	Poverty Relief projects	3,900,000.00				
D. Infrastructure Development (DEAT)	(funds requested)			2 972 979.00	4 448 653.00	14 600 500.00
Total Operations		3 900 000.00	2 972 979.00	4 448 653.00	14 600 500.00	0.00
Summary						
Total Income (A)		-14 513 389.86	-16 218 605.40	-17 421 790.76	-18 635 124.41	-19 933 204.45
Total Expenditure (B)		13 164 186.93	14 999 418.14	16 276 896.36	17 583 126.34	18 813 945.18
Additional Infrastructure Projects (C + D)		3 900 000.00	2 972 979.00	4 448,653.00	14 600 500.00	0.00
Total		2 550 797.07	1 753 791.74	3 303 758.61	13 548 501.93	-1 119 259.26



2.5 Corporate Support

2.5.1 Research Support Programme

The Arid Ecosystems Research Unit maintains the existing inventory of baseline information for the park, but there is a need to develop the monitoring program to evaluate the parks performance and impacts using key performance indicators and thresholds of potential concern, and commission focused research projects to complement the baseline inventory, knowledge base for the park and monitoring requirements. This cannot be achieved without explicit commitment around the supporting environment, for instance researcher accommodation to help attract visiting researchers at reasonable project cost - the erection of a research house and office facilities at Twee Rivieren in 2006 through a private donation is a good start in this direction. Equally, liaison with research and biodiversity partners in the region, as well as nationally and internationally should be improved.

2.5.2 Institutional Development and Administration Programme

The KGNP is fully aligned to the corporate policy, guidelines and protocol on institutional development programmes and actions. Corporate HQ in Pretoria communicates this to the park from time to time. Administration is also based on accepted norms and standards as set out in various sets of legislation pertaining to administrative procedures.

2.5.3 HIV/AIDS

HIV & AIDS requires special attention because it is also spreading within SANParks. Whilst it is an integral component of the EAP (Employee Assistance Programme), it is accorded priority within the SANParks programming. In the most severely affected settings, there is mounting evidence that HIV/AIDS is eroding human security and capacity, undermining economic development and threatening social cohesion. Inevitably, this situation has serious impacts on business.

South Africa's hospitality and tourism industry, of which the organization is a key role player, allows for job creation throughout the country, including rural areas, where HIV prevalence is often high. It impacts on all businesses, both directly and indirectly, resulting in **increased costs** and **reduced productivity**. Against this backdrop and because SANParks values its human capital, it has now introduced a comprehensive HIV & AIDS Programme which includes Developing an HIV & AIDS Policy; Education and Awareness; Anonymous and Unlinked Prevalence Surveys; Know-Your-Status Campaigns; Lifestyle Management; Care, Treatment & Support as well as Scientific Impact Analyses. The purpose of a HIV & AIDS program is to enable SANParks and its adjacent communities to maintain a healthy and produc-

tive workforce. A member of staff is elected to the position of park co-ordinator for the HIV/AIDS Program and will follow and implement the corporate HIV/AIDS Program and will inform and educate the children and communities of lifestyle management, prevention, care and treatment and support of those who are infected. SANParks could play a pivotal role in sending a positive message in this regard.

2.5.4 Risk management Programme

Risk awareness and management within KGNP is adhered to on an ongoing basis. This entails the implementation of corporate policies, procedures and protocol. The purpose of corporate risk management is to ensure that strategic, business and operational objectives are met and that continued, sustained growth and biodiversity management takes place. This is achieved by proactively identifying and understanding the factors and events that may impact the achievement of the set objectives, then managing, monitoring and reporting on these risks.

The process for the identification of risk is an objective driven process, which assesses the impact that risks would have on the viability of the objectives. Senior executives and line management within divisions, down to each business unit are accountable for risk. Section 51 (1) (a) (i) of the PFMA requires of the Accounting Authority of a Public Entity to establish and maintain effective, efficient and transparent systems of financial and risk management and internal control.

Reporting on Risk Management occurs monthly at EXCO. Currently the existing corporate risk registers (per division) are being aligned with the divisional scorecard objective-setting. The process to integrate park level scorecards with that of the Director: Parks is currently in progress.

A risk checklist has been drawn up which must be attended to by the managers at different locations and signed off by the park manager. The list includes all aspects regarding the safety and comfort of visitors and staff as well as legal requirements protecting SANParks such as indemnity forms. Although the plans/ programmes relate to park objectives and much of the work needed to initiate and carry them out is covered by the park operating budget no detailed cost/benefit analyses have been completed on all details of the plans due to a lack of resources to carry this out.



ADAPTIVE AND INTEGRATIVE STRATEGIES TO SUSTAIN THE DESIRED STATE

3. ADAPTIVE AND INTEGRATIVE STRATEGIES TO SUSTAIN THE DESIRED STATE

Section 1 has dealt with the desired state for the KGNP and Section 2 with the specific programs, which are believed necessary to achieve it. However, as with any management plan the desired state cannot be effectively maintained without explicit attention being given to prioritization, integration, operationalisation, and above all, reflection and adaptation according to the principles in the biodiversity custodianship framework (SANParks 2006). This is the challenge for the KGNP in the next five years.

3.1 Key prioritization, integration and sequencing issues

The desired state for the KGNP needs to be refined in a more focused way and agreement reached on certain important biodiversity issues such as the provision of water, as well as the application of the cultural heritage plan. Although the priorities are well understood the objectives need to be unpacked so that more focus on addressing priorities can be achieved and the tasks to be tackled by staff and support institutions can be better defined. The question surrounding the reduction in nomadic species such as springbok and red hartebeest needs to be addressed as a priority. With regard to effective park management the infrastructural needs of staff, especially with regard to the provision of acceptable drinking water and improved housing are priorities.

Although most objectives should be able to be addressed in the next 5 year management cycle, or at least initial steps taken to lay the foundation towards addressing them, the further rehabilitation of the large scale migratory and nomadic movements of the large herbivores, is long-term in scope and would require collaboration and cooperation from all stakeholders in the public and private sectors as well as internationally. In this context expansion of the protected area network and looking towards improving co-existence between wild life and people on a sustainable utilization basis into the Central Kalahari in Botswana might be possible. More challenging would be expansion west into Namibia and south into South Africa. Including the dry river systems of the Molopo and Kuruman in some form of cooperative management system with the protected areas system might be hugely beneficial for the nomadic species as well as for the local inhabitants in the form of sustainable tourism and consumptive use. However, the issues are large, as apart from anything else, it would entail the removal of a number of fences. A balance must be struck between the energy needed to deal with immediate threats and issues, and the necessity of laying the all-important groundwork for longer-term strategic success in improving ecosystem functioning. It will never be possible to completely restore the southern Kgalagadi ecosystem and a realistic framework of what might be achievable should be developed in the next five years.

The cultural heritage goals for the KGNP must be made compatible with the biodiversity goals and principles. In this regard the questions of traditional hunting and medicinal plant

use could be seen as contentious and need to be carefully planned. Visitor expectations need to be tempered accordingly, as SANParks will need to keep the moral high ground in convincing the public that these issues are key cultural priorities.

3.2 Steps to Operationalisation

Given the desired state and the objectives hierarchy to achieve it, park management should draw up a detailed plan of action down to annual operational level and wherever necessary down to the level of tasks and duties. The Park Manager must be satisfied that all this serves the desired state. A further cross-check is contained in the Balanced Scorecard system implemented by SANParks, which serves to support the effective implementation of the objectives. This can be achieved by cross-referencing the most important objectives with explicit ways in which key performance areas in the Balanced Scorecard reinforce these. In conjunction with this a broad staff and finance costing for the five-year period should be drawn up.

3.3 Key Ongoing Adaptive Management and Evaluation Interventions

Lack of informative and effective feedback, which should stimulate proper reflection by managers, is the commonest underlying cause of failure of adaptive management, and hence of reaching the desired outcomes we set for parks. The hallmark of adaptive management is ongoing learning, and this only results if users apply their minds to the adaptive cycle. This section aims to detail generic procedures, but these need to be more specifically adapted in a way that they are most likely to be used in the KGNP.

Feedback that the management action as decided upon and specified, is carried out as such:- This responsibility lies with line-function management.

Feedback whenever a TPC specifying the endpoints of any biodiversity objective is violated, or is credibly predicted to be violated in the future:- This requires that a disciplined monitoring program be put in place, that the custodian of the particular program (post specified in low-level TPC plans for each theme in KGNP) duly reports the exceedance to a competent, preferably formally constituted, joint science management forum, which includes the Park Manager or his duly appointed delegate. This must lead to a documented management response, recognizing that the "do nothing response" may also be a specific justifiable response. The suite of biophysical TPC themes in KTP is likely to be relatively small (low nomadic herbivore number/high resident herbivore numbers, number of large trees killed by fires in the river beds, groundwater status and aliens) and setting of TPCs and monitoring for as many as possible must be commissioned as soon as possible in order to measure the situation relative to the desired state. It is better to have roughly defined preliminary TPCs for these themes than to

wait years for perfect ones to be developed. They can always be refined and improved with time.

Feedback that the predicted outcome of a management intervention, in response to the exceedance of a TPC, is achieved, or what materialized instead in its place:- This is usually directly measurable by checking whether that same TPC returned to within its acceptable limits after management action was initiated.

Feedback to SANParks Head Office of the overall performance of KTP relative to its stated objectives:- This will be done via an annual report on the state of KGNP as well as other incidental reporting.

Feedback as to whether the monitoring program and list of TPCs is parsimonious and effective:- This is the responsibility of the scientific custodians involved, but overall responsibility for the program as a whole rests with the science-management forum. It is broadly challenged during each 5-yearly revision cycle.

Feedback as to whether overall park objectives need adjustment in the longer-term:- This is dealt with effectively at the 5-yearly review step. However, in the case of perceived "emergencies" the Park Manager is constrained within the limits of agreement.

Feedback regarding, or at least latent preparation for, surprises:- By definition these cannot be predicted. It will, however, be an explicit obligation of the Park Manager to take responsibility to stimulate contingency and risk management assessments. From an ecosystem point of view, dealing with such surprises is best dealt with by generating scenarios and we must aim for at least one structured scenario planning session per 5-year cycle. It is suggested that three families of scenarios will significantly assist KTP's longer-term chances of success in goal achievement – contemplating scenarios around the willingness of stakeholders to accommodate any expansion of the protected area, or the chances of going into contractual arrangements with neighbours might prove helpful in evaluating the feasibility of further reconstructing the nomadic herbivore system in the future

If these obligatory feedbacks are effectively honoured, it is believed that KGNP will be practicing an effective level of adaptive management, in accordance with SANPark's overarching values and will have the best chance of achieving the desired state



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4. REFERENCES

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APPENDIX 1

KALAHARI GEMSBOK NATIONAL PARK ZONING PLAN (INCORPORATED IN THE K GALAGADI TRANSFRONTIER PARK JOINT ZONING PLAN)

1. INTRODUCTION

The primary objective of a park zoning plan is to establish a coherent spatial framework in and around a park to guide and co-ordinate conservation, tourism and visitor experience initiatives. A zoning plan plays an important role in minimizing conflicts between different users of a park by separating potentially conflicting activities such as game viewing and day-visitor picnic areas whilst ensuring that activities which do not conflict with the park's values and objectives (especially the conservation of the protected area's natural systems and its biodiversity) can continue in appropriate areas. A zoning plan is also a legislated requirement of the Protected Areas Act, which stipulates that the management plan, which is to be approved by the Minister, must contain "a zoning of the area indicating what activities may take place in different sections of the area and the conservation objectives of those sections".

The zoning of the Kgalagadi Transfrontier Park was a joint exercise between the South Africa and Botswana, with the assistance of the Peace Parks Foundation, and forms part of an Integrated Tourism Plan. The zoning was based on an analysis and mapping of the sensitivity and value of a park's biophysical, heritage and scenic resources; an assessment of the regional context; and an assessment of the park's current and planned infrastructure and tourist products; all interpreted in the context of park objectives.

2. RATIONALE FOR USE ZONES

The prime function of a protected area is to conserve biodiversity. Other functions such as the need to ensure that visitors have access to the park, and that adjoining communities and local economies derive benefits from the area, potentially conflict with and compromise this primary function. Use zoning is the primary tool to ensure that visitors can have a wide range of quality experiences without comprising the integrity of the environment.

Further, people visit a park with differing expectations and recreational objectives. Some people are visiting a park purely to see wildlife as well as natural landscapes. Others wish to experience intangible attributes such as solitude, remoteness, wildness, and serenity (which can be grouped as wilderness qualities), while some visit to engage in a range of nature-based recreational activities, or to socialize in the rest camp. Different people have different accommodation requirements ranging from extreme roughing it up to luxury catered accommodation. There is often conflict between the requirements different users and different activities. Appropriate use zoning serves to minimizing conflicts between different users of a park by separating potentially conflicting activities such as game viewing and day-visitor picnic areas whilst ensuring that activities which do not conflict with the park's values and objectives (especially the conservation of the protected area's natural systems and its biodiversity) can continue in appropriate areas. Use zones serve to ensure that high intensity facilities and activities are placed in areas that are robust enough to tolerate intensive use, as well as to protect more sensitive areas of the park from over-utilization.



3. PARK USE ZONATION SYSTEM:

The Zoning System

As the park is jointly managed, the SANParks zoning scheme used in other parks could not be applied directly to Kgalagadi. However, the general principles of the SANParks dual zoning system were still applied. The system comprises:

- a) Visitor use zones covering the entire park, and
- b) Special management overlays which designate specific areas of a park that require special management interventions.

The zoning of Kgalagadi Transfrontier Park is shown in Map 4, and summarised in Table One. Full details of the use zones, the zoning process, and the underlying landscape analyses are included in the Kgalagadi Transfrontier Park Joint Zoning Document (2006) which is available on request.

The Zoning process and its linkage to the underlying environmental analysis

The zoning for Kgalagadi Transfrontier Park (including the Kalahari Gemsbok National Park) was underpinned by an analysis and mapping of the sensitivity and value of a park's biophysical, heritage and scenic resources. This analysis examined the biophysical attributes of the park including habitat value (in particular the contribution to national conservation objectives), special habitat value (the value of the area to rare and endangered species), hydrological sensitivity (areas vulnerable to disruption of hydrological processes such as floodplains and wetlands), topographic sensitivity (steep slopes), soil sensitivity (soils that are vulnerable to erosion) and vegetation vulnerability to physical disturbance. In addition, the heritage value and sensitivity of sites was examined (including archaeological, historical and current cultural aspects). The visual sensitivity of the landscape was also examined in order to identify sites where infrastructure development could have a strong aesthetic impact. This analysis was used to inform the appropriate use of different areas of the park, as well as to help define the boundaries between zones. The zoning was also informed by the park's current infrastructure and tourism products, as well as the regional context (especially linkages to neighbouring areas and impacts from activities outside the reserve). Planned infrastructure and tourism products were also accommodated where these were compatible with the environmental informants. These were all interpreted in the context of the park objectives. This was undertaken in an iterative and consultative process. The joint zoning system for KTP was compiled by studying the zoning systems as applied by SANParks (SANParks 2005) in all national parks and by the Botswana Department of Wildlife and National Parks in Moremi and Chobe National Parks. A preliminary draft combining features of both systems was sent to a representative working group for comment. The system was modified as a result of feedback from the group. The resultant first draft was then presented and discussed at a workshop held in Pretoria on 6th April 2006. After discussion the system was extensively

Table 1: Summary of Use Zone Characteristics

USE ZONE	Type of access	Facilities	Max no of visitors	Interaction between users	Vehicles	Notes
Remote (with investigation of potential Wilderness)	No visitor access	Not applicable	0	None	0	
	Only pedestrian. By booking only. One group at a time.	No facilities. Portable camps at designated points. "Pack in Pack it out" principle	8 / group	None	0	
Primitive	Self drive 4x4. By booking only. One group at a time.	No facilities. Portable camps at designated sites. "Pack in Pack it out" principle	12 / group	None	Min 2 and max 6 vehicles	
	Self drive by 4x4. Access routes restricted to visitors with bookings for facilities.	Basic shelter or camping with toilets and showers. Water may be provided.	24	Limited		Rooiputs
Low Intensity Leisure	Self drive by 4x4 and sedan. Concessions with limited vehicle access.	Larger basic camp grounds & small camps (12-24 beds) with fully equipped self contained, self catering units.	24 to 48	Medium		Garragab
High Intensity Leisure	Self drive by sedan.	Moderate camps (50-120 beds) with fully equipped self contained units. Basic shops and petrol	48 to 200	Moderate		Mata Mata 150/ Nossob 180
	Self drive by sedan.	Large camps (120-250 beds) with fully equipped self contained units. Restaurant, shops and petrol	200 to 300	High		Tweerivieren

*Wilderness areas need to be investigated and officially designated.



modified and a draft zoning map was compiled. The system was further modified as the zoning process proceeded and was finalised at a workshop held in Gaborone on 27th June 2006.

Map 5 shows the relationship between the use zoning and the summary products of the biodiversity and landscape sensitivity-value analysis. This indicates that the zoning in this park was only partially successful in including most of the environmentally sensitive and valuable areas into zones that are strongly orientated towards resource conservation rather than tourist use. Table 2 summarises the percentage area of the park covered by each zone, as well as the percentage of the highly environmentally sensitive and valuable areas (defined as areas with values in the top quartile of the sensitivity value analysis) that are in each zone. Almost 85% of the park is covered by zones that are strongly conservation orientated in terms of their objectives (i.e. No visitor access, Very low density, and Low density), with just over 70% being in the most strongly conservation orientated zone (No visitor access). This reflects the "wilderness" aspects of the parks objectives. However, although large portions of the park are well protected, the correlation between the spatial distribution of environmentally sensitive habitats and the conservation orientated zones is not strong in this park, with the Remote zone containing just over 50% of the highly sensitive habitats even though it covers 70% of the surface area. Critically, the tourist orientated Medium Density zone covers almost 15% of the park yet contains over 18% of the most sensitive habitats. This contrasts with the situation in most other parks where the high use zones are generally kept out of sensitive habitats. The key issue is that the very sensitive riverine and calcrete habitats are the focus areas of most tourist activity and contain a very large portion of the established roads. Until the road network is significantly re-orientated out of the riverbeds, this mismatch between the zoning and the environmental sensitivity will persist.

Table 2: Summary of the percentage area of the park covered by each zone, as well as the percentage of the highly environmentally sensitive and valuable areas (defined as areas with values in the top quartile of the sensitivity value analysis) that are in each zone.

		Zone as a percentage of park area	Percentage of highly sensitive areas that are in the zone
Kgalagadi Transfrontier Park			
Conservation orientated zones	No visitor access	70.2	51.2
	Very low density	0.5	1.8
	Low density	14.1	28.6
Tourism orientated zones	Medium density	15.0	18.2
	Moderate density	0.1	0.2
	High density	0.1	0.0

Zone 1: Wilderness Experience

The experience is of complete solitude with no facilities and access is only on foot. The objectives of this zone are comparable to the Remote zone in other parks, and hence they require that deviation from a natural/pristine state should be minimized, and existing impacts should be reduced. The aesthetic/recreational objectives for the zone specify that activities which impact on the intrinsically wild appearance and character of the area, or which impact on the wilderness characteristics of the area (solitude, remoteness, wildness, serenity, peace etc) will not be tolerated. Note that both zones 1a & 1b can be investigated for legal designation as Wilderness Area in terms of the Protected Areas Act in the RSA section of the park. This designation needs further in depth investigation This zone is split into two sections:

Zone 1a. No Visitor access

Characteristics.

Due to the impracticality of accommodating visitor access on foot, large areas of potential Wilderness have been zoned as No Visitor Access. The prime function of this zone is the conservation of biodiversity with only management access allowed.

Access and roads

No public access. Management access under controlled levels of use is obtained by way of two wheeled tracks.

SANParks equivalent zone

The closest equivalent is Remote without visitor access.

Zone 1b Very Low Density Pedestrian

Characteristics

This zone provides experiences of solitude and wildness, but controlled visitor access on foot allowed. In the KTP this zone has been applied in the vicinity of camps to allow for day walks.

Visitor activities and experience

Activities: Confined to small groups on foot under the supervision of trained guides. Several groups may be in area at the same time, but the routes must be defined so that no signs can be seen or heard between the groups. The principles of "Pack it in Pack it out" must be applied.

Interaction with other users: There is no interaction between groups. The size of groups is set at six plus two guides. The numbers of groups within the area will be determined by the ability to ensure that there is no interaction between groups.

Facilities

Type and size: No facilities are provided. Should overnight facilities be provided to serve this zone, these should be placed in the adjoining High, Medium or Moderate Motorised zones.

Sophistication of facilities. No facilities except self carried portable tents. Guidelines for washing, ablution and cooking must be defined according to the "Pack it in Pack" it out principles. Camping only at designated sites.

Audible equipment and communication structures: None.

Access and roads.

Public access is non-motorized. Vehicular access and parking is provided in the adjoining Primitive zone. Management access under controlled levels of use is obtained by way of two wheeled tracks.

SANParks equivalent zone. Remote

Zone 2. Primitive

The prime characteristic of the zone is the experience of wilderness qualities with access controlled in terms of numbers, frequency and size of groups. No facilities or only very basic facilities are provided and access roads are restricted to only those visitors with bookings. The numbers of vehicles and visitors are kept to a minimum. The conservation objectives for this zone require that deviation from a natural/pristine state should be small and limited to restricted impact footprints, and that existing impacts should be reduced. The aesthetic/recreational objectives for the zone specify that activities which impact on the intrinsically wild appearance and character of the area, or which impact on the wilderness characteristics of the area (solitude, remoteness, wildness, serenity, peace etc) should be restricted and impacts limited to the site of the facility. Ideally visitors should only be aware of the facility or infrastructure that they are using, and this infrastructure/facility should be designed to fit in with the environment within which it is located in order to avoid aesthetic impacts. This zone is split into two:

Zone 2a Very Low Density Motorised

Characteristics

The prime characteristic of the zone is the experience of wilderness qualities with the accent on controlled motorized access. Access by way of 4x4 on two-spoor tracks is only allowed for one group by booking. This zone has also been applied on the 2km buffer zone around the perimeter of the park to allow park management access by vehicle.

Visitor activities and experience

Activities: Game viewing on 4x4 routes.

Interaction with other users. None. Only one group of 2 vehicles (for safety) with a maximum of 6 visitors per vehicle allowed per night.

Facilities

Type and size: Self supply camping at designated sites for groups of up to 12



Sophistication of facilities: No facilities

Audible equipment and communication structures: No cell phone or radio coverage/usage.

Concessions: No concessions.

Access and roads

Controlled access by 4x4 is limited to one group of maximum 12. For safety reasons, a minimum of two vehicles per group is required with a maximum of 6 vehicles. Only two wheel tracks are provided. These may be reinforced where required to prevent environmental damage.

Management guidelines

Management must ensure that only groups with bookings access the area. The state of tracks must be monitored to ensure erosion on tracks is controlled. Where necessary, tracks may be stabilized to contain erosion.

SANParks equivalent zone: Primitive.

Zone 2b Low Density Motorised

Characteristics

The prime characteristic of the zone is the experience of wilderness qualities with the accent on controlled 4x4 access to basic facilities. Access on the tracks is only allowed to those with bookings in the facilities. The zone shares the wilderness qualities of the Wilderness category, but with the provision of basic shelter or camping, and motorized access. Only ablutions and water are provided, although in some instances visitors may have to provide their own water. This zone was designated along existing 4x4 access routes through the otherwise roadless wilderness blocks, in areas adjacent to the Nossob River, and along the north-eastern boundary in Botswana.

Visitor activities and experience

Activities: Game viewing on 4x4 routes.

Interaction with other users: Minimal Only 24 visitors per overnight site.

Facilities

Type and size: Small (less than 16 visitors) "touch the earth lightly" shelters/ campsites. Facilities are very basic and are distributed to avoid contact between users. In some instances the zone may have no facilities and visitors overnight in adjoining zones.

Sophistication of facilities: Basic facilities providing shelter, toilets, showers and water. Cooking and heating are self provided.

Audible equipment and communication structures: No cell phone or radio coverage/usage.

Concessions: No concessions.

Access and roads

Controlled access is limited to users of the facilities. Access is by 4x4. Only two wheel tracks are provided. These may be reinforced where required to prevent environmental damage.

Management guidelines

Management must ensure that interaction between users is limited and that only users of facilities are given access. The state of tracks must be monitored to ensure erosion on tracks is controlled. Where necessary, tracks may be stabilized to contain erosion.

SANParks equivalent zone: Primitive

Zone 3 Comfortable

An experience of solitude is provided in small self-catering camps with access roads only open to visitors with bookings for the facilities. The conservation and aesthetic/recreational objectives for this zone are the same as the Primitive zone. Facilities are fully equipped and visitors only need to provide and prepare their own food.

Zone 3a Medium Density Motorised

Characteristics

The underlying characteristic of this zone is self driven access with self catering accommodation units in small "Touching the Earth Lightly" camps. Access is only for visitors with bookings for the facilities. In concession areas access may be limited to transport provided by the operator. Relatively comfortable facilities are positioned in the landscape retaining the inherent natural and visual quality which enhances the visitor experience of a more natural and self providing experience. In concession areas the accommodation may be more luxurious. Access roads are low key tracks to provide a more *wild* experience.

Visitor activities and experience

Activities: Self drive motorized 4x4 and /or sedan car game viewing.

Interaction with other users: Low (limited to the number of beds in the camp)

Facilities

Type and size: Small self catering (including camping) camps of low density, 8-24 beds.

Sophistication of facilities: Self contained self catering units with bathroom facilities. Camp sites will include ablution facilities. Additional facilities can include swimming pools.

Audible equipment and communication structures: No cell

phone coverage. Radio coverage for emergencies and management.

Access and roads

Access is limited to visitors with bookings in the accommodation. Self drive 4x4 or sedan access (traditional game viewing) on designated tracks. In concession areas open safari vehicles may be the only form of access allowed.

Management guidelines

This zone is also suitable to be allocated to concessions with limited and controlled access

SANParks equivalent zone: Low Intensity leisure, but with access to visitors with bookings only.

4. Developed

Access is by sedan vehicles with larger camps providing self-catering accommodation. Additional facilities such as shops, restaurants and fuel are available. The conservation and aesthetic objectives for this zone are specified in the subsections below, as they differ slightly.

Zone 4a Moderate density motorized

Characteristics

The underlying characteristic of this zone is self-driven access with self-catering accommodation units and camping in medium sized camps. These camps are without modern facilities such as restaurants, but petrol dispensing and small shops with basic supplies are provided. Access roads are accessible to sedan vehicles. Facilities along roads include basic self-catering picnic sites with toilet facilities. The conservation objectives for this zone specify that although deviation from a natural/pristine state should be minimized and limited to restricted impact footprints as far as possible, it is accepted that some damage to the biophysical environment associated with tourist activities and facilities will be inevitable. The aesthetic/recreational objectives for the zone specify that although activities and facilities will impact on the wild appearance and reduction of the wilderness characteristics of the area (solitude, remoteness, wildness etc) is inevitable, these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience. The current park access and game viewing roads along the Nossob and Auob Rivers, as well as associated small and medium camps, were included within this zone.

Visitor activities and experience

Activities: Self drive motorized game viewing

Interaction with other users: Moderate to high

Facilities

Type and size: Self catering (including camping) camps of medium density with up to 200 beds including camp sites. Additional facilities can include swimming pools. Day visitor sites should not be placed within the camps. Day visitor sites must relate to the general self catering characteristic of the



zone. Accommodation for essential staff is provided.

Sophistication of facilities: Self contained self catering units with bathroom facilities with running hot and cold water. Camp sites will include communal ablution and washing facilities.

Audible equipment and communication structures: Cell phone coverage in vicinity of camps if achievable. Code for use for cell phones and radios required to retain relative level of solitude. There should be a policy on new cell phone coverage.

Access and roads

Self drive sedan car access (traditional game viewing) on designated routes which are preferably gravel roads. Because of the provision of petrol and shops roads need to be accessible to delivery vehicles. The number and size of delivery vehicles needs to be managed. Roads are secondary tourist roads or minor game viewing roads. Interpretative centres, picnic sites, view sites, ablution facilities may be provided along the roads.

Management guidelines

This zone is also suitable to be allocated to concessions with limited access. Facilities for day visitors (those not using the overnight facilities) should be placed outside of the camp. If this is not possible, then separate facilities should be provided within the camp in such a way that they do not interfere with the experience of overnight visitors. The extent of use of access roads by delivery vehicle for petrol and shops needs to be regulated to avoid disruption of the visitor experience.

SANParks equivalent zone: Low Intensity leisure

Zone 4b High density motorized

Characteristics

The main characteristic is that of a high density tourist development node with modern amenities. This is the zone where more concentrated human activities are allowed. The conservation objectives for this zone specify that the greatest level of deviation from deviation from a natural/pristine state is allowed in this zone, and, it is accepted that damage to the biophysical environment associated with tourist activities and facilities will be inevitable. However, care must be taken to ensure that the zone still retains a level of ecological integrity consistent with a protected area. The aesthetic/recreational objectives for the zone specify although the high visitor numbers, activities and facilities will impact on the wild appearance and reduction of the wilderness characteristics of the area (solitude, remoteness, wilderness etc) is inevitable, these should be managed and limited to ensure that the area gener-

ally still provides a relatively natural outdoor experience appropriate for a National Park. In KTP this zone was only designated at the Twee Rivieren/Two Rivers node.

Visitor activities and experience

Traditional game viewing routes with associated infrastructure which is more sophisticated than other zones.

Activities: Self drive sedan car game viewing.

Interaction with other user: Frequent

Facilities

Type and size: High density camps up to 300 beds providing tourist accommodation with modern amenities. Restaurants, shops and education centres.

Day visitor sites are provided outside of main camps: Day visitor sites or picnic sites may provide catered facilities and kiosks.

Staff villages and administrative centres restricted to core staff: If possible, non essential staff housing and administration should be positioned outside of the park. Industrial type facilities such as workshops should preferably be sited outside of the park.

Sophistication of facilities: Moderate to high density up to 300 beds. Self catering and catered.

Audible equipment and communication structures

Cell phone coverage in vicinity of camps. Code of use for use of cell phones and radios required to retain relative level of solitude.

Access and roads

The zone is highly motorised including busses and delivery vehicles. There is a need to distinguish between roads that serve as high access delivery route to camps, link roads between camps and game viewing roads.

Management guidelines

As there is a high density use, visitor and traffic management is essential. Rules as to visitor conduct must be set and strictly enforced. Indicators and standards need to set and monitored to ensure that visitor experiences are not negatively influenced by density of use.

SANParks equivalent zone

High Intensity Leisure. It must however be noted that this zoning is relevant to KTP and that this zone as applied KTP is not

equivalent to the application in other RSA National Parks

Special Management Overlays of Kgalagadi Transfrontier Park

Special management overlays which designate specific areas of the park that require special management interventions (e.g. areas requiring rehabilitation) were identified. Three areas were designated (Map 4).

a. Special Conservation/Protection

These are areas of extreme sensitivity, exceptional diversity, endemism and rarity (eg. red data and endemic species). These areas do not necessarily exclude tourist activities, but if access to the area is allowed, it must be managed and controlled appropriately. Under certain circumstances the sensitivity of the zone will be such that all visitors are excluded.

Special Conservation Areas – River and riverine habitats: In KTP the special conservation zone has been applied to the Auob and Nossob river beds. This indicates that the road must be rerouted wherever possible to allow for rehabilitation of the riverine system. Also special management specifications must be compiled for the rivers and in particular the roads where they are to remain in the river beds. It is recommended that a long term management strategy be compiled for the Nossob and Auob river systems with particular emphasis on the roads.

Special Conservation Areas – Pans:

This overlay has also been applied to all pans in the KTP. Special management guidelines should be compiled for pans with particular emphasis on visitor and management access.

b. Rehabilitation

These areas are currently not suitable for the intended zoning, but after rehabilitation can serve the intended role. In the KTP areas where the road has been rerouted may be zoned No Visitor access once rehabilitation has been completed.

c. Community Use

The community overlay delineates areas for the use of designated communities living in or on immediately adjacent to the park. This area is used to conduct commercial tourism activities and for the sustainable use of veld products. The zone is intended to benefit adjacent communities in terms of revenues from activities such as lodges, photographic safaris and consumptive use of natural resources. Guidelines for the use of the area must be compiled in conjunction with the relevant communities. Communities may also enter into joint ventures with a tour operator for the development of tourism facilities within the zone.

Each area is designated for the use of the registered members



of a specific adjacent community. Before the community becomes involved in the planning, management and use of the zone the designated community must form a legal entity such as a trust. Following the formation of the legal entity and the designation of the community use area for a particular community, all planning and management of the area must be carried out in consultation with the legal entity. Development will correspond to the designated zone. Means must be sought for the transferring of financial and other benefits to the designated community.

4. THE PARK INTERFACE ZONE

The Park Interface Zone for the South African section of the Kgalagadi Transfrontier Park is shown in Map 6. The Park Interface Zone shows the areas within which landuse changes could affect the national Park. The zones, in combination with guidelines, serve as a basis for a.) identifying the focus areas in which park management and scientists should respond to EIA's, b.) helping to identify the sort of impacts that would be important at a particular site, and most importantly c.) serving as the basis for integrating long term protection of a national park into the spatial development plans of municipalities (SDF/IDP) and other local authorities. In terms of EIA response, the zones serve largely to raise red-flags and do not remove the need for carefully considering the exact impact of a proposed development. In particular, they do not address activities with broad regional aesthetic or biodiversity impacts.

The Park Interface Zone for Kgalagadi is not differentiated into categories, as is done in other parks. The whole area should be considered to be a Priority Natural Area. These are key areas for both pattern and process that are required for the long term persistence of biodiversity in and around the park. Inappropriate development and negative land-use changes should be opposed in this area. Only developments that contribute to ensuring conservation friendly land-use should be viewed favourably. Development proposals in this area should be carefully screened to ensure that they do not impact excessively on the aesthetics of the park.

5. CURRENT STATUS AND FUTURE IMPROVEMENTS

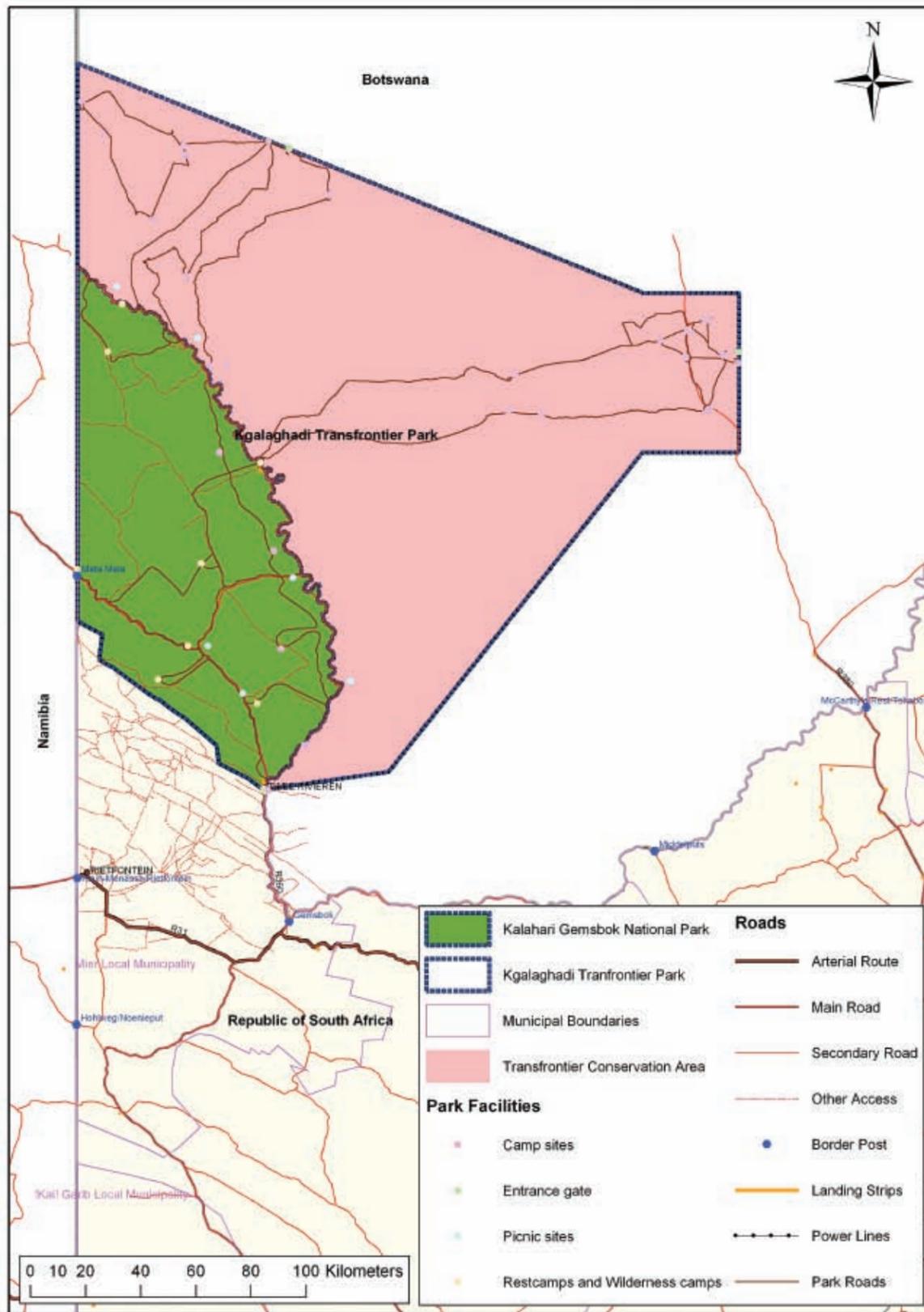
Certain elements of the Kgalagadi Transfrontier National Park CDF have not yet been finalized. Areas with wilderness characteristics within South Africa will be investigated for possible formal declaration as Wilderness Areas in terms of Section 22 of the PAA.

6. REFERENCES

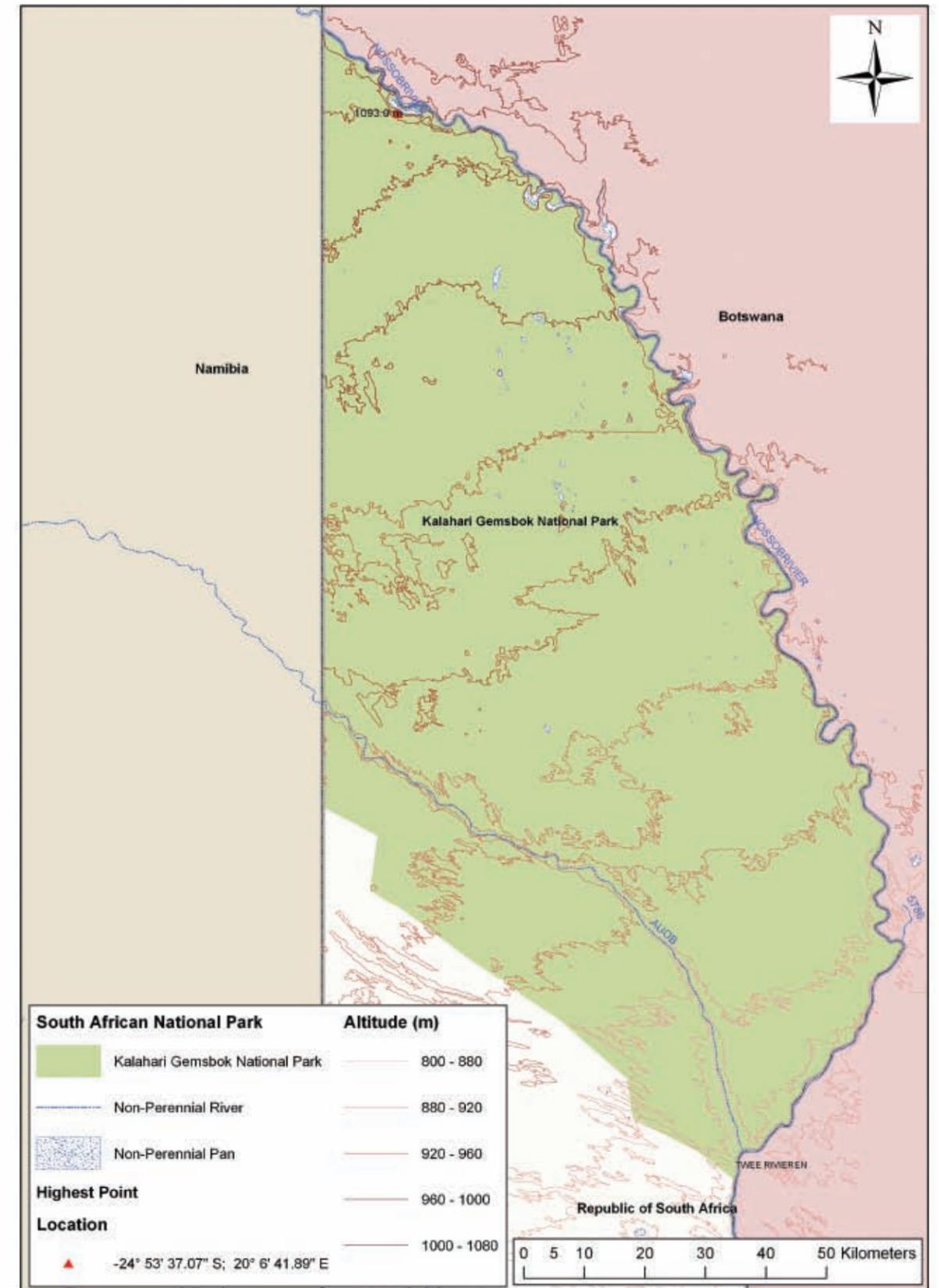
- Department of Environmental Affairs and Tourism. 2003. National Environmental Management: Protected Areas Act (Act 57 of 2003). Department of Environmental Affairs and Tourism, Pretoria.
- Kgalagadi Transfrontier Park, July 2006. Kgalagadi Transfrontier Park Joint Zoning Document, Pretoria.
- SANParks. September 2005. Sensitivity-Value analysis Manual. Unpublished. SANParks , Pretoria.
- SANParks. November 2005. CDF Planning Manual. Unpublished. SANParks , Pretoria.

APPENDIX 2

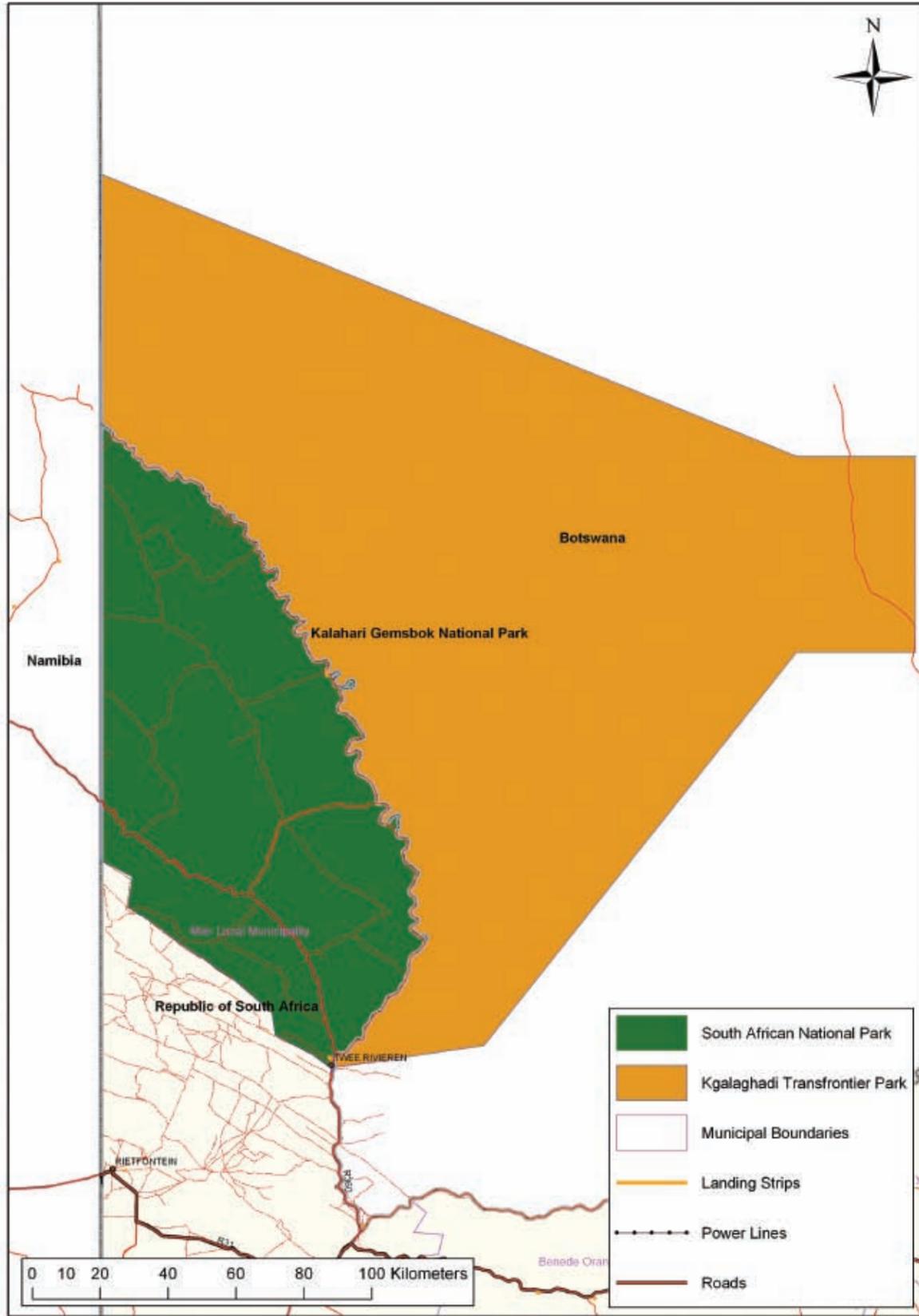
Map 1 – Regional Map



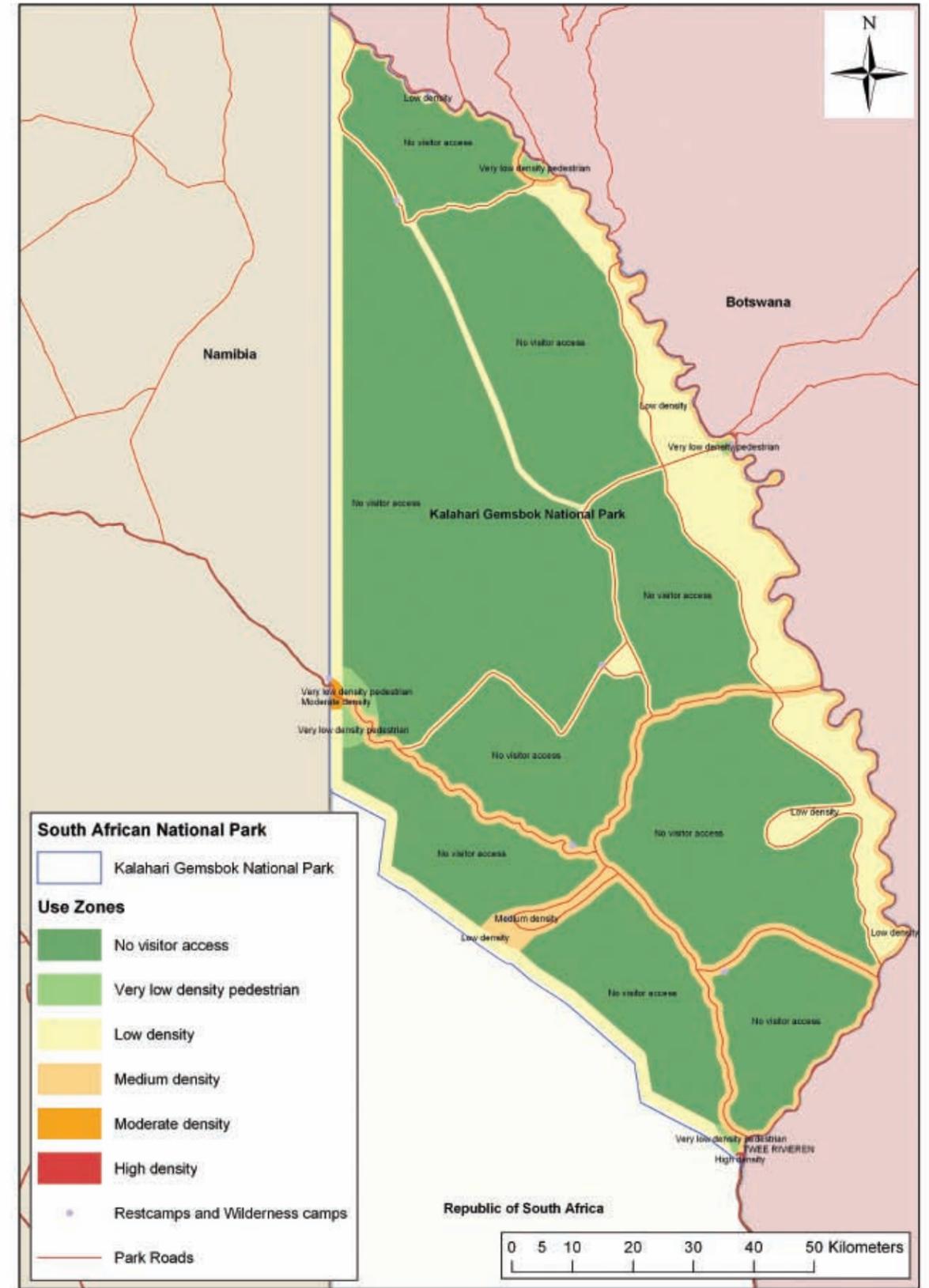
Map 2 – Physical features of the park



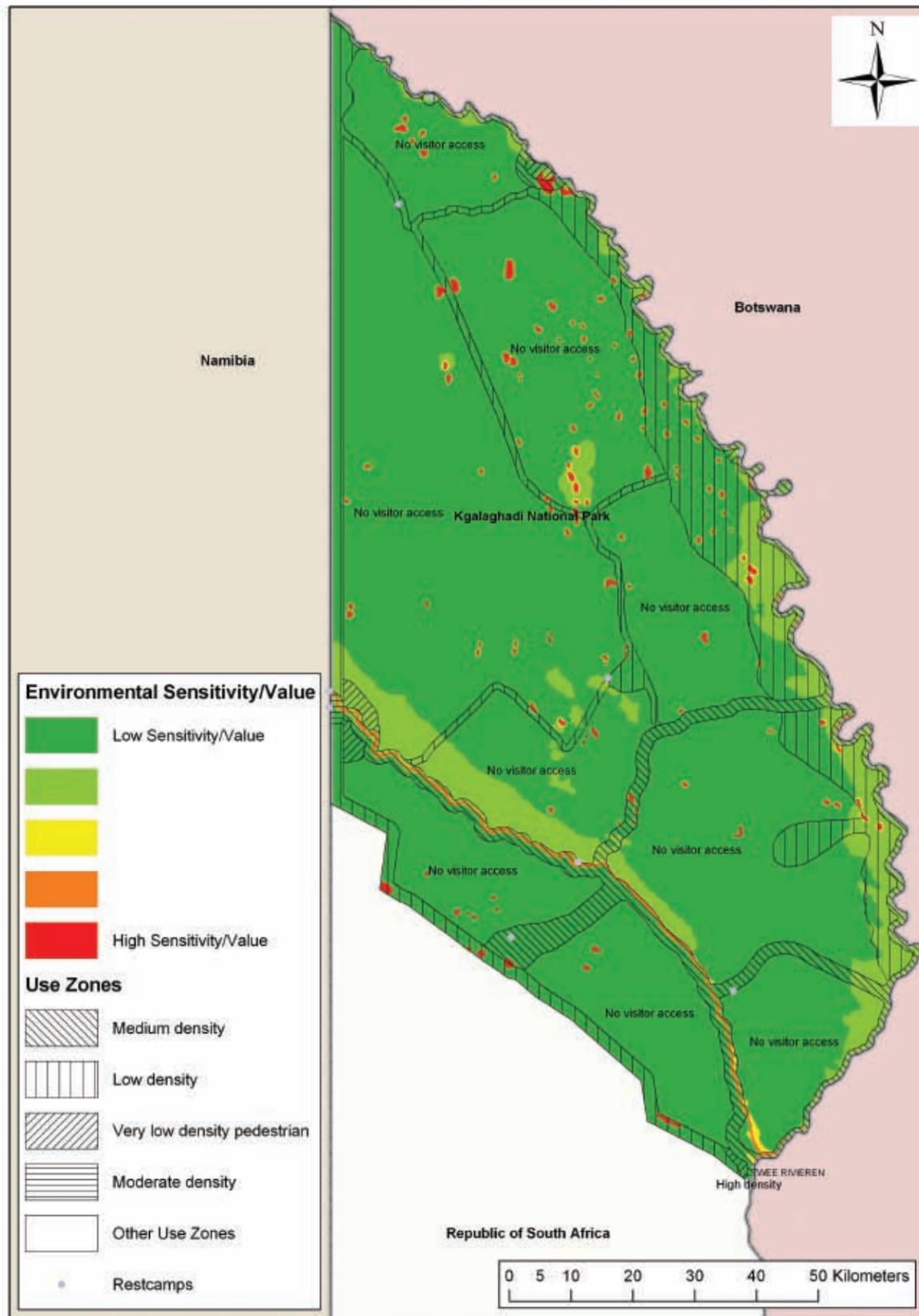
Map 3 – Land tenure and park expansion



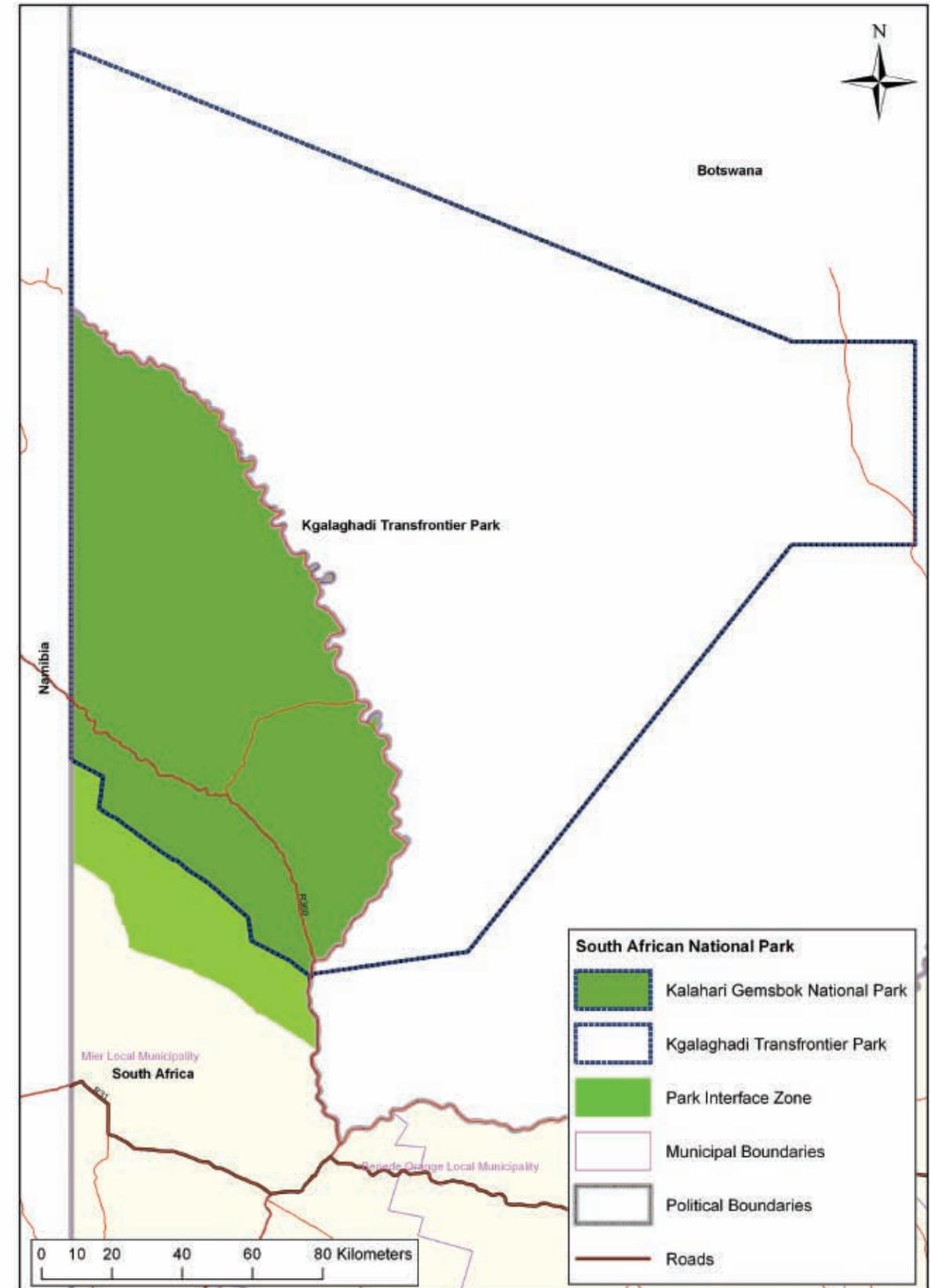
Map 4 – Zoning map

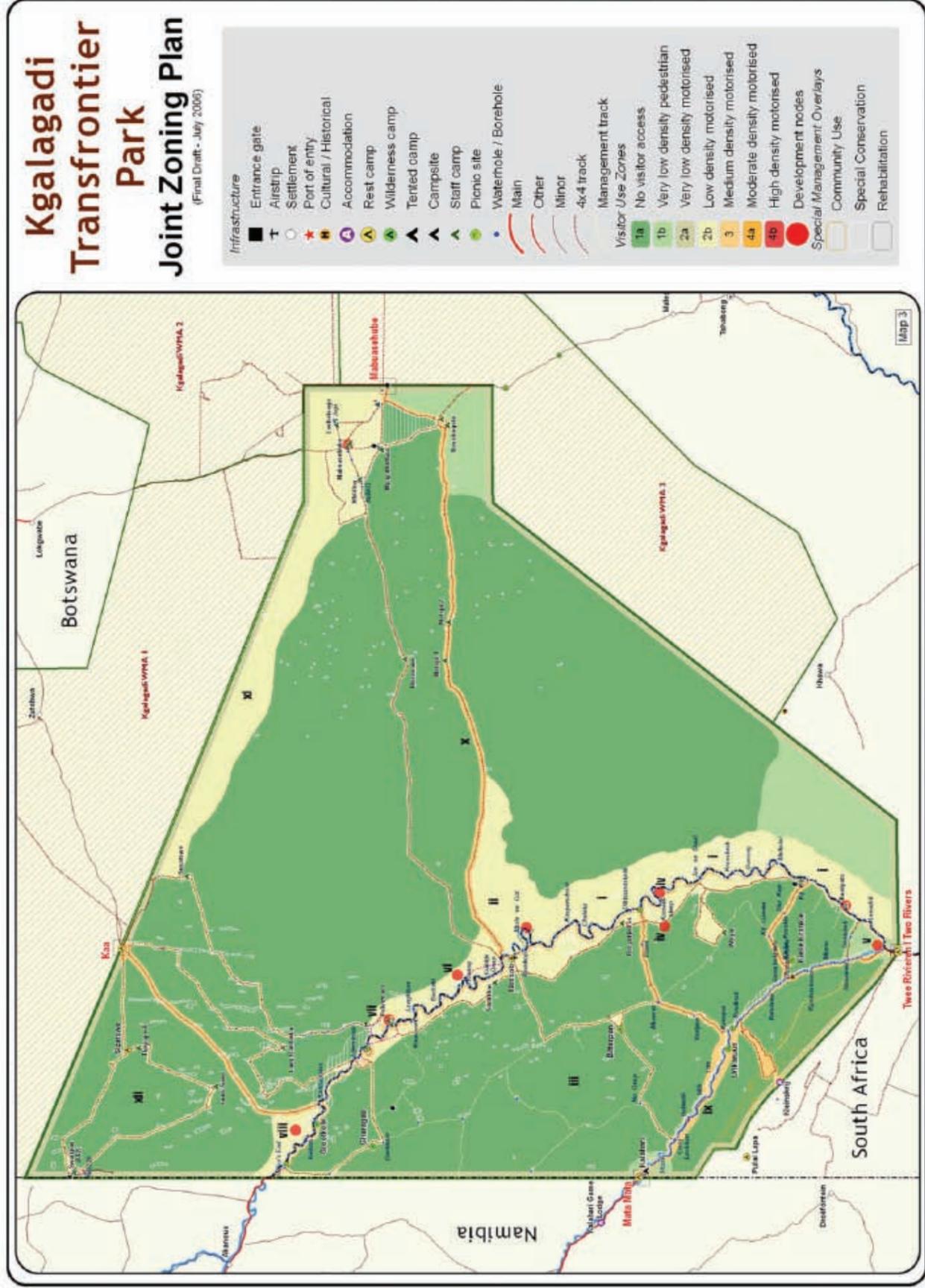


Map 5 – Zoning with sensitivity value



Map 6 – Areas or interface zones





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