



# Kruger National Park

## Management Plan



Revised and Updated December 2008

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the wider SANParks.*

**South African National Parks would like to thank everybody who participated in the  
development of this document**

## EXECUTIVE SUMMARY

Kruger National Park (KNP) is arguably one of South Africa's premier conservation enterprises, having arisen from what were originally large tracts of disease-ridden land in the lowveld area of north-eastern South Africa. Established initially as the Sabie Game Reserve, and later proclaimed as the Kruger National Park in 1926, it went through many paradigm shifts over the century. From the beginnings of ecotourism game-viewing in South Africa, through an era of assertive hands-on management and research, and growing tourism, to a situation today when management strives to be more hands-off but highly adaptive in the light of research and monitoring, KNP has remained a national and international icon. In the mid-1990s, amidst tumultuous political and social change in South Africa, KNP redefined its relationship with stakeholders from one of perceived "fortress conservation" to one of far more open involvement and more conscious regional co-operation and information-sharing. Thus, for instance, KNP sees itself as integrally embedded in the Greater Limpopo Transfrontier Conservation Area and forthcoming north-eastern escarpment bioregion, with research, monitoring and adaptive learning growing stronger.

In 1997, KNP followed a public process of determining a desired state, the three focus areas then being *biodiversity, human benefits and wilderness*. At the first revision, of which this particular plan represents the output, the three important mainstays have remained but *cultural heritage* and later *constituency building* were added to the mission. Supporting this overarching mission, there is a detailed objectives hierarchy (with more defined goals) and eventually, below these, a zoning plan and detailed endpoints of ecosystem change. These endpoints represent the now well-known thresholds of potential concern (TPCs), and play a pivotal role in articulating the desired state to exact specifications, difficult though this is when a fundamental tenet is to allow as much change as possible in a natural system. This philosophy (desired state represented ultimately by thresholds) owes its origin to the KNP Rivers Research Programme which, during the 1990s, had taken on the beleaguered cause of the perennial rivers flowing through KNP with headwaters outside the park (this is an ongoing and major theme in park management to this day). The philosophy has proven robust and useful for general implementation in ecosystem management, and is currently used in KNP as an objective instrument to help determine when park authorities should be concerned about a wide range of issues, including impacts of herbivory (especially elephant).

Important breaches in co-operative governance arrangements led to recent river crises, and this feedback loop at provincial and national level is now receiving focused attention to prevent a recurrence. Other important themes in the biophysical desired state in KNP include fire and nutrient cycling, pollination, disease and alien invasions. All this is put together under the general heading of heterogeneity, a desired level of landscape patchiness and function, and one which is undergoing healthy oscillations characteristic of a savanna. South African National Parks (SANParks) is of the view that such a configuration underlies all diversity. What were previously major thematic programmes (such as fire, elephant, surface water management, river management, neighbour relations, etc.) are becoming increasingly merged into more unitary overall programmes. While it is still a little early in our history to completely unify terrestrial and aquatic biodiversity programmes (although common ground has been found) and to perhaps flange social and biodiversity programmes into one joint form, terrestrial biodiversity issues are presented here, and treated in practice, as one larger programme, albeit with interdigitated sub-programmes. This is testimony to clear understanding of our integrated mandate, and the complementary role of each issue. There are currently several major biodiversity thrusts (including responses to poor river flow, a critical assessment of the role of elephant herbivory along with other ecosystem drivers, alien invasions which are generally currently under

reasonable control (an exception being bovine tuberculosis), increased anti-poaching and control of developments on the KNP boundary, and an ongoing interest in species conservation (key species in KNP are black rhino, wild dog, pepperbark tree, wild ginger and Swazi impala lily). A justification framework helps prioritise these and other species which also require action, and trade this off against the modern need for overall ecosystem conservation.

Another crucial specification at the detailed planning end of the desired state is the zoning plan which is based on the conservation development framework guideline for SANParks. Although not complete, this zoning plan is based on the well-used precursor, the Recreational Opportunity Zonation Plan. Tourism objectives have always been strong, but are now developed as explicit statements during this revision, with care being taken to integrate tourism development needs with ecosystem and particularly wilderness and sense-of-place objectives. KNP has identified candidate areas for formal designation as wilderness areas in line with the statutory provisions of the Protected Areas Act in support of another major theme, namely the maintenance of wilderness experiences in one of the few remaining parks in South Africa where this is possible over wide areas.

Tourism development in KNP is currently undergoing strategic review in line with principles of responsible tourism and KNP's forward-going paradigm shift towards providing high quality cultural and nature-based experiences. The KNP's People and Conservation Department continues to widen empowerment opportunities for local people and enhancing the cultural heritage portfolio. A key project in this regard in the next five years is a systematic heritage resource inventory and the development of a heritage plan linked to tourism opportunities.

Outside the biophysical and tourism realm, major themes in the desired state include the mapping, auditing and the development of preservation, conservation and management plans of cultural heritage landscapes and resources (notably Thulamela and Masorini sites, and the wide-spread San Rock Art) within the thematic domain of People and Conservation. Other major thrusts are initiatives for local economic empowerment, with other programmes such as 'Working for Water' while, environmental education and youth development are aimed at promoting a conservation ethic. Neighbour and regional benefits are seen as increasingly important, as is our core position vis-à-vis the Greater Limpopo Transfrontier Conservation Area, involving Zimbabwe and Mozambique. Finally, it is now explicitly recognised that the KNP must mobilise a significant constituency behind its cause. All these core objectives are supported using well-developed integrating and adaptive techniques, and all are enabled in an aligned way by a range of services such as conservation management and advice, technical services that ensure infrastructure and road development, maintenance and rehabilitation, water and energy provision and waste management, administration, human resources, game capture and so forth.

Finally, KNP has an integration developing ability, and an institutionalised adaptive management system. The theory and practice of this, including knowledge management and group learning dynamics, will receive attention in the next five year cycle, in order to keep KNP fit for adaptation.

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## ii. LIST OF ACRONYMS AND ABBREVIATIONS USED

CDF:	Conservation Development Framework
DEAT:	Department of Environmental Affairs and Tourism
DWAF:	Department of Water Affairs and Forestry
DoA:	Department of Agriculture
EPWP:	Expanded Public Works Programme
GLTP:	Great Limpopo Transfrontier Park
GLTCA:	Great Limpopo Transfrontier Conservation Area
IDP:	Integrated Development Plan
IUCN:	International Union for the Conservation of Nature
KNP:	Kruger National Park
NEEB:	North-Eastern Escarpment Bioregion
NEMA:	National Environmental Management Act
NEMBA:	National Environmental Management: Biodiversity Act
NEM: PAA:	National Environmental Management Protected Areas Act
SADC:	Southern African Development Community
SAHRA:	South African Heritage Resources Agency
SANBI:	South African National Biodiversity Institute
SANParks:	South African National Parks
SMMEs:	Small, Micro and Medium Enterprises
TPC:	Threshold of Potential Concern
WFW:	The Working for Water Programme
CITES:	Convention on the International Trade in Endangered Species of Wild Fauna and Flora
MOU:	Memorandum of Understanding
PPF:	Peace Parks Foundation
ICDP:	Integrated Conservation Development Plan
WWF:	World Wide Fund for Nature
EWT:	Endangered Wildlife Trust
JMB:	Joint Management Board
AHEAD:	Animal Health for Environment and Development
EIA:	Environmental Impact Assessment
GLICP:	Great Limpopo Integrated Conservation Plan
MTPA:	Mpumalanga Tourism and Parks Agency
LEDET:	Limpopo Department of Economic Development, Environment and Tourism
EMF:	Environmental Management Frameworks
WfWet:	Working for Wetlands
WFW:	Working for Water
DCA:	Damage-causing Animals
TPARI:	Transboundary Protected Areas Research Initiative
KMIA:	Kruger Mpumalanga International Airport

### iii. GLOSSARY OF SELECTED WORDS

**Biological diversity** - the variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems [CBD] (also shortened to “biodiversity”). Biodiversity includes the number, abundance and composition of genotypes, populations, species, functional types and landscape units within a given system [Millennium Ecosystem Assessment]

**Biological resources** - includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity [CBD]; the term therefore refers mainly to use of species and genes

**Conservation Development Framework** - this is a guide for a national park to establish a coherent spatial framework to guide and coordinate conservation and development initiatives in and around the park

**Conservation** - management of human use of the biosphere to yield the greatest benefit to present generations while maintaining the potential to meet the needs and aspirations of future generations; this includes sustainable use, protection, maintenance, rehabilitation, restoration and the enhancement of the natural environment [Biodiversity White Paper]

**Desired State** - Is based on a collectively developed vision of a set of a desired future conditions that integrates ecological, socio economic and institutional perspective applied within a geographical framework defined primarily by natural ecological boundaries [SANParks adaptive management frame work]

**Ecosystem** - a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit [CBD, NEMBA, NEMPAA]

**Heritage** - Is the sum total of the wild life and scenic parks, sites of cultural and historical importance, archaeological, palaeontological and cultural objects national monuments, historic buildings, works of art, literature and music, oral traditions and their collection and documentation which provides the basis for a shared culture and creativity of the arts

**IDP** - A plan compiled by a Municipality describing the zoning and services for the Integrated Development of an area

**Invasive species** - any species whose establishment and spread outside its natural distribution range threatens (or has the potential to threaten) ecosystems, habitats or other species, and which may result in economic or environmental harm or harm to human health [NEMBA]

**Park forum** - The recognized stakeholder forum through which park-based stakeholder participation in SANParks is to be achieved.

**Stakeholder participation** - The participation of an interested and affected party in the development of an aspect of the management plan, such that they are afforded the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation

**Sustainable use** - the use of components of biological diversity, or biological resources, in a way and at a rate that does not lead to long-term decline of the resource and does not disrupt the ecological integrity of the ecosystem in which it occurs, thereby maintaining its potential to meet the needs and aspirations of present and future generations [CBD/NEMBA]

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## **v. OVERVIEW OF THE SANPARKS MANAGEMENT PLANNING PROCESS**

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 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 below.

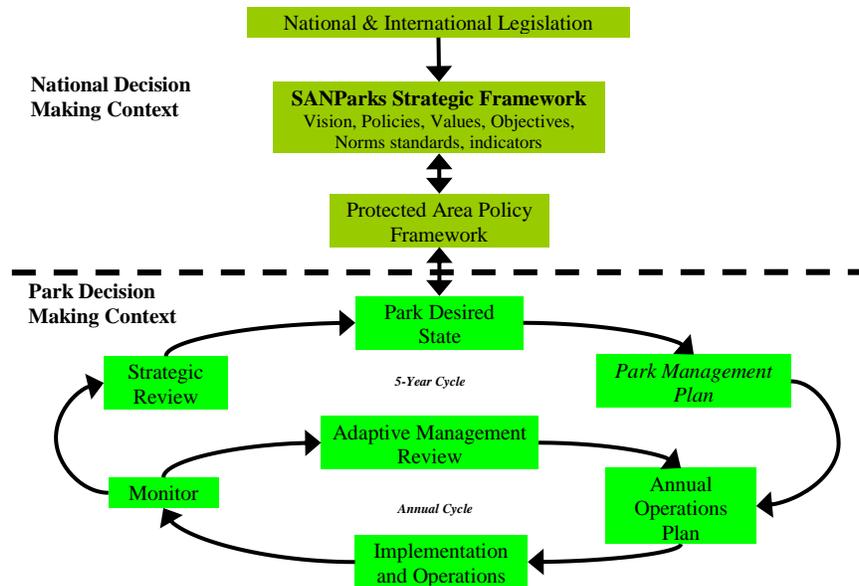


Figure 1: Protected areas planning framework

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.

The key functions of this management plan are to:

- ensure that the KNP 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; and
- set the intent of the Park, and provide explicit evidence for the financial support required for the Park.

This management plan for KNP comprises four broad sections:

- (1) the background to and outline of the desired state of the KNP and how this was determined;
- (2) a summary of the management strategies, programmes, projects and initiatives that are required to move towards achieving the desired state (obviously these strategies, programmes and projects can extend over many years but the management focus until 2013 is presented);
- (3) an outline of the Strategic Adaptive Management methodology and strategies that will ensure that the KNP undertakes an adaptive approach to management. It focuses park management on

those critical strategic issues, their prioritisation, operation and integration, and reflection on achievements to ensure that the longer-term desired state is reached; and

(4) presentation of a high level costing.

In addition, an Appendix of Maps provides selected detailed supporting maps to this plan and the Appendix of Lower Level Programmes outlining the operationally-focussed components of the various programmes is available on request.

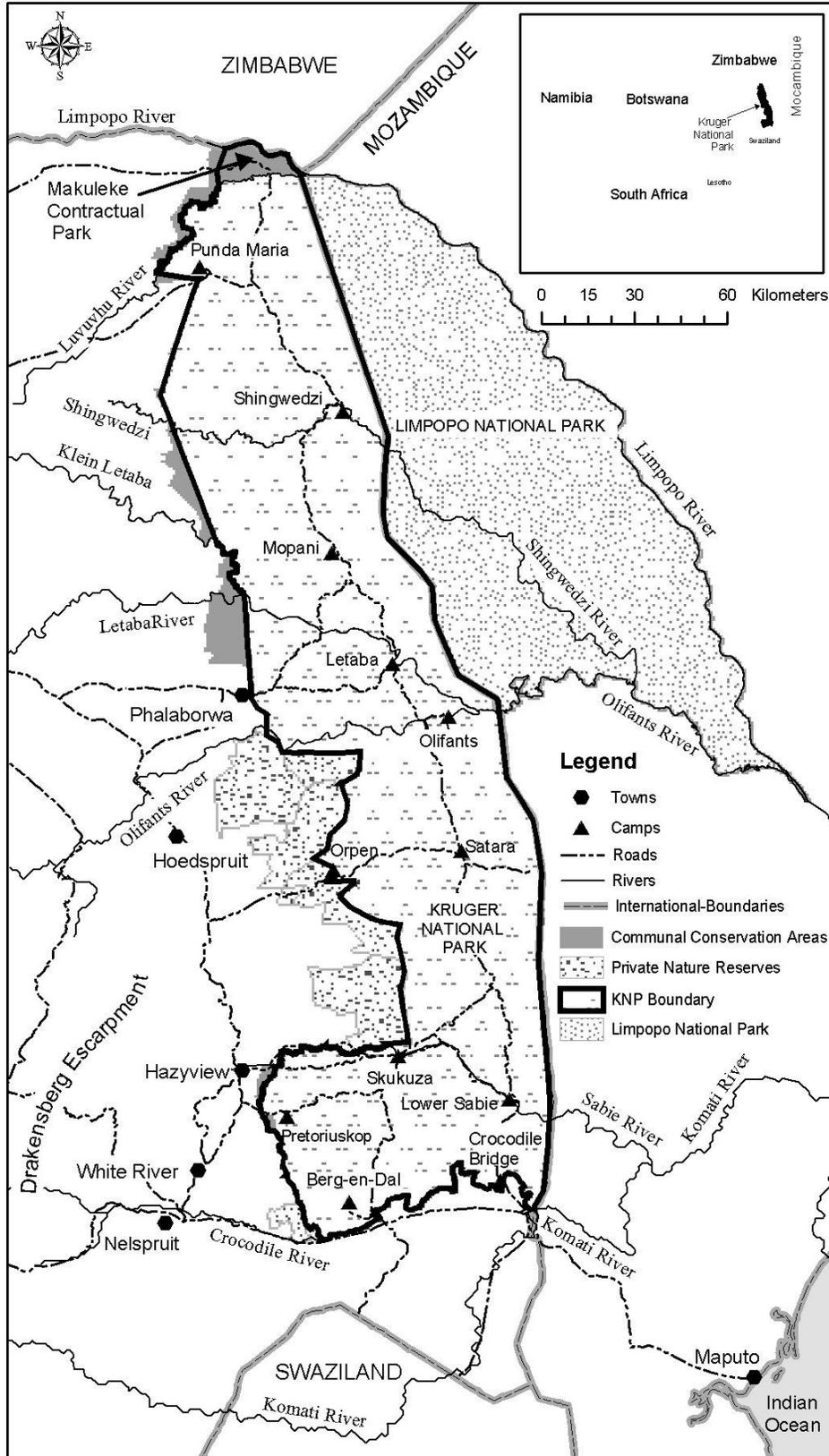


Figure 2: Broad contextual map of KNP in north-eastern South Africa.

## 1. BACKGROUND TO AND FORMULATION OF THE PARK DESIRED STATE

This section deals with the setting of a park desired state through the adaptive planning process (Rogers 2003; Cowan 2006), from the general to the specific, focusing on unique attributes of Kruger National Park (KNP). 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 values (SANParks 2006) which accept that change in a system is ongoing and desirable.

### 1.1 The fundamental decision-making environment

The three pillars of the decision-making environment are seen as the mission statement, the context, and thirdly, the values and operating principles. Although derived through a process, the mission is stated upfront, but much of the supporting materials which helped form it are captured under other headings further down the document. As mentioned below, much of sections 1.1 and 1.2 were derived through stakeholder engagement using the adaptive planning approach, and thus reflect a shared desired state derived jointly by integrating stakeholders’ desires and SANParks’ mandate. This has resulted in a suite of jointly agreed-upon high level objectives for this park. The expansion of these high level ideas were presented as part of an integrated proposal of a management plan at three public meetings held in terms of the Protected Areas Act on 23, 25 and 30 August 2006. In addition, as part of the management plan process, KNP officials held focus group meetings and engaged with concessionaires and contractual partners specifically. Also, upon the request of local communities or contractual partners, KNP personnel endeavour, in an ongoing way, to provide requested information and to attend capacity development sessions.

#### 1.1.1 Mission

***In keeping with the SANParks mission, Kruger National Park strives to maintain biodiversity\* in all its natural\*\* facets and fluxes, to provide human benefits\*\*\* and build a strong constituency and preserve as far as possible the wilderness qualities and cultural resources associated with the Park***

\* sensu Noss (1990), embracing the three facets of structure, function and composition; and incorporating heterogeneity and dynamism (the fluxes) at multiple scales.

\*\* ‘natural’ appears only in front of ‘facets and fluxes’, see Rogers (2005). Additionally, the notion of ‘indigenous’ although tricky when applied to near-local transfer of biota, is also now regarded as part of ‘natural’.

\*\*\* sustainable use as a benefit is explicit in SANParks’ overall mission and is cautiously interpreted in the previous KNP mission. This concept is under ongoing discussion and formulation in SANParks (see Rogers (2005) and relevant SANParks grey literature).

An important landmark in the KNP was the first publicly-derived mission statement in the mid-1990s. At the time, the idea of having all stakeholders contributing directly to its formulation was a new concept for KNP. Park leaders soon learnt that this was the way they now needed to operate in a post-apartheid South Africa, the immediate impetus for this initiative (setting clear objectives in the full public domain) having been the elephant debate at that time. The series of public meetings that took place set KNP off in a new direction regarding the way it generates and continually checks its social

contract (described in SANParks 2005). The resultant 1997 mission statement and ensuing objectives stood on three legs – biodiversity, human benefits and wilderness (see Braack 1997a). This 1997 plan was dominated by biodiversity issues, with some mention of social ecology. The KNP management plan based on this mission was only finally approved by the SANParks Board in 1999 although, effectively, the implementation of most major non-contentious issues had already begun in 1998. An interim internal audit was carried out late in 2000 (Biggs & Van Wyk 2000), and by 2004 preparations were being made for the first full revision, admittedly slightly beyond the five year mark.

Cognisant of likely developments under the impending Protected Areas Act, but driven by its internal commitment to a five-yearly revision, KNP set about a full internal revision in 2005/6, this time engaging comprehensively across all departments, including all support functions. This initiative then needed to be fitted into the expectations under the Protected Areas Act, a merger which proved fairly straightforward. The resultant mission statement, outlined above, which depicts KNP's purpose of existence, has now widened slightly, to incorporate constituency building as per the 2002 McKinsey Report (McKinsey and Company 2002) and explicit cultural heritage commitment at the highest level. The footnotes and their implications are important, materially influencing the many downstream outcomes of objective-setting and ultimately practical results. A major lever on outcomes, via interpretation, will hinge on where the sustainable use debate in SANParks ultimately settles out.

This somewhat broad mission for KNP, now expanded by inclusion of *constituency* and *cultural heritage* issues, acts as the benchmark against which all actions are measured. The 1997 tripartite mission served KNP until this first revision, establishing that KNP was in the broad conservation business, and had to do this in a way which generated appropriate human benefits and preserved wilderness over large tracts. This broad inclusive focus had many consequences, including the spreading of effort across this broad field rather than dealing with sectoral or species concerns in detail. It will be an important learning exercise over the next five years to see if this focus continues to serve societal needs well. The SANParks Board has given clear recent directives that in the event of contention, biodiversity issues predominate if there is unresolved contention. The objectives hierarchy and endpoints derived from this mission, and presented in this plan, constitute a structured attempt to integrate all these aspects and hence reach the publicly-mandated, agreed-upon desired state for KNP.

The 2006 public participation process concerning the KNP mission and management plan was in line with the expectations of the Protected Areas Act. Stakeholder engagement was undertaken in three steps focusing on general consultation, specific tourism engagement and a co-management process with existing contractual partners. The general workshops focused on introducing the management plan process and enabled participants to voice their opinions on several issues, including park management, tourism, border issues, local community outreach, interactions and knowledge information sharing. This built on the backdrop of the 1996-1999 public meetings during the first round described above.

Stakeholders, on the whole, were positive about the stakeholder engagement process being followed for the development of the management plan and actively participated through providing suggestions and comments. Their comments were largely incorporated into the management programmes with actions to be implemented in the next five years. Several outstanding concerns raised by stakeholders, including their ability to access knowledge, economic opportunities and natural resources require further investigation prior to implementation. An outstanding concern that remains pertinent is the impact of damage-causing animals on neighbouring land owners and users. The KNP is of the opinion that such participation creates ongoing rewards through mutual sharing and understanding of value systems, so that such values can be used as a fundamental point of departure from which to build objectives in subsequent revisions, though it is also accepted that this needs to take place under the broad mantra of SANParks' overall mandate.

### 1.1.2 Context

The range of values as well as social, technological ecological, economic, legal and political facts, conditions, causes and surroundings that define the circumstances relevant to KNP provide the “context” for decisions and are therefore important elements of this decision-making environment. The material presented in this section is updated and expanded from that derived in the 1997 management plan process (Braack 1997a) and contains relevant material added since, and importantly also, issues raised at the 2006 public participation meetings that informed the writing of this updated version of the plan. Three chapters (1, 2 and 20) in a recent book (du Toit, Rogers & Biggs 2003) give more detail and also several useful further references. The purpose of this section will thus only be to provide a capsule summary of the internal context followed by some influential international, national and local contextual issues.

#### 1.1.2.1 Location and Boundaries

The KNP covers a large and varied area, and lies embedded in an even more varied regional setting, for which multiple historical and geographical descriptions exist. It covers almost two million hectares or 20 000 km<sup>2</sup> of South Africa’s lowveld, bordering Mozambique in the east and Zimbabwe in the north (Figure 2). There are a number of contractually included parcels of land which contribute to achieving the vision and overall desired state of this national park as outlined in Table 1.

Definition of Area (quoted verbatim from National Environmental Management Laws Amendment Bill, Government Gazette, 20 May 2008 No. 31075, Notice 648 of 2008):

“From the confluence of the Limpopo River with the Luvuvhu River (Pafuri River) generally southwards along the boundary of the Province of the Transvaal and Mozambique (Survey Records 1762/75) to the point where the last-named boundary is intersected by the right bank of the Komati River; thence westwards along the right bank of the said Komati River to its confluence with the Crocodile River and continuing generally westwards along the right bank of the Crocodile River to the South-eastern corner of Lot 347 in the Kaap Block Section E; thence generally North-eastwards along the boundaries of the following lots in the Kaap Block Section E so as to exclude them from this area: Lots 347, 372, 370, 366 and 367, to the south-eastern corner of the last-named lot; thence generally northwards along the right bank of the Nsikazi River to the south-eastern corner of the farm Daannel 33 JU; thence north-westwards along the boundaries of the last-named farm, so as to exclude it from this area, to the north-western beacon thereof; thence north-westwards and north-eastwards along the boundaries of the farm Numbi 32 JU, so as to include it in this area to the north-eastern beacon thereof; thence north-westwards along the north-eastern boundary of Lot 201 in the Kaap Block Section F to the southern-most beacon of the farm Rooiduiker 19 JU; thence north-westwards and northwards along the boundaries of the said last-named farm, so as to include it in this area, to the northern-most beacon thereof, and continuing north-eastwards along the south-eastern boundaries of Lots 147 and 146 in the Kaap Block Section F to the north-eastern corner of the latter lot; thence generally eastwards along the left bank of the Sabie River to the south-eastern corner of the farm Kingstown 380 KU; thence eastwards and generally northwards along the boundaries of the following farms so as to exclude them from this area: The said farm Kingstown 380 KU, Toulon 383 KU, Charleston 378 KU, Flockfield 361 KU, Malamala 359 KU, Eyrefield 343 KU, Gowrie 342 KU, Buffelshoek 340 KU, Sarabank 323 KU, Jeukpeulhoek 222 KU, Middel In 202 KU, Albatross 201 KU, Kempiana 90 KU and Vlakgezicht 75 KU to the north-eastern beacon of the last-named farm; thence north-eastwards along the north-western boundary of Portion 1 (Diagram S.G. A 1815/61) of the farm Addger 69 KU to the northern-most beacon thereof; thence generally northwards along the boundaries of the following farms so as to exclude them from this area: Ceylon 53 KU, Sumatra 47 KU, Brazillie 48 KU, Op

Goedehoop 25 KU, Buffelsbed 26 KU, Roodekrantz 27 KU, Rietvley 28 KU, Diepkloof 406 KU, Portion 6 (Diagram S.G. A 8744/69) of the farm Klaseriemond 15 KU, Zeekoegat 12 KU, Portion 2 (Diagram S.G. A 6362/65) of the farm Vereeniging 11 KU, the farms Merensky 32 LU, Laaste 24 LU, Silonque 23 LU, Genoeg 15 LU and Letaba Ranch 17 LU to the north-eastern corner of the last-named farm; thence eastwards along the left bank of the Great Letaba River to its confluence with the Klein Letaba River; thence generally north-westwards along the right bank of the Klein Letaba River to the northernmost beacon of the farm Draai 2 LU; thence north-westwards in a straight line to the south-eastern beacon of the farm Alten 222 LT; thence north-westwards and north-eastwards along the boundaries of the following farms so as to exclude them from this area: The said farm Alten 222 LT, Plange 221 LT, Lombaard 220 LT, Ntlaveni 2 MU and Mhingas Location Extension 259 MT to the north-eastern beacon of the last-named farm; thence westwards along the northern boundaries of the farms Mhingas Location Extension 259 MT and Mhingas Location 258 MT to the north-western corner of the last-named farm; thence generally north-eastwards along the middle of the Luvuvhu River (Pafuri River) to the point where the prolongation southwards of boundary BA on Diagram S.G. A 58/73 of a boundary line for purposes of proclamation over State land intersects the middle of the Luvuvhu River (Pafuri River); thence northwards along the said prolongation to the point where the said prolongation intersects the Mutale River; thence generally south-eastwards along the middle of the Mutale River to its confluence with the Luvuvhu River (Pafuri River); thence generally eastwards along the middle of the last-named river to its confluence with the Limpopo River, the point of beginning.

*Proclamation 210/84 declared the following property, to be part of this park and amended the definition accordingly:*

Portion 2 (a portion of Portion 1) of the farm Toulon 383 KU, Province of the Transvaal, 8,9993 hectares in extent, as represented by and described in Diagram SG A4827/82.

*GN 703/89 excluded the following portions of land, situate in the Province of Transvaal, from this park and amended the definition accordingly:*

Remainder of the farm Sigambule 216, Registration Division JU, in extent 547,0131 ha;  
Portion 1 of the farm Sigambule 216, Registration Division JU, in extent 468,6482 ha;  
farm Matsulu 543, Registration Division JU, in extent 1155,6013 ha;  
farm Makawusi 215, Registration Division JU, in extent 1067,1731 ha."

*GN 482 / GG 15540 / 19940311 declared the following portions of land to be part of this park:*

1. Remaining Extent of the farm Kempiana 90, in extent 3960,5422 hectares;
  2. the farm Lillydale 89, in extent 3919,6874 hectares;
  3. the Remaining Extent of the farm Morgenzon 199, in extent 2114,3169 hectares;
  4. the farm Springvalley 200, in extent 3838,1499 hectares; and
  5. Remaining Extent of Portion 1 of the farm Valkgezicht 75, in extent 863,8188 hectares,
- all situate in the Registration Division KU, Transvaal.

*GN 458/99 excluded the following land from this park:*

The land described by the figure "aABCQq middle of the Limpopo River n middle of the Luvuvbu River p middle of the Mutale River a" [sic] in extent about 19176 hectares, situated in the Pafuri area, Soutpansberg District, Northern Province.

*GN 458/99 declared the following land to be part of this park:*

The land described by the figure "aBCDEFGHJKLm middle of the Limpopo River n middle of the Luvuvhu River p middle of the Mutale River a" [sic] and referred to as "the farm Makuleke No. 6-MU" in Diagram SG No. 10710/1998 in extent 22733,6360 hectares, situated in the Pafuri area Soutpansberg District, Northern Province.

[Definition of Kruger National Park substituted by s. 2 of Act 60/79 and amended by Proc. 210/84, GN 703/89 and GN 458/99]"

Table 1: Private land included, by proclamation, into the KNP by written permission of the landowner

TITLE DEED	FARM	PORTION NO	EXTENT	OWNER	SECTION	GOV GAZ	PROCLAM DATE	PERIOD	RESTRICTIONS
T6866/1992	Vlakgezicht 75	Remainder of portion 1	863.8188	WWF of SA	2B(1)(b)	15540	1994/11/03	Remain in force in perpetuity, subject to possible transfer to SANParks.	The management agreement is subject to the lease agreement between the National Parks Trust of SA and Sound Props 1311 Investments (Pty) Ltd
T30743/1991	Lilydale 89	Portion 0	3919.6874	WWF of SA	2B(1)(b)	15540	1994/11/03	Remain in force in perpetuity, subject to possible transfer to SANParks.	None
T30743/1991	Remainder of Kempiana 90	Portion 0	3960.5422	WWF of SA	2B(1)(b)	15540	1994/11/03		
T30743/1991	Remainder of Morgenzon 199	Portion 0	2114.3169	WWF of SA	2B(1)(b)	15540	1994/11/03		
T30743/1991	Spring Valley 200	Portion 0	3838.1499	WWF of SA	2B(1)(b)	15540	1994/11/03		
	Makuleke 6	Portion 0	22733.636	Makuleke	2B(1)(b)	19927	1999/04/16	50 years from 16 April 1999 with an option to renew.	None

KNP's elongated shape is approximately 350 km from north to south and on average 60 km wide, with rivers providing natural boundaries in the south and north and the Lebombo hills providing a natural boundary to the east. To the west, the park is predominantly bordered by private and provincial nature reserves and many high-density communal areas.

#### Access and airfields

There are nine official park entrance gates that enter the KNP from the South Africa side (Pafuri, Punda Maria, Phalaborwa, Orpen, Kruger, Phabeni, Numbi, Malelane and Crocodile Bridge; Figure 3). In addition to this, there are two international gateways and border posts to Mozambique at Pafuri and Giriyondo which link the KNP to the Limpopo National Park in Mozambique (Figure 3). Entrance is allowed only to visitors to the KNP or Limpopo National Park, or for tourism related traffic to other tourism destinations in Mozambique. Commercial traffic is not allowed except delivery vehicles to service the KNP camps or its partners. Entry times are adjusted per season and are related to daylight hours of the day. Gates open at 04:30 in mid-summer and at 06:00 in mid-winter. Driving after official closing times is restricted to tourism related night drives. A new entrance gate is under consideration for the Shangoni area (between Punda Maria and Phalaborwa) to link the Giyani area to the KNP and provide better access to communities in this area.

There are a number of airfields within the park which are utilised predominantly by SANParks non-commercial aircraft. Exceptions to this are the airfields at Skukuza, Satara and Punda Maria. Flight paths for access to the Satara and Punda Maria airfields have been delineated (Figures 4a and 4b). All flights to and from Pafuri airstrip must route along a defined corridor to avoid over-flying sensitive areas and negatively impacting existing operations. Figure 4b outlines the approved flight corridor to and from Pafuri airstrip as indicated by the listed GPS waypoints. This will minimize

negative noise impacts on Makuya Park, Nyalaland Wilderness Trails area, Thulamela archaeological terrain, Pafuri Border Post, Pafuri Picnic spot and the various concession lodges in the Makuleke contractual park.

Access to Skukuza airfield is currently under investigation as part of the process to re-open this as a commercial category 5 airport within the next financial year (see further detail in section 2.4.1.3).

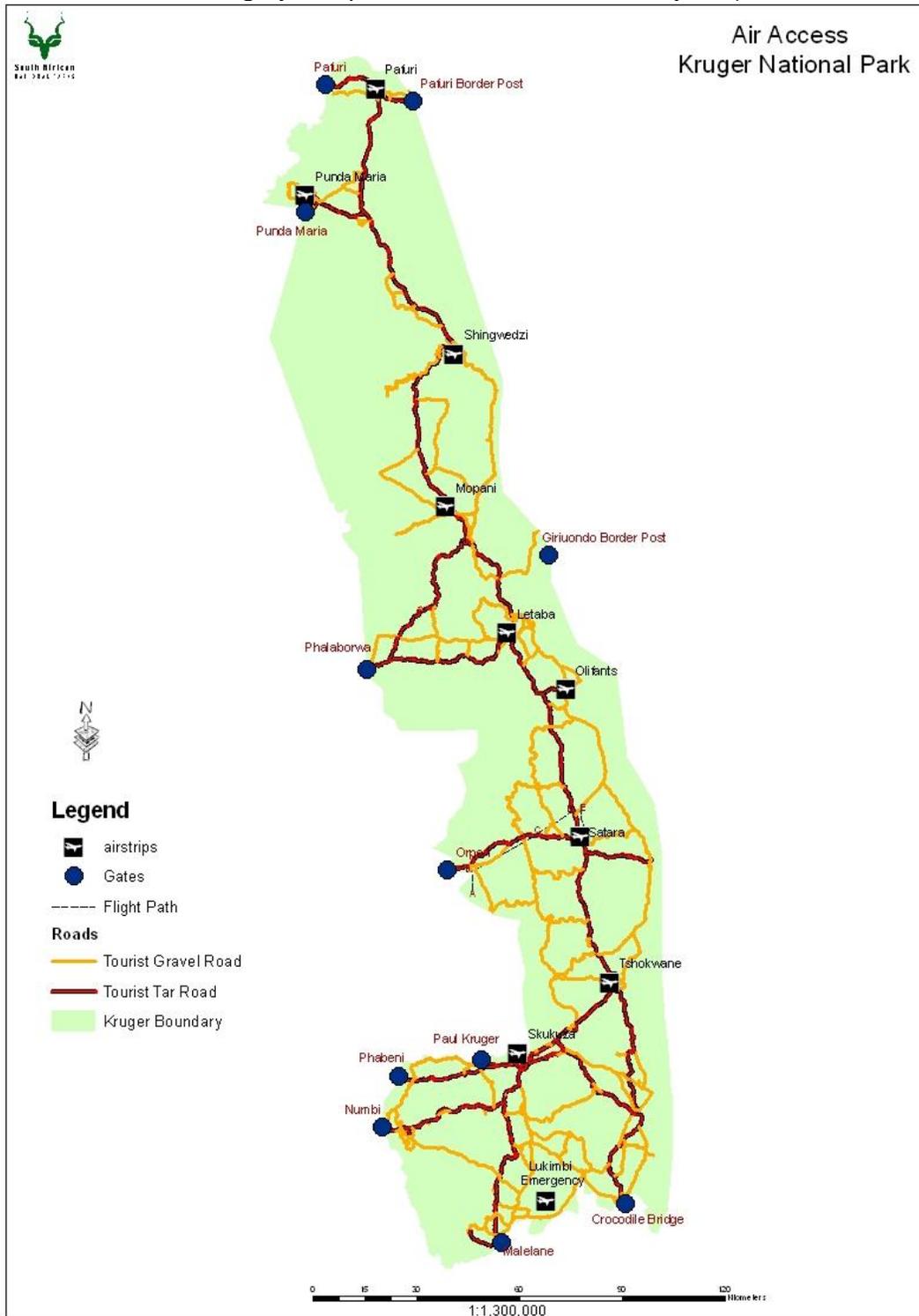


Figure 3: Access routes to KNP by road and air.

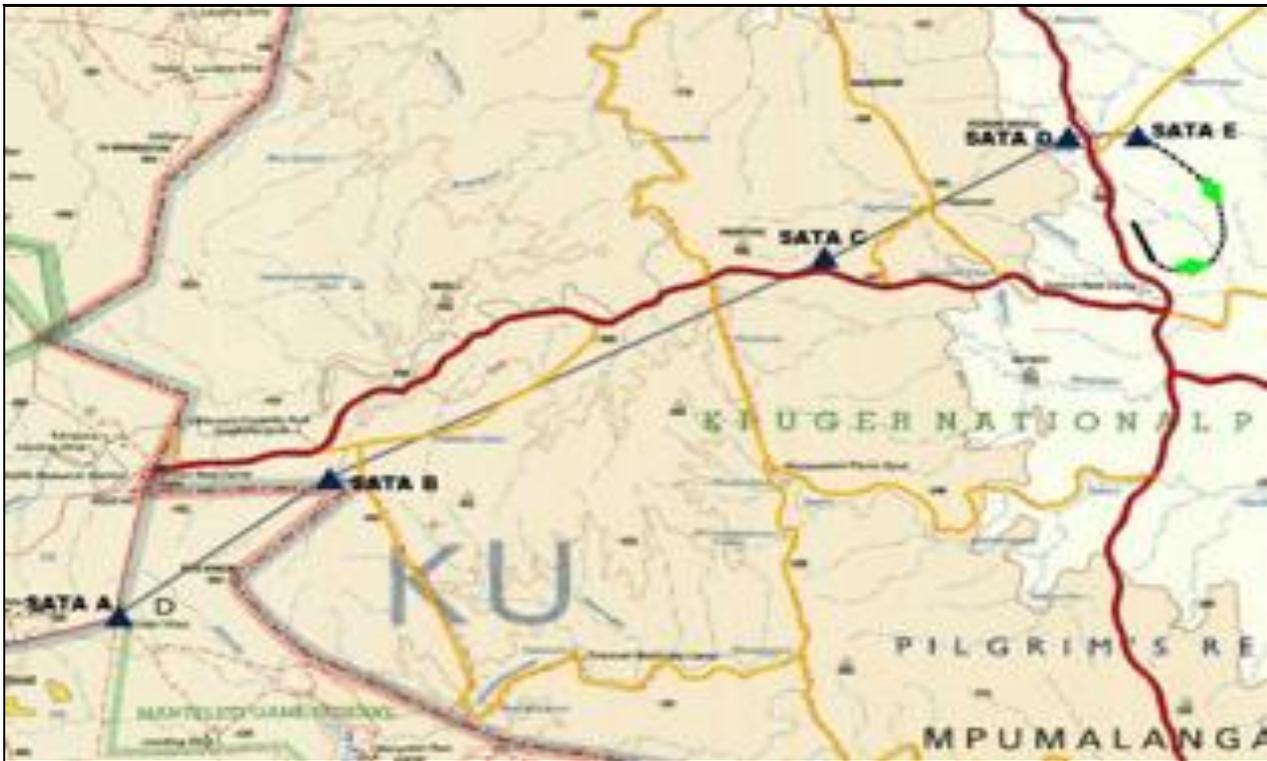


Figure 4a: Delineation of flight corridor into Satara airfield, central KNP.

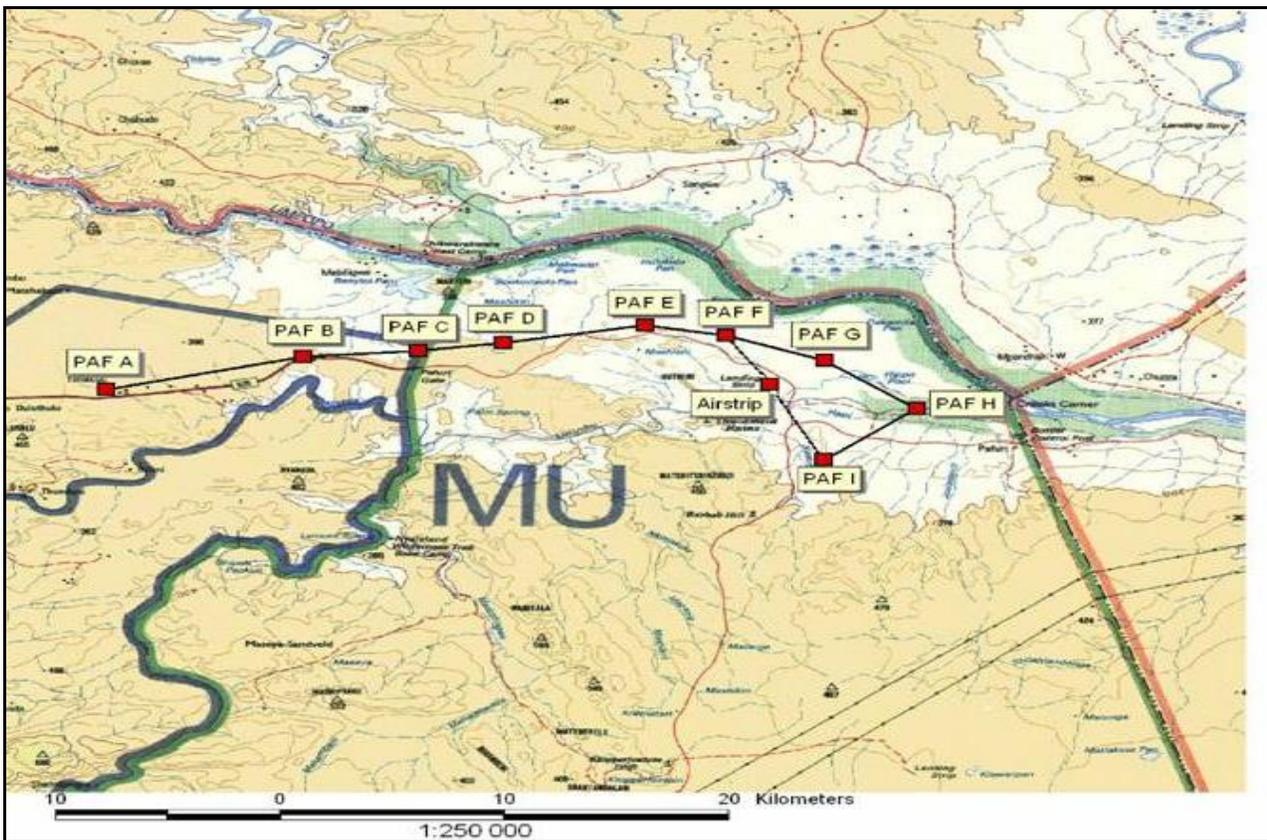


Figure 4b: Approved flight corridor to and from Pafuri airstrip

### 1.1.2.2 History

KNP was formally declared a national park on 10 December 1926, although portions had already enjoyed conservation status for considerably longer. It was however preceded by hunter-gatherer communities of the Stone Age, including the San who left a rich heritage of rock paintings and other artefacts. The iron-age farmers, metalworkers and traders who followed were probably formidable hunters, also utilising fire. The era from the 12th century till around 1650 was characterized by active trade, first from Mapungubwe, along the Limpopo River to Mozambique and later from Thulamela.

KNP's national park status in 1926 played a crucial role in the unification of Afrikaans- and English-speaking white South Africans despite their cultural differences and economically different orientations, consolidating their interest in conservation to the exclusion of black people (Carruthers 1995). While credit must be given to the early game rangers and their black labourers for the service rendered in laying a solid foundation for the successful management of this iconic park in South Africa's national parks system, one of the major challenges facing KNP today is its lack of legitimacy among the three million black people living on its doorstep (Mabunda 2004). Communities were seldom involved in decision-making processes and, for more than a century, park authorities regarded adjacent communities as potential poachers. This relationship has bred animosity between the park and its neighbours (Makoe 2002, in Mabunda 2004). To this day, there are issues concerning KNP that remain a concern for adjoining communities, including issues around economic benefits, damage-causing animals and natural resource utilisation.

The effective expansion of the conservation estate and ideal around the KNP is ongoing with numerous contractual possibilities within South Africa being explored. In addition, the transfrontier vision of opening boundaries and enhancing flows of ecosystem goods and services for sustainable livelihoods and development from core conservation areas is realising, albeit slowly.

The colonial and game preservation eras (1836-1925), followed by the establishment and early management-by-intervention eras are documented by Carruthers (1995) and Pienaar (1990), while Joubert (1986) and Mabunda et al. (2003) cover some of the more recent eras. The KNP also has a rich tourism history that spans more than a century and is well documented in various books, including "*Neem uit die Verlede*" (Pienaar 1990).

### 1.1.2.3 Physical environment and land use

KNP's approximate two million hectares lie in the low-lying savannas of north-eastern South Africa, with elevations from about 250 m to a small section over 800 m (Figure 5). KNP's climate is tropical to subtropical with high mean summer temperatures and mild, generally frost-free winters. Rainfall, delivered mostly through convective thunderstorms, is concentrated between October and April. A rainfall gradient stretches from an annual mean of about 750 mm in the south-west, to 350 mm in the north, although strong inter-annual and roughly decadal cyclic variations exist, with drought considered endemic.

The basic geological template comprises a western granitic half, characterised by distinctive catenas, and an eastern clayey basaltic and rhyolitic half, with some important smaller intrusive, sedimentary or recent sandy zones. The extreme north of KNP is unique due to its diverse assemblage of rock formations. Seven major perennial or seasonal rivers cross the park, and especially the western half of the park's terrestrial landscape is heavily dissected by drainage channels on undulating land. KNP's patterns of geology, soil, fire and rainfall, and its convergence zones are regional to local factors which are emphasised in the *vital attributes* section below.

Current land use around KNP is dominated by small-scale cropping, limited commercial farming and grazing in rural impoverished areas and communal conservation areas, while private

conservation, game and cattle farming and high-value irrigated crop farming dominate other areas. The area north of the Olifants River in Mozambique comprises the relatively recently proclaimed Limpopo National Park while the area south of the Olifants River is predominantly under hunting concessions.

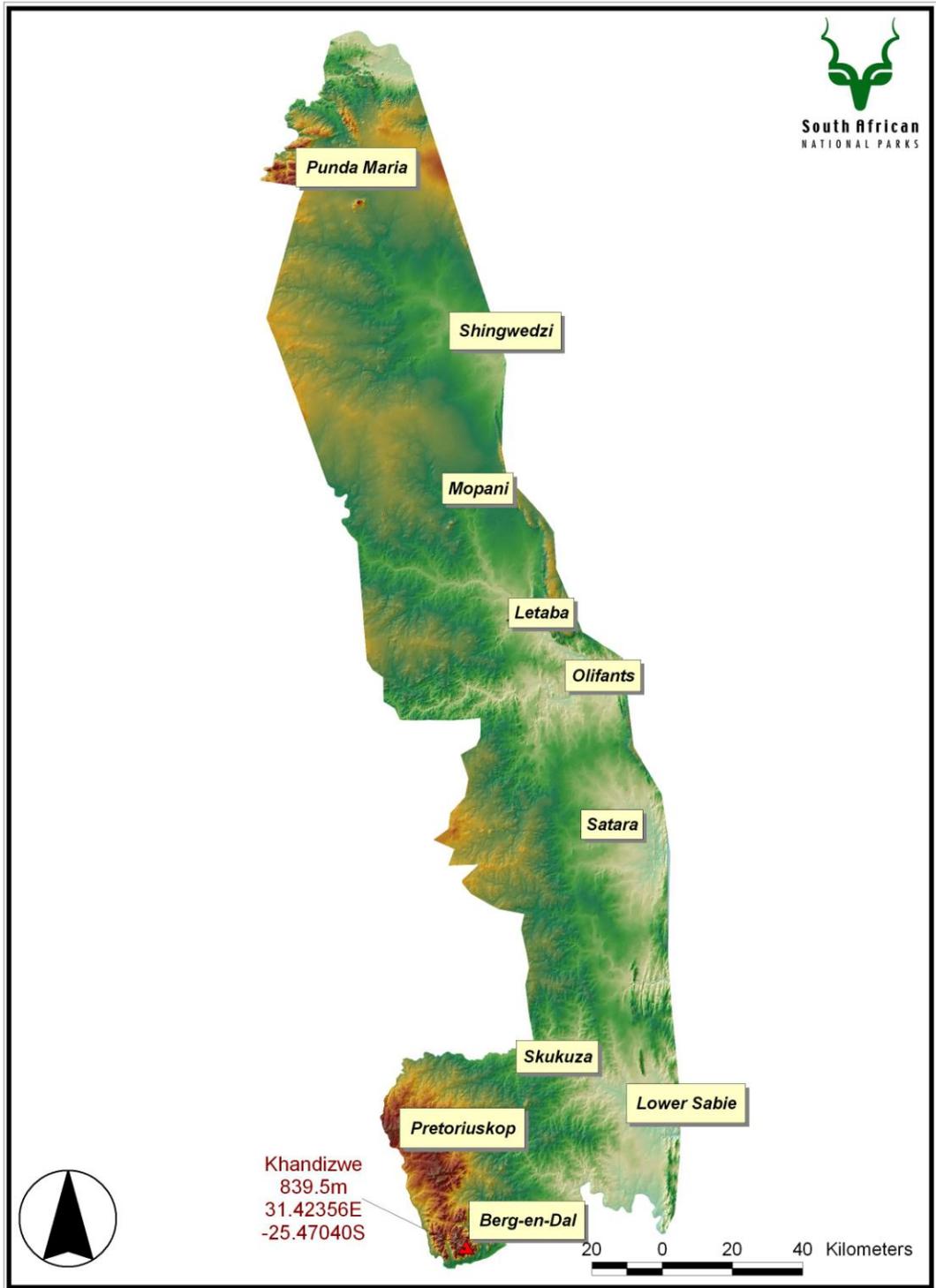


Figure 5: Broad elevation map showing highest point in KNP at Khandizwe hill (839.5 meters above mean sea-level)

#### 1.1.2.4 Biological environment

Numerous classification systems exist to divide the KNP into various vegetation, physiographic and natural history zones, and composites of these. There are close on 2000 plant species in the KNP (Braack 1997b), including about 400 trees and shrubs, and 220 grasses. At a very coarse level, the vegetation can be considered as falling into one of three zones. A lower nutrient, higher rainfall well-wooded area occurs in the southwest and important trees are bushwillows (*Combretum* species, especially *C. apiculatum*), knobthorn (*Acacia nigrescens*), tamboti (*Spirostachys africana*) and marula (*Sclerocarya birrea*). The southeast lies on basalts with palatable productive grasslands and some trees such as knobthorn, marula and leadwood (*Combretum imberbe*). The northern half of the park is, broadly speaking, dominated by mopane (*Colophospermum mopane*) with more fertile open grasslands on the eastern basaltic half, and more undulating landscapes with woodlands including bushwillow trees (*Combretum* spp) in the north-western quadrant. Fauna is very diverse, with about 150 species of mammals, including many large charismatic predators and grazing species, roughly 50 fish, just over 500 bird, 34 amphibian and 116 reptile species. In addition, there are about 375 alien species, mostly plants, although mostly with restricted distributions and densities.

#### 1.1.2.5 Social, economic and political context

Part of the KNP's success stems from a realization that conservation areas do not exist in isolation of the broader political, social and economic context. The KNP lies in the middle of a three-country mosaic of sharply juxtaposed land-uses. The real linkages to this complex outside world are currently still being built, but considerable progress has been made by the KNP in forging social links through the regional river programme and actions of the People and Conservation and Technical Services Divisions. Key partners in the political, social and economic planning realm include:

- The Great Limpopo Transfrontier Park and wider Great Limpopo Transfrontier Conservation Area;
- The National Department of Environmental Affairs and Tourism (DEAT);
- The Provincial Environmental and Tourism Departments;
- The municipalities adjacent to the KNP, particularly their planning departments responsible for integrated development plans (IDPs);
- The Road Infrastructure Strategic Framework for South Africa that aims to establish Mbombela municipal area as intellectual capital of environmental management and tourism;
- The north-eastern escarpment bioregion - which strives to link ecosystem services and livelihoods; and
- The various clusters of private and provincial parks which straddle the KNP.

KNP acts as a *de facto* hub of economic, especially tourism, development in the Lowveld region. The KNP offers a variety of tourist accommodation and currently has 12 main rest camps, five bushveld camps, two bush lodges and four satellite camps; representing a total of more than 4100 beds (depending on maintenance, upgrades and various other circumstances). The commercialisation strategy has produced seven luxury lodges that have been granted concessions. KNP is one of the world's most popular public entry game parks and receives in excess of one million visitors per year. Malaria has a potentially negative impact on tourism, but is currently under tight control. The ongoing development of the My Acre of Africa Project enhances the environmental education capacity of the park and will support the interpretive needs of a variety of tourist segments.

The KNP provides some employment opportunities, a market outlet, and source of business custom for local communities, and stakeholder meetings in these communities always voice the desire to share structures (such as marketing channels), decision-making, and benefits. Adjacent land-uses

impact in various ways on the KNP and have to be incorporated in management considerations. Even though relationships between the KNP and immediate neighbours have improved since 1994, there is still a need to continuously discuss contentious issues with these neighbours and work towards a common purpose. Land claims may threaten management block sizes and/or management options within the KNP. Provincial borders and the limited jurisdiction of SANParks outside KNP affect the efficiency with which management options can be exercised. Damage causing animals, employment issues and insufficient interaction affect neighbour-relations require special attention.

#### 1.1.2.6 International and national context

##### *International context*

These obligations and expectations relate to the many agreements, conventions and affiliations South Africa or SANParks has internationally. Importantly, the IUCN (1994) categorisation of protected areas imposes certain obligations for the KNP in terms of its Schedule 1 definition of most of the park; and the Schedule 2b designation for the Makuleke region. Furthermore, the IUCN Species Survival Commission imposes very particular obligations in terms of the handful of globally endangered species for which KNP is particularly responsible. In addition, there is a multiplicity of international conventions to which South Africa is signatory (see Van der Linde 2006). Those which in practice have particular bearing or influence on the KNP are the Convention on Biological Diversity (1992), the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973), the Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat (1972). The Convention concerning the Protection of the World Cultural and Natural Heritage (1972) will become influential if any of the sites within KNP are earmarked for nomination for inscription into the World Heritage Site register as stand-alone or transboundary serial nominations in the future. Multilateral agreements in the SADC context, which affect KNP more particularly, include the SADC Protocol on Shared Watercourse Systems (along with the older international Helsinki Rules in this regard), and the SADC Protocol on Wildlife Conservation and Law Enforcement (1999). Aside from the resource theme focus of these SADC agreements, the mere presence of international borders carries with it a host of security, trade and transit agreements which will not be expanded on here, although special mention does need to be made of sometimes controversial international and national animal disease regulations, which in some ways protect and in other ways act as a brake on both biodiversity and community livelihood concerns.

The recent formation of the Great Limpopo Transfrontier Park (GLTP), as well as the developing wider area around it, the Transfrontier Conservation Area (GLTCA), has instituted new forms of international organisation, with a formal treaty and a joint management board, certain themes being multilateral (tri-national), and others deemed national.

KNP's role in international tourism and wilderness custodianship, international conservation and ecological science, and the mere size and biodiversity content of KNP, mean both influence and expectation, and so KNP remains strongly in the permanent limelight, an important global contextual reality for this management plan.

##### *National context*

The NEM: PAA in particular provides the mandatory basis of this plan, so that, while KNP had a very similar plan beforehand, it will now be fully in line with the Act, and carry the concomitant legal stature. Stakeholders frequently point to the very obvious fact that because National Parks are a *national* competency, they enjoy stronger protection than provincial parks, so this is stated explicitly here. In the eyes of many stakeholders, KNP is the premier or flagship park in South Africa, which places certain obligations on this park towards particularly management of biodiversity and ecotourism. It is in

many senses the pride and joy of an increasing percentage of South Africans, and tends to attract ongoing, often intense, interest by holidaying or concerned citizens, and from civil society. It attracts direct and indirect foreign investment, at a scale seen to be of national significance. KNP has a certain value as a source of organisms for restocking other protected areas. Apart from its biodiversity value, it has national cultural resource conservation obligations due to the presence of important anthropological and archaeological sites, especially Thulamela and its collection.

Other important national legislation which has major direct bearing on the core functions of KNP are the National Environmental Management Biodiversity Act (2004), the National Environmental Management Heritage Resources Act (1999) which together with the National Environmental Management Protected Areas Act (2003) and the National Environmental Management Air Quality Act (2004), fall under the overarching National Environmental Management Act (1998). Probably of equal importance, given KNP's particular richness of riverine features and biodiversity, and precarious position low down in six major catchments, is the National Water Act. Additional to these, a wide host of other acts are also partially to highly relevant (see Van der Linde 2006).

### 1.1.3 Values and Operating Principles

The SANParks core conservation values (as expressed in the organisational first person) underpin what the organisation strives to do, namely that

- We respect the complexity, as well as the richness and diversity of the socio-ecological system making up each national park and the wider landscape and context. We respect the interdependency of the formative elements, the associated biotic and landscape diversity, and the aesthetic, cultural, educational and spiritual attributes\* and leverage all these for creative and useful learning.

\* Biodiversity (*sensu* Noss) is explained as biotic and landscape diversity and includes structure, function and composition of biotic and all underlying abiotic elements; cultural heritage (*sensu* Galla) includes moveable, immovable, tangible and intangible assets, even living arts.

- We strive to maintain natural processes in ecosystems, along with the uniqueness, authenticity and worth of cultural heritage, so that these systems and their elements can be resilient and hence persist.

\* The word 'natural' is used in the sense expanded upon in the "Guide to the use of values" in SANParks' custodianship framework.

- We manage with humility the systems under our custodianship, recognising and influencing the wider socio-ecological context in which we are embedded.
- We strive to maintain a healthy flow of ecosystem and cultural goods and services (specifically preserving cultural artefacts), and to make these available, also through access to national parks, thereby promoting enjoyment, appreciation and other benefits for people.
- When necessary, we will intervene in a responsible and sustainable manner, complementing natural processes as far as possible, using only the level of interference needed to achieve our mandate.
- We will do all the above in such a way as to preserve all options for future generations, while also recognising that systems change over time.
- Finally, we acknowledge that conversion of some natural and cultural capital has to take place for the purpose of sustaining our mandate, but that this should never erode the core values above.

This is followed by a fairly exhaustive set of principles grouped into the following major headings:

- Overall principles as ways of thinking (such as the 'Web of Life'; the adaptive learning imperative as the way to survive and prosper in complex natural systems; multiple ways of

- knowing; cognisance of transaction costs of non-core operations, etc),
- Principles underlying social and regional linkages (such as socio-ecological systems; bioregionalism and co-operative governance in African democracies),
- Principles of biodiversity planning and implementation (including representivity, complementarity, least possible but even severe interference, *laissez-faire* as one conscious informed and explicit decision option),
- Principles of compliance and safety (such as due diligence, compliance and accountability),
- Principles of integration (between biodiversity, cultural and environmental; balance and mitigation; precautionary principle (*sensu* Cooney 2004); burden of proof lying with the developer; conversion of natural capital to avoid insidious impoverishment of integrity of genes or ecosystem; activities informed by landscape, context and environment; sustainable eco-friendly best practices),
- Principles relating to the role of tourism (including sustainable *high-quality* nature-based; market-relevant; broad-based constituency; SANParks' best financial opportunity; equitable access, albeit subsidised for poorer sectors; differentiated; recognition of wider societal context; strategic approach and sustainable product development; supportive of local culture, heritage and wealth creation).

In KNP specifically, many of these values (especially regarding heterogeneity in ecosystem management and concessioning of tourism) are at the cutting edge of application, and a “guide to the use of values” has been prepared for parts of the value set, and will eventually be prepared for all values. Wilderness-related values are unique in South Africa to KNP and only a few other national parks and areas, and these spiritual values are an ongoing challenging area of development, especially their contextualisation in Africa, where people have for millions of years lived in and interacted with ecosystems and wild places.

## **1.2 Vital attributes underpinning the value proposition of the KNP**

This section attempts to answer the question “what are the key features that together make up the specific value of this park?” While a long list can be presented, the following issues are believed to contribute over 80% of the overall value, as determined by repeated participatory initiatives. Each of these are in turn caused or strengthened by *determinants* and offset by *constraints* and/or *threats*. This information helps focus the exact formulation of park objectives, which must strengthen positive determinants and weaken or remove threats, so that objectives are appropriate to the uniqueness and special nature of this national park. In this way, the management plan is customised in its fullest local extent, without detracting from some of its more generic functions.

### 1.2.1 Vital attributes of KNP

- *KNP is the size of a number of countries, (e.g. Swaziland, the Netherlands, etc) and is big enough to maintain near-natural large mammalian predator-prey interactions.*
- *The KNP is one of the largest national parks in the world, and the protected areas and buffers around this have now further been enhanced in size and stature, especially into Mozambique and Zimbabwe with the GLTP and GLTCA.*
- *The geographically extensive matrix formed by variations in geology and climate promotes spatial heterogeneity and hence biodiversity.*
- *The KNP is a semi-arid savanna with inherently high spatial and temporal variability in biodiversity.*

- *Multiple, diverse rivers cross the KNP, promoting biodiversity. The KNP includes significant segments of the two most biodiverse rivers in South Africa, namely the Sabie and the Crocodile Rivers.*
- *The KNP is home to major cultural resources of societal interest.*
- *The biota and ecological processes, and cultural heritage sites, are largely intact.*
- *KNP is neighboured by five different language communities.*
- *The predominant land-use form of the KNP (ecotourism) is compatible with biodiversity conservation.*
- *Many forms of adjacent land-use promote biodiversity conservation and create corridors, preventing the KNP from being an island. Conversely, a wider mosaic of heterogeneous land-uses also includes what are not necessarily biodiversity-friendly practices, low levels of which, in other ways, contribute to regional resilience.*
- *The KNP is the hub for tourism in the lowveld and a magnet for foreign exchange, thus affording some justification for and assurance that the KNP and its biodiversity will continue to be conserved. In other words, it has forged an ongoing practical social contract that currently contributes to its persistence in conserved form.*
- *The KNP has a well-developed infrastructure and human capacity for and history of research and management.*
- *Well-developed databases exist, affording insight and foundations which support management decisions.*
- *The KNP is one of the few protected areas in South Africa which contains significant wilderness areas.*
- *The KNP (including potentially now also specifically its wilderness areas) is protected by national legislation, and national and international sentiment, affording a high level of assurance of long-term survival of the park. This includes the interest and momentum related to the transfrontier park/area.*

The next step towards developing objectives was to consider each of the attributes above, listing the various *determinants* (factors which contribute to, enable or allow the vital attribute to exist), *constraints* (limitations *within* the organisational structure of the KNP which detract from it maintaining or managing its biodiversity or other assets) and *threats* (factors *outside* the KNP which affect or impact directly or indirectly on the biodiversity, assets or qualities of the park). These are contained in detail in Braack (1997a). These detailed analyses gave the necessary guidance to sensibly compose objectives as outlined in the section below.

### **1.3 Setting the details of the desired state for KNP**

*The desired state* is based on a collectively developed vision of a set of desired future conditions (that are necessarily varying), integrating ecological, socio-economic, technological, political and institutional perspectives within a geographical framework. The vision (within context and values), vital attributes of KNP and objectives (which are aimed at overcoming threats to ensure the persistence of vital attributes and/or their determinants for this national park), together with the thresholds of potential concern (TPCs) and the Zonation Plan, make up the desired state of the KNP (Figure 6).

In the adaptive management of ongoing change in socio-ecological systems, thresholds of concern are the upper and/or lower limits of flux allowed, literally specifying the boundaries of the desired state. TPCs specify the measurable “boundaries” of the desired state, flowing out of the objectives developed for the park. 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.

The park’s Conservation Development Framework (which includes a Zonation Plan) details the spatial targets and constraints through specification of strategic land use intent for the KNP for the next 20 years.

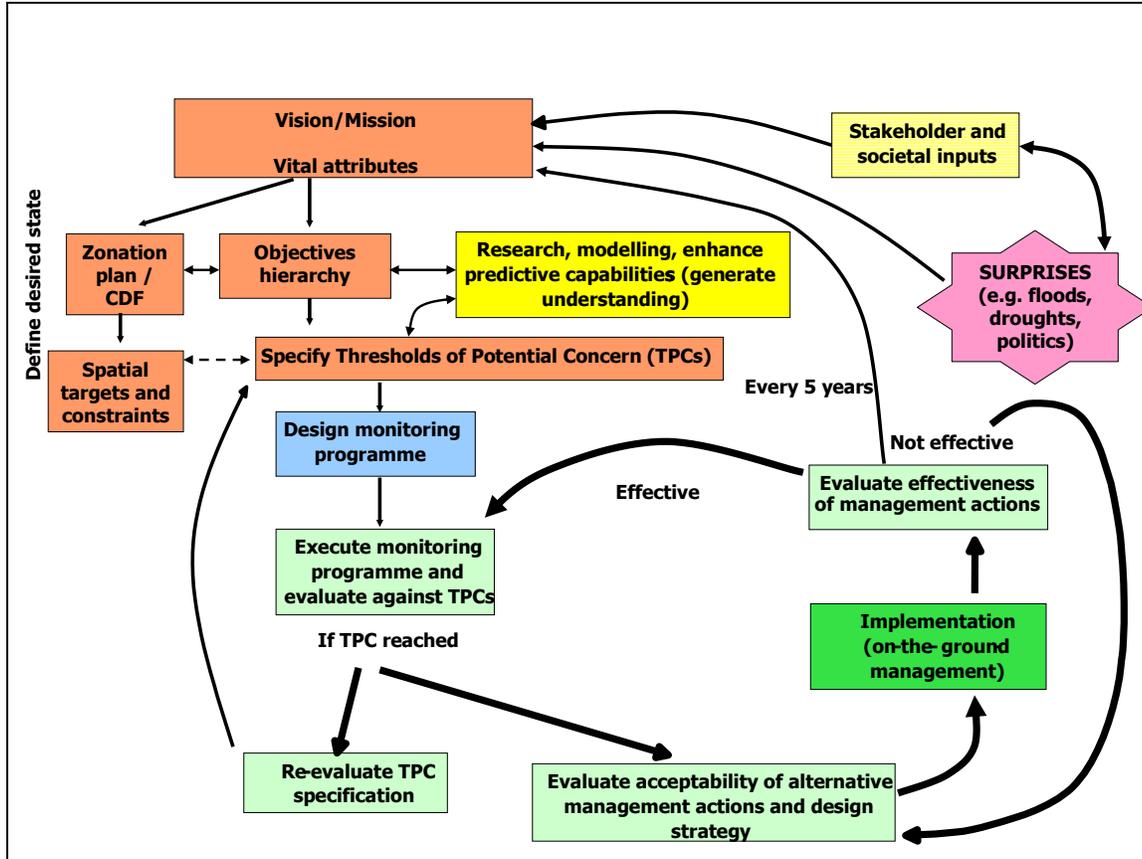


Figure 6: Desired state articulation (components shown in orange blocks) within the overall strategic adaptive management framework as embraced by SANParks.

### 1.3.1 An objectives hierarchy for KNP

The full objectives hierarchy in KNP (available in Lower Level Plan 1), in spite of its length and detail, has proved to be a living document. Both rounds of revision (1997 and 2006) have shown that almost as soon as the issues are discussed and debated in the structured process and written down in a clearly articulated way, many of the ideas go into immediate practical use. Furthermore, in the first round, ongoing additions or modifications were brought up and were formally or informally added to the hierarchy rather like patches to a blanket. Ultimately, this “patching” requires that a full revision be undertaken, and a neatly organised new objectives hierarchy constructed. Many of the 1997 objectives (Braack 1997a) were achieved faster than anticipated, and indeed there was pressure for fuller revision even before the mandated five-year period. This same pattern is playing out with this recent revision, and this is believed to be healthy and indicative of a self-sustaining system of joint direction-finding and implementation.

Presented below are only *the top components of the objectives tree or hierarchy*, with additions pointing to the detailed continuation of further “unpacked” components in the Lower Level Plan. Within reason, and as a very broad generalisation only, the amount of unpacking generally represents the

extent to which the detail has been thought through thoroughly. For instance, the relatively shorter “middle” section on *integration* implies that this is new ground, and that the broad details have been arrived at, but not the finer details yet.

The high level objectives presented in this report comprise the following main pages:

- Biodiversity objectives (Figure 7b)
  - Integrating objectives (Figure 7c)
  - People objectives (Figure 7d)
  - and
  - Enabling objectives (Figure 7e - those which best support our achievement of core functions)
- } together these are seen as “core functions”

### *Overall preamble to KNP objectives*

The purpose of this section is to explain how the objectives-setting initiative got to where it is in this revision, in other words, why and in which ways the version in this plan differs from the previous 1997 objectives. As explained above, KNP had its first public goal-setting exercise in the mid-1990s, and this was dominated by biodiversity issues. The current iteration has built on the success of the implementation of the previous one, but it widened the coverage now well beyond biodiversity, although this remains central. All departments and functions are now included, and there are clear attempts to define the inter-relationships between them, especially through the *integrating objectives*. The dotted line to the *enabling objectives* denotes the clear meaning that each objective in this category should only be justified in terms of ways in which it supports the core (solid-line) objectives: biodiversity, people and integration. So, for instance, the supporting objective *game capture* is not seen as an end in itself, but must always be justified by an explicit calling in one of the core objectives of KNP or SANParks.

It is important to discuss broadly the changes that have taken place internally in the biodiversity objectives layout in this version. Instead of separate management and research goals as in the 1997 version (which, at the time, seemed essential to get all stakeholders comfortable) this round merges objectives at a conceptual level, leaving the detail below (and indeed the programmes described later in this report) to carry the information around *how* it should be done. Furthermore, although it was within reach to actually unite the terrestrial and aquatic objectives now, it was decided, for reasons of current comprehensibility, to keep these separate but to further align their schemas. A major expansion is in the objectives set by the People and Conservation group, reflecting the growth of that section, and its depth in formulating explicit objectives for action. Also, Mabunda (2004) produced a backbone for the first time for an explicit set of tourism objectives.

All in all, this overall expanded objectives tree is felt to be far more comprehensive than the first round, and its components reasonably inter-related, though this is an ongoing task of improvement. There is a preamble written in Lower Level Plan 1 for every branch or subsection of the objectives hierarchy; these preambles add important understanding to the ongoing evolution of each particular bundle of objectives. There is also an equivalent *way forward* statement for each in the Lower Level Plan; these statements are very informative in the domains covered by every bundle, providing the reader with a clear idea of what the key leveraging issues are in getting the wider set of objectives for each reasonably met over the five year planning horizon. Thus, for example, the aquatic ecosystem objectives are galvanised by the central aim over the next five years of equitable water distribution subject to the sustainability demands of the Water Act’s environmental reserve. By focusing on this, most of the aquatic ecosystem objectives will either have to be met, or be met as a consequence. For the *overall way forward* for the KNP, see section 3.1 of this plan (key prioritisation, integration and sequencing issues) which is based partly on the various *ways forward* in the Lower Level Plan, but also on the inter-linkages between these and the overall ‘big picture’ generated for the desired state.

**Figure 7a**

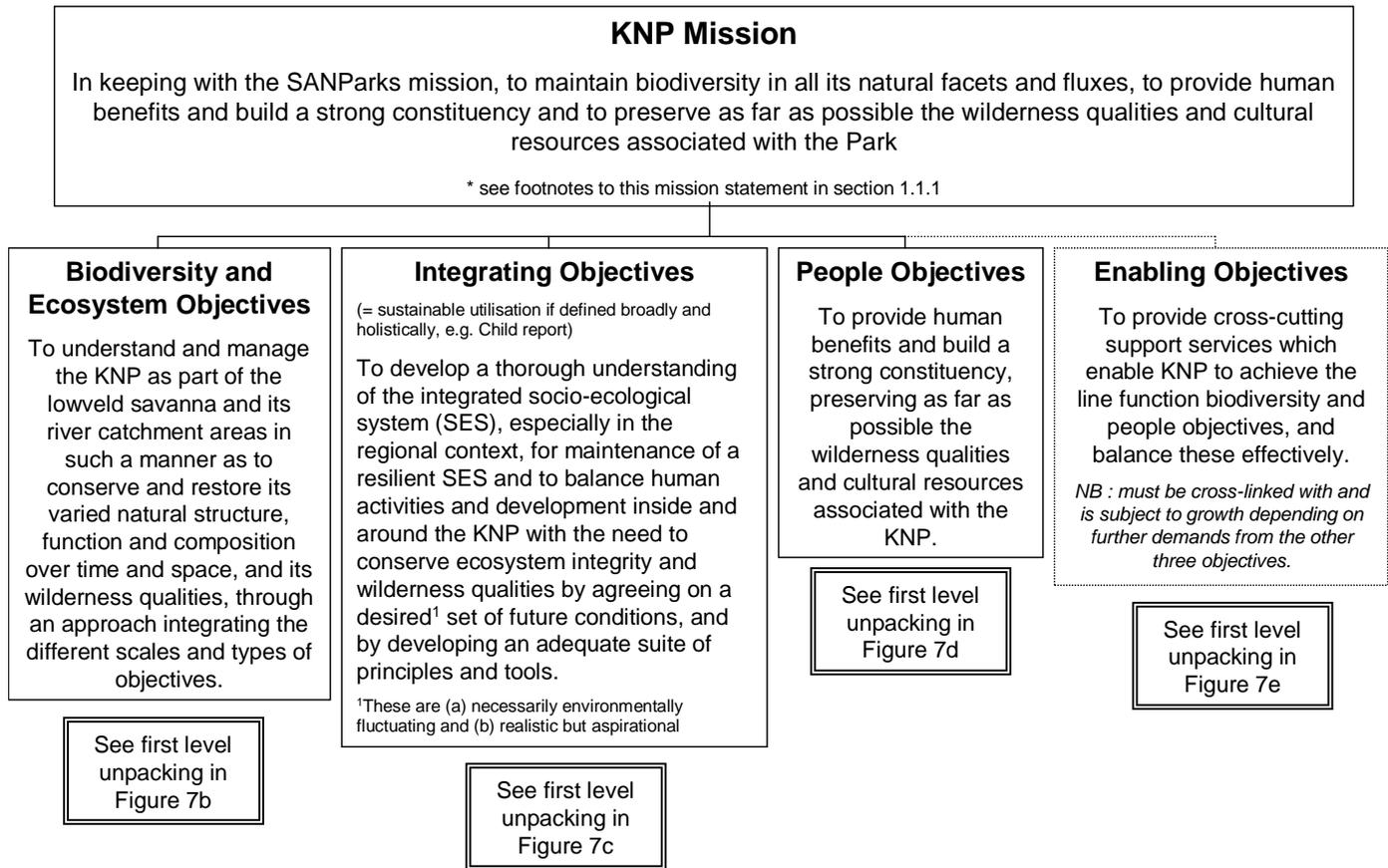


Figure 7a: Objectives Hierarchy for KNP – mission and highest level objectives

Figure 7b

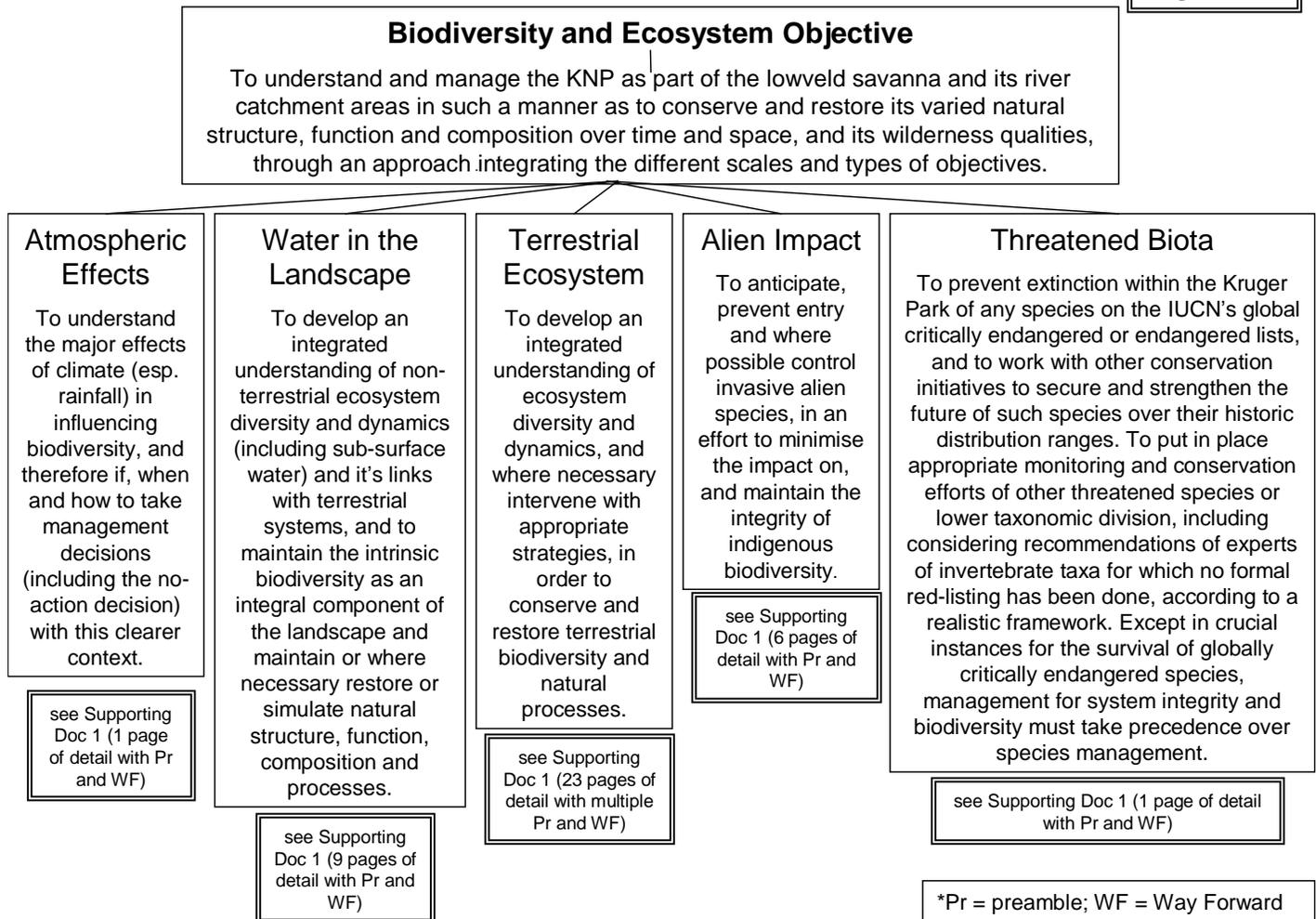


Figure 7b: Objectives Hierarchy for KNP – high level biodiversity and ecosystem objectives

**Figure 7c**

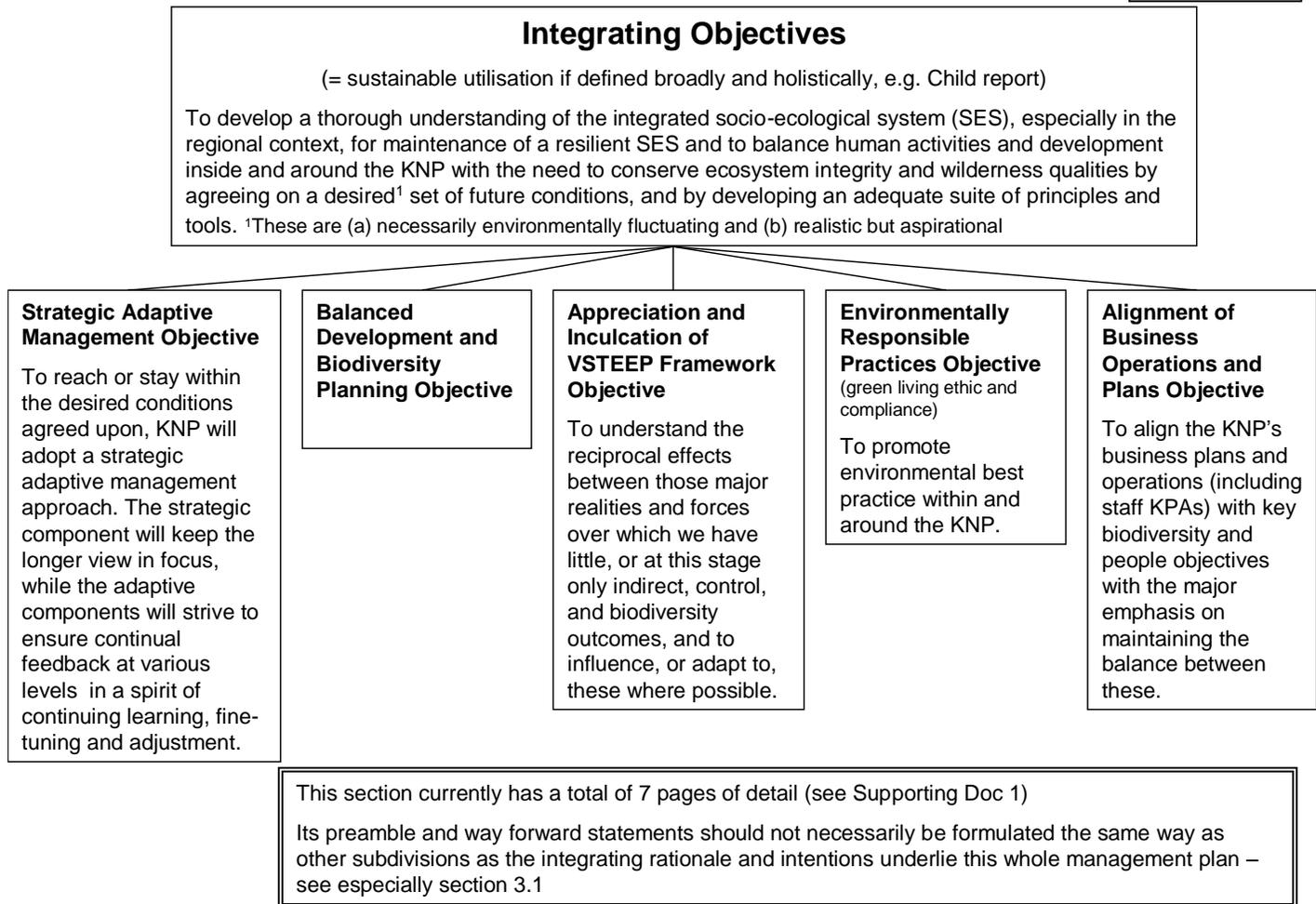


Figure 7c: Objectives Hierarchy for KNP – high level integrating objectives

Figure 7d

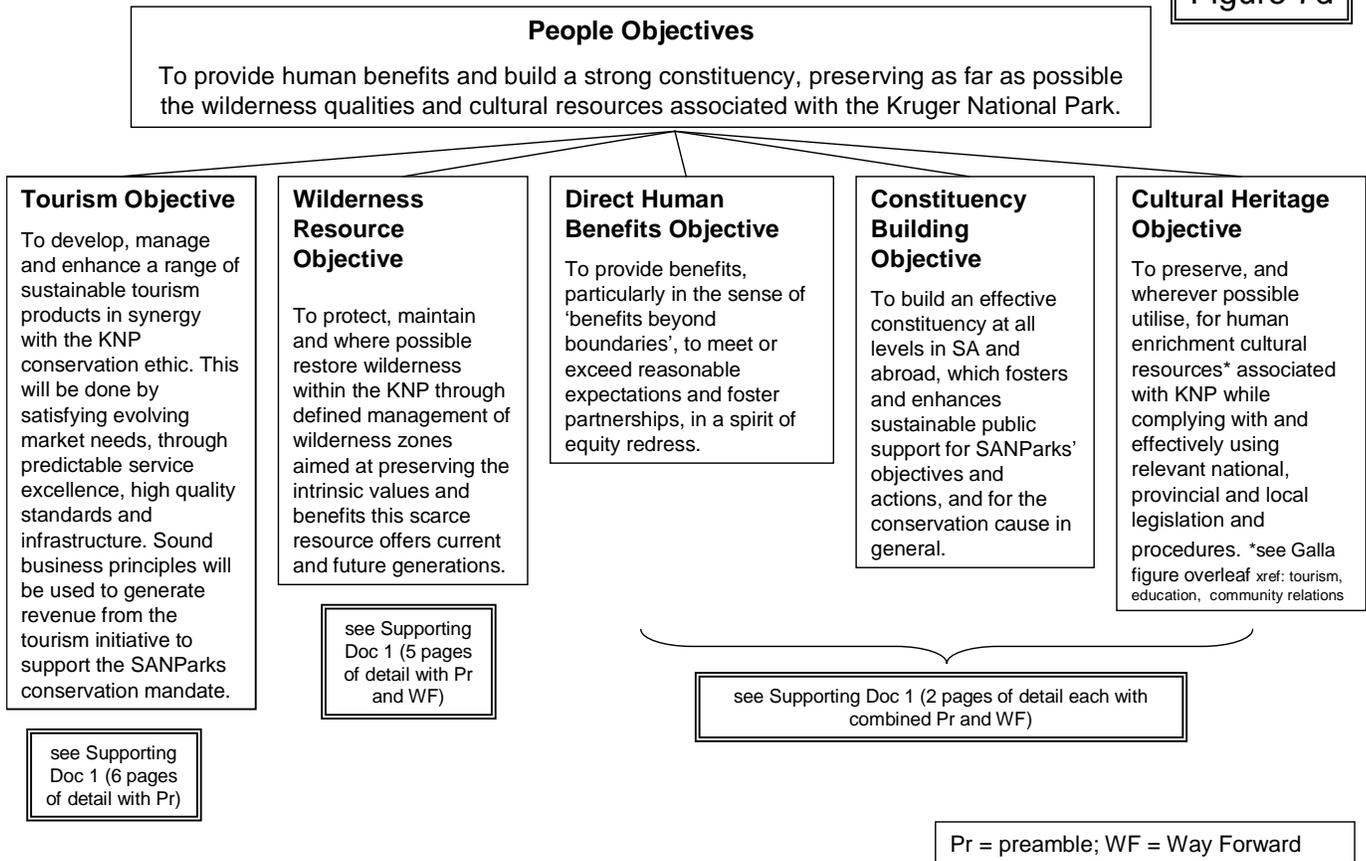


Figure 7d: Objectives Hierarchy for KNP – high level people objectives

Figure 7e

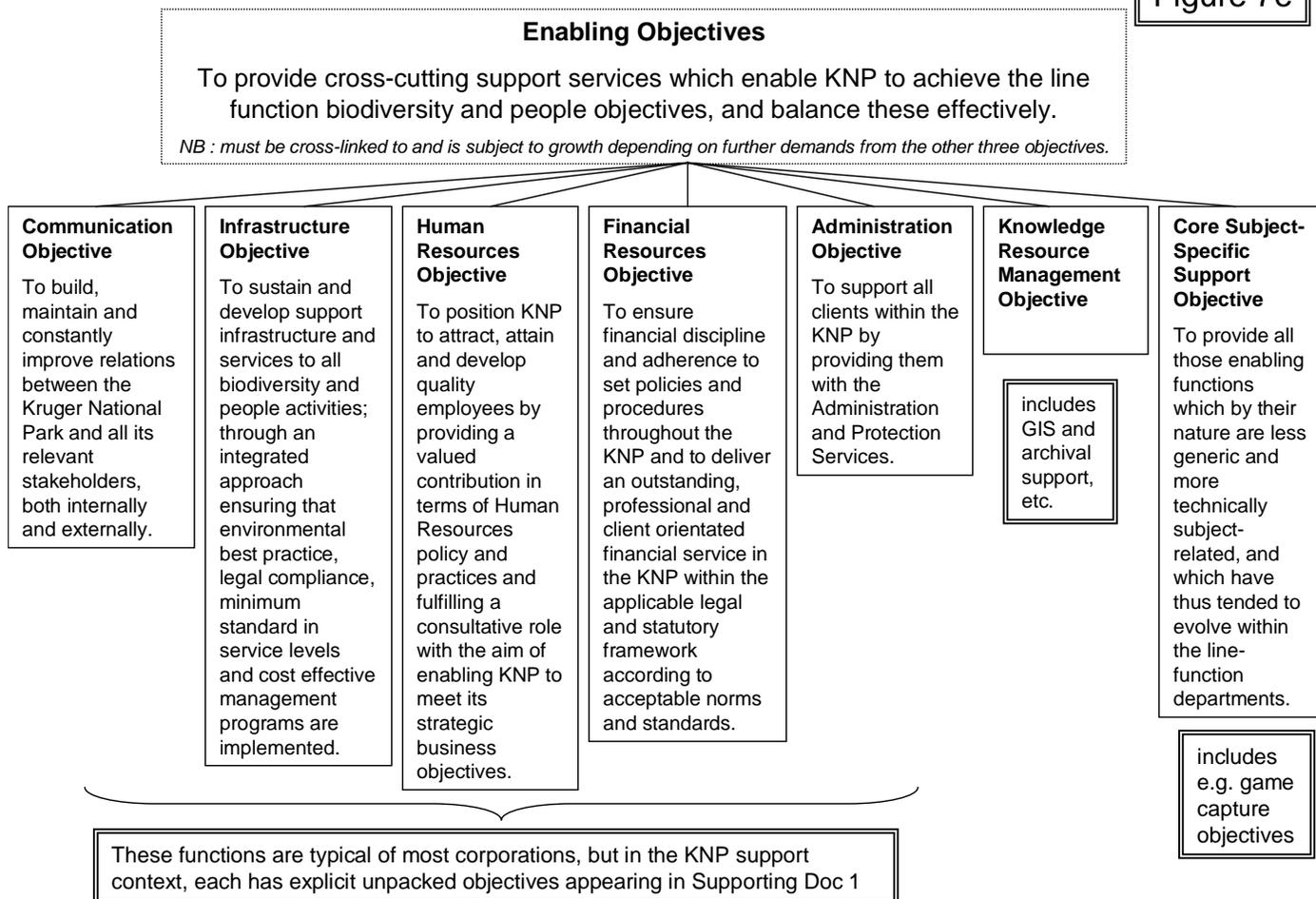


Figure 7e: Objectives Hierarchy for KNP – high level enabling objectives

### 1.3.2 Thresholds of concern and other conservation targets

In the adaptive management of ongoing change in socio-ecological systems, thresholds of concern 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 increases beyond these limits, then mandatory management options of the adaptive cycle are prompted for evaluation and consideration. Considering the biophysical objectives stated in Lower Level Plan 1, the following TPCs are tabled for KNP:

- (a) **TPCs related to plant-animal dynamics** - This suite of TPCs are at both at a landscape and, where possible, catenal level scale, calibrated separately for different landscape sensitivities and relate to either compositional or structural and functional biodiversity elements for vegetation and herbivores separately.

- (b) **Fire TPCs** - These TPCs are specified according to fire intensity and fire scar pattern index as it is suggested in KNP that fires should vary widely over space and time at as many scales as possible, the belief being that this will lead to a range of fire types, intensities and effects over space and time and that this will most likely best maintain biodiversity.
- (c) **TPCs for species of conservation concern** - The SANParks approach for prioritising species for monitoring and setting of TPCs emphasises species which are native to South Africa and the national park in question and all species which are globally critically endangered or endangered automatically qualify for attention. In the KNP context, TPCs have been set for wild dog (*Lycaon pictus*), black rhino (*Diceros bicornis*), Swazi impala lily (*Adenium swazicum*) and wild ginger (*Siphonichilus aethiopicus*). TPCs for the pepperbark tree (*Warburgia salutaris*) are currently under development.
- (d) **TPCs for degradation** - Degradation is reflected in a decrease in soil stability, infiltration and nutrient cycling indices and rough thresholds have been set for further evaluation. These TPCs are still in the development and refinement phase.
- (e) **TPCs for heterogeneity** - These integrated TPCs are designed to track a loss, or potential loss, of biodiversity through homogenisation of the ecosystem. The development of this complex process has been initialised by evaluating the extent of homogenisation at three different scales where possible. Homogenisation is currently evaluated as a loss of dissimilarity in the most important structural, functional or compositional components of the ecosystem at the three scales. This TPC is still in the initial development phase.
- (f) **TPCs for invasive alien biota** - These TPCs currently represent management or operational TPCs, which have loosely been termed “tracking” TPCs, focusing on alien species rather than their biodiversity effects. The three levels of TPC deal with (i) new invasions of a species into the KNP, (ii) an annual increase in geographic distribution of alien species within the KNP, (iii) an increase in alien species density across KNP (these latter TPCs are not yet operational due to the lack of data and efficient cost-effective monitoring options to date, but they may have the potential to be used as surrogates for biodiversity impacts in future).
 

*Specific TPCs for bovine tuberculosis (BTB)* – The “tracking” TPCs were specified as arrival of BTB within the boundaries of KNP, an increase in spatial distribution of BTB into the adjacent TFCA, and/or increased or sustained zonal prevalence of BTB in buffalo. “Biodiversity effects TPCs” are designed to detect significant measured or predicted (through modelling) negative effects on population growth and structure, and long-term viability of a species that can be attributed to BTB and are currently specified separately for buffalo, lion and alternate species. The “socio-political” TPCs deal with detection of KNP buffalo-strain BTB infection in neighbouring communities and livestock.
- (g) **TPCs for river geomorphological diversity, terrestrialisation and sedimentation** - Three different approaches to detecting unacceptable river changes are considered, with a long-term physical approach in terms of geomorphological diversity, and two faster-responding biological approaches, namely the *Breonadia* and terrestrialisation models.
- (h) **TPCs for river flow and quality** - These TPCs are used to track and warn of long-term trends in river flow and water quality. The DWAF-defined “in stream flow requirements” (IFRs) are adopted as the river flow TPCs for the KNP based on the knowledge that the IFRs were well researched and calculated, and trying to develop other thresholds would be superfluous. However, IFRs were developed as a statement of river flow requirements, and as such they are a set of minimum flows which should avoid unacceptable biodiversity loss. Thus continuously having rivers flowing on or below IFR levels is only just acceptable and certainly not the point to which we should aspire. Similarly, the stringent river water quality requirements set by DWAF primarily for drinking water have been adopted by the KNP as TPCs as these are stringent enough for satisfactory ecosystem requirements as well.
- (i) **TPCs for river health, specified through fish assemblages** - The Fish Assemblage Integrity Index (FAII) forms the core of this TPC as it is based on the categorisation of the fish community

according to an intolerance rating which takes into account trophic preference and specialisation, requirement for flowing water during different life-stages, and association with habitats with unmodified water quality. Results of the FAIL are expressed as a ratio of observed conditions versus conditions that would have been expected in the absence of human impacts.

The above TPCs (outlined in detail in Lower Level Plan 2) constitute the range of biophysical TPCs believed to be necessary in KNP. However, in time, other TPCs will need to be developed particularly for wilderness qualities and nature-based tourism.

The mission (within context and values), the vital attributes, the objectives, together with the Thresholds of Potential Concern and the Zonation Plan together make up the desired state of KNP.

## 2. PROGRAMMES TO ACHIEVE THE DESIRED STATE

This section deals with all the discrete, but often interlinked, programmes which make up the way management issues are approached, and actions on the ground are implemented. Together, they are the KNP'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 programme, invariably supported by details in what are called *lower-level plans*, but not included here.

The various programmes are classified into the five 'real-world' activity groupings as reflected in the SANParks biodiversity custodianship framework (Rogers 2003). These are Biodiversity and Heritage Conservation, Sustainable Tourism, Constituency Building, 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. Within each of these groups, the last section entitled 'Other Programmes' deals under one heading briefly with programmes which have some relevance to KNP, but which have been deemed sufficiently small as to not require their own subsection and reference to a fully-fledged lower-level plan.

### **Biodiversity and Heritage Conservation**

#### **Conservation Development Framework and Zonation Programme**

SANParks currently has two primary levels of spatial planning, namely:

- (i) *Conservation Development Framework (CDF)*, a term coined formally in the late 1990's, to enable a coherent spatial planning system in all national parks. This is a strategic spatial plan for a national park and its surrounds that indicates a range of visitor use zones, areas requiring special management intervention, the placement of visitor facilities, the nature and size of these facilities, entry points and movement routes through the park. It also provides guidelines for potential future development, rehabilitation and the management of land-use along the park's borders. The CDF is underpinned by a thorough analysis of the biodiversity, cultural-heritage and landscape limits to development, as well as the tourism opportunities available and includes the development of park interface zones. Sensitivity-value analysis is a decision support tool for spatial planning that is designed to integrate best available biodiversity information into a format that allows for defensible and transparent decisions to be made. The CDF for the KNP is not yet fully developed as the KNP is in a transition between having a zonation plan and a fully developed CDF (which will include the Zonation Plan).
- (ii) *Zonation Plan*, a lean version of the CDF, and the primary tool used in the past. In future, the Zonation Plan will be included in the CDF. The primary objective is to establish a coherent spatial framework to guide and co-ordinate various conservation, tourism and visitor experience initiatives within a park. The park use zonation is based on the same biodiversity and landscape analyses undertaken for a CDF. However, certain elements underlying the CDF may not yet be fully incorporated into the park use zonation. In particular, the park use Zonation Plan will usually not incorporate elements such as a full tourism market analysis and detailed analysis of all development nodes.

In KNP, biodiversity conservation, wilderness attributes, unique landscape features, and the legacy of development that includes obsolete structures, infrastructure considered as *heritage* in terms of the National Heritage Resources Act, all act as the primary informants to land-use planning. In the 20-year scenario, a distinct increase in development alongside the western and southern boundary fence is expected with concomitant negative environmental impacts, whilst on the eastern and northern sides the further development of the GLTP means an increase in land under conservation.

The development of the draft CDF for the KNP followed an integrated adaptive process based on the principles of Strategic Environmental Assessment in 2006. The process analyzed the overall park environment and assessed the range and scale of activities that the park can support. While some aspects of the CDF are reflected elsewhere in this management plan (e.g. under the Regional Land-use and Cooperative Governance Programme, section 2.1.4), there is still a further need to pull together a comprehensive spatial regionally-embedded framework, which includes multiple scales of detail. This full CDF will be available at the first iteration of this plan in five years time. Still to be considered further in future are resource use potential, heritage sites for tourism, cultural tourism opportunities, better interfacing with municipal Integrated Development Plans and Environmental Management Frameworks, some of which are also still under development. In addition, at a finer park-based scale, the development of a master plan indicating the full infrastructure, as well as the tourism, scientific support and administrative facilities is underway.

### *Park Interface Zones*

One component of the CDF, the identification of Park Interface Zones, shows the areas within which surrounding land-use changes could affect national parks. The zones serve as a basis for identifying focus areas in which park management should respond to development proposals and EIAs, identifying impacts that would be important at a particular site, and most importantly, serving as the basis for integrating long-term protection of a national park into the spatial development plans of municipalities and other local authorities. A rudimentary park interface delineation exercise for KNP has been conducted and identified three Park Interface Zone categories (see Figure 8).

(i) *Priority Natural Areas*: These are key areas for both pattern and process that are required for the long-term persistence of biodiversity in and around the park. The zone also includes areas identified for future park expansion. Inappropriate development and negative land-use changes should be opposed in this area. Developments and activities should be restricted to sites that are already transformed. Only developments that contribute to ensuring conservation friendly land-use should be viewed favourably. This layer was derived from identification of intact natural areas around KNP as highlighted through the national assessment (although this dramatically underestimates intact areas) combined with an expert evaluation of areas for their corridor value.

(ii) *Catchment Protection Areas*: These are areas important for maintaining key hydrological processes within the park. Inappropriate development (dam construction, loss of riparian vegetation etc.) should be opposed. Control of alien vegetation and soil erosion as well as appropriate land care should be promoted. The delineation of these areas is based on river pattern analyses from the national assessment as well as Roux et al's (2008) recommendations. While this assessment is not very well geared at showing areas of park vulnerability to specific hydrological impacts, it nevertheless provides a good output of consolidated catchment areas that together will provide a reasonably complementary basket of freshwater diversity.

(iii) *Viewshed Protection Areas*: These are areas where development is likely to impact on the aesthetic quality of the visitor's experience in a park. Within these areas any development proposals should be carefully screened to ensure that they do not impact excessively on the aesthetics of the park. The areas identified are only broadly indicative of sensitive areas, as at a fine scale many areas within this zone would be perfectly suited for development. In addition, major projects with large scale regional impacts may need to be re-considered even if they are outside the Viewshed Protection Zone. This was based on a viewshed analysis conducted for the KNP.

The first two zones are mutually exclusive, but the final visual/aesthetic category can overlay the others. Obviously this analysis needs to be expanded and refined for the KNP buffer area and TFCA delineation challenges.

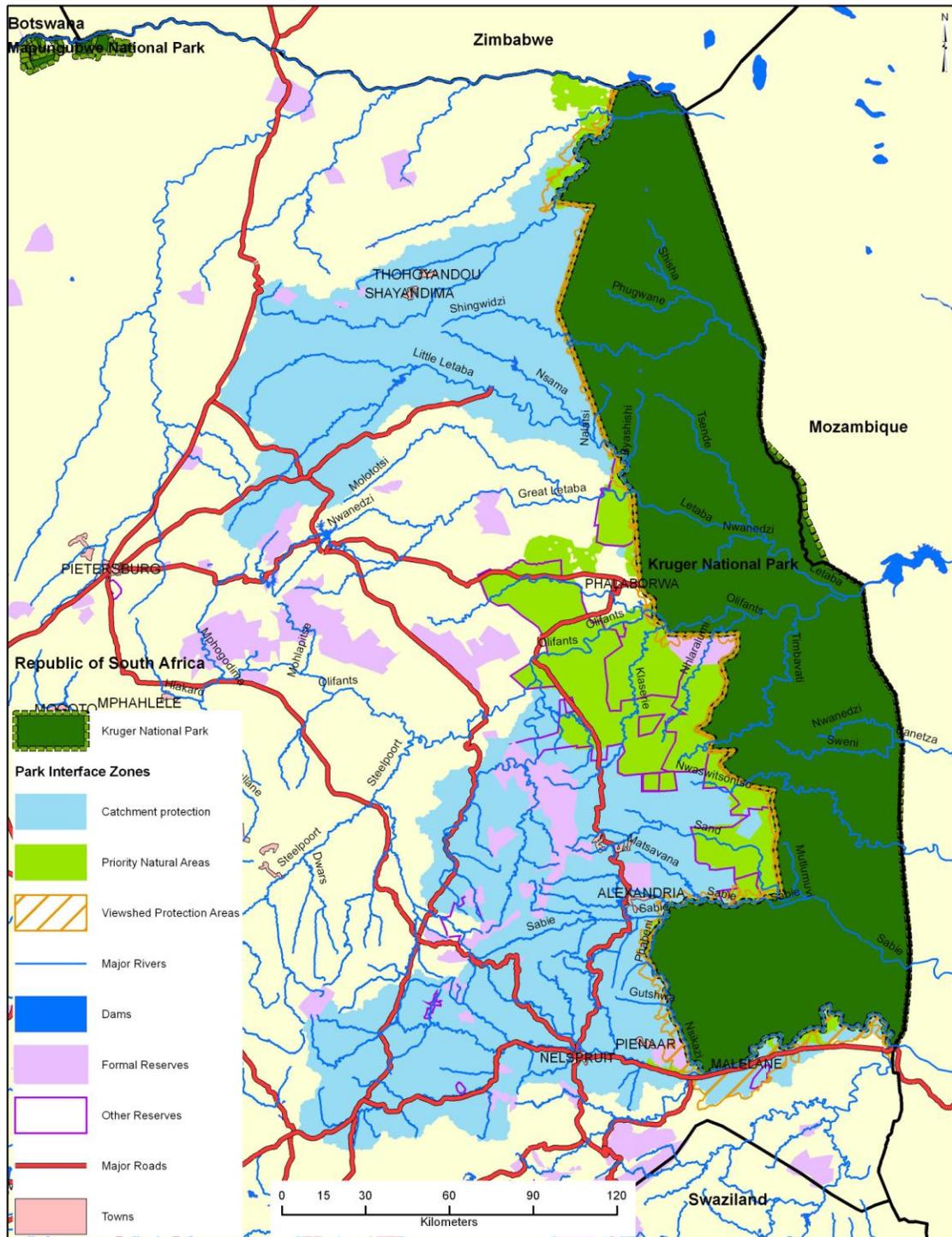


Figure 8: Broad delineation of park interface zones for KNP as part of the CDF process.

## *Zonation Plan for KNP*

Within this broad integrated CDF process, a revised Zonation Plan was developed over a period of 11 months through an iterative integrated approach. The primary objective of the Zonation Plan is to establish a coherent spatial framework in (but not yet around) the KNP to guide and co-ordinate conservation, tourism and visitor experience initiatives. The rationale for and standard zonation criteria are contained in the SANParks zonation policy (SANParks 2006). The Zonation Plan plays an important role in minimising conflicts between different users of a park by separating potentially conflicting activities whilst ensuring that activities which do not conflict with the park's values and objectives can continue in appropriate areas.

A practical and inclusive zonation (Figure 9, and see more detailed maps in Appendix of Maps) is available and in use to guide development and protection of wilderness areas in KNP. This was derived from the following informants: SANParks policy framework, KNP's hierarchy of objectives, biodiversity sensitivity-value (including the contribution to national protected area targets), heritage sites, tourism opportunities (including a marketing and products and activities potential analysis), current research areas, heritage and other unique features, the Ramsar site, regional linkages, the GLTP, finalized and potential land claims, existing wilderness areas, adjacent land use (including Associated Private Nature Reserves, Limpopo National Park zoning, draft Pafuri development plan, Mozambique game reserves), access routes (including regional tourism linkages, international borders and border control gates, TFCA linkages), concessions, and the historic legacy of existing infrastructure. The plan details the strategic land-use intent for the KNP for the next 20 years and builds significantly on the precursor Recreational Opportunities Zoning (ROZ) plan for the KNP.

### *Overview of the use zones of KNP*

In KNP there is a spread of use zones from high intensity leisure to wilderness, with a large focus on remote, primitive and low intensity leisure zones in line with the vital attributes and objectives of this park (experiential qualities per zone outlined in Table 2). Full details of the use zone definitions, the zoning process, what activities may take place in different sections of the area, the Park Interface Zones (detailing park interaction with adjacent areas) and the underlying landscape analyses are available in Lower Level Plan 3.

*Wilderness Zone:* This is an area retaining an intrinsically wild appearance and character, or capable of being restored to such and which is undeveloped and without roads. The area provides outstanding opportunities for solitude and has awe-inspiring natural characteristics. It complies fully with the criteria for the designation in terms of the Protected Areas Act. Wilderness zones are managed to protect and maintain natural and cultural biodiversity and the provision of environmental goods and services. Management interventions use a "minimum tool approach" and "no-trace-left" activities may be conducted. Different wilderness blocks are usually separated from each other by management tracks, a necessity in the KNP due to increased poaching pressure and the need to access remote areas by rangers.

*Remote Zone:* These areas provide a "wilderness experience", but do not necessarily comply with the criteria for legal designation as wilderness. Human impacts (evidence of human use / existence) from outside the zone may be visible or audible from certain vantage points. There is no mechanized access or facilities within these zones for visitor use with the emphasis on "leave no trace" activities and operations, but small tracks for anti-poaching access may be present. These areas sometimes act as buffer zones to the wilderness areas.

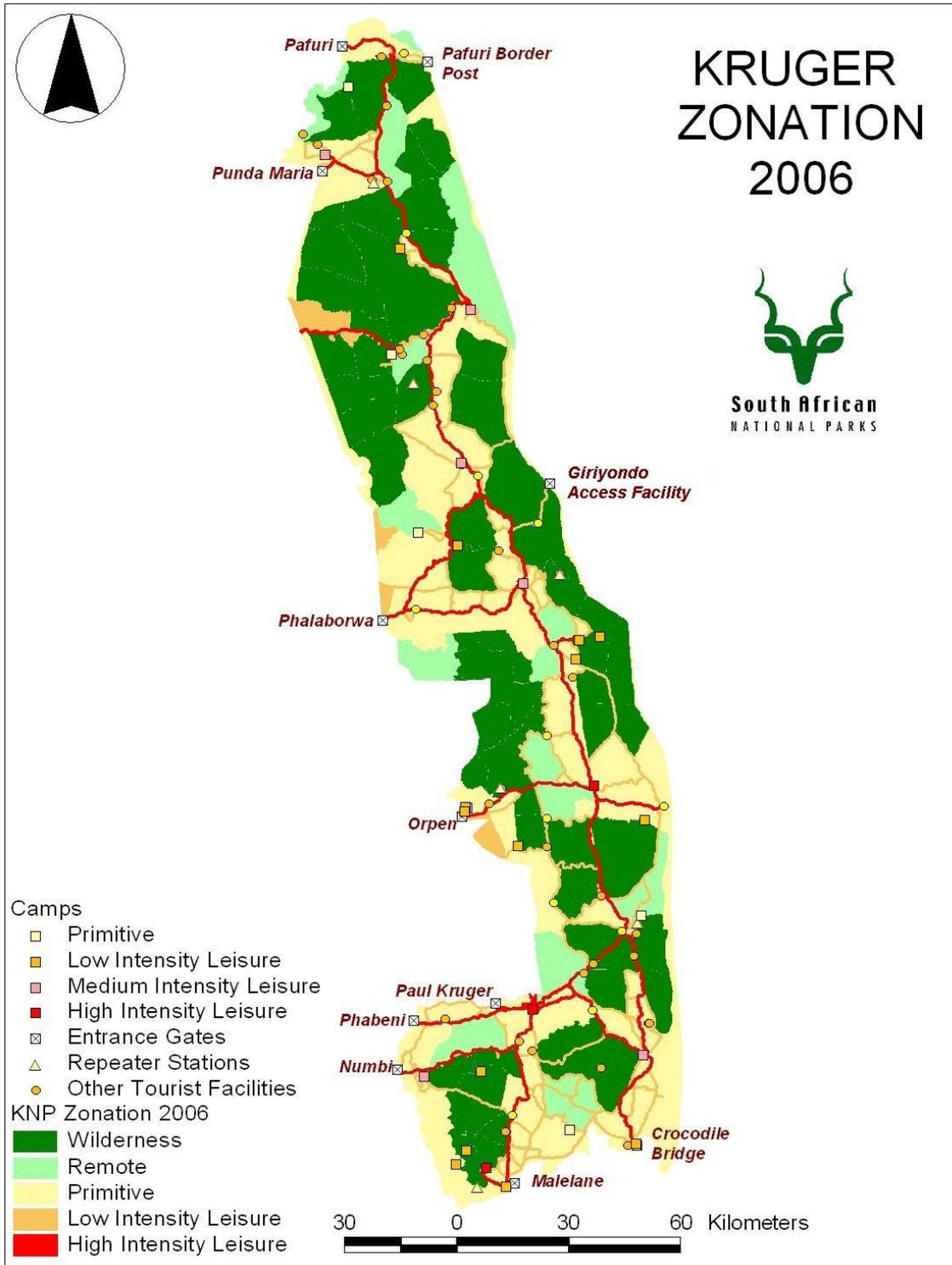


Figure 9: Broad Zonation Plan for the KNP

*Primitive Zone:* The prime characteristic of the zone is the experience of primitive conditions and wilderness qualities with access controlled in terms of numbers, frequency and size of groups. The zone shares the wilderness qualities of the Remote zone, but with limited access roads and the potential for basic small-scale self-catering accommodation facilities such as bush camps or small concession lodges. Views of human activities and development outside of the park may be visible from this zone.

*Low Intensity Leisure Zone:* These slightly modified landscapes can absorb larger concentrations of people. The underlying characteristic of this zone is motorized self-drive access with the possibility of small camps. Facilities along roads are limited to basic self-catering picnic sites with toilet facilities.

*High Intensity Leisure Zone:* These areas are high density tourist development nodes with modern amenities, incorporating the high volume transport routes. Activities are concentrated and a range of infrastructure and facilities is on offer, although still reflecting the ethos and character of the park.

#### *Current status and future improvements*

A full CDF will be developed for KNP within the five-yearly review cycle. Wilderness areas are currently under consideration and investigation for possible formal declaration as Wilderness Area in terms of Section 22 of the Protected Areas Act. Special management overlays which designate specific areas of a park that require special management interventions will also be identified.

Table 2: Experiential qualities per use zone identified and implemented in the KNP Zonation Plan

Primary Zone	Node	Attributes/ aesthetics	Unique Features	Experiential Qualities	Interaction between user groups	Extent of human impact	% of the park
<b>WILDERNESS</b>		High biodiversity-sensitivity (often, but not exclusively), wildness, quiet, remoteness, solitude, serenity, peace, harmony, opportunity for reflection and self-appraisal.	Isolation	Solitude, quiet, serenity, peace, harmony, remote, opportunity for reflection and self-appraisal.	None	None	45%
<b>REMOTE</b>		High biodiversity-sensitivity (often, but not exclusively), wildness, remoteness, solitude.	Isolation	Solitude, remoteness, quiet	1	Emanating from outside the zone, or in rehabilitation phase	12%
<b>PRIMITIVE</b>	<b>Primitive Area (not concession)</b>	Quality game viewing potential, relaxing, serenity, low impact	Good game viewing, scenic area	Relaxation, <16 people per group	2	Noise and light levels Low	30%
	<b>Primitive-Management</b>	Conservation	Management	n/a	n/a	Noise and light levels Low, minimum footprint	
	<b>Primitive - camp</b>	Rustic, relaxing	Rustic	Relaxation, <16 people per group	2	Noise and light levels Low	
	<b>Primitive Area – Concession</b>	High game viewing, relaxing	Elegant, up-market	Relaxation, <16 people per group, exclusive nature-based tourism experience	2	Noise and light levels Low	
<b>LOW INTENSITY LEISURE</b>	<b>Low-area</b>	Scenic area		Relaxation and recreation	Moderate	Moderate	8%
	<b>Low-gate</b>	Entrance point	Rustic	Efficient	High	High	
	<b>Low-transport</b>	Gravel tourist road	Game viewing	1/2 of volume of High Intensity Leisure zone	Medium	Moderate	
	<b>Low-camp</b>	Scenic area		Relaxation and recreation	Moderate	Moderate	
<b>HIGH INTENSITY LEISURE</b>	<b>Medium – camp</b>	Scenic area	Activities provided in camp	Recreation	Moderate to high	Moderate to high	5%
	<b>High-transport</b>	Tar tourist road	Game viewing, material supply	2x volume of Low Intensity Leisure Zone (includes commercial traffic, e.g. deliveries).	High	High	
	<b>High - camp</b>	Recreation	Family and socialization	Socialization and recreation	High	High	

Table 3a: Details of objectives and initiatives to address the CDF and Zonation Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<b>Balancing Objective</b>  To develop a thorough understanding of the integrated socio-ecological system (SES), especially in the regional context, for maintenance of a resilient SES and to balance human activities and development inside and around the KNP with the need to conserve ecosystem integrity and wilderness qualities by agreeing on a desired <sup>1</sup> set of future conditions,	<b>Balanced Development and Biodiversity Planning Objective</b>  To balance biodiversity planning within and around KNP with the need for sustainable development prerogatives	<b>Spatial Development Framework and Zonation</b>  To influence the SDF consistent with the SES conceptual model.	Engage with relevant stakeholders in the newly demarcated municipalities adjacent to the KNP to initiate integration between KNP and the municipal areas			R 240 000*	x	x				High
			Workshop appropriate buffers between KNP and adjacent land with municipal and other stakeholders and adjust IDP's accordingly			R 250 000		x				High
			Finalise Conservation Development Framework (CDF) for the KNP and publicize it by including it in maps distributed to the public			R 180 000		x				High
			Further develop and revise the CDF			R 250 000	x	x	x	x	x	High

\* The filling of the vacant position of Strategic Conservation Planner and Environmental Manager is required to initiate and drive this process.

Table 3b: Proposed overall budget summary to achieve various initiatives for the CDF and Zonation Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 110 000	R 660 000	R 50 000	R 50 000	R 50 000
<b>Total secured budget</b>					
<b>Total other funding</b>					
<b>Total unsecured budget</b>	R 110 000	R 660 000	R 50 000	R 50 000	R 50 000

### 2.1.2. Biodiversity Management Programme

The overarching biodiversity goal of the KNP is to maintain biodiversity in all its facets and fluxes. Since the IUCN decisions of the 1980s that species conservation should be achieved through ecosystem conservation, SANParks developed this 'facets and fluxes' theme, especially appropriate in the KNP ecosystem which, although extremely rich in species, carries few regional and possibly no entirely local endemics. The Noss (1990) formulation of biodiversity, because it covers all facets at all scales, including the habitat template, is very amenable to use for this purpose. Thus, more specifically, KNP's ecosystem objective is "to understand and manage the KNP as part of the lowveld savanna and its river catchment areas in such a manner as to conserve and restore its varied natural structure, function and composition over time and space, and its wilderness qualities, through an approach integrating the different scales and types of objectives in the objectives tree" (Lower Level Plan 1).

A crucial aspect is how this is approached. It is currently believed that the above aspirations can be achieved through the KNPs integrated biodiversity plan (Lower Level Plan 2) which aims at ensuring that research and management are integrated in pragmatic learning-by-doing processes and generate understanding in a structured knowledge management system. This plan should be seen together with the KNP objectives hierarchy, from which the TPCs have been derived, as well as the adaptive management framework and broader SANParks values. Together, these form the desired state, with much of KNP's biodiversity issues well within its bounds except, notably, the riverine components.

#### *Managing for heterogeneity*

Within KNP, the biodiversity thresholds of potential concern, monitoring programme and associated management interventions are tightly interlinked and interwoven to reflect the emphasis on managing the heterogeneity of the KNP ecosystem (meaning a desired level of landscape patchiness and function, undergoing healthy oscillations characteristic of a savanna), accepting that ecological systems function in a dynamic space-time mosaic. This requires identification and understanding of the key agents of change across the nested patches and has resulted in KNP adopting a unique version of the widely recognised model for managing this uncertainty and flux within ecological and social systems, namely strategic adaptive management (SAM, see du Toit et al. 2003). This emphasises forward-looking approaches to help convert decisions to a more proactive rather than reactive mode with a strong goal-setting component (the well developed biodiversity parts of the objectives hierarchy; Lower Level Plan 1) and strongly articulated spatial planning features (CDF or zonation) and end-points specified as TPCs. The objectives hierarchy, CDF and TPC endpoints connect science, monitoring and management, explicitly considering scale and covering changes in biodiversity at scales that vary from park-wide to the finest catenal scale (the divisions from hillcrest to valley bottom). The scale that each TPC is set at is determined by the scale at which the specific

element of function, structure or composition is believed to be relevant in the ecosystem, given the desired state and scales of management.

TPCs, as specified in section 1.3.2, are set to relate to either (a) the imminent danger of global loss of a species, or (b) to the 'flip' of the ecosystem or part of it to an undesirable ecological state. The basis for identifying "undesirable" ecological states is generally founded on a predictive understanding derived from past monitoring of fluctuations and their causes. Deviations from these patterns might suggest abnormal (possibly anthropogenic or management-induced) perturbations that would require investigation through adaptive management. The KNP is interested especially in irreversibility of management actions arising from decisions taken now which have impacts beyond the 25-year time horizon, as these are effectively irreversible from the point of view of at least the next generation. In practice, the TPCs are specified as some mix of *habitat mosaics* allowed to vary over time and space across the park, an approach which tends to cut down our overall numbers of TPCs, or actual ultimate concerns or worries. Nevertheless, it is not considered desirable to actively create spatial or temporal heterogeneity by means of management measures, to the point of creating an 'artificially diverse' system, rather, the ideal is to maintain the extent of heterogeneity over space and time that may have prevailed in historical times (as far as this can be ascertained). The need to monitor other variables as key inputs to understanding TPC exceedances or as requiring management response options is also recognised. The figures that have been attached to some of the TPCs were derived using specialist knowledge to interpret the current data. These will be refined as knowledge from additional data collected by the monitoring programme (outlined in Lower Level Plan 2) and research projects is gained. KNP encourages outside researchers and scientists to constructively challenge the TPCs, especially the levels that have been set, and to help further define these.

Thresholds, designed to detect unacceptable change in landscape structure, function and/or composition have been set and TPCs are being used as an objective instrument to help determine when KNP authorities should be concerned about any of a wide range of issues impacting on the biophysical desired state, including herbivory (especially elephant) impacts, fire and nutrient cycling, disease and alien invasions. What were previously major thematic programmes (such as fire, elephant, surface water management, river management, etc.) are increasingly melded into more unitary overall programmes. Nevertheless, complete unification of terrestrial and aquatic biodiversity programmes is still outstanding, although much common ground has been found. Terrestrial biodiversity issues are treated, in practice, as one larger programme, albeit with interdigitated sub-programmes. This is testimony to clear understanding of the integrated mandate, and the complementary role of each issue.

As heterogeneity is an essential aspect of biodiversity, an overall TPC (under active current development) assessing the status of heterogeneity makes a first attempt towards such an ideal and aims to look at a series of layers representing the different important ecosystem components. Evaluation at different scales attempts to determine whether overall spatial heterogeneity is acceptable, specifically by looking at change over time. Ultimately, such a TPC of 'general system variability' may make some or even most current TPCs redundant. Variability is considered the essence of biodiversity, and its study and practical management implementation is currently fairly novel. Nevertheless, in the interim, the existing approaches to evaluation are maintained; at least until these newer ones have been satisfactorily prototyped.

### *The KNP's major biodiversity management thrusts*

Currently the major biodiversity research and management thrusts in KNP are:

- responses to poor river flow and artificial water provisioning;
- critical species conservation issues;
- a critical assessment of the role of elephant herbivory, along with other ecosystem drivers, on biodiversity and heterogeneity; and
- area integrity protection, including action against invasive aliens, a growing poaching threat and increased unscrupulous developments on the boundaries (especially where rivers form these) of the KNP.

These issues are considered in terms of SANParks' biodiversity values and the overarching missions of both the KNP and SANParks. TPCs, designed to detect unacceptable system changes or losses of biodiversity, should be able to detect changes due to system drivers including human interference, water provision, fire, global climate change as well as changes due to herbivory.

#### *2.1.2.1. Responses to poor river flow and artificial water provisioning*

River research, understanding and management have come a long way since 1997 and there is clearer (but still incomplete) integration of aquatic and terrestrial ecosystem understanding which should grow in the next five-year period. Although implementation of the new Water Act has been slow, it holds promise for KNP's rivers. Nevertheless, KNP cannot be complacent, with ecological reserve implementation and refinement remaining highest on the agenda over the next five-year period. Catchment management engagements to effect progress on this front are also addressed under the Regional Land-use Planning and Cooperative Governance Programme (2.1.4).

The provision of artificial water is one of the tools available to management. However, to use the tool efficiently, the consequences of water provision for biodiversity and ecosystem function should be understood. For instance, the role of placing artificial surface water in the KNP has been through a full cycle, with recent trends leading to closing off of many waterholes to regain landscape patchiness. This meant retracting from former "command and control" management interventions and replacing them with more (eco) systems-oriented ones. Newly instituted biodiversity surveys across the KNP represent a wide distribution of sites with varying distances from water and these surveys should render information on the influence of water provision on biodiversity and system function. Other factors to be addressed are the effect of water provision on nutrient redistribution and long-term effects on vegetation and mammalian (and also smaller faunal) species composition.

All the water in the landscape objectives recognise the cardinal roles of climatic, anthropogenic and global change impacts and it is hoped that this increased awareness will lead to better scenario-planning and predictive capabilities within the next five year cycle. This should aid increased interaction with neighbouring and upstream land-use planning and catchment management activities as the interdependence of these systems is more fully appreciated.

#### *2.1.2.2. Critical species conservation issues*

There is also ongoing interest in species conservation issues, with key species in the KNP being black rhino, wild dog, pepperbark tree, wild ginger and Swazi impala lily. A justification framework helps prioritise these and other species which also require action, and trade this off against the modern need for overall ecosystem conservation. Focus and priority is placed on those species which are globally critically endangered or endangered.

Internationally significant disease control measures, particularly around foot-and-mouth disease, take place near and around the KNP due to its three-country juncture position. This disease has much wider economic than biodiversity implications and some of the veterinary control measures

themselves can be considered as important biodiversity conservation constraints, an issue under study in the Animal Health for Environment and Development (AHEAD) programme launched at the Durban World Parks Congress.

### *2.1.2.3. A critical assessment of the role of elephant herbivory, along with other ecosystem drivers, on biodiversity and heterogeneity*

Elephants are one species which has responded particularly well to historical conservation actions in the KNP. Elephants are an important component of herbivory and the real challenge is to evaluate TPCs and interpret their main causes. Although current societal concerns often hinge around the reduction of elephant impacts, it is important, as SANParks has stressed from the outset, that the philosophy also embraces the converse i.e. allows identification of concerns related to too low elephant impacts as well. In terms of elephant management specifically, four foundational areas may be used, separately or in combination, to consider action (integrity of ecosystems and biodiversity; security and safety considerations, opportunities for human benefit, including tourism and sustainable use; other value systems such as human aesthetic preferences and values) although the biodiversity programme focuses on the measurable aspects of biodiversity change that would trigger management concern. The underpinning principle for elephant management is the belief that varying densities over both space and time will be best for achieving biodiversity, a process that will have to be both tested and guided by adaptive management.

#### *Development of an elephant management plan for KNP in line with recent legislative requirements*

The South African context is that the KNP has only four per cent of the elephants in Africa and these populations are better protected and far more intensely managed than elsewhere. In addition, they breed quicker, live longer and use space more intensely than elsewhere and this is expected to have undesirable outcomes for other biodiversity components and values. Historically, the KNP has measured the response of elephant populations to management interventions but have not measured the associated changes in elephant impacts.

Legislatively, SANParks are directed by (1) the NEM: Protected Areas Act which supports the notion of adaptive management; (2) the SA Elephant Management Norms and Standards as published by DEAT on 21 February 2008 ([www.deat.govt.za](http://www.deat.govt.za)) and which lists five management options for elephants in the wild, namely range manipulation, removal by translocation, introduction, contraception and culling. In addition, the DEAT Ministers' scientific consultation process, through the Science Round Table, was aimed at reducing the uncertainty associated with various elephant management strategies. A scientific assessment of elephant–ecosystem–societal interactions essentially recognised that elephant impacts must be managed differently in different places and at different times ([www.elephantassessment.co.za](http://www.elephantassessment.co.za)).

The management of KNP's elephants and their impacts must be seen in the light of the overall SANParks objectives of maintaining ecosystem integrity, providing benefits to people, and cognisance of aesthetic and wilderness qualities. Furthermore, SANParks recognises that ecosystems under its care are constrained (through fencing, restricted size, addition of water and/or missing species) and that these ecosystems are affected by how elephants use space over time (where this could be either too intensely or too sparsely, both potentially affecting other values and biodiversity components). In addition, water, food availability and people would have historically influenced elephant special use, while today management can directly (e.g. water provision) or indirectly (e.g. contraception) affect the intensity with which elephants use the space available to them.

In order to effectively select appropriate management responses, explicit links between the park's objectives and outcomes must be made with the drivers and indicators of change, which again must be linked to the mechanisms (and their modulators) of change. The key mechanism directing impacts is how intensely elephants use space over time, which is driven by resource availability and

distribution (predominantly food and water). This is directly modulated by water provision, but these effects can be overridden by density effects. Elephants respond to spatial and temporal resource variation by short- to medium-term movements / dispersal and medium- to long-term changes in demography. However, the constraints in national parks (operating at different scales in different parks) include fencing, water provision and missing species (such as presence of early humans influencing elephant movements), disrupting these population regulation mechanisms. The implications are that (1) spatial resource manipulation will affect elephant impacts (over time and space), (2) demographic responses to water distribution may reduce birth rates and increase death rates (through, for example, social stresses and physiological stresses), and resource re-distribution has the potential to deal with the impact problem, and indirectly may induce population regulation.

SANParks takes cognizance of the specific park contexts and timeframes required for decision-making in the face of integrating objectives around risk aversion, cascade effects of elephant impacts on other values and biodiversity components, visitor experience, economic constraints and societal expectations. In KNP, integration of the various objectives, which often compete or even conflict with each other (including water, elephant, tourism, zoning, TFCA plans, SANBI conservation targets, human-elephant conflict) is through broadly defined risk-based “impact tolerance” zones. This classification is under development in conjunction with SANBI. This is being developed using primarily (i) the national obligations on KNP to protect certain vegetation types (i.e. SANBI-specified conservation status of and targets for the vegetation types within KNP) and (ii) the KNP landscape sensitivity to elephant impact/disturbance. Since landscapes differ in terms of importance of their conservation status for South Africa, the KNP landscape classification has therefore been combined with a national conservation importance rating (as defined by SANBI) and a KNP-based rating of the sensitivity of the various landscapes to elephant utilisation. Landscape-based TPCs will therefore be set at different levels to reflect the variable concerns.

The strategic focus of KNP's elephant management plan, currently under development, is therefore to vary the intensity with which ecosystems are used over space and time; induce spatial variation rather than simply controlling animal numbers and further develop (where necessary) thresholds that reflect mechanisms of elephant impact. In order to be robust and accountable for actions taken, the KNP will follow a strategic adaptive management approach in implementing elephant management approaches. This carries with it information needs, namely an ability to evaluate changes in the mechanisms of impact/intensity of use, data to evaluate changes in impact, major monitoring challenges to track indicators and drivers over large scales. Partnerships will be essential to achieve this.

Work is currently in progress to finalise the KNP-specific elephant management plan for presentation to the Minister of DEAT in line with the legislative requirements. It is anticipated that this submission will take place during 2009. In the interim, engagement with direct stakeholders and neighbours has begun to share cross-boundary issues and management implications. Work is also progressing on the refining of thresholds and monitoring plans linked to objectives and mechanisms and the development of an “elephant communication plan” is underway, as part of SANParks' overall communications strategy. In the interim, it is recognized that, on an ongoing basis, urgent biodiversity threats (e.g. Mapungubwe forest) and damage-causing elephants must be dealt with as they arise.

### *Fire management*

Some of the critical other ecosystem drivers are fire and climate. It is recognised that fire plays an important role in the maintenance of savanna ecosystems and its effect on vegetation structure and how composition is influenced by elephant activity (e.g. large trees damaged by elephant are more readily impacted by fire). The historic anthropological role in fire ignition is a complex topic and its integration into the management of the KNP has made good progress with the initiation of the patch-mosaic burning programme. Changing the fire management policy and implementing it has also meant retracting from a former “command and control” management intervention and replacing it with

a more ecosystems and systems-oriented one. The links between fire and elephant impacts will be further researched and adaptations will be made where critical learning has occurred.

Although very little can be done to manage climate, considerable effort is put into understanding the effects of climate change and positioning future efforts in such a way to mitigate its effects as well as possible. For this reason much effort is put into the TFCA Programme (see section 2.1.3) to increase the critical minimum ecosystem size and include altitudinal differences such as proposed by the Kruger-to-Canyons biosphere idea.

#### 2.1.2.4. Area integrity protection

The area integrity of the KNP is threatened by, amongst others, invasive alien organisms, ongoing poaching which seems to be changing increasingly to commercial poaching, and pressure by developers to develop on critical ecosystem areas on the boundaries of the KNP.

##### *Invasive alien species*

There is considerable interest in alien invasions. Although invasive species comprise almost all taxonomic groups, the most notable concerns in the KNP include alien plants and bovine tuberculosis which is currently the subject of an intensive research and monitoring programme. Alien plants pose a substantial threat to the riparian corridors through herbaceous shrubs and floating plants, and the rivers are currently the most impacted areas although even these are generally currently under reasonable control. *Opuntia stricta* (sour prickly pear) is widespread around the Skukuza region, but is managed through a well researched and integrated biological control programme. Apart from the work done by the ranger teams, most of the alien plant control work being conducted in, and especially surrounding, the KNP is carried out by the Working for Water Programme. Although an environmental programme, this programme also provides other socio-economic benefits to rural poor communities. Although alien fish (carp and Nile tilapia), freshwater snails, the varroa (bee) mite and the Indian myna (bird) have been recorded in the KNP, the abundance is localized or relatively low and impacts are unknown at this stage.

The purpose of the KNP invasive alien species programme is formulated within the objectives hierarchy and its implementation contributes to the maintenance of the KNP within its desired state. The programme's main objective is to anticipate, prevent entry and where feasible, and/or necessary, control invasive alien species in an effort to minimize the impact on, and maintain the integrity of indigenous biodiversity in the KNP. The achievement of this objective will be facilitated through actions under the following sub-objectives:

- (i) *Strategy and Support* - To develop a long-term strategy for the management of invasive alien species, by evaluating the current and projected future overall scale of threat, by addressing organisational and infrastructural capacity, by developing policy, building support for continued high level commitment and by being informed by advances in invasion ecology research and literature.
- (ii) *Prevention* - To anticipate and evaluate imminent or potential risks to the KNP, as well as pathways of invasion and develop effective mechanisms to monitor, manage or mitigate these (recognising that the KNP is also responsible for the export of alien species).
- (iii) *Control* - To ensure the effective and timely development and implementation of integrated control strategies, in such a manner that both rapid response and long-term maintenance goals are met.
- (iv) *Research* - To promote and develop a coordinated research programme in order to develop a clearer understanding of the dynamics and impacts of alien species invasions.
- (iv) *Awareness* - To develop awareness programmes to inform and educate on the consequences of invasive alien species and facilitate global invasive alien species initiatives.

It is acknowledged that a coordinated, well integrated approach is required, spanning the social, economic and biophysical realms.

The management of invasive alien species in KNP is founded on and embedded within a number of complementary and partially overlapping pieces of legislation, including National Environmental Management Biodiversity Act (Act 10 of 2004), National Environmental Management Protected Areas Act (Act 57 of 2003), Conservation of Agricultural Resources Act (Act 43 of 1983), Animal Diseases Act (Act 35 of 1984) and the Convention on Biological Diversity, Article 8(H). Following this broad international and national legislative framework dealing with invasive species, a number of policies, both corporate and park specific, are in place and include:

- (i) A SANParks corporate policy for Invasive Alien Species - SANParks shall strive to remove all alien species where possible, control, maintain and where necessary, restore previously invaded or planted areas, in order that these sites resemble or form part of the functioning landscape and ecosystem. This is based on the principles that SANParks recognises that invasive alien species are one of the greatest threats to the biodiversity of the SANParks estate. Further, that under the guiding international conventions, national legislation, and by means of its own objectives and existence, invasive alien species impact on and harm the core conservation business of SANParks. SANParks, as the leading conservation organisation in South Africa, has a responsibility to lead by example, provide awareness and educate the broader SANParks constituency about invasive alien species in the interests of South Africa's ecological and economic environment.
- (ii) KNP Alien Species Standard Operating Procedure - This is based on the principles that invasive alien species are regarded as one of the great threats to the biodiversity of the KNP and that the KNP shall strive to remove all alien species where possible, and to restore previously invaded or planted areas, in order for these sites to resemble or form part of the functioning landscape and ecosystem.
- (iii) KNP Standard Operating Procedure for ornamental alien plants in developed areas - this outlines the rules applicable to use and control of ornamental plants within the KNP. It details the rules under which camps and personnel villages will be surveyed and cleared, as well as rules for replacement and use of plants for landscaping and ornamentation. These principles were also captured in the KNP Code of Conduct which guides staff residing in the KNP, as well as plants used for ornamental purposes at tourism facilities.

The KNP is a large conservation area. However, due to its long shape and downstream position in five major catchments, it is heavily impacted on by activities surrounding the park, particularly to the west and south-west. Land-use practices upstream from the KNP, such as commercial plantation forestry, feed a continuous source of seed and propagule material into the KNP (Figures 10 and 11). The KNP maintains a list and GIS distribution database of alien species. To date, there have been over 380 alien species listed within KNP (Table 4).

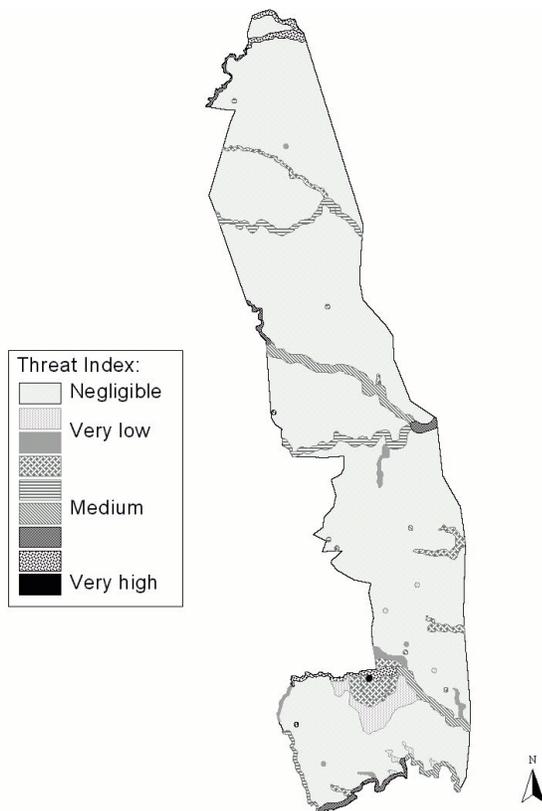


Figure 10: Habitats currently invaded or at risk of invasion (from Foxcroft and Richardson 2003)

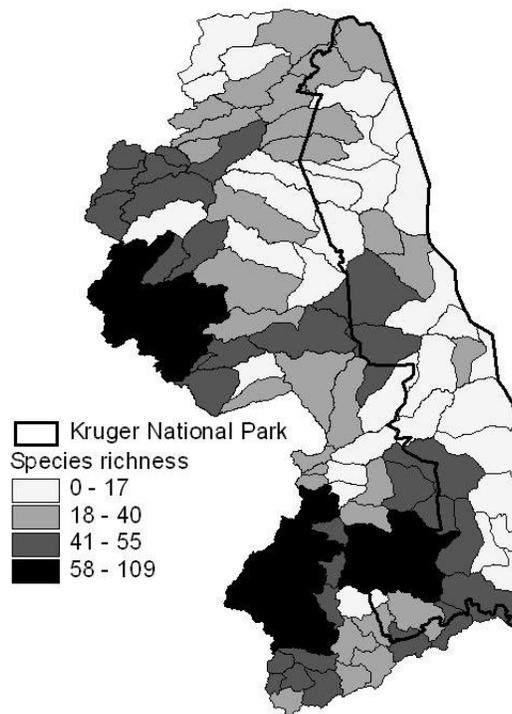


Figure 11: Alien species richness in quaternary catchments in and upstream from the KNP (from Foxcroft et al 2007)

Table 4: Number of alien species recorded in KNP

<b>Taxonomic group</b>	<b># species recorded to date within KNP</b>
Plants	372
Fish	3
Birds	3
Insects	2
Molluscs	4
Disease organisms	1

In the KNP, the four main areas of control are summarised here, namely:

- (i) *Ornamental use of alien plants* – historically, a number of alien plants were cultivated for ornamental and landscaping purposes in staff gardens and tourist camps within the KNP. Due to the impacts and undesirability of these species over time, standard operating procedures regulating the control and use of these species have been drafted and are implemented on a continuous basis. In effect, all tourist camps and staff gardens are surveyed annually and alien plants are removed. In smaller camps, KNP strives to eradicate alien plant species, while larger camps require continuous follow-up exercises to treat re-growth. This work is done by rangers and their teams in conjunction with the KNP Alien Biota Control Officer and staff.
- (ii) *Riparian species* - Riparian alien plants pose one of the largest challenges for control in the KNP and due to the levels of invasion to the south and west of the KNP and the transportation of

propagules by the rivers, the rivers will be continuously threatened. The main species of concern include lantana (*Lantana camara*), chromolaena (*Chromolaena odorata*), senna species, giant reed (*Arundo donax*) and numerous others. Control of these species requires ongoing follow-up work to maintain invasions at the lowest practical levels, thereby limiting negative biodiversity impacts as far as possible. The majority of this work effort is carried out by the SANParks Working for Water Programme which prioritises efforts in line with the KNP objectives, DWAF/Working for Water National Programme requirements and long-term strategic implementation plans.

(iii) *Landscape aliens* - This work focuses mainly on the sour prickly pear (*Opuntia stricta*) which has invaded an area of approximately 66 000 hectares in southern KNP. After many years of research and implementation of various control options, the most cost-effective and efficient method of control now implemented in the KNP is biological control. A biocontrol rearing station has been established in Skukuza for this purpose, primarily rearing the cochineal insect for maintenance and release onto *O. stricta* infestations.

(iv) *Aquatic weeds* - free floating aquatic weeds pose a substantial threat to the rivers of the KNP. Management units have been developed for various aquatic weed species and river systems, incorporating both the use of biological control (biological control agents reared at the Skukuza bio control rearing station), chemical treatment (primarily aerial applications of approved herbicides) and limited mechanical removal. The main species of concern are water hyacinth (*Eichhornia crassipes*), water lettuce (*Pistia stratiotes*), and to a lesser degree, Kariba weed (*Salvinia molesta*) and red water fern (*Azolla filiculoides*). Management of aquatic weeds is mainly focused on maintaining the density of plants at the lowest possible level to limit negative biodiversity impacts.

*Working for Water (WFW) Programme* - Since the WFW programme started in the KNP in late 1997, the programme has contributed enormously to the control of alien plants in the KNP, contributing to a number of the above-mentioned control areas. Riparian alien species control is done almost exclusively by WFW, with substantial partnerships focusing on the landscape aliens and aquatic weed control. Working for Water has contributed substantially to these programmes financially, with some R 60.4 million having been spent on alien plant control in the KNP since its inception, covering 56 900 hectares. The programme also contributes to other key issues surrounding the KNP. These include social imperatives (employing and training emerging contractors and the 'poorest of the poor' and health issues (HIV/AIDS and other health related awareness).

Invasive alien plant species research and monitoring requirements have been developed in order to ensure co-ordination and promote collaboration. A strategic partnership has been developed with the Department of Science and Technology / National Research Foundation Centre of Excellence for Invasion Biology, which aims to develop an understanding of invasion process and impact in the KNP/savanna ecosystem. The three core research areas are:

*Impacts* - To determine the impact of all invasive alien species in the KNP in terms of biodiversity: structure, composition and function.

*Ecology* - To promote an understanding and predictive capacity of the dynamics of invasive alien species and integrate short-term practical and strategic long-term research.

*Efficacy of control* - To enhance the long-term implementation of control programmes by developing an understanding of the associated negative impacts of control and further developing techniques for improved control and rehabilitation.

The main risk relates to the inability of SANParks to continue monitoring and control operations. This includes reduced funding of the Working for Water programme (due to the nature of it being an expanded public works programme), and the inability of SANParks to redress the shortfall. The fallback plan to this is to start engaging strategic partners and potential funding organisations and develop plans for continuation in the long-term.

The current situation, relating to density and distribution of alien species, is manageable provided careful planning and management remain in place. However, unforeseen events such as

large infrequent disturbances (e.g. floods) could disrupt this considerably. Other potential risks relate to the sudden invasion of serious invader species being observed entering the KNP. In both cases, risk management will relate to rapid response and control actions to prevent further incursions and spread.

*Poaching and illegal harvesting of resources*

Poaching has changed over the years from fairly low-scale and sustainable subsistence activities, mainly for meat and medicinal plants, to organised commercial activities that are not sustainable if left unchecked. The commercial criminal syndicates target both the bush meat trade and other highly valuable commodities such as rhino horn and medicinal plant and animal parts. They have become highly organised and dangerous and will stop at nothing to achieve their criminal intents, even shooting to kill if confronted. This has put considerable strain on ranger activities and training and resources will have to be increased.

*Developmental threats*

It has become very fashionable to have a holiday or retirement residence in a natural area or as close as possible to such an area. Property developers have identified this need and are actively pursuing this along the boundaries of the KNP, especially where a river forms the boundary between the KNP and other areas. This has put considerable strain on the biodiversity conservation objectives of the KNP in the sense that river corridors are being impacted on, and future bioregional plans are seriously negatively influenced. Additional capacity to deal with this issue is urgently needed, especially to engage local municipalities in the development of their IDPs, and to integrate these into the KNP Conservation Development Framework (see also sections 2.1.1 and 2.1.3).

Further detail on a number of these biodiversity management issues and their lower level plan details are supplied in Lower Level Plan 2.

Table 5a: Details of objectives and initiatives to address the Biodiversity Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget (5 years)	Time Frame (years)					Priority
							1	2	3	4	5	
To understand and manage the KNP as part of the lowveld savanna and its river catchment areas in such a manner as to conserve and restore	To provide appropriate research and development to underpin the biodiversity decision-making through knowledge generation, harvest and dissemination	<b>Knowledge generation</b>	Research facilitation (prioritized), conducting of in-house key research, research collaboration, publication	R 3 000 000	R 845 500  (R 169 100 pa)	R 2 000 000 (river scientist position from year 2)	x	x	x	x	x	High
			Annual science networking meeting – facilitation of research collaboration	R 20 000	R 30 000	R 200 000	x	x	x	x	x	High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget (5 years)	Time Frame (years)					Priority (H/M/L)	
							1	2	3	4	5		
its varied natural structure, function and composition over time and space, and its wilderness qualities, through an approach integrating the different scales and types of objectives		<b>Biodiversity monitoring for TPC evaluation and background understanding</b>	Baseline biodiversity monitoring and inventorisatation including terrestrial and aquatic components	R 1 500 000	None, but leverage funding from external collaborators	R 2 000 000	x	x	x	x	x	High	
			Ongoing elephant impact monitoring and evaluation	R 50 000		R 1 000 000	x	x	x	x	x	High	
			Generation of background data and understanding for interpretation of biodiversity trends (e.g. weather data)			R 700 000 (R 140 000 pa)	x	x	x	x	x	Medium	
		<b>Compliance with Elephant Management Norms and Standards</b>	Finalization of KNPs elephant management plan and submission to Minister of DEAT	Costs internalized				x	x				High
		<b>Closing of adaptive management feedback loops (knowledge harvesting and research-management integration)</b>		R 500 000		R 500 000	x	x	x	x	x	High	
		<b>Disease management (linked to legal requirements for controlled disease)</b>	Monitoring and controlling outbreaks of notifiable diseases (e.g. anthrax)			R 4 000 000 (includes staff, helicopter, operational costs, etc)		x	x	x	x	High	
	<b>On-the-ground biodiversity management (linked to area integrity protection) by ranger corps</b>	<b>Effective management by rangers (includes fire, artificial water, area integrity, etc)</b>	Various ongoing ranger activities and operations	R 23 000 000		R 2 800 000 (increased field ranging and anti-poaching capacity)	x	x	x	x		High	
		<b>River and catchment management</b>	Filling of river manager assistant positions x2			R 3 200 000 (R 400 000 / post / year)		x	x	x	x	High	

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget (5 years)	Time Frame (years)					Priority (H/M/L)	
							1	2	3	4	5		
			Skukuza river information centre / aquarium for high level awareness generation			R 10 000 000		x	x	x			High
			River brochure / booklet to raise awareness for sale			R 500 000	x	x					High
			Wetland rehabilitation	Budgeted under rehabilitation programme									Medium
		<b>Species of conservation concern</b> To prevent extinction within the KNP of any species on the IUCN's global critically endangered or endangered lists, and to work with other conservation initiatives to secure and strengthen the future of such species over their historic distribution ranges.	To put in place appropriate monitoring and conservation efforts for these and other threatened species or lower taxonomic division, including considering recommendations of experts of invertebrate taxa for which no formal red-listing has been done, according to a realistic framework.		Some leveraged funding, for example through partnerships with Endangered Wildlife Trust, etc	R 800 000		x	x	x	x		Medium
		<b>Alien Impact</b> To anticipate, prevent entry and where possible control invasive alien species, in an effort to minimise the impact on, and maintain the integrity of indigenous biodiversity.	Develop a long-term strategy for the management of invasive alien species according to KNP objectives			R 150 000		x					High
			Develop effective mechanisms to prevent or mitigate potential invasions from outside			R 80 000		x					High
			Implement effective and timely integrated control strategies in such a manner that both rapid response and long-term maintenance goals are met	R 915 120	R 34 850 000  (R 8 712 500 pa)	R 12 000 000	x	x	x	x	x		High

Table 5b: Proposed overall budget summary to achieve various initiatives for the Biodiversity Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 38 436 720	R 47 072 600	R 52 901 600	R 54 771 600	R 56 101 600
<b>Total secured budget</b>	R 28 985 120				
<b>Total secured other funds</b>	R 8 911 600	R 8 881 600			
<b>Total unsecured budget</b>	R 540 000	R 38 191 000	R 44 020 000	R 45 890 000	R 47 220 000

### 2.1.3. Land Issues and Effective Park Expansion Programme

This programme addresses the various interlinked components of the broader vision to effectively “expand” the boundaries of the KNP through various strategies and approaches. In so doing, a few key objectives of the KNP are addressed simultaneously, namely the regional integration into the socio-ecological system, with enhanced buffer effects to the core KNP protected area, as well as the provision of “benefits beyond boundaries”. This overall programme consists of a number of components, namely the transfrontier conservation area programme, non-SANParks land within the boundaries of KNP, buffer areas (including arrangements with provincial and private nature reserves), communal land incorporations and land claims.

This section deals with the approach of SANParks and the KNP regarding the establishment of buffer areas and contractual parks. The main objectives of this approach are the expansion of land under conservation and the positive spin-offs this may have for both the KNP ecosystems and for local communities adjacent to the KNP. Thus, for example, one of the spin-offs is the enabling of sustainable resource use practices as embedded in the NEM: PAA.

The philosophy behind including contractual parks and other areas into the greater KNP ecosystem hinges on three important aspects:

- Such areas along the boundaries of the KNP function as important buffer areas against several potentially significant impacts on KNP. These include poaching, spilling into the park of invasive alien biota, feral animals or diseases, as well as impacts related to incompatible land use and developments that may impact on the ecosystem functioning and sense of place such as visible infrastructure, light pollution, diminishing of habitats and ecosystem services, fragmentation of migration routes, etc.
- It increases ecosystem size which positively enhances and enables the maintenance of natural disturbance regimes and re-colonization sources and events, and minimizes possible extinctions. Crucial habitats, that may not be present within the boundaries of the park and are important for specialised biota, can be included in the expanded protected area. This will be especially important in the face of predicted climate change over the next few decades, as well as burgeoning elephant populations, enabling highly desirable “source – sink” ecosystem dynamics.
- Including adjacent areas into the greater KNP will significantly increase the benefits to neighbouring communities and may be an important step in the fight against poverty. Direct and indirect benefits to neighbours, particularly communities dependent on the land for their livelihoods, will encourage and facilitate KNP’s sustainability and future existence. In this way, a strong constituency will be built.

Therefore, it is envisaged that potential conservation land adjacent to KNP, and other areas earmarked for conservation purposes, should be effectively incorporated by means of management

agreements and/or on a formal contractual basis. The exact nature of such incorporation will depend on the status of the adjacent area under consideration, which is by choice of the individual property owners. Proclamation of these areas as formal conservation land can follow different routes that will influence the extent of involvement of the KNP in the management of those areas. Essentially, two types of contractual arrangements can be entered into with areas that are connected to the KNP, namely:

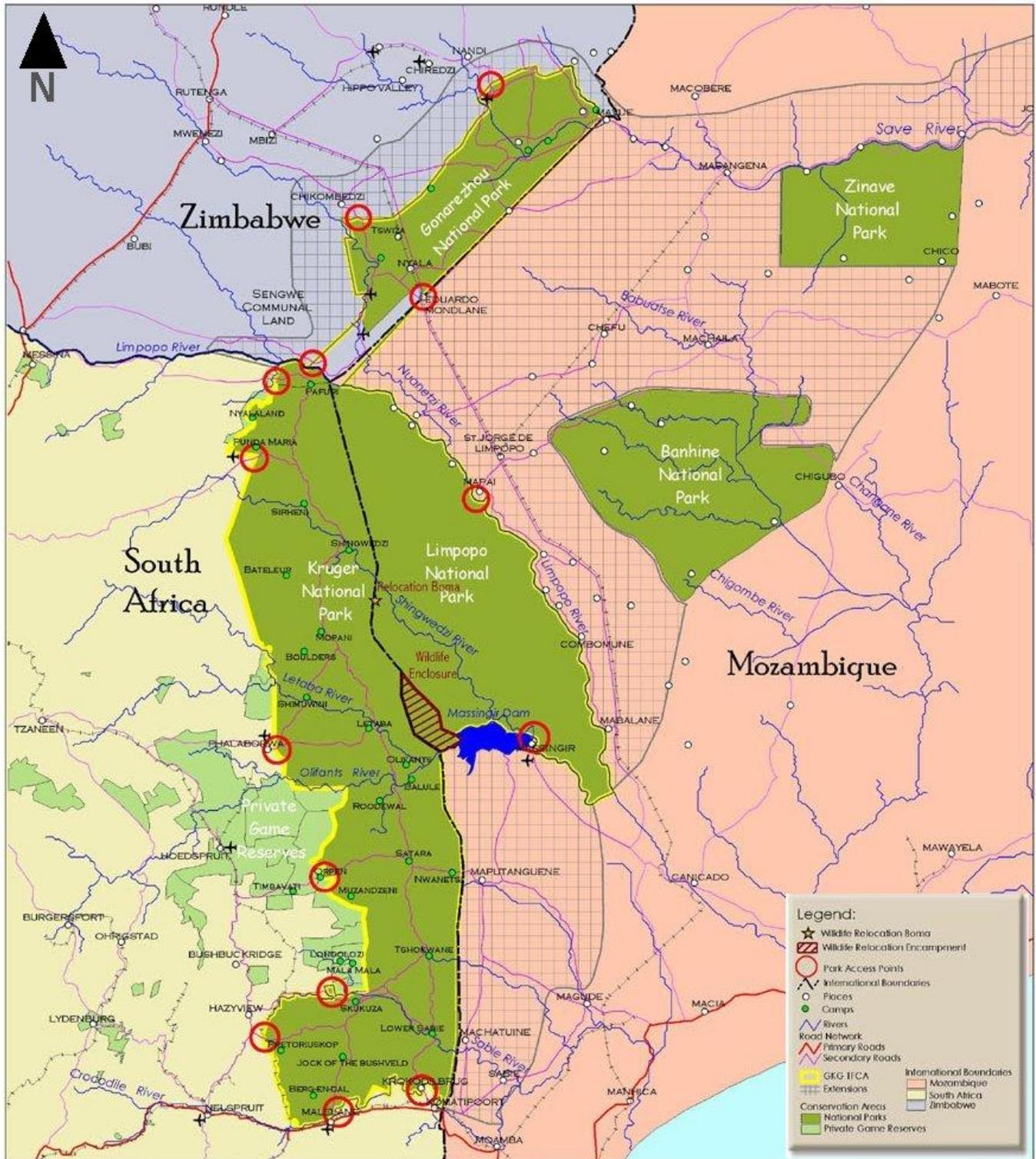
- areas where the KNP conducts all the necessary management activities and the land owner contributes financially towards the management of the area; or
- the land owner conducts the conservation management according to the conditions of agreement and the management plan of the area.

The ultimate goal is for all areas within the open conservation system around the KNP to be governed by some form of contractual agreement. The open conservation areas that occur adjacent to the KNP that have, or should have, an agreement with SANParks (KNP) are described in the following sections.

#### *2.1.3.1. Transfrontier Conservation Area Programme*

The Department of Environment Affairs and Tourism sets out principles for transfrontier conservation area development. SANParks strives to embed the KNP as an essential core element in the Great Limpopo TFCA whose conceptualised boundaries are shown in Figure 12. The International Treaty was signed on 9 December 2002 by the Heads of State of Mozambique, South Africa and Zimbabwe at Xai-Xai, Mozambique, to establish the Great Limpopo Transfrontier Park (GLTP). The objectives of the GLTP project are outlined in the Treaty, which has been jointly developed and agreed to by all three countries. Following the signing of the Treaty, a Joint Management Board (JMB) was established with various Management Committees advising it on issues relating to conservation, safety and security, finance, human resources, legislation and tourism, which is facilitated by an international coordinator. The JMB, in turn, reports back to a Ministerial Committee on progress made in the development of the GLTP on a regular basis. In 2007, a coordinating unit was established based at Phalaborwa to facilitate operations of the JMB and to coordinate implementation of GLTP projects.

The GLTP will link the Limpopo National Park in Mozambique, KNP in South Africa, Gonarezhou National Park, Manjinji Pan Sanctuary and Malipati Safari Area in Zimbabwe, as well as two areas between the KNP and Gonarezhou, namely the Sengwe communal land in Zimbabwe and the Makuleke region in South Africa into one huge conservation area of 35 000 km<sup>2</sup>, bringing together some of the best and most established wildlife areas in southern Africa (Figure 12). The park will be managed as an integrated unit across three international borders. The establishment of the GLTP is the first phase in the establishment of a bigger transfrontier conservation area (GLTCA) encompassing almost 100 000 km<sup>2</sup> and including Banhine and Zinave National Parks, the Massingir and Corumana areas and interlinking regions in Mozambique, as well as various private- and state-owned conservation and communal areas in South Africa and Zimbabwe bordering on the transfrontier park. The final delineation of the area will be determined by way of broadly consultative processes that are currently underway. The establishment of the GLTP is an exemplary process of partnerships between governments and the private sector.



**Great Limpopo Transfrontier Park**

Figure 12: Concept map of Great Limpopo Transfrontier Park

The GLTP and wider GLTCA will demand much energy in getting started, from a position where KNP is a dominating feature in the landscape, to setting up a situation to allow a more equitable range of opportunities to become available to the surrounding conservation areas and adjacent communities. In doing so, initiatives such as the AHEAD (Animal Health for Environment and Development) programme have been launched to examine the interfaces between human livelihoods and health, livestock health, and wildlife/ecosystem health, and looking particularly at who is 'winning' and 'losing' as fences drop and land-uses potentially change. The exact delineation of the South African side of the GLTCA must be carried out shortly, and may have a lasting imprint. It will have to be sensibly done in conjunction with other bioregional and municipal efforts, particularly the bioregional plans and Environmental Management Frameworks of all eight municipalities adjacent to the KNP. For more details, go to the website <http://www.greatlimpopopark.com/>.

In order to facilitate the ideal of free movement of people and animals between the different transfrontier parks, certain infrastructure had to be created and fences removed. A new tourist crossing point has been established at Giriyyondo and the Pafuri border post requires upgrading to facilitate tourists moving between the KNP and Limpopo National Park in Mozambique. A total of 45 km of fence separating KNP and the parks in Mozambique has been removed. It is hoped to have the remaining 100 km fence removed by 2010. In order to link KNP with Gonarezhou National Park in Zimbabwe, a new tourist crossing point needs to be established over the Limpopo River. An EIA process is currently underway to establish the most suitable crossing point and type of structure. The different role players in both South Africa and Zimbabwe have diverse preferred sites and types of structures in mind and sensitive negotiations will be required to get agreement on this important issue.

It is believed that an effectively designed and implemented TFCA will enhance the achievability of the desired state within and around KNP. For this purpose, a discussion paper and an Integrated Conservation Development Plan for the South African component (see Figure 13) of the GLTCA have been drafted to guide the relationship between key partners. Due to the existing Memorandum of Understanding between SANParks, DEAT and Peace Parks Foundation (PPF), it was recommended that SANParks enters into an agreement with PPF to undertake this project. Additional potential stakeholders envisaged to be included are World Wide Fund for Nature, the South African members of the GLTP JMB, Department of Water Affairs and Forestry, Department of Agriculture, South African Biodiversity Institute, Provincial Government of Mpumalanga, Provincial Government of Limpopo, relevant local authorities, traditional leaders, non-government organisations, affected private land-owners and land-owner associations, Wits Rural Facility and the South African Wildlife Ranchers Association.

An additional challenge is the establishment of private nature reserves across international boundaries, as this is also covered by the GLTP Treaty. The private reserves on the Mozambican side of the border between Massingir Dam and the Inkomati River (Figure 14) are planned to be included into the Greater GLTCA. Negotiations on the ground were found to be complex as the specific land in Mozambique falls under the jurisdiction of the Mozambican Department of Agriculture. Nevertheless, it was agreed between the KNP, Mozambique GLTP officials and Mozambique Department of Agriculture officials that the following conditions for inclusion of this land will apply:

- The formation of an association by all the private properties;
- The drafting of a management plan that is acceptable for both the KNP, Mozambique GLTP officials and Mozambique Department of Agriculture officials;
- Fencing of the Mozambican eastern boundary to a specific standard; and
- Adequate resources in terms of area integrity protection and fence maintenance.

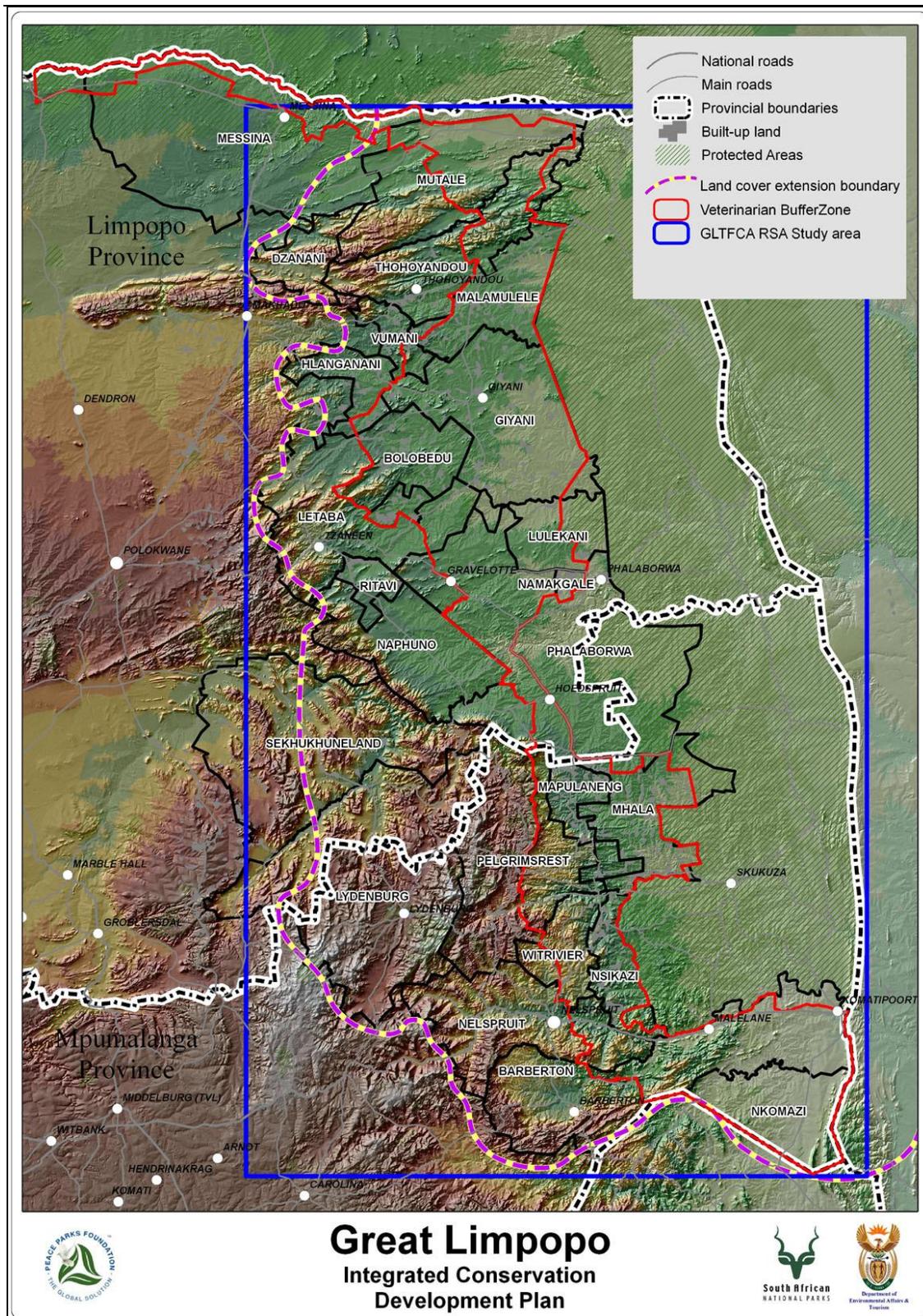


Figure 13: The Study Area for the Great Limpopo Integrated Conservation Plan (Source: Peace Parks Foundation)

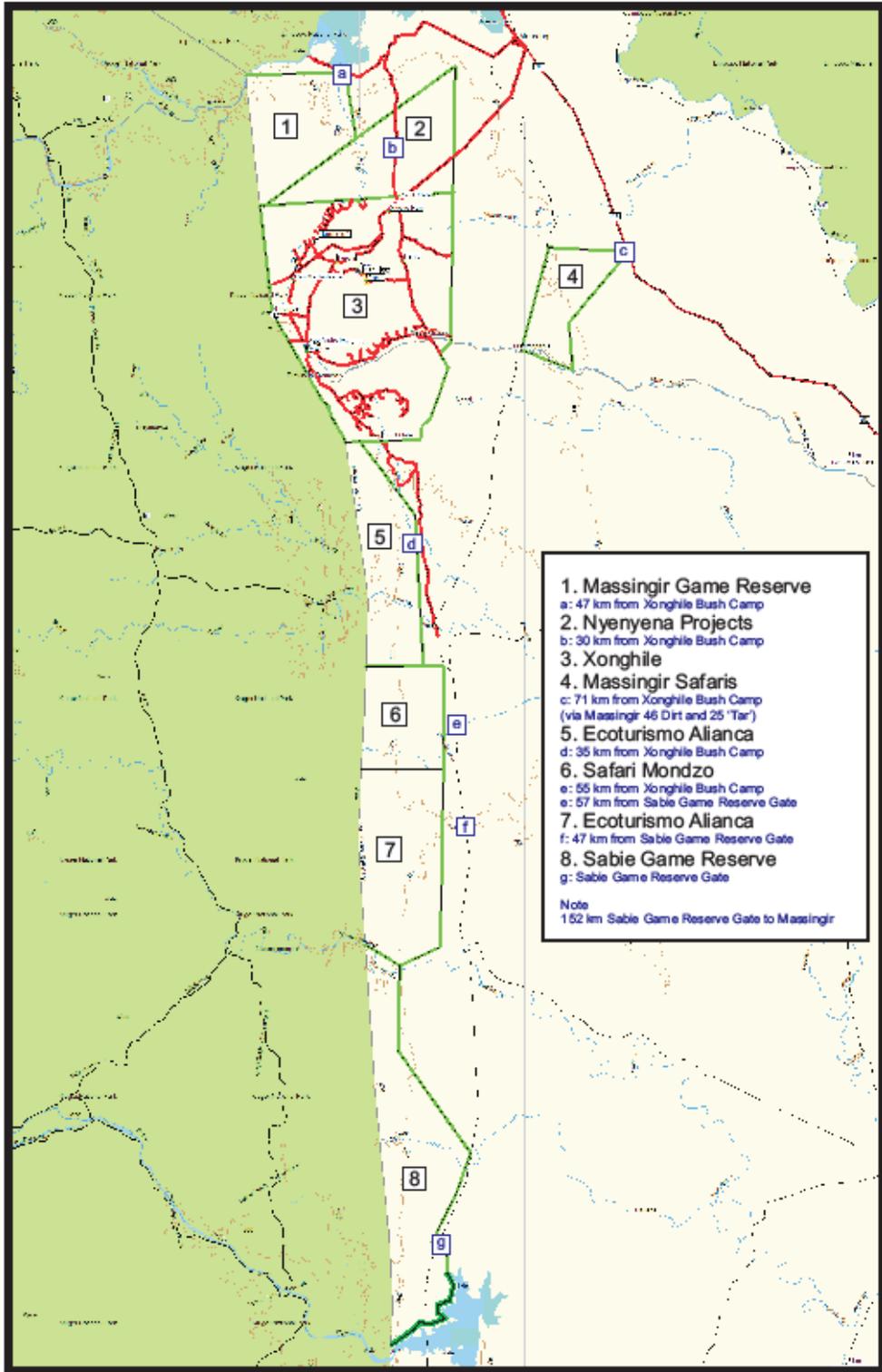


Figure 14: Map indicating private nature reserves in Mozambique adjacent to the KNP.

Table 6a: Details of objectives and initiatives to address the Transfrontier Conservation Area Programme in and around the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)	
							1	2	3	4	5		
To understand and manage the KNP as part of the lowveld savanna and its river catchment areas in such a manner as to conserve and restore its varied natural structure, function and composition over time and space, and its wilderness qualities, through an approach integrating the different scales and types of objectives.	<b>Conservation Buffer Areas</b>  To establish conservation buffer areas and biodiversity corridors and encourage compatible land use practices to ensure long-term sustainability in the areas around the KNP.	<b>TFCA</b>  To implement and manage the GLTP and GLTCFA for biodiversity conservation and socio-economic benefits.	GLTP coordinating and support function	R 472 000		R 2 000 000	x	x	x	x	x	High	
			AHEAD program	R 600 000		R 2 500 000	x	x	x	x	x	High	
			Upgrading of Pafuri border post			R 5 000 000		x					High
			Removal of boundary fence between KNP and Limpopo National Park			R 1 500 000		x	x				High
			Create a crossing point to link KNP and Gonarhezou National Park			R 35 000 000	x	x	x	x			High
			Move passport control to outer gates			R 5 000 000						x	Medium
			Joint operations and management interactions			R 500 000	x	x	x	x	x		High
			GLTP elephant management policy and research			R 1 500 000	x	x	x				High
			Delineation of the GLTFCA on the SA side			R 1 000 000	x	x					High

Table 6b: Proposed overall budget summary to achieve various initiatives for the Transfrontier Conservation Area Programme in and around the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 1 072 000	R 17 500 000	R 17 000 000	R 10 000 000	R 9 500 000
<b>Total secured budget</b>	R 1 072 000				
<b>Total other funding</b>					
<b>Total unsecured budget</b>		R 17 500 000	R 17 000 000	R 10 000 000	R 9 500 000

Overall, a focused research programme is required to ascertain whether the GLTP and conservation area are delivering on the envisaged biodiversity and socio-economic objectives. To facilitate this, a document outlining research priorities for the GLTP was drafted. Animal movement into the Limpopo National Park and escalating human-animal conflict (especially with elephants) is an important topic that requires more investigation. Joint operations between the parks (especially KNP and Limpopo) are increasing and successful anti-poaching programmes, game translocations and monitoring have taken place. Such joint programmes will be encouraged even more in future in order to ensure that the GLTP is managed in an increasingly unified way.

#### 2.1.3.2. Non-SANParks land within the boundaries of the KNP

These are areas that have been successfully claimed by communities and fall within the boundaries of the KNP. The areas are under individual community ownership. These areas came about as a result of land restitution and/or community areas that were fenced in but not necessarily proclaimed as part of the KNP historically. Currently there are three such areas in the KNP, namely Makuleke Contractual Park (land claim), Mdluli land and Nkambeni land (communal land fenced into the KNP). The day-to-day conservation management of these areas, which includes law enforcement and biodiversity management and monitoring, is performed jointly by KNP officials and the respective communities. Commercial activities within these areas have been contracted out by the communities as concessions and the concession-holders are responsible for commercial developments. A signed settlement agreement exists in the case of the Makuleke land, but no agreements exist with the Mdluli and Nkambeni communities.

##### *Makuleke Contractual Park*

The Makuleke people were compensated in 1998 for their relocation from the far northern KNP with the restitution of their land and the creation of a contractual park. A 25-year agreement was forged between the Makuleke and SANParks to return the ownership and title of the land to the people, although the title specifies that the land may only be used for wildlife conservation. The contract that governs the incorporation of the Makuleke land into KNP enables them to make sustainable use of specified natural resources and they have the option to construct six small camps with a cumulative capacity of 224 beds.

The area of land in question is owned by the Makuleke Community Property Association (CPA) and is called the Pafuri Triangle, stretching from the Limpopo to the Luvuvhu River, and is at the centre of the GLTFCA. Since acquiring ownership of the land, the Makuleke awarded four concessions in their area, i.e. one trophy hunting by Wayne Wagner Safaris (now terminated), one training camp (Makuleke Ecotraining) that trains guides, and two lodge concessions operated by Matswani Safaris (The Outpost) and Wilderness Safaris (Pafuri Tented Camp) respectively.

The Makuleke contractual park is managed according to the signed management agreement as well as the management plan for the area. There is a Joint Management Board (JMB) that consists of three members from both parties (SANParks and the Makuleke CPA). The JMB is the decision-maker in terms of the management of the Makuleke contractual park to ensure that the area is managed according to the agreement. There is also an operations officer who is responsible for implementing JMB decisions. The Makuleke contractual park in the KNP has been in operation for 10 years, and although teething problems did occur along the way, operations are starting to become smoother. One reason for this is that the capacity in and understanding of conservation management issues of the CPA members on the JMB has increased considerably.

### *Mdluli and Nkambeni Areas*

The Mdluli land (Daannel farm) as well as the Nkambeni land is within the KNP, close to the Numbi Entrance Gate and Pretoriuskop Rest Camp. These areas are not contractually bound due to certain legislative processes that need to be completed. It is envisaged that the agreements with these areas would be completed and signed within two years. Unfortunately, due to the lack of contractual direction, developments on these areas have been conducted without consultation with SANParks and structures that do not comply with environmental and aesthetic standards for the KNP have been erected.

### *2.1.3.3. Buffer Areas*

#### *Provincial Nature Reserves*

Provincial nature reserves have been proclaimed in the past under provincial legislation and are managed by the provincial authorities according to draft open conservation area management agreements with the KNP (see Figure 15). In the case of KNP, these provincial nature reserves include:

- Manyeleti (managed by Mpumalanga Tourism and Parks Agency (MTPA),
- Letaba Ranch (managed by Limpopo Department of Economic Development, Environment and Tourism (LEDET),
- Makuya (managed by LEDET), and
- Mthimkhulu (managed jointly by LEDET and the concessionaire of the land).

The fences between Manyeleti Game Reserve, Mthimkhulu and Letaba Ranch Nature Reserve and the KNP have been removed as they were seriously damaged by elephant and the Department of Agriculture has only maintained the fences on the western boundaries of these reserves. Co-management agreements have been drafted but not finalised due to the changes regarding new legislation over the past few years. Negotiations are underway to drop the fence between Makuya Reserve and KNP/Makuleke Contractual Park as well.

The Mthethomusha area, managed by MTPA, along the southern part of the KNP is separated from the KNP by a fence and the railway line running along the Nsigazi River. It would be possible, in future, to drop fences if a similar arrangement with the rail authorities can be reached as that which is in place where the railway line runs through the Klaserie and Balule Private Nature Reserves.

A draw-back to the progression of finalising formalised buffer area arrangements are the sometimes strained relationships between SANParks and some of the provincial authorities. This is primarily as a result of lack of capacity on the part of provincial authorities to manage and control these areas adequately, resulting in serious poaching, harvesting of firewood, and even the establishment of mining infrastructure in Makuya Nature Reserve. However, it is KNP's aim to continue to engage and assist the provincial conservation authorities to build the necessary capacity in order to manage these areas appropriately. Once the co-management agreements have been signed there would be some processes that all parties have to follow in order to achieve the set goals.

### *Private Nature Reserves*

Private nature reserves in South Africa bordering the KNP are currently proclaimed as nature reserves under provincial legislation (Mpumalanga and Limpopo). These areas are Sabie Sand Wildtuin and the Associated Private Nature Reserves (APNR), which include Timbavati, Klaserie, Umbabat and Balule Private Nature Reserves (see Figure 15). The status quo at the moment is that the private nature reserves have to deal with both the provinces and the KNP at the same time. They find this cumbersome and are presently investigating alternative options.

There is a signed management agreement between SANParks and APNR and the latter area is managed according to a Masterplan drafted in compliance with the previous KNP Management Plan. Only a draft agreement between SANParks and Sabie Sand Wildtuin exists and there is currently no agreed management plan in place. These agreements give the private nature reserves autonomy in the management of their areas, but within the limits of the agreed management plan (this seems to be the option that most private nature reserves are pursuing for the future).

As part of the contractual obligation of the APNR, an agreed hunting protocol was drafted to regulate the species of animals hunted, where they are hunted and the numbers involved. The proposed take-off quotas are based on the annual aerial wildlife survey conducted during the late dry season as well as veld condition assessments and previous climatic conditions. The take-off quotas are generally <3% of the various species totals and are well below average annual population growth rates of the various species. The actual take-off percentages could be expected to be even lower as many large herbivore species are generally undercounted during total area aerial counts, particularly as far as species such as impala, kudu and warthog are concerned. The annual take-off quotas can therefore be considered to be well within acceptable removal limits which would not impact on the various species and are considered in line with sustainable utilisation practices.

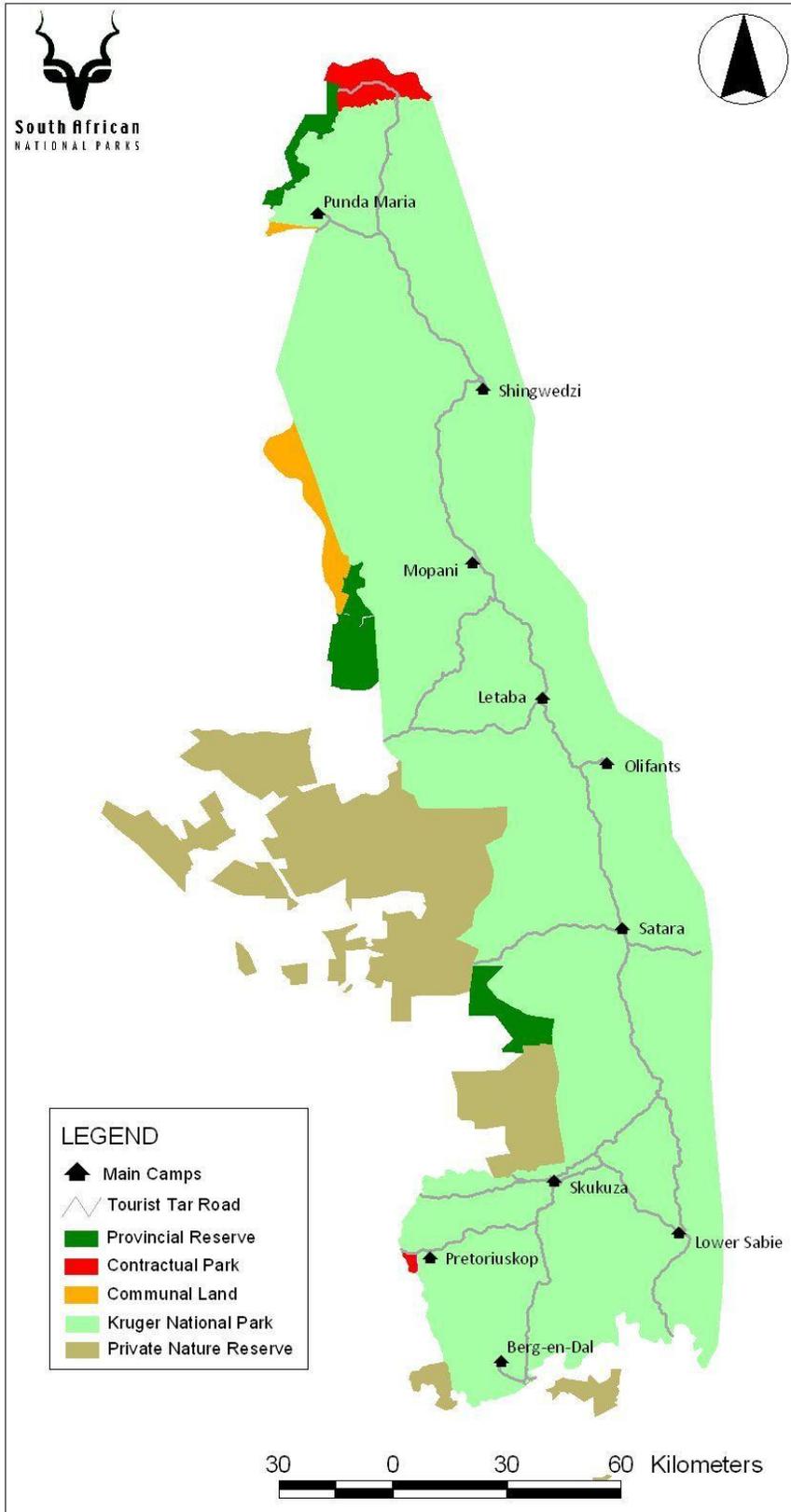


Figure 15: Map of KNP showing areas that have co-management agreements or are earmarked for possible future contractual inclusion into the Great Limpopo Transfrontier Park.

#### 2.1.3.4. Communal Land Incorporation

Certain communities that occupy land adjacent to the KNP (currently belonging to the Department of Land Affairs but under claim or utilised by communities) have expressed the desire that parts of their land be included into the KNP as natural resource use and ecotourism zones. Areas earmarked in this category include Mjejane and Mthimkhulu (fences removed but no final agreements concluded – Mthimkhulu still managed by LEDET), Mahumani, Ndindani, Mahlathi, Muyexe and Mhinga (still not formally included and fences still intact – formerly referred to as Mariyeta Buffer Area). The relevant chiefs of these areas have already showed interest to proclaim and incorporate these areas into KNP as protected environment or contractual national park land that will then be managed by the KNP. Figure 16 illustrates communal land that is earmarked for possible contractual inclusion into the KNP.

It is envisaged that sustainable resource use within these areas will be conducted under controlled conditions that will be captured in the agreements with these areas. Significant income can be generated from trophy hunting while utilisation of renewable resources such as meat, mopane worms and thatch will be able to be sourced at sustainable levels, thus allowing the communities access to food sources as well as to earn an income (e.g. from trophy hunting, ecotourism ventures, etc.).

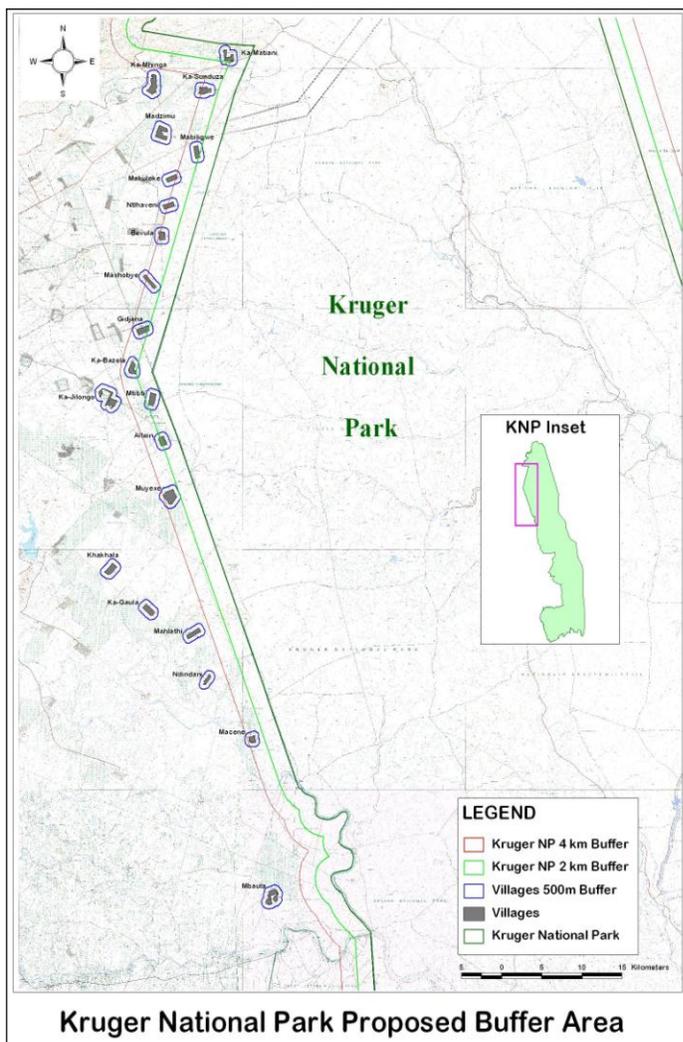


Figure 16: Map showing communal land of chiefs that expressed an interest in having parts of their land included into the KNP.

### 2.1.3.5. Land claims

These issues are currently being dealt with as a Cabinet process and a government position will be articulated soon in terms of resolving land claims in national parks, including the KNP. Table 7 and Figure 17 detail the current land claims lodged within KNP.

Table 7: List of land claims currently lodged within KNP

ID	NAME	TYPE	STATUS	AREA (HA)
1	Makuleke Contractual Park	Settled	Settled	22372.01
2	Ntimane	Claimed	Gazetted	3541.26
3	Mdluli Safari Reserve	Settled	Pre Invest awarded	1369.19
4	Hoyi	Unconfirmed	Preliminary Investigations	982.02
5	Mnisi	Unconfirmed	Preliminary Investigations	5932.81
6	Ba-Phalaborwa	Claimed	Gazetted Notice 2554 of 2000	179069.25
7	Nidindani	Claimed	Gazetted Notice 794 of 2005	57631.15
8	Madonsi	Claimed	Gazetted Notice 849 of 2005	63524.78
9	Muyexe	Claimed	Gazetted Notice 794 of 2005	10162.62
10	Kama	Claimed	Gazetted Notice 2391 of 2003	32973.06
11	Tshihaheni	Claimed	Gazetted Notice 2391 of 2003	896.15
12	Tshipakoni	Claimed	Gazetted Notice 2391 of 2003	1794.74
13	Tshikokololo	Claimed	Gazetted Notice 2391 of 2003	3404.26
14	Magovhani	Claimed	Gazetted Notice 2391 of 2003	22617.63
15	Makahane	Claimed	Gazetted Notice 2391 of 2003	28090.07
16	Nkotswi	Claimed	Gazetted Notice 1753 of 2005	170.92
17	Marithenga	Claimed	Gazetted Notice 2391 of 2003	4544.60
18	Nkuna	Claimed	Gazetted Notice 1870 of 2005	92124.06
19	Pangane	Claimed	Gazetted	3000.82
20	Mrs Ngobeni	Claimed	Gazetted	2214.11
21	Mr Thuthana	Claimed	Gazetted	2216.01
22	Shishongunyi	Claimed	Gazetted	1703.27
23	Mr fana Elvis	Claimed	Gazetted	3480.53
24	Makuya Park	Claimed Land	Unknown	14138.84
26	Mhinga Reserve/Makahane-Marithenga	Claimed Land	Land Claims Court	1913.32
28	Mthimkhulu Reserve	Claimed Land	Unknown	7010.47
29	Ntimane Land Claimed	Claimed Land	Gazetted	3541.26
30	Mariyeta Park	Claimed Land	Unknown	29966.25
31	Mthethomusha Game Reserve	Claimed Land	Unknown	8996.94
32	Baderoukwe 11 Lu	Claimed Land	Unknown	629.69
33	N'Dole 12 Lu	Claimed Land	Unknown	455.57
34	Sable 13 Lu	Claimed Land	Unknown	375.71
35	Pompey 16 Lu	Claimed Land	Unknown	2010.75
36	Genoeg 15 Lu	Claimed Land	Unknown	1984.62
37	Mdluli Reserve	Claimed Land	Unknown	1369.19
38	Letaba Ranch 17 Lu	Claimed Land	Unknown	21635.53
39	Mjejane ( Lodwichs Lust 1732)	Claimed Land	Negotiations	5927.95
40	Mapindani	Claimed	Land Claims Court	695041.80

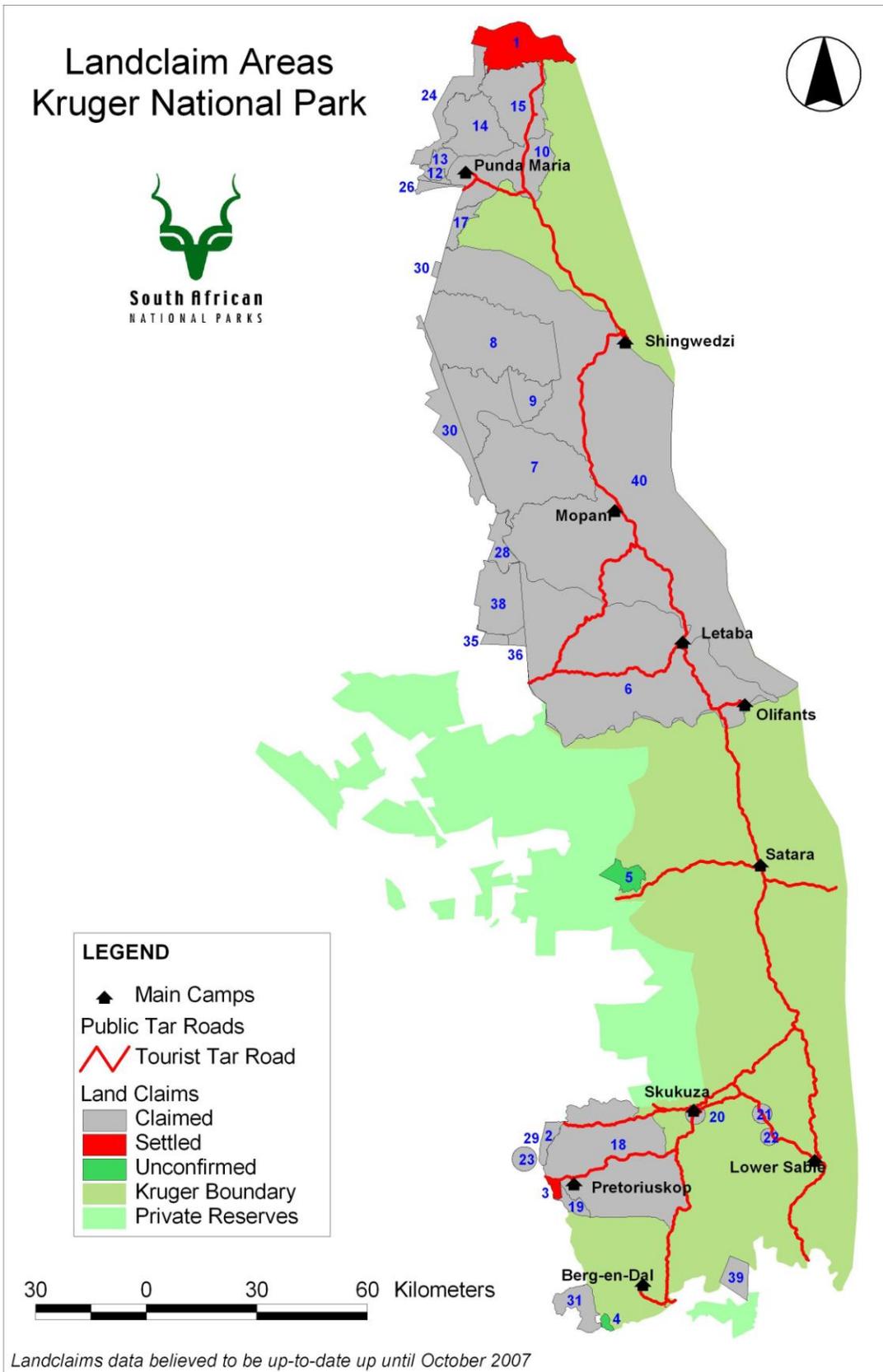


Figure 17: Land claims map for KNP highlighting the individual claims areas.

SANParks propose to phase in a community levy to be charged to each visitor to the KNP. This initiative is intended to generate good-will community levies which will be transferred directly to a trust fund to be established for this purpose. The trust fund will be independently managed and will have the task of ensuring that funds are distributed to legacy projects, directly benefiting legitimate land claimants in KNP.

Table 8a: Details of objectives and initiatives to address components of the Land Issues and Effective Park Expansion Programme in KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)	
							1	2	3	4	5		
<b>People Objective</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the Park OR to deliver a people-centred conservation and tourism mandate, whilst preserving wilderness qualities and cultural resources	<b>Direct Human Benefits Objective</b> To provide benefits, particularly in the sense of 'benefits beyond boundaries', to meet or exceed reasonable expectations and foster partnerships, in a spirit of equity redress.	<b>Local Economic Empowerment</b> Redress past imbalances by creating equal employment, procurement, business opportunities and projects	Engage land owners and stakeholders to conclude the outstanding settlement agreements (Mdluli, Mjejane, Nkambeni, Mthimkhulu, etc.)			R 80 000		x					High
		<b>Sustainable* Consumptive Natural Resource Use:</b> Allow rational resource usage to meet current needs without compromising needs and options of future generations, in the sense of 'benefits beyond boundaries'	Engage the provincial conservation authorities and local communities to remove redundant fences. (Makuya & Mthethamusha)			R 500 000		x	x				High
		<u>Promote establishment of contractual parks and buffer areas</u> to soften the boundary and enhance sustainable utilization practices by local communities	Engage the SANParks legal team and facilitate the establishment and incorporation into the KNP of communal conservation areas along the KNP western boundary  <b>(communal land incorp)</b>			R 4 000 000		x	x	x	x		Medium

Table 8b: Proposed overall budget summary to achieve various initiatives to address components of the Regional Integrated Land-use Planning and Effective Park Expansion Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 1 330 000	R 1 250 000	R 1 000 000	R 1 000 000
<b>Total secured budget</b>					
<b>Total unsecured budget</b>		R 1 330 000	R 1 250 000	R 1 000 000	R 1 000 000

#### 2.1.4. Regional Land-use Planning and Cooperative Governance Programme

KNP is in the middle of a three-country mosaic with varying land-uses, problems and challenges and to see it in isolation is considered pertinently counterproductive and ecologically dangerous. The real linkages to this complexity are currently still being built, but considerable progress has been made by the KNP in regional river management and in somewhat softening the social boundary on the South African side through activities of the People and Conservation Division. The KNP probably stands at the start of a five year period which could characterise the formation of more regional linkages than ever before and possibly realising more for a long period hereafter – this could thus potentially be seen as the five year window, or perhaps decade, of building linkages. KNP therefore needs to become adept at reaching out influentially, in an at least partly organised and practical way, to a host of outside partners in the landscape. The important elements are listed below and it is probably highly desirable that these be consolidated by the next writing of this management plan in five years time.

##### *Regional river management*

KNP is a key stakeholder and role player in the management of water resources in all the catchments within which it is situated (water quantity and quality issues are very important from both biodiversity management and tourism perspectives). The National Water Act details the involvement of stakeholders in the management of this resource and KNP has taken an active role in the initiation and management of Catchment Forums by:

- providing a leadership role in the initiation and management of such forums;
- helping the Interim Catchment Management Agency / DWAF in the management of water resources in the catchments involving the KNP via the forums;
- educating and empowering stakeholders on water resource management issues; and
- playing leadership and active roles in the structures that are meant to lead to the establishment of Catchment Management Agencies (CMAs) in Water Management Areas that have no CMA.

CMAs, emerging though they still are, are where the KNP may have had the most constructive influence. During the next five year period, the KNP will need to ensure that *water allocation as a social process* takes hold and delivers sustainable outcomes, not only for other purposes but also for biodiversity. These CMAs and all the structures beneath them will need to find harmony with the wide range of other geographical realities and pressures. The proposed initiatives and associated budgetary requirements for this are captured under the Biodiversity Management Programme (section 2.1.2).

##### *Integrated development plans (IDPs)*

The KNP interacts with eight municipalities in its vicinity, namely Nkomazi, Mbombela, Bushbuckridge, Greater Giyani, Ba-Phalaborwa, Mutale, Thulamela and Drakensberg. Nkomazi, Mbombela and

Bushbuckridge fall under the Ehlanzeni District Municipality. The above municipalities comprise of 30 Tribal Authorities and 68 Wards (see Figures 18 and 19).

KNP has engaged with the seven local municipalities and the district municipalities with the development of their Integrated Development Plans (IDPs) and Environmental Management Frameworks (EMFs). The Mbombela Municipality, the Ehlanzeni Municipality and Ba-Phalaborwa Municipality have given KNP an opportunity to comment on their IDPs and/or EMFs (including the spatial plans). KNP has requested that, in the absence of a detailed study, a park buffer area should be created in terms of the existing information at hand, taking into account:

- an elevation-related view-shed approach to ensure mitigation of potential visual, noise and other impacts (both to and from KNP);
- delineation of sensitive soils and encouragement of municipalities to create recreational facilities like parks in these areas to provide for recreational demands and biodiversity corridors, as well as the conservation of heritage sites where appropriate;
- buffering of alluvial soils and/or 1:100 year flood lines of rivers entering KNP and management of these as low-impact infrastructure-free zones which could be utilized for recreational opportunities (e.g. camping, picnicking etc.); and
- SANBI biodiversity targets and bioregional planning where information is available at the appropriate scale.

The existing municipal IDPs are currently under revision as Environmental Management Frameworks and inform the spatial development frameworks. Existing regional initiatives, such as the Maputo Development Corridor, which influence bioregional linkages, must be taken into account. To date, very little attention has been given to the linkage between biodiversity and economic, especially tourism-related, spatial planning (as has now started in several municipalities and district municipalities as well as local and regional tourism offices and chambers of commerce). This will need to happen very soon and be well-linked by the next iteration of this plan. The Road Infrastructure Strategic Framework for South Africa is another key lever for such interlinkage, currently in an amenable stage. Probably the central long-term opportunity, if it materialises, is the initiative to establish Mbombela region as an intellectual capital of environmental management and tourism. The World Soccer Cup in 2010 acts as an obvious additional reason to mobilise immediate synergies in regional, including international, planning possibilities.

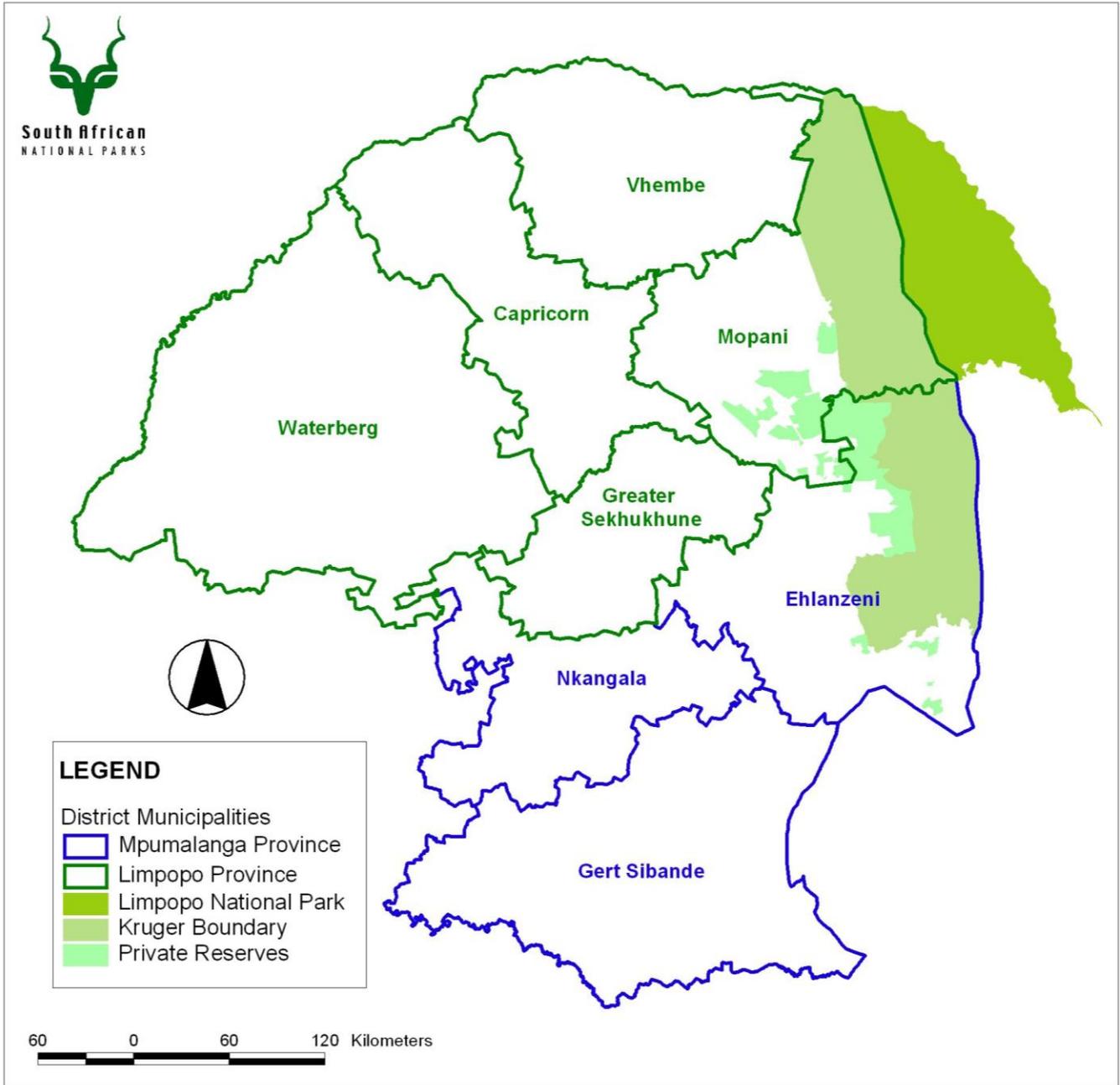


Figure 18: District Municipalities surrounding the KNP

### *Local community interaction*

The KNP also interacts directly with local communities (defined as any person or grouping of people which, within reasonable limits, is deemed to be directly affected by the presence of the KNP or the activities therein, therefore including communities living some distance away who are influenced by the activities of the KNP). The communities are divided into seven Community Forums (Figure 19) which represent various villages, namely Makuya (30 villages), Hlanganani (48 villages), Phalaborwa (24 villages), Mahlamba Ndlopfu (12 villages), Ntirhiswano (22 villages), Lubambiswano (34 villages) and Malelane (17 villages). These forums meet with KNP officials every month on a voluntary group basis. Interaction includes attention to community economic empowerment, ancestral claims or cultural / spiritual claims. The forums benefit financially in various ways from the existence of the KNP, with one of the projects being the curio stalls at Numbi, Kruger, Phalaborwa and Punda Maria entrance gates where local crafts are sold directly to the public. The KNP acts as tourist draw card and, in this way, provides the surrounding communities with opportunities to capitalise on interaction with tourists. KNP also provides employment for members of the communities in tourism operations.

KNP splits similar rural populations to its east and west, and human migration routes across the park represent both undeniable cultural-historical patterns, and security challenges. Some of these will be addressed through the GLTP programme (see also 2.1.2).

### *Bioregional biodiversity planning*

On the biodiversity front, the North-Eastern Escarpment Bioregion (NEEB) will probably become a reality, its core area including the northernmost tip of KNP, with its dependent satellite areas including much of the lowveld. KNP will need to assertively participate in NEEB (which strives to link ecosystem services and livelihoods) to meet its goals and SANParks' wider off-reserve goals (SANParks 2006). One prototype area of NEEB in particular (the Blyde-Sand catchments) will help achieve several goals of the somewhat stalled Kruger-to-Canyons UNESCO biosphere initiative. Mpumalanga Province in particular has well-developed systematic conservation plans, and Limpopo Province promises to follow suit. Together with them, these all need to be integrated, so that the KNP is a complimentary but valuable land parcel in a bigger overall plan. At the terrestrial-aquatic conservation interface, SANBI and co-workers have gone to great lengths to harmonise planning units and present *one* conservation priority map to planners and developers. Action research on this union is being developed strongly in just a few localities in South Africa, one of which is the Mpumalanga lowveld. The various clusters of private and provincial parks and protected areas which straddle KNP (now in all three countries) present their own constructive governance challenges and a way must be found to organise the relationship between the KNP and these protected areas effectively, without having to deal with scores of separate landowners and/or managers.

SANParks also needs to consider its own long- and wider-range priorities, such as its participation in meta-population strategies, which could become important in the lowveld region for certain endangered plants. Also, the KNP has a keen interest in developments higher up in the Limpopo River catchment, not only because of Mapunguwe National Park, but because the northernmost region of the province and KNP share the same catchment.

Working for Water, Working for Wetlands (see further detail under the Rehabilitation Programme, section 2.1.6), and Working on Fire, as well as many NGOs (such as Africa Resources Trust) have specific geo-planning delineations or requirements, each of which must also feed into a unified land-use pattern. A recent decision has aligned fire protection agencies with municipal boundaries.

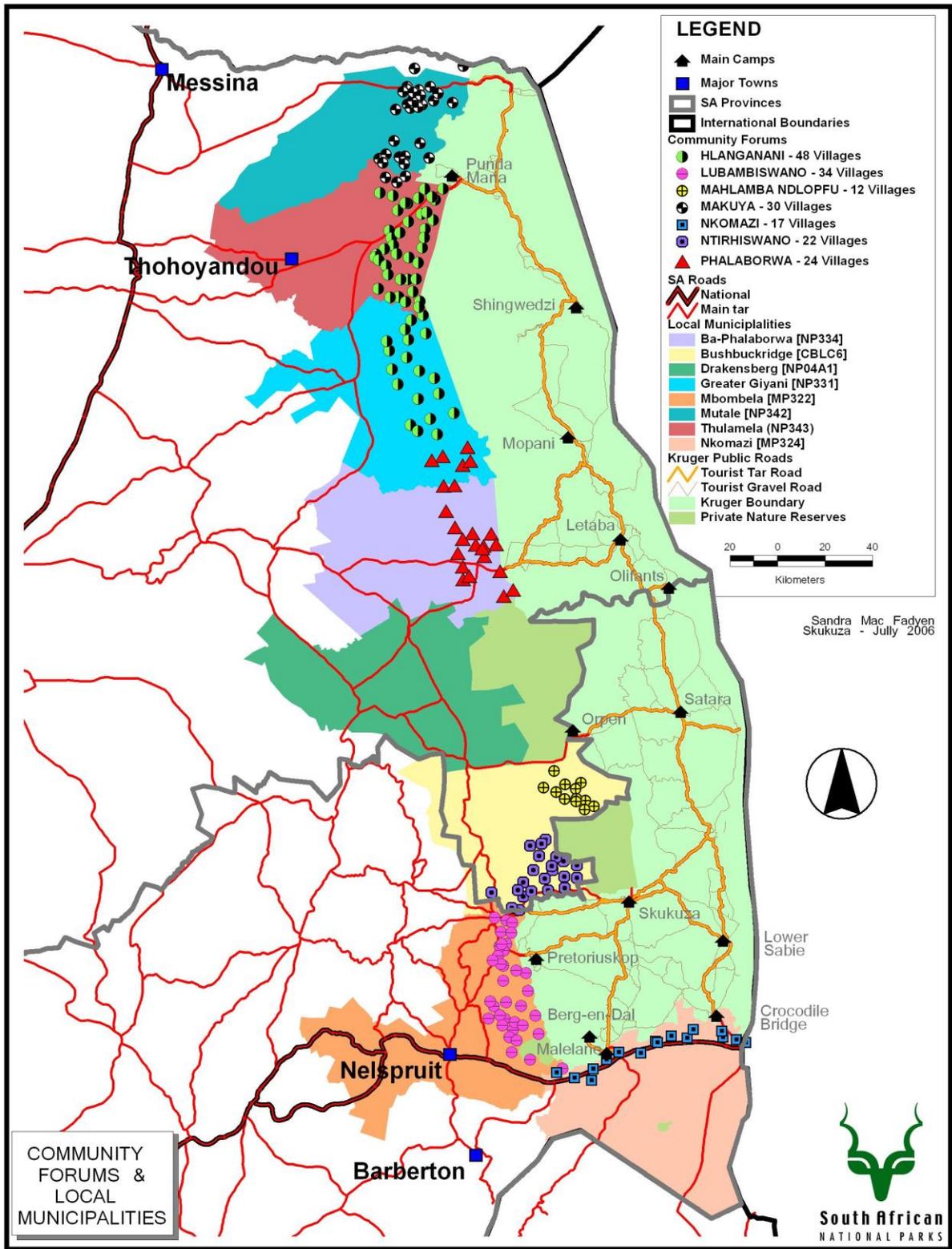


Figure 19: Map of local municipalities surrounding KNP and community forum representation from various villages.

Given the broad understanding in this section, KNP specifically needs to expedite the development of a statement of intent identifying key people who will populate the interface between its planning and that of the wider mosaic around the KNP on all sides. This should not simply be a continuation of the catchment work, transfrontier park work and initiatives of People and Conservation, but now needs to expand to include other dimensions, notably bioregionalism (driven by SANBI) and spatial tourism and wider economic planning. The long-term goal is the sustainable integration of all of these in the richly varied lowveld-escarpment region.

Table 9a: Details of objectives and initiatives to address the Regional Land-use Planning and Cooperative Governance Programme in Kruger National Park.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<b>Balancing Objective</b> To develop a thorough understanding of the integrated socio-ecological system (SES), especially in the regional context, for maintenance of a resilient SES and to balance human activities and development inside and around the KNP with the need to conserve ecosystem integrity and wilderness qualities by agreeing on a desired set of future conditions, and by developing an adequate suite of principles and tools.	<b>Balanced Development and Biodiversity Planning Objective</b>	<b>Spatial Development Framework and Zonation</b> To influence the SDF consistent with the SES conceptual model.  Ensure National, regional and local biodiversity and development plans	Fill approved positions in this regard to create additional capacity to deal with these issues			R2 000 000		x	x	x	x	High
			Engage the Spatial development framework stakeholders in provincial and municipal governments and integrate IDP's with KNP zonation / CDF			R450 000		x				High
			Establish formal platforms with provincial, municipal and other stakeholders to ensure seamless planning and integration between KNP and boundary areas			R250 000		x				High

Table 9b: Proposed overall budget summary to achieve various initiatives for the Regional Land-use Planning and Cooperative Governance Programme in Kruger National Park.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 1 200 000	R 500 000	R 500 000	R 500 000
<b>Total secured budget</b>					
<b>Total unsecured budget</b>		R 1 200 000	R 500 000	R 500 000	R 500 000

### 2.1.5. Sustainable Use – Statement of Intent

SANParks recognise that it has been established to protect and conserve areas of biological diversity. This is its primary mandate and all other activities must be regulated by this goal. However, it also recognises that as a national agency, SANParks must provide for the needs of all citizens, by generating an array of tangible and intangible benefits and resources. Subject to guidance from SANParks corporate principles (SANParks 2006), the KNP has developed the following statement of intent on sustainable natural resource utilisation.

The KNP regards any action that utilises or impacts on the scenery, sense of place, soil, water, air and nutrient cycles, habitats, heritage resources, flora and fauna, and the interrelatedness between these, as a resource use. Furthermore, KNP recognises that it has a responsibility to ensure that natural and cultural resources which are not harvested from within the park boundaries, but are used in the park, are collected and harvested in an ethical way that conforms to SANParks’ policies. The KNP is aware of the demand for resources by its various stakeholders (including both neighbouring communities and SANParks) as well as the role it needs to play in developing opportunities in this regard. While natural resources have been used by humans for millennia, the balance between available resources and demands has become distinctly disproportional. The exhaustion of resources outside national parks is one of the reasons for the increasing need and demand for resources inside national parks.

This statement of intent is the first step in the development of a sustainable resource use management plan, which is currently under way. Therefore, the KNP commits to investigating natural resource use in terms of past and present practice as well as future opportunities, in order to provide resources that are truly sustainable in the long-term, without compromising any of the organisation’s biodiversity or other values. All resource use in KNP should be considered, implemented, managed and monitored in accordance with the corporate policy which includes a comprehensive synthesis of international and national legal issues pertaining to resource use. KNP-specific regulations for resource use should follow an adaptive approach, based on the following 14 feasibility and implementation principles:

#### *Feasibility principles*

1. *Precautionary approach* - The ‘precautionary approach’ must apply. This is interpreted as:
  - leaving an appropriate ‘margin of error’ where information is inadequate;
  - prohibiting or preventing use of resources in instances where the consequences of erring could be severely negative for species, heritage resources, cultural landscapes and/or ecosystems;
  - terminating resource use activities if doubt arises as to the sustainability or impacts on the KNP.
2. *Maintenance of system integrity* - The ecological, aesthetic, socio-cultural, archaeological and spiritual integrity of protected areas must not be jeopardised in the long-term in order to satisfy

short-term needs/demands. System integrity, composition and function are defined as the desired state and are represented by the KNP objectives hierarchy.

3. *Cost-benefit analysis* - The benefit-cost ratio to SANParks must be positive.
4. *Determination and evaluation of potential influence of utilising resources* - The thresholds of potential concern for use on affected species, heritage resources, cultural landscapes and ecosystems must be determined and evaluated using methodology that is appropriate for this purpose. This must take into account the effects of resource use on population dynamics, ecosystem functioning and social and cultural values. This must be achieved in an integrated manner, incorporating all relevant scientific, formal and informal information and knowledge (including traditional knowledge).
5. *Cost recovery* - Costs must be recoverable from resource users who are able to pay, and it should be possible to leverage 'contributions in kind' from users who are unable to pay. Cost recovery also includes the costs of monitoring programmes that are required to manage resources in a sound manner.
6. *Adequate capacity* - Appropriate human and financial resources must be available to manage, monitor and regulate resource use.

#### *Implementation principles*

7. *Adaptive management* - Resource use must be managed adaptively, accompanied by constant learning based on monitoring, information gathering and research.
8. *Incentives* - Incentives for sustainable resource use and disincentives for unsustainable or wasteful use must be put in place.
9. *Ethics* - Accepted ethical norms and standards must be adhered to.
10. *Redress* - Past inequalities must be addressed through benefiting the poor, but without undermining the diversity of people's livelihood strategies.
11. *Respect for rights* - Intellectual property rights and historical claims to resources must be respected.
12. *Co-management* - Decision-making must be consultative and transparent. All stakeholders involved in resource use should accept responsibility for sustainable use.
13. *Enforcement* - Illegal resource use must be prevented through law enforcement.
14. *Rights and responsibilities*: While SANParks acknowledges the responsibilities outlined above, it also has the right to choose which resources it will make available and how much, as well as the right to withdraw if necessary (i.e. the use of a resource does not automatically constitute the source as being permanent).

Table 10a: Details of objectives and initiatives to address the Sustainable Resource Use Programme in KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)			
							1	2	3	4	5				
<b>People Objective</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the Park OR to deliver a people-centered conservation and tourism mandate, whilst preserving wilderness qualities and cultural resources	<b>Direct Human Benefits Objective</b> To provide benefits, particularly in the sense of 'benefits beyond boundaries', to meet or exceed reasonable expectations and foster partnerships, in a spirit of equity redress.	<b>Sustainable* Consumptive Natural Resource Use:</b> Allow rational resource usage to meet current needs without compromising needs and options of future generations, in the sense of 'benefits beyond boundaries'	Investigate options to provide benefits to local communities, such as including some of their land as conservation land and allowing them to harvest sustainably from the resources that overflow into their area			R 110 000		x					High		
			Engage the provincial conservation authorities and other stakeholders to assist with creating open conservation areas with communities			R 100 000			x					High	
			Conduct research and monitoring for identified pilot resource use projects in KNP			R 2 000 000		x	x	x	x				High
			Engage the SANParks legal team to ensure proper contractual agreements exist where resources are shared with communities			R 330 000		x	x	x	X				High

Table 10b: Proposed overall budget summary to achieve various initiatives for Sustainable Resource Use Programme in KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 692 500	R 691 500	R 582 500	R 582 500
<b>Total secured budget</b>					
<b>Total unsecured budget</b>		R 692 500	R 691 500	R 582 500	R 582 500

### 2.1.6. Rehabilitation Programme

Rehabilitation forms an integral part of the park’s conservation strategy to minimise man-induced impacts that detract from or threaten the biodiversity and cultural heritage resources of the park. Although localised to a certain extent, past management interventions and developments had negative impacts on ecological processes, “sense of place” and wilderness qualities within the park and these must be mitigated or rehabilitated to an acceptable level. These include the closure, removal and rehabilitation of certain artificial water sources such as dams, reservoirs and drinking troughs, the closure and rehabilitation of disused management roads, the removal and rehabilitation of redundant structures (if not protected under SAHRA) and the rehabilitation of all man-induced erosion and other disturbed sites such as disused gravel pits.

The rehabilitation plan (Lower Level Plan 4) aims to:

- identify redundant structures and impacted sites within the park which require removal and/or rehabilitation in order to restore wilderness qualities and ‘sense of place’ and also to improve ecosystem functioning;
- prioritise rehabilitation goals with highest priority given to wilderness zones and areas bordering on those zones;
- determine the rehabilitation needs for the next five years with associated timeframes and projected funding requirements;
- identify associated research and monitoring needs; and
- highlight potential risks or threats.

The most immediate need is the removal and rehabilitation of redundant man-made structures. Priority attention must be given to the removal of these structures from the wilderness areas of the park if they are not protected by SAHRA. KNP management therefore commits to a structured and integrated rehabilitation approach for the legal designation of these areas is to be achieved. A concerted effort must be made to secure the necessary funds from the Expanded Public Works Programme.

Firebreak and management roads to be closed and rehabilitated have been identified and those within wilderness areas prioritised. Current erosion problems in the KNP are mainly associated with incorrect alignment of firebreaks and management roads through sensitive soils and seep lines. Another source of man-induced erosion occurs around artificial water sources such as dams and windmills where excessive trampling and the unnatural channelling of water results in ongoing erosion problems. Approval for the systematic closure and removal of certain dams and windmills was granted by the SANParks Board following proposals stemming from the 1997 KNP Management Plan revision. Numerous windmills were subsequently closed and a number of dams were breached and rehabilitated. Unfortunately most of the closed windmills and associated structures were never removed nor were the sites properly rehabilitated. A number of earthen and concrete dams remain operational and need to be removed and the sites rehabilitated as soon as possible.

### *Expanded Public Works Programme*

Working for Wetlands (WfWet) - This government-funded programme uses wetland rehabilitation as a means for poverty alleviation as well as the wise use of wetlands. It follows an approach that centres on co-operative governance and the creation of partnerships between landowners, communities, civil society and the private sector. A joint initiative of the departments of Environmental Affairs and Tourism, Agriculture and Water Affairs and Forestry, WfWet is housed within the South African National Biodiversity Institute. In this way, it is an expression of the overlapping wetlands-related mandates of these three parent departments and, in addition to giving effect to a range of policy objectives, also honours commitments under several international agreements, especially the Ramsar Convention on Wetlands.

Projects focus on the rehabilitation, wise use and protection of wetlands in a manner that maximises the creation of employment by creating and supporting small businesses and transferring relevant and marketable skills to beneficiaries. In this way, using funding provided by DEAT, WfWet forms part of the Expanded Public Works Programme which seeks to draw significant numbers of unemployed people into the productive sector of the economy, gaining skills while they work and increasing their capacity to earn income.

Several projects have been completed in the KNP, including the removal of breached dam walls in vleis areas, improved natural water drainage on the Luvuvhu River floodplain and stabilising of man-made erosion gully heads by means of gabions.

Working for Water (WfW) - Invasive alien species are causing billions of Rands of damage to South Africa's economy every year, and are the single biggest threat to the country's biological biodiversity. Invasive alien plants pose a direct threat not only to South Africa's biological diversity, but also to water security, the ecological functioning of natural systems and the productive use of land. Of the estimated 9000 plants introduced to this country, 198 are currently classified as being invasive. It is estimated that these plants cover about 10% of the country and the problem is growing at an exponential rate. The fight against invasive alien plants is spearheaded by the Working for Water programme, launched in 1995 and administered through the Department of Water Affairs and Forestry. This programme works in partnership with local communities, to whom it provides jobs, and also with Government departments including the Departments of Environmental Affairs and Tourism, Agriculture, and Trade and Industry, provincial departments of agriculture, conservation and environment, research foundations and private companies. Since its inception in 1995, the programme has cleared more than one million hectares of invasive alien plants providing jobs and training to approximately 20 000 people per annum from among the most marginalized sectors of society (52% are women).

WfW currently runs over 300 projects in all nine provinces. WfW considers the development of people an essential element of environmental conservation. Short-term contract jobs created through the clearing activities are undertaken, with the emphasis on endeavouring to recruit women (target 60%), youth (20%) and disabled (5%). Creating an enabling environment for skills training, it is investing in the development of communities wherever it works. Implementing HIV/AIDS projects and other socio-development initiatives are also important objectives.

In KNP, the Working for Wetlands programme achieved good results with the removal of some of the dams and helped restore hydrological flows along the Levuvhu floodplain and this is a good example of an approach to follow in future. The Working for Water Programme has contributed substantially to the removal of alien infestations in the KNP (see Biodiversity Management Programme 2.1.2.).

Table 11a. Details of objectives and initiatives to address the Rehabilitation Programme in KNP.

Overarching Objectives	High level objectives	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<p><b>Biodiversity Objectives</b> To maintain biodiversity in all its natural facets and fluxes.</p> <p><b>People Objectives</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the KNP.</p>	<p><b>Functional Processes</b> To understand the important ecological and evolutionary processes and the role that each one plays in maintaining biological diversity and function in the various water-related ecosystems in and around KNP in such a way that management implications can be responded to appropriately</p> <p><b>Water in the Landscape Objective</b> To develop an integrated understanding of non-terrestrial ecosystem diversity and dynamics (including sub-surface water) and it's links with terrestrial systems, and to maintain the intrinsic biodiversity as an integral component of the landscape and maintain or where necessary restore or simulate natural structure, function, composition</p>	<p><b>River rehabilitation</b> To restore natural river ecosystem health and functioning by rehabilitating or redesigning redundant and other man-made structures.</p>	Identify, prioritize and remove redundant dams and weirs in order to restore wilderness qualities and improve ecosystem functioning			R 15 600 000		X	X	X	X	High (ele management)
		<p><b>Artificial Water Provisioning</b> To understand and evaluate the role and consequences of artificial water provision and/or simulation of natural surface water availability in the KNP landscape and to develop management guidelines to facilitate restoration of natural processes.</p>	Identify, prioritize and remove redundant windmills, reservoirs and troughs in order to restore wilderness qualities and improve ecosystem functioning			R 4 500 000		X	X	X	X	Medium
		<p><b>Restoration / Wilderness Enhancement Objective</b> To identify, document, plan and implement the rehabilitation of man-made impacts to enhance / improve / establish wilderness qualities in the different ROZ zones.</p> <p><b>Management Guidelines</b></p>	Rehabilitation of erosion problems in the KNP that are associated with disused management roads, incorrect alignment through sensitive soils and seep lines, excessive past grading and incorrect shaping and drainage	R 1 907 400	R 1 100 000	R 13 092 600	X	X	X	X	X	High
			Closure and Rehabilitation of redundant management roads & gravel pits			R 10 400 000		X	X	X	X	Medium

Overarching Objectives	High level objectives	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
	and processes  <b>Wilderness Qualities Objective</b> To maintain, enhance and where necessary restore within all areas of the KNP those spiritual and experiential qualities associated with the concept of wilderness*	<b>Objective</b> To develop management guidelines to facilitate restoration of natural processes as far as possible and practical  To investigate methods of rehabilitating gravel pits that hold unnatural water.										

Table 11b. Proposed overall budget summary to achieve various initiatives for the Rehabilitation Programme in Kruger National Park.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 3 000 000	R 10 325 000	R 10 725 000	R 10 725 000	R 10 725 000
<b>Total secured budget</b>	R 1 907 400				
<b>Total other funding</b>	R 1 100 000				
<b>Total unsecured budget</b>	R 1 092 600	R 10 325 000	R 10 725 000	R 10 725 000	R 10 725 000

### 2.1.7. Wilderness Management Programme

Perhaps one of the most significant provisions under the new PAA legislation is the formal statutory protection status that may be awarded to wilderness areas. The Wilderness Management Programme (Lower Level Plan 5) identifies areas in the KNP to be declared statutory wilderness and highlights the KNP's wilderness management principles. Furthermore, it outlines the objectives (also specified in Lower Level Plan 1) and how these will inform the decision-making environment affecting conservation management, visitor management, scientific research and monitoring within such areas. Wilderness protection is guided by the SANParks Corporate policy on wilderness, which recognises wilderness as an enduring natural resource deserving the highest protection possible within South Africa's national parks.

The programme focuses on retaining the intrinsic qualities and values of wilderness and maintaining or restoring specific attributes associated with such areas. It recognises the crucial role of proactive involvement in regional and local development planning, as well as the need to follow a transparent and integrated development approach within the KNP to guide management and

restoration of wilderness areas. Important objectives to be addressed in the next five years include the identification and statutory designation and protection of candidate wilderness areas (planned for 2009/2010), and the implementation of an appropriate rehabilitation strategy and plan to remove redundant structures and human-induced impacts and restore the 'sense of place' of these areas. This will need to go hand-in-hand with appropriate monitoring and auditing mechanisms, research, promoting understanding, acceptance and support of the wilderness philosophy amongst park visitors, staff and neighbouring communities and the provision of human benefits through appropriate access and recreational use.

Within wilderness areas, management decisions must now be effected with due consideration of the minimum tool concept and this includes management of fire, alien biota, damage-causing animals, animal population management, disease management, natural resource use, rehabilitation efforts, safety and security, maintenance of territorial integrity, waste disposal ("pack it in, pack it out" principle), management of cultural, historical and archaeological heritage sites, visitor and other access, roads, trails and aviation. The "leave no trace" ethic will be applied to all wilderness uses within the KNP.

New initiatives such as the recently launched Olifants River Back Pack Trail will greatly assist in making some of these areas more accessible to the general public in future. With an expected future increase in wilderness use, it has become important to establish TPCs for these areas to facilitate proactive management of visitor numbers and their associated impacts. The current lack of a wilderness monitoring programme and associated database hamper the setting of realistic TPCs and must be addressed as a matter of urgency. Lower Level Plan 5 lists preliminary TPCs as a starting point for further development.

Table 12a: Details of objectives and initiatives to address the Wilderness Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
<b>People Objectives</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the KNP.	<b>Wilderness Qualities Objective</b>  To maintain, enhance and where necessary restore within all areas of the KNP those spiritual and experiential qualities, 1 - associated with the concept of wilderness 2 - achieved through	<b>Restoration Objective –</b> covered within Rehabilitation Programme  <b>Awareness and Support Objective</b> To promote an appreciation of the intrinsic inspirational and recreational values  <b>Research Objective</b> To solicit appropriate	Initiate an awareness programme to promote the values of wilderness amongst staff and the general public and foster custodianship values towards wilderness in the KNP (e.g. minimum tool, tread lightly, pack it in pack it out, etc)			R 180 000		x	x	x	x	Medium

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
	defined management of zones aimed at preserving differing degrees of wilderness experience.	<p>research, addressing biophysical, aesthetic and experiential aspects</p> <p><b>Monitoring and Audit Objective</b> To develop appropriate monitoring mechanisms to verify whether those qualities and experiences for which zones have been allocated are being maintained, and target attributes which may require restoration</p> <p><b>Stewardship (management) Objective</b> To foster custodianship values towards wilderness zones in the KNP</p>	Solicit research that address appropriate aspects of wilderness and wilderness qualities,			R 400 000		x	x	x	x	Medium
			Develop appropriate monitoring mechanisms to verify whether those qualities and experiences for which zones have been allocated are being maintained			R 20 000		x				High
			Initiate the formal proclamation of the wilderness areas according to the PAA			R 180 000		X	X			High

Table 12b. Proposed overall budget summary to achieve various initiatives for the Wilderness Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 255 000	R 235 000	R 145 000	R 145 000
<b>Total secured budget</b>					
<b>Total other funding</b>					
<b>Total unsecured budget</b>		R 255 000	R 235 000	R 145 000	R 145 000

## 2.1.8. Management of Damage-Causing Animals Programme

'Damage-Causing animals', specifically lion and elephant, impact on particularly the western, but also southern, boundary of the KNP where they affect neighbouring communal or commercial farmlands and pose a direct threat to livestock and community livelihoods. Movement of certain animals, specifically buffalo in the KNP context, across park boundaries also poses a serious risk of spreading disease to domestic livestock and/or humans. It is acknowledged that these and other animals may from time to time leave the park and cause damage. Maintenance of fences within KNP is the responsibility of park management. Nevertheless, legally (at this stage) KNP officials have no jurisdiction to act against animals outside the borders of the park and any action must be undertaken in consultation and by request of the Mpumalanga or Limpopo provincial authorities.

'Problem animals' and 'pests' within the park itself, do from time to time affect visitor experience, staff safety and management infrastructure. It therefore, at times, becomes necessary to remove individual or groups of damage-causing or problem animals, those that are injured, diseased, burnt or deformed. Lethal removal of animals is occasionally required where these pose a direct threat to people, livestock or crops on neighbouring land. The most efficient and humane technique for the particular set of circumstances will be used, taking into account constraints imposed by practicality, considerations of safety to humans as well as the potential impact on other animals or the environment. SANParks highlights respect for life and welfare of animals in the implementation of such actions, recognising that the problem is usually man-induced, and approaches are based on the principle that prevention is better than cure. In terms of pest control, KNP has a well developed strategy in line with responsible and environmentally-friendly pest control options, with mechanical control options being the preferred method.

SANParks takes note of the fears and concerns of all affected parties surrounding the KNP and will address these to the best of the KNP's ability within the national legislative framework and SANParks' Policy Framework. In the coming five years, KNP intends to introduce as one of the management strategies, a programme that will target collaborative activities which include improved information exchange, awareness raising and communication among key sectors, restorative compensation, capacity building and training among practitioners and communities, development projects and research and finally improved decision making and policy development.

In addition, effective communication and partnerships, particularly with provincial departments and neighbours through the Park Forums, require ongoing attention. Details of this programme can be found in Lower Level Plan 6.

Table 13a. Details of objectives and initiatives to address the Management of Damage-Causing Animal Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority	
							1	2	3	4	5		
<b>People Objectives</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness	<b>Direct Human Benefits Objective</b> To provide benefits, particularly in the sense of 'benefits beyond boundaries', to meet or	Ameliorate negative effects of damage causing animals or plants to promote working relations through policy and	Develop and implement a framework of redressing the impacts of Damage causing animals to the local communities.			R 6 000 000  An initial fund of R 6 million will be required to redress the community losses		x	x				(H/M/L) High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
qualities and cultural resources associated with the Kruger National Park	exceed reasonable expectations and foster partnerships, in a spirit of equity redress.	projects				over the years						
		Improve Governance and risk management	Develop a development project that aims at deterring the effects of DCA with local communities [Chilli peppers]			R 300 000		x	x	x	x	High

Table 13b. Proposed overall budget summary to achieve various initiatives for the Management of Damage-Causing Animal Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 3 075 000	R 3 075 000	R 75 000	R 75 000
<b>Total secured budget</b>					
<b>Total unsecured budget</b>		R 3 075 000	R 3 075 000	R 75 000	R 75 000

### 2.1.9. Cultural Heritage Management Programme

The KNP has a draft Cultural Heritage Management Programme (Lower Level Plan 7) and the desired state for KNP includes maintenance of cultural heritage assets, notably Thulamela and Masorini sites, and the widespread San Rock Art. All actions are advised by SANParks policy on cultural resource management (SANParks 2006). A heritage inventory initiative, embracing all aspects of cultural heritage, has been identified as an essential priority within the next five years in KNP. In addition, KNP has some significant heritage resources within its boundaries requiring further research. Other objectives for the KNP include development and implementation of a Heritage Management Plan with appropriate Site Management Plans for those sites that have been identified for educational, research and/or tourism purposes.

Table 14a. Details of objectives and initiatives for addressing the Cultural Heritage Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<b>People Objectives</b> To provide human benefits and	Preserving and whenever possible utilizing for	Mapping  Management - Devise	Identify, record and accurately document all cultural resources	R 40 000	R 250 000	R 275 000	x	x	x	x	x	Medium

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority	
							1	2	3	4	5		(H/M/L)
build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the Kruger National Park	human enrichment cultural resources associated with the Park  Ensure and guide the continued identification of cultural resources for development, education and tourism	effective ways to preserve and where possible sustainable utilization of resources	Develop site management plans	R 60 000		R 830 000	x		x	x	x	Medium	
			Cultural resources monitoring programme	R 50 000		R 180 000		x	x	x	x	High	
		Promote awareness, and knowledge about cultural resource management in the KNP to all stakeholders  Facilitate ongoing research, documentation of ,and use of tangible cultural resources	Develop three sites into tourism products			R900 000							Medium
			Awareness campaigns and celebration of cultural heritage days	R 70 000		R 730 000	x	x	x	x	x	Medium	
			Documentation of oral history-pertaining objects, sites spaces and events associated with KNP	R 30 000		R 550 000	x	x	x	x	x	High	

Table14b: Proposed overall budget summary to achieve various initiatives for the Cultural Heritage Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 635 000	R 670 000	R 755 000	R 875 000	R 1030000
<b>Total secured budget</b>	R 250 000				
<b>Secured other funding</b>	R 250 000				
<b>Total unsecured budget</b>	R 135 000	R 670 000	R 755 000	R 875 000	R 1030000

## 2.2. Sustainable Tourism

This section clearly also cross-links to the CDF and Zonation Programme provided in 2.1.1. The lower level plan is detailed in Lower Level Plan 8.

### 2.2.1. Sustainable Tourism Programme

Tourism is a conservation strategy in SANParks. Through KNP's tourism ventures, facilities, products and experiences, SANParks communicates key biodiversity conservation and sustainable living messages, while at the same time conveying principles of best practice for responsible environmental management.

#### 2.2.1.1. *KNPs tourism estate*

Tourism in the KNP is already an established and growing phenomenon, begun in 1927 when the first four private vehicles drove into the park for sight-seeing (Carruthers 1995). Currently the KNP receives 1.3 million visitors per annum and provides a range of conservation- and wilderness-based experiences through its facilities comprising 4195 beds and camping sites (Figure 20; Table 15) and wilderness trails.



Figure 20: Examples of overnight tourist facilities at Olifants Rest Camp and Shimuwini Bush Camp

Table 15: KNP visitor accommodation facilities (camps)

<b>KNP Camps</b>	<b>Number of units</b>	<b>No of campsites</b>	<b>Number of beds</b>
<b>Marula Region</b>			
Skukuza	239	105	627
Pretoriuskop	134	45	341
Berg-en-dal	94	70	359
Lower Sabie	113	33	281
Crocodile Bridge	28	20	76
Biyamiti	15	-	70
Malelane	5	15	19
<b>Nkayeni Region</b>			
Satara	165	88	437
Orpen	15	20	42
Tlamati	15	-	80
Tamboti	40	-	120
Roodewaal	4	-	19
Balule	6	15	18
<b>Nxanatseni Region</b>			
Olifants	109	-	266
Letaba	123	60	378
Mopani	103	-	506
Tsendze -	-	34	-
Shimuwini	15	-	71
Boulders	6	-	12
Bateleur	7	-	40
Shingwedzi	80	65	264
Sirheni	15	-	80
Punda Maria	31	60	74
Sleep-over hides	2	-	15
<b>TOTALS</b>	<b>1364</b>	<b>630</b>	<b>4195</b>

Wilderness Trails are activity-based, with up to a maximum of eight visitors at any time. The revenue generated from these camps is also recorded under the activities income. There are seven Wilderness Trails operating within the KNP namely: Bushmans, Metsi-Metsi, Napi, Nyalaland, Olifants, Sweni and Wolhuter (Figure 21 and 22). There is also one overland eco-trail, namely the Lebombo Overland Trail (Figure 23). This activity takes place from the southern part of the park through to the northern part along the borders of Mozambique and South Africa.



Figure 21: Map showing Wilderness Trails camps within the KNP



Figure 22: Scenes from the Olifants River back pack Trail experience



Figure 23: Typical experience on the Lebombo Overland Trail

In addition, there are self-drive adventure trails, three of them still operational with the one in the northern part of the park on hold pending the success of the newly designed trail piloting. Should the latter be a success, the remaining three will operate the same way. In addition to all these activities the KNP offers Mountain Bike Trails and Star Gazing from Olifants Rest Camp, in addition to guided day walks and game drives from all the main rest- and bush-camps.

The nature and extent of the KNP's tourism operations requires appropriate plans to be put in place to deal appropriately with the currently transpiring and/or anticipated future tourism business and opportunities. The quality of environmental surroundings and ambience is critical to provide an enjoyable, memorable and educative experience to millions of international and local visitors to the KNP. The management approach emphasizes ways to:

- continuously minimize the potential negative impacts caused by existing tourism use, particularly to sensitive sites, and
- direct new tourism developments (if possible) to less sensitive areas.

It was reported in a recent survey that the majority of tourists and high volume tourism companies appreciate wildlife even if this is not the main reason for their vacation in a particular area (Tapper &

Cochrane 2005). Because of the importance of experiential quality and biodiversity for eco-tourism, the KNP has a long-term interest in the maintenance of a balance between conservation of biodiversity and public use through the provision of sustainable and responsible tourism products to its visitors. The high growth rates of tourism in the KNP over the last five decades have generated an in-depth risk-averse management approach that takes into account biodiversity, economic and social impacts of tourism and has resulted into the development of plans that deliver an overall tourism product that has positive impacts on the natural environment and communities.

#### *2.2.1.2. Implementation of SANParks' Sustainable Tourism Framework*

Sustainable Tourism is defined as “*tourism which is developed and maintained in an area (community environment) in such a manner and at such a scale that it remains viable over an indefinite period and does not degrade or alter the environmental (human and physical) in which it exists to such a degree that it prohibits the successful development and wellbeing of other activities and processes*” (Butler 1993). The formulation of the SANPark’s Sustainable Tourism Framework has recently begun and should be completed by the end of the financial year 2008/9. Phase two of the project will be implemented by each park and the expected completion time is the end of the financial year 2009/10.

Sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development, and a suitable balance must be established among these three dimensions to guarantee its long-term sustainability. Thus sustainable tourism in the KNP is committed to:

- using tourism as a conservation strategy by optimally deploying and appropriately utilizing environmental resources. Environmental resources, together with the maintenance of essential ecological processes and conservation of natural heritage and biodiversity, constitute a key element in tourism planning and development;
- respect the socio-cultural authenticity of host communities, conserving their built and living cultural heritage and traditional values and contributing to inter-cultural understanding and tolerance;
- ensure viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are fairly distributed, including stable employment and income-earning opportunities and social services to host communities and contributing to poverty alleviation,
- ensure that tourism development is appropriate in scale, requiring the lowest possible consumption of non-renewable resources; and
- ensure that additional funds for conservation are generated from the tourism business.

Sustainable tourism initiatives in the KNP contribute to the conservation of biodiversity and cultural diversity and contribute to the well-being of local communities and indigenous people. This includes an interpretation/learning experience, eliciting responsible action on the part of tourists and the tourism industry. An integrated approach to the management of tourism and biodiversity requires co-ordination between the KNP, government departments and agencies concerned with the management of both tourism and biological diversity, agencies responsible for broader national economic development, the tourism industry and interested and affected communities. The participation of stakeholders who may be affected or interested in tourism in the KNP is essential for the integrated management of tourism and biodiversity.

#### *2.2.1.3. Integrating tourism and biodiversity management approaches*

Several planning methods and appropriate approaches are available to assist with the integrated management of tourism and biodiversity. These methodologies, or variants thereof, are used in conjunction with stakeholder participation and the actual tourism implementation plan. The following methodologies are applied in planning and implementing tourism programmes in the KNP:

*Zoning Plan* - It is a mix of outdoor settings based on remoteness, size, evidence of human impact, or lack thereof, which allow for a variety of recreational experiences. In the KNP these experiential zones vary from wilderness to high intensity development as outlined in the CDF and zoning plan earlier in this document (section 2.1.1).

*Limits of Acceptable Change* - The methodology is designed to balance the interests of users of the resource and management. It seeks to identify recreation and tourism opportunities and assess human use - impact relationships in order to provide managers with specific steps to determine acceptable conditions and identify management strategies to achieve the desired resource and social conditions.

*Visitor Impact Management* - The methodology addresses three basic issues relating to the management of impacts viz. problem conditions, potential causal factors and potential management strategies. Standards are established for each indicator based on the management objectives that specify acceptable limits or appropriate levels for the impact. The process provides for a balanced use of scientific and judgmental considerations, emphasizing understanding causal factors to identify management strategies.

*Visitor Experience Resource Protection* - Created by the US National Park Service to deal with carrying capacity in terms of the quality of the resource and visitor experience, this contains a prescription for desired future resources and social conditions defining what levels of use are appropriate, where, when and why. The emphasis is on strategic decisions pertaining to carrying capacity based on quality resource values and quality visitor experiences. It guides resource analysis through the use of statements of significance and sensitivity, and visitor opportunity analysis is guided by statements defining important elements of visitor experience.

*Tourism Optimization Management Model* – This approach does not concentrate on impacts or setting limits for use but instead emphasizes optimal and sustainable outcomes for tourism and the community, and sets acceptable ranges within which they should occur. It explicitly serves a multitude of stakeholders within a region, operating over a range of protected area and private land tenures. Its optimal conditions approach to desired outcomes cover the broad spectrum of economic, market opportunity, ecological/biodiversity, experiential and socio-cultural factors and thus reflects the entire ecosystem.

*Carrying Capacity* – This is defined as the amount of visitor-related use an area can support while offering a sustained quality of recreation based on ecological, social, physical and managerial attributes and conditions. In the KNP, emphasis is still on gate quotas during peak periods although internationally the focus is on determining the level of use beyond which impacts exceed acceptable levels specified by evaluative standards. Tourism carrying capacity has recently been expanded to include development issues and socio-economic cultural effects. In practice, carrying capacity has proven to be a methodology that cannot be applied accurately to tourism scenarios. While perceived to be scientific, several criteria of the methodology are subjective. The notion that tourism impacts can be measured to reach fixed impact thresholds which can be evaluated as “in excess” of a measurable carrying capacity has proven to be erroneous. In reality, tourism impacts can rarely be put into the context of fixed biological parameters. Conditions change from time to time, site to site, impacts are highly variable depending on the volume of tourism from year to year and there is no straight forward correlation between many variables that cause tourism impacts and resource degradation over a period of time. Rather than seeking to measure impacts according to the variabilities of tourism flows, monitoring is more productive if it seeks to maintain an acceptable balance from the point of view of all stakeholders between different uses. Monitoring promotes and facilitates adaptive management and should provide the information necessary to redirect and adapt in order to avoid and mitigate any adverse impacts on the environment (Lindberg et al, 1997).

The next five year cycle of this management plan will focus on sharpening the application and integration of these various planning methodologies for the KNP. No one method can be applied in total isolation from the rest. The best approach is to apply a combination of methodologies in response

to specific challenges surfacing when planning or implementing sustainable tourism programmes in the KNP.

The KNP's tourism programme is aimed at simultaneously addressing and supporting the six key goals and associated strategic objectives of the Department of Environmental Affairs and Tourism strategic plan and the SANParks strategic tourism principles and objectives. In order to achieve the desired nature-based tourism destination state in KNP, *tourism activities and experiences must optimise the parks' unique attributes and special features as the preferred focus to ensure sustainability and a unique product compatible with the overall desired state whilst applying the principles of Responsible Tourism.* In order to achieve this, the following aspects will require focused attention in the next five years:

*Transformation and empowerment* – This will have to permeate a wider variety of aspects, including the target market (visitors), small businesses (e.g. open safari vehicles), involvement of local communities in tourism activities, etc.

*Visitor management* – Taking heed of a recent demand analysis, it is anticipated that should the demand continue to grow at its current rate, The KNP will not be able to manage its visitors, particularly in the southern region. Creative alternatives to the 'self-drive' tourism model will need to be investigated, possibly incorporating a type of 'park and drive' concept in the next 20 year horizon. Attention will need to be given to the current quota system, particularly since 70% of visitors currently comprise day visitors and The KNP will need to consider converting these to overnight visitors, limiting day visitors. The other alternative is to stagger visiting times making use of the of the Wild Card frequent guest programme to the parks' advantage. The Wild Card is used both as a conservation fee collection as well as a marketing tool. In addition, there is a demand for interpretive centres at gates, which will become particularly valuable when gate quotas are reached. The KNP should also differentially class the various camps to pre-segment the visitor markets coming into the park. It is predicted that visitor demand will exceed daily quotas in peak times before 2010 at the southern gates and will require a visitor management strategy which includes sufficient facilities to provide alternative forms of visitor experience.

*Infrastructure upgrading* – Due to insufficient allocation of public funds for conservation, the tourism revenues generated in KNP cross-subsidize conservation activities across SANParks. This has resulted in some neglect of the maintenance of tourism infrastructure. Nevertheless, attention has been focused on this aspect since 2006. The Infrastructure Development Programme is in progress and should be completed in 2011 as per the development plan. It must also be noted that the state of grading is now at 70% (by the Grading Council of SA) compared to the last three years when there were no graded facilities. The desired grading state of the park (100%) should be completed in the next two years.

*Pricing strategy* – To ensure that pricing is competitive, affords access to all South Africans and that it correlates with star grading, tourism in The KNP will need to focus on the flexibility of packages, in line with the rest of SANParks and the ecotourism industry.

*Access* – This issue was highlighted strongly in the park management plan stakeholder engagement sessions, with an appeal to consider more day visitor centres, a 'park and ride' type concept for backpackers and people that don't own cars, air access for inclusive packages, etc. Unless this is taken care of properly, The KNP will lose its market appeal due to poor visitor experiences. Similarly the forecast predicts that visitor entries can become a problem in Phalaborwa especially during peak season months from 2010 onwards.

*Sustainable revenue growth* – This must focus better on the three new and growing markets, namely SA Leisure (black middle class), business tourism (conferences), and maintenance of the current market. In addition, and to enhance this, The KNP must expend energy on sufficient and effective marketing of The KNP as a destination; provision of interpretive/orientation centres to promote the cultural and natural aspects of Kruger; provision of international standard facilities and services; provision of sufficient and appropriate recreation facilities for the local day visitor market; proper

management of the park and its facilities as a whole; destination forums to ensure coordination on routes and packages within the region; alignment of The KNP to industry standards and commonly accepted tourism business principles.

*Implementation of operational management and auditing* – Currently KNP employs one Hospitality Standards Manager and has a very newly developed Standards Manual. This capacity needs to be expanded and independent auditing procedures and site inspections instituted to maintain a high quality tourism product.

*Marketing the KNP as a destination with regional linkages* - Continued analysis of the market demands and provision of tourism routes is required. The KNP must conform to industry marketing norms to ensure that it becomes the destination of choice, not only for South Africans, but for all people of the world. Investigation of the young and upcoming black market, concentrated in Gauteng, should be further considered. This market falls within lower income brackets and further research is needed to determine the exact requirements of this market in terms of tourism experiences, packages, etc. The educational market will also be an important strategic market for the KNP to develop in the future. If it is assumed that a third of the school children partaking in overnight excursions are based in Limpopo and Mpumalanga, then the annual demand for educational trips to these provinces is roughly 450 000 learners per annum (KNP currently attracts about 22 500 learners annually). There is significant room to grow this market. In addition, the business tourism market in South Africa is one of the fastest growing domestic markets and can be a good antidote for the seasonality experienced in the KNP.

*Nature-based tourism* – the organisation plays a significant role in the promotion of South Africa's nature-based tourism, or ecotourism business targeted at both international and domestic tourism markets. The eco-tourism pillar of the business architecture provides for the organisation's self-generated revenues from commercial operations that are necessary to supplement government seed funding of conservation management.

#### *2.2.1.4. Commercialisation strategy*

A significant element of the ecotourism pillar is the Commercialisation Strategy (which through the implementation of Public Private Partnerships (PPP)) has as its objective the reduction of cost of delivery, improving service levels by focusing on core business and leveraging private capital and expertise as well as the objective of expansion of tourism products and the generation of additional revenue for the funding of conservation and constituency building.

The growing number of PPP projects attests to the growing body of experience related to PPPs, both within SANParks and across the private sector. There have been some key lessons over the years. As a result of the good yield from commercialisation, SANParks, during the previous financial year, developed a strategic Plan for Commercialisation to accommodate and benefit from:

- the experience and special skills acquired;
- lessons learned from implementation and management of Public Private Partnerships;
- legislative requirements, i.e. compliance with Regulation 16 of the Public Finance Management Act and Eco-Tourism toolkit developed by National Treasury; and
- the extended scope of projects identified to enable SANParks to improve its infrastructure towards 2010, generate revenue, promote BEE and create employment.

In 2000, SANParks embarked on a commercialisation process that allowed it to grant concessionaires rights for the use of defined areas of land and infrastructure within national parks, coupled with the opportunity to build and operate tourism facilities over specific time periods. The aim of the process has been to increase the net revenue that commercial activities contribute to SANParks' core function of nature conservation. The programme led to the outsourcing of management of luxury tourism operations to commercial operators, who were considered to be more qualified and equipped to manage such facilities. Major objectives included the promotion of economic empowerment of the

formerly disadvantaged, the promotion and provision of business opportunities to emerging entrepreneurs (in particular local communities adjacent to national parks) and the application of SANParks' environmental regulations and global parameters to all concessions.

Following on from the successful tendering for concession sites in 2000, seven up-market lodges were established in KNP (see Figure 24 and Table 16).



Figure 24: Map of concession areas within KNP

Table 16: Luxury Accommodation Concessions in the KNP

<b>Kruger Concession</b>	<b>Trading as</b>	<b>Size:</b>	<b>Max Beds</b>	<b>Main Lodge</b>	<b>Fly Camps</b>	<b>Staff (at 30 July 2006)</b>
Mpanamana	<b>Shishangeni Private Lodge</b> • Camp Shawu • Camp Shonga	12 366 ha	80	50 Bed Lodge near the Crocodile River	Two 10-bed Fly Camps	65
Lwakahle	<b>Lukimbi Safari Lodge</b>	14 170 ha	40	32 Bed Lodge on Lwakahle River	Two 10-bed Fly Camps	37
Jock of the Bushveld	<b>Jock Safari Lodge</b>	5 846 ha	30	24 Bed Lodge on existing Jock of the Bushveld site	One 8-bed Fly Camp	54
Jakkalsbessie	<b>Tinga Private Game Lodge</b> • Tinga Legends Lodge • Tinga Nerina Lodge	4 426 ha	70	38-Bed Lodge (Legends) on existing Jakkalsbessie site. 18-Bed Lodge (Narina) on the existing Narina site.	To investigate a 12-Bed Fly camp (Shirani) – to which will reduce Legends Camp to 18-Bed	82
Mluwati	<b>Imbali Safari Lodges</b> • Hoyo-Hoyo Tsonga Lodge • Hamiltons Tented Camp	9 581 ha	60	24 Bed Lodge at Doornplaat	Two 12-bed Satellite Camps at the Ngwenyeni Dam and near Doornplaat	66
Nwanetsi	<b>Singita Lebombo</b> • Lebombo Lodge • Sweni Lodge	14 926 ha	106	30-Bed Main Lodge and 12-Bed Lodge at the old Nwanetsi Rangers Site.	One 6-bed Fly Camp to be investigated.	158
Mutlumuvi	<b>Rhino Walking Safaris</b> • Rhino Post Safari Lodge • Plains Camp • Sleep outs	12 124 ha	30	24 Bed Lodge on the Mutlumuvi River	Two 8-bed Fly Camps	31



Figure 25: Examples of concession infrastructure at Imbali Safari Lodge and Jock Safari Lodge

In October 2001, in accordance with the commercialization Strategy, SANParks outsourced all Restaurant and Retail Facilities to Private Operators for a period of 9½ years ending 31 March 2010. Retail outlets in the KNP were outsourced to the Tiger’s Eye Group, which trades as “The Parks Shop” and a percentage of turnover goes to funding priority SANParks conservation issues. Retail outlets are in Skukuza, Lower Sabie, Pretoriuskop, Berg-en-Dal, Crocodile Bridge, Satara, Olifants, Letaba, Mopani and Orpen rest camps and Afsaal Picnic Site.

The food and beverage outlets (and two retail outlets at Shingwedzi and Punda Maria rest camps) were outsourced to Nature’s Group. Due to continuous inefficient service delivery, SANParks cancelled the operating agreement with the operator effective 31 January 2006. Following a transparent, solicited tender process, Compass Group was the successful bidder which enabled the transition with no disruption in service and no job losses. Two picnic sites, namely Nkuhlu and Tshokwane, were outsourced to Outpost Picnics. This is a BEE/SMME venture where 30% shares are owned by employees, and the starting date was 01 April 2008. Outpost will be operating these facilities for the remaining three years of the initial contract duration.

*2.2.1.5. Other Tourism Income - Open Safari Vehicles*

Additional tourism revenue is generated from the open safari vehicle programme. These are private operators that bring guests to the park on a daily basis. The concept of this operation started in 1995 with a few companies (operators) granted an opportunity to operate in the KNP. Today, this operation has grown to 47 private companies with 183 vehicles operating in the KNP. There is an existing Service Level Agreement (renewed annually) which regulates this operation. At the moment every vehicle pays a permit fee and if the operator is involved in community improvement processes or is BEE compliant, a 25% discount of this permit fee is granted to encourage the operator to continue with these initiatives. A certificate from an accountant is a pre-requisite to qualify for the discount. The total fee payable is R 5 000 per vehicle, unless they qualify for the discount as outlined above.

Table 17a. Details of objectives and initiatives to address the Sustainable Tourism Programme in KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To develop manage and enhance a range of sustainable tourism products in synergy with the KNP conservation ethic.	To maintain and enhance current tourism operations in the three regions of KNP	Ongoing implementation of tourism operations		R 99 871 000		R 534 592 000	x	x	x	x	x	H
	<b>KNP OSV-</b> To manage the OSV operations for the benefit of KNP as well as to support it's financial sustainability.	To transfer guiding skills and develop potential among communities for their future benefit	Encourage the emerging (HDI) entrepreneurs to take part in the OSV operations by conducting workshops etc.	R 0		R 313 000		x	x	x	x	High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To develop manage and enhance a range of sustainable tourism products in synergy with the KNP conservation ethic.	<b>KNP Accommodation-Service Delivery</b> To implement a service delivery program for tourism products manage and enhance these in a quality controlled manner	To provide a a continuum of products and services along the full chain of visitor access, travel, entry, accommodation and experiences( including interpretation, appreciation of wilderness and community linkages), supported by appropriate marketing	To market the KNP through , promotions, exhibitions, advertisements through written and audio media. Grow conferencing revenue	R 212 360		R 5 501 852	x	x	x	x	x	High
<b>Tourism (Activities)-</b> To develop, manage and enhance a range of sustainable tourism products in synergy with the KNP Conservation ethic.	<b>KNP Activities-</b> To support the financial sustainability of KNP to contribute substantially towards enhancing the overall guest experience and towards the development of an informed and supportive public constituency	To continuously improve the guided activities revenue	Training and retention of qualified guides			R 447 000		x	x	x	x	High
<b>Commercialization-</b> To generate revenue , minimise losses or saving on existing operations, optimal use of under – performing assets; job creation and poverty alleviation ; BBBEE; infrastructure upgrades; upgrade/development of	<b>KNP Concessions -</b> To create an ideal and sustainable trade environment for the concessionaires.	To maintain regular contact meetings with the concession at operational level	Refurbishment of new restaurant facilities and conferencing facilities which will contribute to both shops and restaurants			Covered by Tech Services initiatives	x	x	x	x	x	High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
historical and/or cultural sites; tourism promotion and further biodiversity protection and conservation												

Table 17b: Proposed overall budget summary to achieve various initiatives for the Sustainable Tourism Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total Programme costs</b>	R 100 083 360	R 114 203 000	R 126 489 600	R 141 613 290	R 158 547 962
<b>Total secured budget</b>	R 100 083 360				
<b>Total unsecured budget</b>		R 114 203 000	R 126 489 600	R 141 613 290	R 158 547 962

### 2.3. Constituency Building

Co-operative, collaborative and mutually beneficial relationships with the broader park community are essential to the sustainability of KNP. The KNP must thus maintain existing and identify and implement new opportunities for sustaining relationships between itself and the surrounding communities and broader park users. Co-operative relationships need to be established and nurtured with all spheres of government and other stakeholders to ensure that regional initiatives and developments contribute to, not compromise, the attainment of the overall desired state and objectives for the KNP. A number of key constituency building and stakeholder relationship programmes will continue running from the KNP during the next five year period, and are detailed below.

#### 2.3.1. Environmental Education and Interpretation Programme

This programme contributes towards building constituencies at all levels in South Africa and abroad in order to foster sustainable public support for KNP's people-centred conservation and tourism mandate. The park provides a host of different educational and awareness-building opportunities. This is done to enhance understanding and awareness of environmental issues through participatory learning in line with all current guiding policies. The park has a well defined guideline that gives all school-going children of South Africa and SADC countries free access to the KNP for the purpose of environmental education, and thus also enhancing the conservation cause in South African society as a whole.

While the environmental education programme focuses on school groups, youth groups, teacher-training groups, local community groupings, special interest groups and the KNP's staff, the conservation interpretation programme focuses on the general public visiting the KNP (primarily

reached through conservation interpretation centres and film shows) as well as visitors taking part in the guided activities offered by the KNP (wilderness trails, day walks, morning walks, mountain bike trails, star gazing, Lebombo Ecotrail, Olifants Back Pack Trail and bush braais). The relatively dilapidated nature of many of the interpretation centres will require an injection of funds to upgrade these. The popularity of the wilderness related activities and the fact that income is generated with very little impact on the environment, has emphasized the importance to zone land for this purpose and to develop further activities in this regard.

*Day Programmes* - Day programmes are the most popular amongst visiting schools. The programme affords schools the opportunity to experience the KNP for a day and to enjoy one of the carefully planned environmental education programmes. These programmes are run by qualified education and interpretative staff. One of these day programmes is the “Kids in Kruger” project, sponsored by My Acre of Africa. This programme targets roughly 6 000 kids per annum from the local impoverished schools. Children are ferried into the park, provided with a learning opportunity, supplied with learning resources, meals and a T-shirt. The programme is very successful and the KNP intends to continue the programme together with My Acre of Africa (Figure 26).



Figure 26: Learners engaging with interpretive staff on the “Kids in Kruger” Programme, sponsored by My Acre of Africa.

*Bush Camps* - Bush camps are currently offered from Skukuza Rest Camp. Bush camps offer a unique opportunity for learners to experience their natural environment in the rustic comfort of a secluded campsite. Learners enjoy the KNP on foot or by open vehicle under the guidance of a qualified officer who gives insights into all aspects of the environment. KNP plans a further three of these rustic camps as the current site is overloaded.

*Teacher development* - The KNP continues to contribute to Outcomes Based Education enhancement programme, linking curriculum with environmental conservation and resources are developed in the process. This will continue with current stakeholders who assist in the facilitation of the programme, namely SHARENET, WESSA and the education departments of Limpopo and Mpumalanga provinces.

*Imbewu* - The Imbewu concept is based on rediscovering and using traditional knowledge and methodologies of learning used in the past to relate to their environment. Experiential learning through inter-generational communication is the key to this project. In their home language, “wise men” and women facilitate the interaction of small groups of young people with nature through interpretive trails and cultural activities in the camp. The KNP intends to continue with this programme for the next five

years and, in the process, one Imbewu camp should be developed. The previous one was washed away by the 2000 floods.

*Outreach programmes* - KNP will also expand the scope of its outreach programmes such as the “Kruger to ‘Kasie” programme for the local communities who reside outside the immediate 20 km radius of KNP as part of ongoing constituency building.

Over the next five years, steps will be taken to develop tangible outputs from these relationships through promoting the use of KNP as an ‘outdoor laboratory’ and centre for social science research and projects through the development of specialized educational programmes aimed at tertiary institutions and researchers at the local and national levels, and active participation in the bioregional plan for KNP. Another important component of environmental education, which has been somewhat overlooked in the past, is the use of interpretive materials such as information boards, signs and plaques pertaining to special features of KNP. Much of this information needs to be sourced from existing project/research reports and archives – a process which will be championed by People and Conservation Division over the next five years. It is foreseen that all these thrusts must be continued over the next five year period, and that effective monitoring should be developed around key aspects. Reliance on donor funding is seen as an important risk.

Table 18a: Objectives and initiatives for addressing Environmental Education and Interpretive Programmes in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<b>People Objectives</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the Kruger National Park	<b>Constituency Building Objective</b> To build an effective constituency at all levels in SA and abroad, which fosters and enhances sustainable public support for SANParks’ objectives and actions, and for the conservation cause in general.	Development of Environmental Education and Interpretation strategy	Ongoing training of guides			R 2 000 000		x	x	x	x	High
			Develop and maintain environmental interpretation facilities and centres			R 10 000 000		x	x	x	x	High
			Develop and implement diversified EE programmes according to target groups	R 50 000	R 1 759 860	R 380 000	x	x	x	x	x	Medium
			Develop EE facilities in the park.-1bush camp and 1 Imbewu camp			R 1 500 000		x	x	x	x	High
	Celebrate Environmental Calendar days		R 20 000		R 420 000	x	x	x	x	x	Medium	
	Promote awareness, understanding interest,											

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	(H/M/L)
	appreciation and action through environmental education process, both at the community level and through park-based programmes		Develop signage and interpretative sites, Five per year and other resources	R 30 000		R 560 000	x	x	x	x	x	Medium
			Out-reach programmes that emphasises the importance of biodiversity and heritage. At least 50 campaigns per year.	R 60 000		R 700 000	x	x	x	x	x	High

Table 18b: Proposed overall budget summary to achieve various initiatives for the Environmental Education and Interpretive Programmes in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 2 099 860	R 3 525 000	R 3 950 000	R 4 065 000	R 3 840 000
<b>Total secured budget</b>	R 160 000				
<b>Secured other funding</b>	R 1 759 860				
<b>Total unsecured budget</b>	R 180 000	R 3 525 000	R 3 950 000	R 4 065 000	R 3 840 000

### 2.3.2. Stakeholder Relationship Management Programme

This programme (Lower Level Plan 10) strives to establish and maintain meaningful and beneficial relationships with a wide range of stakeholders, in a way as beneficial as possible to core KNP values and aims. The programme further contributes towards strengthening stakeholder-KNP relations by empowering stakeholders and local communities to participate in decision-making processes related to management and development issues in KNP. Thus, as the KNP aims to redefine its role within the broader landscape mosaic with the drafting of a bioregional plan over the next five years, the stakeholder participation process will be critical to ensure that the KNP's management and development decisions are sensitive to local contexts. Hence, key stakeholder relations will have to be fostered.

Although it has grown organically in response to various needs, the co-operative governance thrust in the South African constitution is leading to its intensification. The overall stakeholder list of those involved is obviously very wide, and includes appropriate departments from all three levels of government; international and national agencies (especially conservation NGOs and research

institutions); business partners of many kinds, local communities, employees, customers and the media. It also includes composite and bridging structures such as community forums community property associations, water user associations, and joint management boards of parks, including the GLTP. Planning structures such as integrated development plans and strategic development frameworks provide a link with which the KNP needs more regular and deeper involvement. It is planned to build further co-operative institutional capacity with these, and to ensure the establishment of viable fora, and regular positive interaction over the next five years. Improved ways need to be developed to make explicit and prioritise aims, and monitor the progress of this important supportive programme which underlies almost all SANParks does.

The National Environmental Management: Protected Areas Act, 2003 endorses the installation of mechanisms to engage local communities in and adjacent to protected areas. Section 39 (3) states that Park Management Plans must be compiled in consultation with a wide range of interested and affected parties while Section 41 (2) calls for Park Management Plans to put procedures in place for public participation.

This has been achieved through the establishment of Park Forums supported by the Guiding Principles for SANParks Stakeholder Participation. Park Forums are established to encourage the building of partnerships in support of natural and cultural heritage conservation goals of SANParks. They are a means of providing a legitimate platform for communicating issues of importance to both parties, to ensure participation of stakeholders on matters of mutual relevance and to facilitate constructive interaction between the KNP and surrounding communities.

The Terms of Reference for the Establishment and Operation of the KNP Park Forums have been structured to provide clear guidelines while remaining sufficiently flexible to allow for the development of a founding document or Park Forum Charter, which in the case of KNP, is in the process of being completed. The management structure of the Park Forum comprises the following: chairperson, vice chairperson, secretary, secretariat (SANParks official) and park forum members. A Park Forum member will serve on the Park Forum for two years from the date on which the revised Terms of Reference for the Establishment and Operation of Park Forums, the Founding Document/ Park Forum Charter is adopted. After this, membership needs to be reconfirmed by their constituencies every two years. The Park Forum meets quarterly with at least one broader stakeholder meeting taking place per annum. Working groups, if established, meet on an *ad hoc* basis as and when the task at hand demands.

At the broader level, the KNP has established working relationships with district municipalities in both Mpumalanga (Ehlanzeni District Municipality) and Limpopo (Mopani District Municipality) Provinces (see also section 2.1.3). These structures meet on a regular basis for the purpose of integrated development planning purposes. The municipalities have allocated resources in some of the services such as development and upgrading of roads leading to the KNP, health facilities and adult education programmes.

Table 19a: Details of objectives and initiatives to address the Stakeholder Relationship Management Programme of the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<b>People Objectives</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the Kruger National Park.	<b>Constituency Building Objective</b> To build an effective constituency at all levels in SA and abroad, which fosters and enhances sustainable public support for SANParks' objectives and actions, and for the conservation cause in general.	To establish and maintain good and functional relationship with all relevant stakeholders	Engage other government departments in matters of collaboration	R 10 000		R 150 000	x	x	x	x	x	Medium
			Maintain a park forum that is functional	R 15 000		R 650 000		x	x	x	x	High
		To develop and maintain park – government departments and entities relations	To engage meaningfully with all the seven local Municipalities and two district municipalities in the IDP and other government initiatives			R 50 000	x	x	x	x	x	Medium
			Promote establishment of institutional framework for development of buffer areas which enhance sustainable utilization by communities- [interlink with TFCA]			R 280 000						
			Facilitate the functional participation and meaningful contribution of stakeholders in park related programmes in lieu of promoting conservation ethics, e.g. post settlement programmes, CBNRM	R 50 000		R 280 000						

Table 19b: Proposed overall budget summary to achieve various initiatives for the Stakeholder Relationship Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 115 000	R 210 000	R 282 000	R 393 000	R 485 000
<b>Total secured budget</b>	R 25 000				
<b>Total unsecured budget</b>	R 90 000	R 210 000	R 282 000	R 393 000	R 485 000

### 2.3.3. Local Socio-Economic Development Programme

This programme aims to contribute effectively to local economic development, economic empowerment and social development in communities and neighbouring areas adjacent to the KNP (Lower Level Plan 11) with an emphasis on redressing past imbalances. To do this, KNP must participate more effectively in municipal integrated development plans (IDP's) and continue participating in appropriate government programmes (especially *Working for Water*, Expanded Public Works Programmes etc) in a way which not only produces short-term job opportunities but also contributes to local skills development through supporting learnerships, implementing needs-related training programmes, and creating useful exit strategies (after short-term employment) and business opportunities for participants. KNP must keep up and expand its reputation as a reliable and meaningful vehicle for such government expenditure – major opportunities presenting themselves in the next five years being related to ecological rehabilitation (e.g. alien clearing), infrastructure development (development and repair of tourist facilities, roads etc), the concession programme and retail operations.

By partnering with neighbouring district municipalities, various external donors and neighbouring local communities, KNP has made good strides towards enabling previously disadvantaged individuals and small micro-medium enterprises (SMMEs) better access to KNP-related opportunities ranging from biodiversity conservation, alien eradication (e.g. Working for Water), and arts and crafts to the concessions programme (outsourcing catering and transport services to neighbouring communities of KNP). Over the next five years, KNP will continue to support livelihood-based programmes, as well as co-operate with other livelihood-based initiatives such as the north-eastern escarpment bioregional plan (RESTORE programme), and those initiated by agencies such as Wits Rural Facility and NGOs (such as CESVI in the Giyani region). Ongoing research by social science programmes such as the Transboundary Protected Areas Research Initiative (TPARI), TreeHouse, and others will also be promoted in the next five year period, as evidenced by the recent creation of a post in KNP to facilitate social and economic research.

Current projects, some of which now also include monitoring aspects, need ongoing care and expansion, and need to be expressed via recognised criteria and indicators. Important risks to this programme relate to product quality and to uncertainty around donor funding.

Table 20a: Objectives and initiatives to address Local Socio-Economic Development Programmes in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<b>People Objectives</b> To provide human benefits and build a strong constituency, preserving as far as possible the wilderness qualities and cultural resources associated with the Kruger National Park	<b>Direct Human Benefits Objective</b> To provide benefits, particularly in the sense of 'benefits beyond boundaries', to meet or exceed reasonable expectations and foster partnerships, in a spirit of equity redress.	Promote access to benefits from the national park systems	Grass – cutting programme	R 20 000		R500 000	x	x	x	x	x	Medium
		Allow rational resource usage to meet current needs of the people	The use of plant and animal product to develop art and craft			R 700 000		x	x	x	x	Medium
			Promote research which helps balance resources use with demands and opportunities			R2 000 000		x	x	x	x	High
		Contribute to local economic empowerment	Promote the establishment of community – based conservation initiatives to sustain human livelihoods [medicinal nurseries and woodlots projects]	R 40 000		R 380 000	x	x	x	x	x	Medium
			Support training initiative which develop the capacity for the park-based opportunities	R 80 000	R 224 000	R 250 000	x	x	x	x	x	High
			Effectively establish park based economic empowerment projects with and for communities	R 30 000		R 300 000	x	x	x	x	x	High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
			To ensure greater access by local SMMEs to procurement tendering process in the KNP	R 20 000		R 150 000	x	x	x	x	x	High

Table 20b: Proposed overall budget summary to achieve various initiatives for the Local Socio-Economic Development Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 454 000	R 942 500	R 1 042 500	R 1 062 500	R 1 192 500
<b>Total secured budget</b>	R 190 000				
<b>Other secured budgets</b>	R 224 000				
<b>Total unsecured budget</b>	R 40 000	R 942 500	R 1 042 500	R 1 062 500	R 1 192 500

### 2.3.4. Communications Strategy

This strategy aims to craft the means by which the communications component of relationships can be built, maintained and constantly improved, between KNP and all relevant stakeholders. The programme aims to create an environment that facilitates targeted communication to ensure shared understanding to serve achievement of the overall desired state of the KNP. It outlines target audiences (15 groups in all) and develops appropriate themes and messages for each. It develops a tool-specific programme of actions and plans, over the next five years, to implement this with clear milestones and budgets. It also outlines ongoing media screening collections and evaluations and can be seen in full in Lower Level Plan 12.

Table 21a: Objectives and initiatives to address the Communication Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	5 Years					Priority
							1	2	3	4	5	
To build, maintain and constantly improve relations between the KNP and all its relevant stakeholders in line with its approved	To achieve no less than 50% support for the KNP Management Plan from all relevant stakeholders.  To create a situation	To create and manage a two-way communication between the KNP on the one hand and all its stakeholders on the other with the view	Engage the mass media both electronic and print	R 100 000		R 1 825 704	x	x	x	x	x	High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	5 Years					Priority
							1	2	3	4	5	
Management Plan.	which is conducive for consultation as and when the Management Plan is revised in the next five years.	to improving the image and reputation.	Make use of internal communication tools and Intranet.	R 60 000		R 337 440	x	x	x	x	x	High
	To arrange a series of workshops wherein stakeholders shall be informed of the new Management Plan.  To inform at least 50% of the local media about the new KNP Management Plan by October 2012.		Use the website and stakeholder engagement programmes	R 1 300 000		R 14 173 576	x	x	x	x	x	High

Table 21b: Proposed overall budget summary to achieve various initiatives for the Communication Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 1 460 000	R 3 447 600	R 3 861 312	R 4 324 670	R 4 786 129
<b>Total secured budget</b>	R 1 460 000				
<b>Total other funding</b>					
<b>Total unsecured budget</b>		R 3 447 600	R 3 861 312	R 4 324 670	R 4 786 129

### 2.3.5. Other Programmes under Constituency *Building*

Through the forum relating to the strategic planning of parks, established in 2003, a positive relationship exists between government agencies, particularly the relevant divisions of DEAT. SANParks has been intimately involved in the drafting and implementation of legislation, norms and standards as a result of this participatory governance approach. As KNP is a national asset, planning, management and development within KNP is overseen by DEAT. Several co-operative governance

agreements are in the final stages of development that focus on aligning legislation and ensuring co-operative governance is given effect between DEAT and SANParks.

## **2.4. Effective Park Management**

Effective park management is essentially a means to an end, namely the enablement of the KNP's objectives to achieve the desired state in the three core areas above. KNP's Technical Support Service bases its operation on principles of sustainable planning and design (including "touch the Earth lightly", green building, sustainability and natural and cultural resource optimization principles), maintenance and rehabilitation, and environmental management. Safety and Security issues are a further key programme enabling effective park management, and this function is spread primarily over three departments within KNP.

### **2.4.1. Integrated Environmental Management Programme**

Environmental management refers to the management of human induced impacts in and around the KNP through the process of integrated environmental management. Environmental management concerns can be divided in two categories, namely those caused within the KNP by its tourism development and other operations and management initiatives, and those caused by developments infringing from outside the KNP.

Environmental management within KNP is guided by corporate environmental principles and the KNP's environmental objectives. These objectives are integrated across all divisions and all aspects of the business functions. The overarching environmental programme must enable responsible tourism, ensure environmental best practice, legal compliance and due diligence, while environmental ethics are incorporated and practiced in all endeavours. The environmental focus is on legal compliance and due diligence, integrating environmental ethics and principles into planning, environmental due diligence in operations, responsible tourism, monitoring and auditing. Within the next five years, it is intended to take integrated environmental practice further. Key sub-programmes in KNP deal with solid waste and effluent management as well as water use management (see details below)

#### *2.4.1.1. Solid Waste and Effluent Management Programmes*

The solid waste (Lower Level Plan 13) and effluent (Lower Level Plan 14) management programmes strive to ensure the effective management of such waste through compliance with relevant legislation. The solid waste management programme is founded on the basis that, where feasible, the effect of solid waste on the ecosystem and visitor experiences should be minimised. Thus, waste production at all sources should be minimised, recycling should be maximised and removal of all waste from KNP should be the primary goal where feasible. Efficient management of solid waste is promoted through active intervention and appropriate monitoring, including all components of the waste source stream and disposal. Planning is informed through continuous assessment and interpretation of trends in future needs. Procedures for effective solid waste management strive to minimise pollution (air, soil, water, noise) and all waste sites have the necessary DWAF permits and compliance inspections. Five year strategic objectives include reduction of the waste stream by 70%, recycling of all plastics and removal of incineration where feasible.

Table 22a. Details of objectives and initiatives to address the Solid Waste Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
To manage and reduce the solid waste stream in the KNP in accordance with the legal framework through an approach integrating the different scales and types of objectives.	<b>Solid waste stream reduction and recycling</b> To investigate the reduction of the solid waste stream and to increase the recycling operations	<b>Solid waste stream reduction</b>	Research to determine the potential for solid waste stream reduction with 70%			R 800 000		x	x	x	x	High
		<b>Maximization of recycling operations</b>	Upgrading and mechanization of recycling operations			R 1 600 000		x	x			High

Table 22b: Proposed overall budget summary to achieve various initiatives for the Solid Waste Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 1 000 000	R 1 000 000	R 200 000	R 200 000
<b>Total secured budget</b>					
<b>Total unsecured budget</b>		R 1 000 000	R 1 000 000	R 200 000	R 200 000

Current liquid waste infrastructure consists of septic tanks with French drain systems or reed beds, oxidation ponds with reed beds, septic tanks with oxidation ponds with reed beds and “enviro”-loos and all are permitted by DWAF in terms of the Water Act section 21 (4), with concomitant monitoring and sampling. Research is however needed to determine the efficiency of KNP’s sewerage works. Standard pollution prevention procedures apply to limit or minimise air, ground, water and toxic waste pollution. Five year strategic objectives include improvement of the effluent quality (through installation of septic tanks before oxidation ponds at a number of large rest camps), and introduction of grey water systems for irrigation and ablution facilities.

Table 23a: Details of objectives and initiatives to address the Effluent Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To manage the effluent quality of the sewerage purification plants systems in the KNP in accordance with the legal framework through an approach integrating the different scales and types of objectives.	<b>Effluent quality</b> To understand the performance of the different purification plants systems including when and how to take management decisions (including the no-action decision) with this clearer context	<b>Plant performance</b>  Research to establish the efficiency of the different sewerage plant systems.	Effluent quality monitoring to determine the performance of purification plant systems			R 400 000		x	x	x	x	High
			Upgrading of the purification plant systems			R 1 600 000		x	x	x	x	High

Table 23b: Proposed overall budget summary to achieve various initiatives for the Effluent Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 500 000	R 500 000	R 500 000	R 500 000
<b>Total secured budget</b>					
<b>Total unsecured budget</b>		R 500 000	R 500 000	R 500 000	R 500 000

#### 2.4.1.2 Potable Water Use Management Programme

Potable water is primarily provided from surface water (rivers) and ground water (boreholes) and this programme (Lower Level Plan 15) strives to ensure the effective management of potable water use through compliance with relevant legislation taking into account the amount of available water, ecological reserves, water demand, use and quality, environmental and social issues for efficient use. Potable water is managed and monitored by sampling, analysis and monthly inspections of infrastructure, ensuring that the water quality complies with requirements for human consumption. Irrigation of gardens in KNP is considered a privilege, not a right. Five year objectives include installation and replacement of water meters to develop a water balance, water audits, and the appointment of KNP by DWAF as a Water Service Provider and reduction of water consumption by five per cent per annum through water-saving device programmes.

Table 24a: Details of objectives and initiatives to address the Potable Water Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To manage the supply of safe potable water to all end users in the KNP in accordance with the legal framework through an approach integrating the different scales and types of objectives.	<b>Potable water quality</b> To understand the performance of the different purification plants systems including when and how to take management decisions (including the no-action decision) with this clearer context.	<b>Plant performance</b> Monitoring the supply and water quality to ensure legal compliance as well as the prioritization and implementation of the upgrading of the different purification plants.	Potable water supply and quality monitoring to determine the performance of purification plants			1 600 000		x	x	x	x	(H/M/L) High
			Water balancing programme (installation of bulk water meters and monitoring programme)			400 000		x	x	x	x	High
			Recycling of grey water systems to supplement irrigation systems	R 50 000		2 800 000	X	x	x	x	x	Medium
			Upgrading of the purification plant (sand filters and recycling water storage)			4 000 000		x	x	x	x	High

Table 24b: Proposed overall budget summary to achieve various initiatives for the Potable Water Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 50 000	R 2 200 000	R 2 200 000	R 2 200 000	R 2 200 000
<b>Total secured budget</b>					
<b>Total secured other funding (IDP)</b>	R 50 000				
<b>Total unsecured budget</b>		R 2 200 000			

#### **2.4.2. Civil and Building Management Programme**

KNP's infrastructure development programme (Lower Level Plan 16) outlines existing infrastructure (detailing both income-generating and support infrastructure and facilities), management policies and procedures, challenges and five year strategic objectives. Management policies and procedures ensure that KNP's infrastructure is maintained, renovated, upgraded and replaced at the required intervals and specifies design norms and standards, including national construction regulations, "green building" and "touch the earth lightly" principles, water saving measures and zero waste principles. Challenges, additional demand and upgrading and renovation requirements have also been identified for the period 2008 – 2013 for new income generating infrastructure, upgrading existing income generating infrastructure, upgrading and new support infrastructure. The five year strategic objectives include those related to securing funding for upgrading, renovation and replacement programmes, introducing water-saving devices to five per cent of all facilities per annum, targets to upgrade tourism facilities to achieve grading standards, upgrade of all staff dormitories to single units, improvement of the skills level of infrastructure management staff and removal and demolition of all redundant structures and services as indicated by the tourism, wilderness, rehabilitation and zoning programmes. Due to their substantive nature, specific electro-mechanical and roads management requirements are detailed in the sub-programmes outlined further below.

##### *Re-opening Skukuza Airport to scheduled commercial flights*

Plans are underway to re-open Skukuza Airport which has been closed to scheduled commercial air traffic for a number of years. This is in line with a strategic decision to establish KNP not only as a self-drive destination, but also as a fly-in ecotourism destination. A number of processes have been ongoing in the past 18 months to realise this and enable planned re-opening by April 2009.

*Legal requirements (agreement between KMIA and SANParks)* - A legal review to determine contractual obligations by SANParks towards the agreement with Kruger Mpumalanga International Airport (KMIA) was completed in November 2007 by external senior legal council. The legal review indicated that SANParks had no contractual obligation to KMIA not to re-open the Skukuza Airport for scheduled air traffic. KMIA was subsequently notified of SANParks' intention to re-open the Skukuza Airport to scheduled commercial traffic. A response from KMIA was noted and SANParks' intention to re-open the airport to scheduled flights was reconfirmed. KMIA submitted a third letter on 5 November 2008 requesting SANParks to honour the contractual obligations and not to continue with the re-opening of the airport to scheduled commercial flights. SANParks' legal council confirmed the previous legal review and is preparing an appropriate response.

*EIA requirements* - Consultants conducted a legal review of all the statutory requirements that might be triggered when the Skukuza Airport is re-opened to scheduled commercial flights. The review indicated that no formal authorization from DEAT was required. The review was submitted to DEAT who confirmed that no formal EIA process and authorization was required. In terms of due diligence, SANParks (a) will submit Environmental Management Plans for any construction or renovation works required and (b) has conducted a specialist study to evaluate the noise and visual impacts as well as the compiling of auditing and monitoring programmes to inform flight operations. The specialist study also included a local stakeholder participation process. Output from the specialist study will feed into the airport's operating manual and flight operating specifications.

*Civil Aviation requirements* - A positive meeting with Civil Aviation was held during November 2007. All the different department heads (Airports licensing, Inspectors, Safety and Security, Infrastructure, and Fire-fighting) attended and each department outlined the latest legal requirements that SANParks would have to comply with, before an application could be considered and approved for the airport to be reclassified as a Category 5 airport. A delegation from Civil Aviation visited Skukuza Airport during February 2008 to do a preliminary investigation to identify all shortcomings on the infrastructure, safety equipment and procedures. The delegation also assisted with advice to

enable SANParks to complete the required airports' operating manual to be submitted as part of the re-classification application. It is envisaged that it should not take longer than six months for the Skukuza Airport to be re-classified as a Category 5 airport and a license to be issued to SANParks as the Airport Operating Authority.

*Procurement of Flight Operator and Airport Management Company* - It is proposed that the operation and management of the airport building as well as supply and management of the fire-fighting equipment and staff be combined with the flight operating responsibilities and that a single operator be procured to provide all three main functions. Output from the specialist study will inform the flight operating specifications and airports' operating manual. It is intended to complete the procurement process and have the first scheduled commercial flights operational not later than 1 April 2009. Income from the operator will be based on a similar model to that of the concessionaires where a basic rental of R50 000 per month as well as a percentage of turn-over will be paid to SANParks.

Table 25a: Details of objectives and initiatives to address the Civil and Building Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority	
							1	2	3	4	5		(H/M/L)
<b>To re-establish Kruger as a fly-in destination</b>	To re-open the Skukuza airport to scheduled commercial flights	To procure an airports managing company and flight operator	Local stakeholder engagement workshops to establish the best flight paths and procurement of airport flight service partner	R 1 550 000			x						High
<b>To manage the civil and building infrastructure in the KNP in accordance with best practice through an approach integrating the different scales and types of objectives.</b>	Effective civil and building renovations programmes To determine and programme the civil and building renovation requirements	Civil and building renovations programme	Corporate civil and building maintenance programmes										High
			Management of the civil and building infrastructure including a bi-annual state of the parks infrastructure report		240 000			x		x		High	
		Corporate civil and building renovations programmes		14 400 000		x	x	x	x		High		
	<b>Infrastructure Upgrading programme</b>	Upgrading of staff accommodation	New staff accommodation and upgrading of existing units		R40 000 000	160 000 000	x	x	x	x	x		High
	Upgrading of tourism infrastructure			R100 000 000	150 000 000	x	x	x	x	x		High	

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
		Upgrading of support services			25 000 000	100 000 000	x	x	x	x	x	High

Table 25b: Proposed overall budget summary to achieve various initiatives for the Civil and Building Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 116 550 000	R 118 600 000	R 118 660 000	R 118 600 000	R 118 660 000
<b>Total secured budget</b>	R 1 550 000				
<b>Total secured other funds (IDP)</b>	R 115 000 000	R 100 000 000			
<b>Total unsecured budget</b>		R18 660 000	R 118 660 000	R 118 600 000	R 118 660 000

### 2.4.3. Electro-mechanical Programme

This programme (Lower Level Plan 17) highlights existing electro-mechanical infrastructure, particularly in terms of Eskom electricity supply points and general power requirements, recognising that certain areas of KNP function from power generators or solar batteries while others do not have electricity. Key challenges include replacement of redundant electrical equipment, replacement and/or refurbishment of old electrical equipment, including emergency power generators (primarily due to demand increase), investigation into alternative energy sources, investigating new energy-saving technology and equipment and limiting wildlife deaths through contact with power lines.

Important five year strategic objectives focus on replacement or upgrading of redundant/old electrical equipment and emergency power generators, including the reduction of noise pollution, reducing electrical power consumption per capita by 10% in the next five years through installation of energy saving equipment and implementation of sustainable energy options wherever feasible (e.g. through energy effective light fittings and globes, solar panels, water heaters as an alternative to geysers, time-switches), possible purchasing of “green power” pending the outcome of an audit, and implementing effective measures to prevent damage to animals.

Table 26a: Details of objectives and initiatives to address the Electro-mechanical Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To manage the electro mechanical services in the KNP in accordance with best practice through an approach integrating the different scales and types of objectives.	<b>Effective electrical supply network</b> To manage and upgrade the electrical bulk supply and reticulation systems to ensure energy efficiencies and to support renewable energy sources.	<b>Energy efficiency programme</b> Replacement and upgrading of electrical bulk supply and reticulation components to ensure energy efficient electrical systems to reduce the electrical consumption with 10 %	Installation of solar water geysers and lights.			48 000 000		x	x	x	x	(H/M/L) High
			Upgrading of electrical hybrid systems. (Solar / diesel and Eskom hybrids)		R 300 000	12 000 000		x	x	x	x	High
		<b>Green power</b> Buying of green power	Buying of green power through the national grid			2 000 000		x	x	x	x	Medium
	<b>Emergency electrical power management</b>	<b>Replacement and upgrading of diesel and solar emergency supply systems</b>	Diesel generator and solar system upgrading and replacement programme	R 2 000 000	R 10 800 000	60 000 000	x	x	x	x	x	High

Table 26b: Proposed overall budget summary to achieve various initiatives for the Electro-mechanical Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 13 100 000	R 30 500 000			
<b>Total secured budget</b>	R 2 000 000				
<b>Total secured other funding (IDP)</b>	R 11 100 000				
<b>Total unsecured budget</b>		R 30 500 000			

## 2.4.4. Roads, Fence and Dam Management Programme

The roads management programme (Lower Level Plan 18) provides the basis for the development and maintenance of an effective and environmentally sound road network, meeting the needs of all users in the KNP. Transportation is a critical issue in KNP and the surrounding region, affecting quality of life, tourism experience and the environment. Aging roads and bridges, tight budgets, changing activities and increasing traffic require focus on the delivery of appropriate, cost-effective road facilities and services. Transportation management objectives focus on issues of access, recreation, park management requirements, management and protection of basic resources such as soils (including gravel and sand), water, wildlife and vegetation as the road system affects these resources and their enjoyment by the public, and signage (promoting accessibility, user friendliness and sense of place). KNP has a road classification standard, specifying road categories and standards to provide different levels of service and enjoyment.

Key objectives for the next five years include the implementation of a roads' traffic modelling system, linking vehicle commuters and traffic models to entrance gate numbers and bed-occupancy and assisting with improved route alignment and roads design to support tourism objectives and environmental best practice. In addition, reduction of gravel loss and maintenance costs and rehabilitation of all closed gravel pits will receive attention. Further, the need has been identified for a comprehensive assessment based on tourism and environmental drivers to evaluate the degree of positive or negative impacts the road network, and individual roads, have on tourists, vegetation, water, wildlife and heritage. The study should help establish TPCs to bound risks and ensure negative impacts are maintained within acceptable parameters.

Additional focus is on the boundary fences of KNP, specifically with respect to legislative requirements to control the potential spread of notifiable diseases such as foot and mouth disease. Dam maintenance issues focus on dam safety requirements as well as maintenance of these impoundments. This need is increasingly highlighted through the occasionally toxic algal blooms experienced in these dams once they reach a certain age.

Table 27a: Details of objectives and initiatives to address the Roads, Fence and Dam Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To manage the road network and boundary fencing in the KNP in accordance with best practice through an approach integrating the different scales and types of objectives.	<b>Effective road network</b> To determine and understand the traffic patterns in relation to the capacity of the road network to take management decisions (including the no-action decision) with this clearer context.	<b>Roads modelling system</b> Traffic counting and traffic modelling the road network to optimize and prioritize access control and road links.	Traffic modelling system		R 180 000	1 400 000	x	x	x	x	x	(H/M/L) High
			Revisiting of entrance gate quotas			240 000		x	x	x	x	High
		<b>Roads network management system</b> Pavement management system to maintain	Implementation of strategy to reduce gravel loss		12 000 000	48 000 000	x	x	x	x	x	High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	(H/M/L)
		the roads, signage and gravel pits.	Resealing programme									High
			Gravel pit rehabilitation programme	R 1 000 000	R 100 000	8 000 000	x	x	x	x	x	Medium
			Bridge and traffic signs management system			700 000	x	x	x			Medium
	<b>Boundary fence management</b>	<b>Upgrading of foot and mouth disease fence</b>	F&MD Fence replacement programme			60 000 000	x	x	x	x	x	High
	<b>Dam management programmes</b>	<b>Dam safety inspection programme and dam maintenance programmes</b>	Dam safety inspections			180 000		x		x	x	High
			Dam maintenance programme			350 000					x	High

Table 27b: Proposed overall budget summary to achieve various initiatives for the Roads, Fence and Dam Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 13 280 000	R 29 410 000	R 29 820 000	R 29 760 000	R 29 820 000
<b>Total secured budget</b>	R1 000 000				
<b>Total secured other funds (IDP)</b>	R 12 280 000				
<b>Total unsecured budget</b>		R 29 410 000	R 29 820 000	R 29 760 000	R 29 820 000

#### 2.4.5. Safety and Security Programme

The KNP straddles two provinces and shares international boundaries with Mozambique and Zimbabwe, receiving more than a million visitors per annum. This poses a number of serious and significant safety and security threats and risks which need to be addressed and managed. A major strategic intent of the safety and security programme (Lower Level Plan 19) ensures effective visitor and staff safety measures and ensures that tourist perceptions are managed in order to protect the brand and reputation of SANParks and the SA tourism industry at large. Security also refers to resource protection and area integrity management to ensure the desired ecological and security status of the KNP. Directly related to this, the plan aims to secure the SANParks tourism income stream from KNP as well as securing the KNP's wider economic role in the regional and national tourism economy. Most potential threats are linked to illegal activities in and around the park, including illegal entry and trespassing, theft and armed robberies, illegal resource use and poaching. Daily KNP activities, implemented by the KNP Ranger Services, KNP Protection Services and the corporate Environmental Crime Investigation (ECI) department to mitigate many of these illegal activities form an important and integral part of this plan and specific initiatives are costed in the

tables below. Nevertheless, issues around visitor and staff safety and security, environmental crime, cash in storage and transit, access control and infrastructure (including document) security still pose many challenges.

A comprehensive analysis of the actual and perceived threats to the environment, visitors, staff and infrastructure security has been conducted. This, together with available intelligence, identifies certain activities, areas and individuals as being at risk of criminal attacks and other dangers. Dangers are prioritised in terms of real threat to individual visitors and staff, as well as threat to the SANParks brand. Support provided by the specialized support departments and the roll out of the Environmental Management Inspector programme will assist with implementation of enforcement and compliance in terms of environmental legislation while the State of Area Integrity Management (SoAIM) assessed per ranger section, highlights progress in terms of the Safety and Security Plan roll out and areas requiring additional attention. The safety and security strategy and operational plan will be continuously developed and updated from monitoring and evaluation feedback. Indicators are not yet adequately developed but would include measures such as numbers of violent and non-violent attacks per year, incident records, and tourism perception indicators such as positive and negative media measures.

Table 28a: Details of objectives and initiatives to achieve various security initiatives of the KNP ranger corps, Protection Services and Environmental Crime Investigation department to address components of the Safety and Security Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
To enhance safety and security law and enforcement measures to achieve the Legal and Statutory Objectives of KNP	To conduct resource protection and area integrity management to ensure the desired ecological and security status of the KNP	To carry out ranger-related functions, duties and initiatives to ensure protection of area integrity of the KNP (*this constitutes approximately half of the ranger's function and thus overall operating budgets – the rest falls under the biodiversity management programme)		R 23 000 000	Contributions received through donations of equipment from Honorary rangers in support of this function.	X-reference: unsecured budget for rangers anti-poaching needs under biodiversity management programme	x	x	x	x	x	High
To provide specialized investigations & monitoring support service to the KNP in order to enhance safety and security and enforcement measures to achieve the Legal and Statutory Objective	Provide an effective crime investigations service to KNP	Investigation of environmental crime related incidents	Investigation of environmental crime related incidents	R 1 698 963		R 9 094 298 R 276 466 Capex	x	x	x	x	x	High
	Provide an effective crime intelligence management service to KNP	Environmental Crime Intelligence management	Collection, storage and dissemination of environmental crime intelligence	R 714 972		R 3 827 134 R 276 466 Capex	x	x	x	x	x	High
		Crime incident management and database system	Development and maintenance of a crime incident management database			R 3 349 760 (R 2 500 000 Initial cost and R 400 00 license and maintenance annually from year 2)		x	x	x	x	High

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)		
							1	2	3	4	5			
	Provide a specialized anti-poaching support service to KNP	Provide a tactical specialized anti-poaching support service	Tactical specialized anti-poaching support service to investigations & Ranger Corps	R 1 218 944		R 6 524 819 R 477 932 Capex from year 2	x	x	x	x	x	High		
		Provide Air support to investigation services	Helicopter and Fix-wing air support to investigations	R 200 000		R 1 070 568 R 477 932 Capex from year 2	x	x	x	x	x	High		
	Develop and implement a "State of Area Integrity Management" (SoAIM) assessment process for KNP	Implement SoAIM for KNP	Annual SoAIM assessment sampling	R 401 574		R 2 149 566	x	x	x	x	x	High		
To provide an effective and efficient Safety and Security support service to the KNP by development of mechanisms to improve and implement appropriate Risk Management systems for a safe and secure environment and to ensure compliance with relevant legislation.	Effective and integrated security risk management model	Improvement of access control and access monitoring measures	Access/ID control security card and card reader system	R 200 000		R 1 400 000	x	x	x	x	x	High		
			CCTV cameras at all KNP entrance gates	R 600 000		R 1 600 000	x	x	x			High		
			CCTV monitoring control centre			R 1 000 000		x	x	x	x	High		
		Effective crime response measures		Integrated security structure				R 2 400 000 cost of personnel		x	x	x	x	High
				Security alarm monitoring system				R 180 000		x	x	x	x	High
				Operations control centre facility for integrated security, fire and disaster management				R 400 000			x	x	x	Medium
		Pro-active and re-active security measures		Security auditing capacity for KNP Safety & Security apparatus and access control maintenance	R 50 000			R 600 000 cost of equipment maintenance	x	x	x	x	x	High
				Security Incident Investigations capacity				R 600 000 cost of vehicle & equipment		x	x	x	x	Medium

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)	
							1	2	3	4	5		
		Reduction of road traffic violations	Pilot project Average Speed over Distance monitoring		Project funded by Service provider	R 1 000 000 cost of personnel project to fund itself through fine generation		x	x				High
		Optimum deployment of security personnel in KNP	Deployment of mobile unit safety & security personnel in Phalaborwa to expand crime prevention focus to KNP North & Far North regions			R 600 000 cost of vehicle		x	x	x	x		High
							R 50 000 New additional Access/ID card machine		x				
		Capacity building	EMI, and PSIRA training. General training and skills development courses for key personnel	R 30 000		R 450 000	x	x	x	x			Medium

Table 28b: Proposed total budget summary to achieve various security initiatives of the KNP ranger corps, Protection Services and ECI to address components of the Safety and Security Programme in KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 28 189 453	R 35 047 586	R 38 443 897	R 41 732 430	R 45 631 228
<b>Total secured budget</b>	R 28 189 453				
<b>Total unsecured budget</b>		R 35 047 586	R 38 443 897	R 41 732 430	R 45 631 228

## 2.4.6. Other Programmes under *Effective Park Management*

### 2.4.6.1. *Vehicle Fleet and Transport Management*

Vehicle fleet and transport management within a national park the size of the KNP is an important supporting function to enable effective park management. This programme essentially enables effective transportation of goods and staff throughout the KNP, ensuring effectiveness and cost reduction within inflationary constraints.

Table 29a: Details of objectives and initiatives to address the Vehicle Fleet and Transport Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To manage the vehicle fleet services, transport of goods and staff in the KNP in accordance with best practice through an approach integrating the different scales and types of objectives	<b>Optimization of vehicle fleet services</b> To manage and reduce the vehicle fleet costs.	<b>Effective staff and good transportation systems</b> Vehicle fleet management systems to reduce costs and improve fleet utilization levels.	Effective staff transportation systems	R 3 500 000		R 2 000 000	x	x	x	x		High
			Effective goods transportation system	R 3 000 000		R 6 500 000	x	x	x	x	x	High

Table 29b: Proposed overall budget summary to achieve various initiatives for the Vehicle Fleet and Transport Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 6 500 000	R 8 500 000	R 10 660 000	R 11 900 000	R 13 100 000
<b>Total secured budget</b>	R 6 500 000				
<b>Total unsecured budget</b>		R 8 500 000	R 10 660 000	R 11 900 000	R 13 100 000

#### 2.4.6.2. SANParks Honorary Ranger Corps

The Honorary Rangers movement was created in 1964 to establish a voluntary force to support and assist SANParks and the individual national parks throughout South Africa in every way possible. The 801 individual Honorary Rangers are organized into 26 regions with elected chairpersons and management committees which cover national parks from Agulhas to Mapungubwe. The Honorary Rangers are managed by an elected National Executive Committee consisting of 14 members.

The corps is registered as a Public Benefit Organisation (PBO) and fundraising for specific SANParks approved projects is a major focus. Fund-raising drives include organized golf days, bush camps, game capture displays and birding events in parks as well as collection tins in most reception areas throughout KNP. The Honorary Rangers furthermore do annual appeals for corporate sponsorships, and this forms one of their main fundraising strategies. Their total direct contribution to SANParks in 2007 was R12.6 million (including time spent on duty, travel cost and funds raised). The Honorary Ranger support to the KNP rangers is particularly important and is primarily effected with the provision of equipment such as camping equipment, torches, Cybertrackers, water tank trailers, etc. In addition, a Bantam aircraft used exclusively for patrolling and anti-poaching purposes and a motorboat on loan to Mozambique rangers to patrol the Olifants River gorge to remove illegal fishnets have been donated. Table 29 summarises the activities of the Honorary Rangers in national parks.

There are 10 national Honorary Ranger projects that cut across all regions, namely

- Counter Poaching and Ranger Support Services (also funded the Bantam aircraft),
- Veterinary Wildlife Services (supporting game capture and translocation),
- Alien Invader Task Group (contributing to eradication of alien invader plants),
- National Training (focusing on environmental education),
- Public Education and Awareness Project (including school visits and shopping centre displays)
- Junior Rangers (a specific focus on the youth, with 1800 children as members including a high proportion from the previously disadvantaged group),
- National Bush Camps (establishing bush camps in parks for fundraising purposes)
- Trunk Call (the honorary ranger in-house publication),
- National Quiz,
- Birding Events in Parks (hosting 12 annual birding events in parks countrywide).

Table 30: Key activities of and contributions by the Honorary Ranger corps in KNP

<b>Activity</b>	<b>Area of operation</b>
Tourism duties (duties within the camps as requested)	Honorary Rangers who passed the KNP orientation and hospitality courses are involved at various camps within KNP
Indigenous nursery duty	Assist with the manning of the Skukuza Indigenous Nursery, especially over weekends
Library and museum duty	Stevenson-Hamilton Museum
Information duties	Assist with the manning information centres at Berg-en-Dal, Lower Sabie, Pretoriuskop and the Letaba Elephant Hall
Environmental interpretation and education	Assist with environmental interpretation and education and the manning of information centres at Skukuza and Letaba
Mokohlolo fund-raising bushcamp	Arranged by the Ranger Support Services and Veterinary Wildlife Services support teams and held at Mokohlolo bush camp near Crocodile Bridge
Sandriver fund-raising bushcamps	Held at the Sand River Bushcamp
Sunset Serenade	Arranged by the Ranger Support Services team and held annually at Letaba
Funding and assistance with various exhibitions and projects	Support with the establishment and maintenance of information displays, e.g. the Pretoriuskop ox-wagon, information centre and Sable Trail, the rhino exhibition at Berg-en-Dal and the outdoor classroom in Skukuza
Various maintenance and technical assistance projects	Upgrade and maintain the Skukuza Tree House, Five Minutes bush braai site, Lebombo Overland Eco trail's camps, etc.
Assistance to section rangers	Wherever there is assistance needed e.g. building of gabions for erosion control, alien biota control, etc. Also assist with entrance gate control over peak periods
Alien Invasion Task Group	Help with combating alien invasions throughout the KNP in various ways
Training and attendance of courses	Applicants to become members as well as current members throughout the country are trained by accredited Honorary Ranger lecturers. This happens mainly at Skukuza but courses are conducted throughout the KNP
Support game capture activities (Veterinary Wildlife Services)	Donated game capture equipment and support this function in many different ways
Adventure activities	Honorary Rangers with the necessary guiding qualifications and contracts are used as relief guides on the Lebombo Ecotrail, Wilderness trails, Olifants back pack Trail and the Sand River Bushcamp trails
Ad hoc / specialist duties	Honorary Rangers with special skills and knowledge will help with just about anything (on request) wherever the need arises, e.g. to assist with stock-take operations, provide baboon-proof dustbins, etc.

## **2.5. Corporate Support**

Again, these are enabling initiatives to achieve the desired state for KNP as particularly outlined in sections 2.1 – 2.3 above.

### **2.5.1. Research Programme**

KNP has a long history of research endeavour, being touted as one internationally significant example of a biodiversity locality which has over half a century of functional research inputs, and where a working interface exists between researchers and park managers. Much of this science and park history, and a summary of the near-current state of knowledge in the different fields, can be found in a science book to address this need (du Toit et al 2003). The KNP's research unit was established in Skukuza in 1950 and the KNP has become well-known for using science to inform management. There are numerous examples where management policies have been amended and adapted as a result of continued research, including the cessation of culling predators in the central district in the 1970's, the numerous amendments of the fire policy, the artificial water provision policy. Similarly, ground-breaking research into chemical immobilization of wild animals was conducted in the KNP. At a broader level, research primarily conducted within the KNP has also influenced legislation as illustrated by the decade-long KNP Rivers Research Programme which had a big influence on the South African National Water Act.

KNP is also well known for its management–science–academic partnerships and this strongly supports an adaptive management framework where the best available knowledge is used to take decisions or actions and these are continuously evaluated and refined and modified if required, facilitating a learning-by-doing approach. The bulk of research in the KNP is conducted (and funded) by non-SANParks scientists, academics and students, with SANParks scientists acting as research coordinators, facilitators and integrators of the vast body of knowledge generated. Of the active projects, 70% are conducted by South African researchers and 30% by international researchers. A total of 26 local academic and science institutions and 30 international institutions are involved in research in the KNP. The well-received scientific book called "*The Kruger Experience – Ecology and Management of Savanna Heterogeneity*" was published in 2003, providing an overview of research in the KNP. This book involved a number of local and international contributors and received good international reviews (du Toit et al 2003).

KNP currently employs directly and on contract, or hosts as visiting resident scientists or technicians, a skilled staff complement of about 25 people, and has various facilities to help stimulate science, including short-term visiting researcher accommodation in Skukuza, Phalaborwa and Shingwedzi. The main task of these scientific staff is to attract and support external research projects of value to the park, and re-integrate the ensuing knowledge into park understanding and management. The KNP has in the last decade attracted significant direct support funding from donors, including a Junior Scientist programme. This programme aims to attract, fund and support young black scientists into SANParks. This programme has already delivered the first two candidates and is now being extended to other national parks.

KNP offers, via its objectives, structured opportunities for participation and collaboration, as well as long-term datasets and facilities (such as experimental burn plots), a feature which recently helped attract the first node of the South African Earth Observatory Network to the region (SAEON; <http://www.saeon.ac.za>). In 2006 the KNP Research Section merged with SANParks' Arid Ecosystems Research Unit (primarily based in Kimberley), to form an integrated savanna and arid research group, in that way sharing resources across 14 national parks. The new main organogrammatic divisions are systems ecology; human impacts and tourism; species and communities; and science support and monitoring (which includes a strong GIS and statistics division). Key additional positions, which include a social scientist, a science awareness manager and a disease ecologist, were appointed recently.

This shows an appreciation of the importance of the social dimensions and the inter-linkages between the human and ecological systems. At any one time, there are over 150 registered research projects and programmes with about 380 participating researchers active in the KNP and environs.

Important five-year goals are reflected in the way-forward sections of the objectives, and incoming project registrations are prioritised and afforded logistical support according to this. It is however very important to note that even certain peripheral projects are allowed in KNP in order to support the needs of academic institutions, but with very limited logistical support from SANParks. This also enables KNP to attract those science thrusts which are operative at any one time in the country or internationally, rather than turn them away.

The KNP holds (and partly funds) an annual Science Networking Meeting which brings together managers, scientists, academics and students who are busy with or thinking of conducting research in the KNP and to give feedback on their projects. This week-long science meeting is now attracting over 200 academics, scientists and students from all over the world.

Many of the KNPs long-term data sets have proved extremely important and useful to understanding global and regional issues (such as the burn plots being used in cutting-edge climate change research) as well as providing a sound basis for enhancing scientific knowledge and understanding of ecological processes (e.g. the Tree-Grass Research Programme). These data sets are shared with collaborating scientists and institutions, many of them world-renowned and highly rated. The KNP research unit sourced funding for and erected two large elephant exclosures on the Sabie and Letaba Rivers in 2002 as part of a long-term research and monitoring study on animal and fire impacts on vegetation.

SANParks has appointed an independent Animal Use and Care Committee (AUCC) to advise on animal welfare issues pertaining to proposed research projects that may require the manipulation of vertebrates. The AUCC has also examined and approved the SANParks Standard Operating Procedures for euthanasia and population control by lethal means.

As a result of several high-level recommendations over many years, and a real need, a credible Science Advisory Council for SANParks as a whole will be implemented. Important theme areas for current and/or future research, driven by objectives aiming at attaining the desired state, include river functioning and management, especially co-operative governance; alien invasions; GLTP issues, including socio-ecological scenarios and governance; cultural heritage research; mental models in resource management; ongoing programmes on the drivers of tree-grass interactions; and thresholds of concern for elephant effects.

Targets are also set for the next five years for soliciting appropriate usefully-contextualised donor funding, numbers of essential projects solicited from, or offered by institutes; leveraged expertise, equipment and effective expenditure on KNP goals by research partners; effective knowledge management and re-integration into park goals in an ongoing explicit adaptive cycle. In order to remain at the cutting-edge of science and scientific credibility, initiatives for self development and scientific publication and conference presentations are also outlined.

Table 31a: Details of objectives and initiatives to address the Research Programme in KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget (5 years)	Time Frame (years)					Priority
							1	2	3	4	5	
Scientific Services promote the management of healthy, diversified and productive ecosystems in national parks through the process of scientific inquiry and field-level implementation, and the provision of high quality scientific knowledge and training skills for the benefit of all people.	Scientific Services acts as a hub of formal learning in the biophysical and social sciences, and of rigorous scholarly yet practical thinking, within SANParks.  To manage this body of SANParks' knowledge needs, not only do they need to cultivate their own personal skills in science, but even more productively, they have to act as intermediaries with the outside world of science.	Knowledge generation and management	Ongoing research facilitation and publication	Budgeted under biodiversity management programme		R 2 500 000	x	x	x	x	x	High
			Annual science networking meeting – facilitation of research collaboration	Costed under Biodiversity Management Programme			x	x	x	x	x	High
		Personal skills development of scientific staff and enabling of key conference attendances for knowledge sharing and remaining at the cutting edge of conservation science	R 500 000		R 2 500 000	x	x	x	x	x	High	
		Providing an enabling environment and infrastructure support for research and enquiry	R 900 000	R 1 900 000 (corporate SANParks funds for 2008/9)	R 2 000 000						High	
		Capacity building in conservation biology and related sciences, particularly in persons from historically disadvantaged population groups	Junior Scientist Programme	R 200 000 (corporate SANParks for 2008/9) + R 1 000 000 from AW Mellon Foundation		x	x	x	x	x	High	

Table 31b: Proposed overall budget summary to achieve various initiatives (additional to those already costed under the biodiversity management programme) for the Research Programme in KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 3 500 000	R 4 570 000	R 4 760 000	R 3 970 000	R 4 210 000
<b>Total secured budget</b>	R 1 400 000	R 1 570 000	R 1 760 000	R 1 970 000	R 2 210 000
<b>Total secured other funds</b>	R 2 100 000	R 500 000	R 500 000	R 500 000	R 500 000
<b>Total unsecured budget</b>		R 2 500 000	R 2 500 000	R 1 500 000	R 1 500 000

## 2.5.2. Human Resources Support Programme

An essential complimentary function of park effectiveness is maintaining adequate human resources to provide conservation support and visitor services. Staff capacity-building requirements and needs are aimed at the continuous development of all levels of skills through both formal and in-service training and education to improve understanding, encourage a sense of pride in the organisation and increase levels of efficiency and self fulfilment. These needs are generally incorporated into divisional targets, individual performance evaluations and development plans.

Human Resources foster partnerships to attract, develop and retain a highly qualified, diverse workforce, with emphasis on previously disadvantaged individuals, and create a culture that promotes excellence throughout the organization. Key actions are clustered under the following focus areas for this support division, namely:

- *Understanding, setting and consistently delivering superior customer service* - Understand customers' needs and values; develop and implement plans to achieve superior customer service; conduct customer satisfaction surveys, and build effective communication strategies including HR tours throughout the KNP;
- *Developing a more collaborative relationship between Human Resources and Line Management* - Align Human Resources with the goals and objectives as well as the mission of SANParks and move away from confrontational and hostile relationships with line management;
- *Attract and retain highly qualified and diverse candidates* - Streamline, improve and communicate effectiveness of the recruitment process; identify and implement aggressive strategies for successfully recruiting for key positions, develop and implement a sound remuneration and reward strategy, benchmark SANParks remuneration packages with relevant market rates, review SANParks' compensation policy in line with market trends;
- *Administer HR policy, procedures and programmes in order to align SANParks HR policies with continuous improvement principles* - Develop and/or revise outdated policies and procedures, communicate new policies and/or revised policies and procedures through accessible channels;
- *Lead and improve the quality of the work culture* - Develop and maintain a safe working environment, maintain a proactive employee relations process, identify, develop and implement skills development policies and procedures, interventions, training to improve the skills knowledge and attitudes of all employees; and
- *Improve the employees' living conditions by providing better quality accommodation units* - Do away with substandard accommodation units, upgrade accommodation in staff living quarters. Innovative approaches to funding the housing development and upgrading programme will need to be developed as the demands over the next five years are expected to grow significantly.

Table 32a: Details of objectives and initiatives to enable the Human Resources Support Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority
							1	2	3	4	5	
To attract, develop and retain a highly qualified diverse workforce	Employee training and development	Provide training and development interventions in line with the Skills Dev. Act (prioritize managerial and supervisory skills and knowledge)	Develop and implement supervisory and managerial development programs and customer care training	Funded from corporate SANParks budget			x	x	x	x	x	High
	Attract and retain highly qualified individuals	Implement e-recruitment and other web based recruitment methods; ensure that succession planning is implemented to develop and promote staff; pay market related salaries	Review the remuneration and benefit strategies in line with market trends. Pay artisan and technician specialist salary scale.	Funded from corporate SANParks budget			x	x	x	x	x	High
	Provision of housing and recreational facilities	Increasing the number of accommodation units in Skukuza in order to alleviate the critical housing shortage		Costed under the civil and building programme			x	x	x	x	x	High
		Improving employee wellness by replacing aged equipment gymnasium	Establishing fitness clubs and encouraging employees to participate in wellness programs		R 180 000		x	x	x	x		Medium

Table 32b: Proposed overall budget summary to achieve various initiatives for the Human Resources Support Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 180 000				
<b>Total secured budget</b>					
<b>Total unsecured budget</b>	R 180 000				

### 2.5.3. HIV/AIDS Programme

HIV/AIDS requires attention as it is spreading at an alarmingly fast rate in South Africa, as well as within SANParks. As an integral component of the Employee Assistance Programme, it is accorded priority within SANParks. The Programme will form the basis on which all employees working within KNP, permanent and temporary, as well as their families, will be made aware of HIV/AIDS and assisted when infection has occurred. Temporary employees working within the governmental

Expanded Public Works Programmes within KNP will also be made aware of HIV/AIDS through these projects and training programmes.

The key objective of this programme is to create awareness among the workforce about the effects of the scourge of HIV and AIDS by embarking on awareness campaigns such as “Know your Status” and “Condom logistics”. Activities focus on sensitizing the workforce to the importance of engaging in safe sexual activities and positive living, providing voluntary counselling and testing facilities to employees and assisting employees living with HIV and AIDS to access antiretroviral drugs.

Table 33a: Details of objectives and initiatives to address needs of the HIV/AIDS Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
Creating Awareness about the scourge of HIV&AIDS	Sensitize the workforce about the consequences of engaging in unprotected sexual activities.	Promoting Employee wellness and a healthy lifestyle	Provide Voluntary Counselling and testing	R 299 628		R 500 000	x	x	x	x	x	High
			Buying testing kits for HIV, substance abuse and a breathalyzer			R 1 700 000		x	x	x	x	High
			Building of new clinics, and upgrading old ones			R 5 000 000		x	x	x	x	High

Table 33b: Proposed overall budget summary to achieve various initiatives for the HIV/AIDS Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 299 628	R 1 800 000			
<b>Total secured budget</b>	R 299 628				
<b>Total unsecured budget</b>		R 1 800 000			

#### 2.5.4. Integrated Information Technology Programme

SANParks has a dedicated IT Department whose responsibility it is to provide a support system geared to integrating the various existing information systems. The current challenge facing the IT environment is its weak integration, caused primarily by independent development processes. Thus, for example, the following systems operate in an ineffectively integrated manner: Great Plains (the financial system used to generate income statements and balance sheets) which has limited supply chain integration, especially to stores management; Roomseeker (SANParks’s reservations system) and the HR Dynamique system which operate as stand-alone systems. In addition, existing information systems in SANParks have demonstrated their inability to stand up to the challenges of

the rapid changes taking place in the IT environment, providing further challenges for the implementation of appropriate control mechanisms. At present, there is a process being undertaken by the Chief Financial Officer's office at Groenkloof to procure an integrated IT system, the exact nature of which will be determined by the overall business requirements of the organization.

### 2.5.5. Financial Management Programme

KNP ensures that its budgeting processes provide the operational and capital expenditure information to ensure its management in accordance with the annual business plan. Budget monitoring systems are put in place to measure the expenditure against the planned objectives as outlined in the Balanced ScoreCard. KNP will implement the financial controls to ensure that it duly collects all income due to the organization and ensure that all deviations to budgets and forecasts are appropriately managed, guided by the Public Finance Management Act (PFMA) requirements. An important area of focus will be to ensure that financial planning is enhanced to ensure that the planning and costing of our business plan is always closer to the real opportunities.

Table 34a: Details of objectives and initiatives to address the Financial Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
<b>Financial Resources Objective</b> To ensure financial discipline and adherence to set policies and procedures throughout the KNP and to deliver an outstanding, professional and client orientated financial service in the KNP within the applicable legal and statutory framework.	Deliver an effective and efficient financial management and supply chain system	Effective management of revenue and expenditure	Improve internal control management system			R 842 859		x	x	x	x	High
		Improve income to cost ratio	Develop warehouse management strategy			R 300 000		x				High
		Achieve good corporate governance										
		Implement broad-based procurement transformation										

Table 34b: Proposed overall budget summary to achieve various initiatives for the Financial Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>		R 476 355	R 197 518	R 221 220	R 247 766
<b>Total secured budget</b>					
<b>Total unsecured budget</b>		R 476 355	R 197 518	R 221 220	R 247 766

## 2.5.6. Corporate Governance

The KNP, a division of SANParks, receives strategic direction from SANParks Executive Management and the SANParks Board. Strategies and policies are approved at Board level and thereafter cascaded to divisional level for implementation and compliance.

To achieve the objectives set by SANParks at national level, the KNP has various standing committees to ensure implementation and compliance. The KNP Management Committee (Manco) is the main body tasked with the governance of the KNP as per the guidelines set at national level. To assist in this role, other committees such as the Standing Committee on Conservation Management, the Finance Committee and the Risk Management Committee (see initiative below) are established in KNP. Senior Management staff are also represented on various SANParks - stakeholder committees such as the Makuleke and Great Limpopo Transfrontier Conservation Area Joint Management Boards. To further enhance good corporate governance, KNP focuses on the following key areas:

*Strategic Stakeholder liaison* - To fulfil its mandate and support the SANParks vision and mission, the KNP constantly liaises with strategic stakeholders such as provincial government, local municipalities, traditional leaders, neighbouring communities, relevant NGOs, corporate sponsors and the Honorary Ranger Corps.

*Integrated Departmental Planning* - Integrated departmental planning is practised in the KNP to ensure that systems, procedures, controls and the optimal allocation of resources is done to ensure maximum operational efficiency and cohesion in striving toward the vision and mission of both KNP and SANParks. Annual business plans of all departments in the KNP are submitted and reviewed before being approved by the Managing Executive.

*Divisional Performance Management* - The performance of the KNP, as a division of SANParks, is managed in terms of the SANParks Balanced Scorecard. All employees in supervisory and management level positions are assessed in terms of their key performance areas as linked to the Balanced Scorecard and this is escalated up to park level where the KNP is assessed at national level.

### *Risk Management Programme*

SANParks is necessarily a risk adverse organisation mindful of the importance of the sustainability of the organisation to society as a whole. However, stakeholders and the Board recognise that engaging risk is also at the core of SANParks business, and that risk-taking is a choice. SANParks Board and management are thus fully committed to, and accountable for, effective Corporate Risk Management in ensuring those SANParks business objectives are met and that continued, sustained growth and biodiversity management are achieved. Risk management is based on the principle that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.

Risk management is currently the responsibility of the Corporate Risk Management section under the Chief Financial Officer in Groenkloof. Although a risk management plan is in place for the

KNP, and risk management is incorporated into daily functions as part of ongoing business operations, additional focus and responsibility needs to be taken at park level to deal with the strategic and operational risks that have been identified within the KNP context. There are six focus areas at present to ensure that the KNP remains the pride and joy of all South Africans. These include addressing the potential loss of staff, the safety and security threat to staff, tourists, infrastructure and wildlife, the current poor state of infrastructure as a result of poor maintenance practices, land claims potentially impacting on the execution of the KNP's mandate, the shortage of funds for complete implementation of this management plan, and the potential liability incurred as a result of damage-causing animals.

In order to ensure that these focus areas are addressed on an on-going basis within the relevant divisional structures, it is imperative that the KNP establishes it's own Risk Management Committee to take full ownership of, and steer the risk management plan, in the desired direction. A KNP Risk Management Committee must be constituted as a matter of urgency within the remainder of the 2008/2009 year and a comprehensive Risk Management Plan drafted (estimated costs of R 20 000 to be spent in 2008/2009 but for which there is no funding specifically allocated as yet). The Risk Management Plan will have to reviewed and updated on a quarterly basis.

*Internal Audit*

At present the internal audit function is outsourced in KNP. However, the associated incidence of theft and fraud in the KNP has escalated over the years and it is now considered of utmost importance that the internal audit function, as part of overall risk management, be re-implemented within the KNP's structures. The KNP Risk Management Committee, to be appointed, will be the governing body guiding the internal audit function in KNP. This will require the drafting of an internal audit scoping and management plan in the current financial year. Thereafter an internal audit team will need to be appointed, probably consisting of a manager and one auditor initially, with a further two auditors to be appointed thereafter. None of these funds are secured at present.

Table 35a: Details of objectives and initiatives to address the Risk Management Programme in the KNP.

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
To ensure the effective management of all inherent risks pertaining to the KNP.	To provide cross-cutting risk management support services to all departments in the KNP thereby enabling all functions to operate within a risk free	<b>Risk Management Plan</b>  To draft a comprehensive Risk Management Plan for the KNP and review and update this plan on a quarterly basis	Appoint a KNP Risk Management Committee				x					H
			Draft a Risk Management Plan in conjunction with Corporate Risk Management Dept and all KNP stakeholders			R 20 000	x					H

Overarching Objective	High level objective	Sub-objectives	Initiatives	Secured SANParks budget (2008/9)	Secured other funding	Unsecured budget	Time Frame (years)					Priority (H/M/L)
							1	2	3	4	5	
	environment		Quarterly review and updating of KNP Risk Management Plan			R 159 252	x	x	x	x	x	H
		<b>Internal Audit</b>	Appoint a KNP Risk Management Committee				x					H
		To provide an Internal Audit function in the KNP to ensure financial discipline and adherence to set policies and procedures throughout the KNP thereby ensuring good Corporate Governance	Draft an Internal Audit Scoping and Management Plan for the KNP in conjunction with Corporate Finance Division			R 20 000	x					H
			Appoint an Internal Audit Team in the KNP			R 5 260 000		x	x	x	x	H

Table 35b: Proposed overall budget summary to achieve various initiatives for the Risk Management Programme in the KNP.

	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>Total programme costs</b>	R 55 000	R 832 250	R 1 196 669	R 1 644 582	R 1 735 050
<b>Total secured budget</b>					
<b>Total unsecured budget</b>	R 55 000	R 832 250	R 1 196 669	R 1 644 582	R 1 735 050

### *Due diligence and legal compliance*

As the management authority, SANParks is responsible for legal enforcement and compliance to legislation. In addition to legal requirements, SANParks has several policy standpoints that are based on SANParks' own values and policy as determined by its Executive Management and Board and national policy. In order to ensure compliance to the legislation and enforcement of the legislation, KNP has committed itself to ensure the governance process is undertaken in the planning, implementation and reviewing of compliance. Legal compliance and due diligence management (including "duty of care") therefore require ongoing updating of legislation requirements, annual park-wide audits by suitably qualified environmental auditors, appropriate training and mentorship to support compliance and ensuring that actions taken on non-conformance findings are addressed within reasonable timeframes.

### 3. ADAPTIVE AND INTEGRATIVE STRATEGIES TO SUSTAIN THE DESIRED STATE

Section 1 has dealt with the desired state for KNP, and Section 2 with all the specific programmes which are believed necessary to achieve that jointly-agreed future state. However, the desired state cannot be effectively maintained without explicit attention being given to prioritisation, integration, operation, and above all, reflection and adaptation according to the principles in the biodiversity custodianship framework (Rogers 2003).

#### **Key Prioritisation, Integration and Sequencing Issues**

KNP has a very broad mission and a desired state stretched across a wide front. It is therefore necessary to provide some explicit guidance as to the strategy of tackling all the issues in some unified way. The global *way forward* page after the objectives helps considerably (Lower Level Plan 1). Several key guidelines will assist further, namely:

- (1) KNP is an important research venue and there are *way forward* discussions written for each research theme bundle in the objectives hierarchy;
- (2) KNP is embedded in a host of regional programmes such as the Great Limpopo Transfrontier Park and the imminent north-eastern escarpment bioregion; spatial integration into these and the municipal Integrated Development Plans must command some priority;
- (3) KNP now has the benefit of having experimented with approaches to integration, as also outlined in the *integration objectives*, and will endeavour to consolidate much of this into unified action.

Certainly the joint objective-setting approach, with core and enabling objectives, has enhanced clarity in teamwork.

In practice, certain practical issues touched on heavily in the objectives are very likely to command attention, but hopefully with KNP in a pro-active position. Foremost amongst these is the land reform process, with as much as a quarter of the KNP under land claims which must follow the cabinet prescriptions of remaining under conservation land-use. Nevertheless, SANParks will need to aid and abet these restitution processes, and sensibly interface them with the zonation imperatives. Secondly, SANParks is likely to strengthen its position as a flagship agency in river conservation and sustainable use, and this should be further facilitated by the intellectual and possibly financial capital invested in river management in the lowveld region. A practical implementation- and governance-centred follow-up of the KNP Rivers Research Programme of the 1990s will be one of the most cost-effective investments the KNP can make, as this one act will probably save a greater proportion of biodiversity than any other. Recurrent elephant culling controversy will demand that KNP should continue to apply itself in a measured way to this challenge. Careful monitoring on invasions of alien biota, currently under reasonable to good control with ongoing help from *Working for Water*, is also needed. All this has to take place at the same time as development of the Great Limpopo Transfrontier Park, and surrounding Great Limpopo Transfrontier Conservation Area (with, on the South African side, the imminent likelihood of a declared north-eastern escarpment bioregion) which will require KNP's attention and energy. As this unfolds, there will be major challenges regarding the interaction between wildlife and ecosystems, livestock health and human livelihoods, embodied in the AHEAD-GLTCA programme. Nevertheless, KNP will need to position itself to sustain, and where appropriate, adjust its desired state to meet shifting targets in the face of global change and accelerated nitrogen deposition. It is hoped that the preparation and learning contained in this plan will help in the adoption of a sensible overall socio-ecological approach to the KNP as part of the wider region, and that this region may even become an example of how sustainable use can be practiced amidst all the synergies and conflicts of the complex context, and lead to longer-term resilience and options rather than shorter-term high production.

## **Key Steps to Operationalisation**

Given the desired state, and the above cross-links and sequential desirables and priorities, the next step is for park management to use this guidance to draw up a detailed plan of action down to annual operational level and wherever necessary down to the level of tasks and duties. This must satisfy and serve the desired state as contained here. A further cross-check is contained in the Balanced Scorecard system implemented by SANParks, which serves not to replace any objectives contained in this plan, but to support their effective implementation. To help meld this synergy, within the next five years, a cross-tabulation of the important objectives of this plan and explicit ways in which these are reinforced by key performance areas in the Balanced Scorecard needs to be undertaken, with the two systems adjusted for harmony where necessary. Nevertheless, an important and critical focus area that will require explicit and systematic attention is the knowledge harvesting and reintegration approach that is currently weak within KNP.

Furthermore, the broad staff and finance costing for the five-year drive towards achieving the desired state, is contained in Lower Level Plan 20, which outlines both existing and projected budgets and costs as costs should not be under-estimated because of historical limitations. This costing includes all resources believed to be required to achieve realistic progress towards the desired state as outlined here. The fact that the resources required are even higher than historically allocated to KNP is the result of this report having made explicit what is actually required to achieve and maintain the desired state through linking the end points of this broad desired state to park programmes.

## **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 set for the KNP. The hallmark of adaptive management is ongoing learning, and this only results if users apply their minds to the adaptive cycle (Biggs & Rogers 2003). This section aims to detail procedures in the way that are used specifically in KNP, by which the integrity of these feedbacks, and hence learning, will be guaranteed.

- *Feedback on strategic planning actions* – This responsibility lies with the Strategic Planning Committee, and will be reported on via KNP's internal reporting structures to the Managing Executive: KNP. This includes a decision-making forum to track and implement the objectives of the management plan, co-ordinate and implement the master-planning of the park, devise and implement the required studies and research programmes, and devise and implement the TPCs for other operational divisions.
- *Feedback that the management action as decided upon and specified, is carried out:-* This responsibility lies with line-function management, and will be reported on via KNP's internal reporting structures to the Managing Executive: KNP. Feedback on biodiversity management interventions (or conscious decisions not to intervene) will be focused through the bi-monthly Conservation Services Management Committee meetings between senior research and management staff. Particular attention will need to focus on reporting feedback on decisions and management actions relating to tourism, cultural heritage and cooperation-building programmes as currently no specific forum exists to address these. It is proposed that a dedicated agenda point to address this need is scheduled at the KNP management committee meetings.
- *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 implementation of revised,

updated and restructured monitoring programme and that the scientific custodian of each particular programme duly reports exceedances to the Conservation Services Management Committee joint science-management forum. This leads to documented management response options, recognising that the “do nothing response” may also be a specific justifiable response. While the current suite of biophysical TPCs in KNP is still relatively large, these will be pursued to gauge as to where the KNP finds itself relative to the biodiversity desired state. Testing of the newly developed and formulated heterogeneity TPC will hopefully allow the dropping of some of the animal-plant interaction TPCs over time as confidence grows in its performance and overall ability to track system change. The recognition that additional TPCs must be developed for wilderness qualities and cultural heritage- and nature-based tourism operations will require attention and focus. Wide experience shows it is far better to have roughly defined preliminary TPCs and improve these later (which tends to happen automatically) than wait years for perfect ones to be developed.

- *Feedback that the predicted outcome of a management intervention, in response to the exceedance of a TPC, is achieved, or what materialised 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, recognising that this might take some time. In KNP, this follow-up is done through the meetings of the Conservation Services Management Committee where the best adaptive decision must be taken in the light of this evaluation and based on best available knowledge. KNP will likely initially focus its adaptive learning and reflection on likely predicted and/or real outcomes of elephant management scenarios (in the light of overall herbivory and other impacts) under a heterogeneity paradigm which allows maximum flux within an ecosystem and on the outcomes of ongoing dedicated catchment management engagements and their medium-term effects on river health as measured within the KNP.
- *Feedback to SANParks Head Office of the overall performance of KNP relative to its stated objectives:-* This will be done via an annual State of Biodiversity Report for KNP as well as other incidental reporting. It is clear that for some themes, KNP will take some time to progress towards the desired state (e.g. river management, rehabilitation and adaptation of its tourism product) and progress in these cases must be tracked by achievement of intermediate steps towards the desired state. The KNP will also have to ready itself for a changing approach to management in the face of overarching global change scenarios. Structured feedback will also happen through the performance reporting requirements of the Balanced Scorecard, which partitions responsibilities down to individual key performance areas.
- *Feedback as to whether organisational or societal acceptance of the consequence of an intervention is still, as agreed on previously, acceptable:-* This is a longer-term adaptive evaluation, and if expectations are roughly met, can be dealt with at the time of the five-yearly public meeting held to review the management plan. If, however, significant unintended consequences materialise that have shorter-term impacts, it will be the responsibility of the science-management forum to sense this, reflect on it, and make appropriate recommendations to park management. Very challenging areas where shorter-term re-evaluations may be required are the long-term organisational persistence necessary for improving river flows and quality in perennial rivers and the acceptance of the rationale and thresholds for elephant management options and implications, both of which should not be underestimated, particularly when feelings of lack of progress and even hopelessness may need to be countered. A newer and equally significant thrust focuses on sustainable natural resource utilisation and its implementation within KNP. In its early developmental phases, this

will require ongoing evaluation of both societal acceptance and implementation consequences.

- *Feedback as to whether the monitoring programme and list of TPCs is parsimonious and effective:-* This is generally the responsibility of the scientific custodians involved, but overall responsibility for the programme as a whole rests with the Conservation Services Management Committee in KNP. It is broadly challenged during each five-yearly management plan revision cycle, although smaller-scale challenges are ongoing and adaptive. It is anticipated that the financial and logistical cost implications of carrying out the revised biodiversity monitoring procedures may require ongoing motivation, justification and discussion. Thresholds set to evaluate unacceptable levels of herbivory impacts, particularly those associated with elephants, will and should be challenged on an ongoing basis, but with the agreement that it is much better to have roughly defined TPCs, learn from their evaluation and refine and improve them later as new information and knowledge comes to light rather than wait for near-perfect ones to be developed, which may take years, or never happen. As highlighted earlier, the need for additional non-biophysical thresholds to be set and monitored for is great in KNP and this will require urgent attention to help us manage the park to within its overall all-encompassing desired state.
- *Feedback as to whether overall park objectives need adjustment in the longer-term:-* This is dealt with effectively at the five-yearly management plan review step. However, in the case of perceived “emergencies”, park management is constrained within the limits of agreement. It is likely that monitoring procedures for vegetation-herbivory interactions, associated habitat integrity and biodiversity patterns will be perceived as either onerous or not detailed enough and suggestions may arise over time to either scrap or downgrade these, or unrealistically intensify them to “prove beyond any doubt” any trends. This will spark a critical debate with stakeholders and within SANParks as to the organisation’s obligation to maintain overall biodiversity in all its facets and fluxes, and the ultimate feasibility of marrying elephant management options and constraints with biodiversity heterogeneity requirements. Socio-political and socio-ecological objectives are expected to change and evolve as the KNP moves forward in a unified and adaptive manner.
- *Feedback regarding, or at least latent preparation for, surprises:-* By definition, these cannot be predicted, although it is an explicit obligation of park management to take responsibility to stimulate contingency and risk management assessments. These include illegal activities that pose a threat to the brand and reputation of KNP and SANParks and securing the tourism income stream, as well as the positioning of KNP’s nature-based, and anticipated associated heritage-based tourism product into the future. From an ecosystem perspective, dealing with surprises is best handled through generating scenarios. The objective to aim for is at least two structured scenario planning sessions per five year cycle. It is suggested that scenarios significantly appropriate in the KNP situation, and which should assist in achieving the desired state, revolve around different futures regarding the implementation and delivery of the environmental reserve of the National Water Act, biodiversity-driven elephant management scenarios traded off against other attitudes and values in broader society, scenarios reflecting alternative cooperative governance and constituency building approaches and successes (or failures), and balancing the biodiversity conservation and wilderness protection mandate with appropriate nature-based ecotourism development and accompanying economic models. Formulating and contemplating these scenarios will significantly promote the survival of the KNP into the future.

If these obligatory feedbacks continue to be effectively honoured into the future, the KNP will continue practicing sophisticated adaptive management. Attention will however need to be given in the measurement feed-back system to an integration of the overall business objectives with the biodiversity objectives else KNP will continue to strain against the biodiversity-tourism tensions. In addition, attention and time must be focused on improving knowledge harvesting and appropriate and efficient reflection in all spheres of learning, also extending further into the socio-political realms. Then, in accordance with our overarching and integrated SANParks conservation values, KNP should be well-positioned to achieving the desired state in a sustainable way.

#### 4. HIGH LEVEL BUDGET AND COSTING PROGRAMME

In line with the requirements to cost the implementation of the management plan to move towards achieving the desired state, an overall costing programme has been developed, a summary of which is outlined in the Tables presented below. The summary of all the costings done that shows the net effect on KNP's current operational budget, to within the 20% deviation as allowed for. The high increase in the demand for operational funds (and in some cases also associated human capital) is directly linked to associated costs to enable the park to arrive at its desired state as specified in the different programmes drawn up to get to this point. This budgeting process also makes provision for management aspects that have never been budgeted for but that are needed to support the desired state initiative. An increase in funding needed for the KNP's Technical Services Department is based on the need to catch up on the backlog created over the past number of years in terms of infrastructure maintenance in the park and linked with that is the increase in the need for funding from the operational tourism units to address a backlog in the replacement of furniture, soft refurbishments in all accommodation units throughout the KNP.

It should be noted that the SANParks approved budgets for the 2008/2009 financial year have been captured as "secured funding" in year 1 only. Due to the nature of SANParks budgets not yet allocated for the 2009/2010 to 2012/2013 years, all costs have been captured as "unsecured funding" for these years with the exception of the external funds. It can, however, be assumed that the "secured funds" in 2008/2009 would escalate by an inflation based percentage for the remaining four years. Where external funds have been granted, these are reflected in the relevant year for which grants have been approved. It must be noted that any surplus generated by the KNP is used by SANParks to cross-subsidize other parks. This cross-subsidization is not reflected in any tables. The overall net surplus and deficit projections should therefore be seen in the light of this reality that KNP fits into the overall SANParks financial make-up.

Table 36 outlines the programme costs as outlined in this management plan, reflecting the key initiatives needed to address objectives for KNP to achieve the desired state. This table must be read in conjunction with Table 36 (corporate support costs) and Table 37 (projected income). The high costs of implementing the various initiatives identified under the various programmes bears testimony to the requirements to sustain and manage this iconic national park. Focus on the biodiversity requirements of KNP, together with the constituency-building components, will maintain KNP's relevance in a changing world (both from anticipated biophysical changes, e.g. induced through global and climate change scenarios) and changing societal needs. A large proportion of the anticipated costs will be utilized in the infrastructure upgrade and maintenance programmes. These will service both the support and tourism ventures of KNP into the future. The expanding nature of the operations within KNP and the pressure exerted on the aging infrastructure to deliver under this expansion requires that KNP works towards a complete infrastructure overhaul and revamping process in the 20-50 year horizon.

The costs associated with providing corporate support to the various programmes and initiatives outlined in this plan are detailed in Table 37. The KNP approved budget for 2008/2009 has been increased by an inflation-based percentage for the following four years for the projected cost estimations. The amounts reflected for the operations of the three regions are only the "support" component of their operations. It should also be noted that many of the so-called corporate support costs are costs that cannot be easily allocated to specific programmes and initiatives as they are multi-dimensional and cross-functional.

KNP generates a significant amount of income from its tourism operations specifically. Projected incomes for the five-year period are outlined in Table 38. The KNP approved budget for 2008/2009 has been increased by 10% for the next year (2009/2010) and thereafter by 7% for the remaining three years. SANParks' baseline tourism tariffs have been adjusted for the 2009/2010 year, thus the 10% increase in this year vs. the 7% increase for the following years.

An overall summary, for the following five year period, of overall income and costs for ongoing management and operations within KNP is presented in Table 39. This includes all programme costs, including rehabilitation, development and operating costs. The figures are presented as the idea requirements to achieve the various objectives and initiatives outlined in this plan. Implementation of prioritised programme initiatives will be dependent on funding secured for each of the financial years and prioritisation will occur. Implementation of these programmes will be effected through divisional strategic plans in support of the lower level plans to this management plan.

**Table 36: Total Costs of Programmes - KNP**

2. Programmes - Costs	2008/2009		2009/2010		2010/2011		2011/2012		2012/2013	
	Secured	Unsecured	Secured	Unsecured	Secured	Unsecured	Secured	Unsecured	Secured	Unsecured
<b>2.1 Biodiversity &amp; Heritage Conservation Programmes</b>										
2.1.1 CDF & Zonation	0	110,000	0	660,000	0	50,000	0	50,000	0	50,000
2.1.2 Biodiversity Management	37,896,720	540,000	8,881,600	38,191,000	8,881,600	44,020,000	8,881,600	45,690,000	8,881,600	47,220,000
2.1.3 Land Issues & Effective Park Expansion										
Transfrontier Conservation Area	1,072,000	0	0	17,500,000	0	17,000,000	0	10,000,000	0	9,500,000
Components of Land Issues & Effective Park Expansion	0	0	0	1,330,000	0	1,250,000	0	1,000,000	0	1,000,000
2.1.4 Regional Land Use - Planning & Cooperative Govern.	0	0	0	1,200,000	0	500,000	0	500,000	0	500,000
2.1.5 Sustainable Resource use	0	0	0	692,500	0	691,500	0	582,500	0	582,500
2.1.6 Rehabilitation	4,100,000	0	0	10,325,000	0	10,725,000	0	10,725,000	0	10,725,000
2.1.7 Wilderness Management	0	0	0	255,000	0	235,000	0	145,000	0	145,000
2.1.8 Damage Causing Animals	30,000	0	0	1,575,000	0	1,575,000	0	1,575,000	0	1,575,000
2.1.9 Cultural Heritage Management	500,000	135,000	0	670,000	0	755,000	0	875,000	0	1,030,000
<b>2.2 Sustainable Tourism Programmes</b>										
2.2.1 Sustainable Tourism	100,083,360	0	0	114,203,000	0	126,489,000	0	141,613,290	0	158,547,962
<b>2.3 Building Cooperation Programmes</b>										
2.3.1 Environmental Education & Interpretation	1,919,860	180,000	0	3,525,000	0	3,950,000	0	4,065,000	0	3,840,000
2.3.2 Stakeholder Relationship Management	25,000	90,000	0	210,000	0	282,000	0	393,000	0	485,000
2.3.3 Local Socio-Economic Development	414,000	40,000	0	942,500	0	1,042,500	0	1,062,500	0	1,192,500
2.3.4 Communications Strategy	1,460,000	0	0	3,447,600	0	3,861,312	0	4,324,670	0	4,786,129
<b>2.4 Effective Park Management Programmes</b>										
<b>2.4.1 Integrated Environmental Management</b>										
Solid Waste Management	0	0	0	1,000,000	0	1,000,000	0	200,000	0	200,000
Effluent Management	0	0	0	500,000	0	500,000	0	500,000	0	500,000
Potable Water Management	1,900,000	0	0	2,200,000	0	2,400,000	0	2,760,000	0	3,090,000
Civil & Building Management	189,200,000	0	80,450,000	89,750,000	0	72,300,000	0	51,500,000	0	13,200,000
Electro-Mechanical	31,100,000	0	550,000	31,000,000	0	26,700,000	0	28,700,000	0	17,300,000
Roads, Fence & Dam Management	32,330,000	0	8,000,000	38,320,000	0	45,100,000	0	50,510,000	0	56,610,000
<b>2.4.2 Safety &amp; Security</b>										
Rangers Support Services	23,000,000	0	0	25,760,000	0	28,851,200	0	32,314,000	0	36,200,000
Environmental Crime Investigation	4,309,453	0	0	7,542,587	0	6,047,698	0	6,773,422	0	7,586,232
Protection Services	860,000	0	0	2,245,000	0	3,545,000	0	2,645,000	0	1,845,000
<b>2.4.3 Other Programmes under Effective Park Man.</b>										
Vehicle Fleet & Transport Management	6,500,000	0	0	8,500,000	0	10,660,000	0	11,900,000	0	13,100,000
<b>2.5 Corporate Support Programmes</b>										
2.5.1 Research	3,500,000	0	2,070,000	2,500,000	2,260,000	2,500,000	2,470,000	1,500,000	2,710,000	1,500,000
2.5.2 HIV/Aids	299,628	0	0	1,800,000	0	1,800,000	0	1,800,000	0	1,800,000
2.5.5 Financial Management	0	0	0	476,355	0	197,518	0	221,220	0	247,766
2.5.4 Risk Management	0	55,000	0	832,250	0	1,196,669	0	1,644,582	0	1,730,751
<b>Total Costs - Programmes - Secured</b>	<b>440,520,021</b>		<b>99,951,600</b>		<b>11,141,600</b>		<b>11,351,600</b>		<b>11,591,600</b>	
<b>Total Costs - Programmes - Unsecured</b>		<b>1,150,000</b>		<b>407,152,792</b>		<b>415,224,397</b>		<b>415,769,184</b>		<b>396,088,840</b>
<b>Total Cost to fund programmes</b>	<b>441,670,021</b>		<b>507,104,392</b>		<b>426,365,997</b>		<b>427,120,784</b>		<b>407,680,440</b>	
<b>Total Costs - Programmes - Secured - 5 years</b>	<b>574,556,421</b>									
<b>Total Costs - Programmes - Unsecured - 5 years</b>		<b>1,635,385,213</b>								
<b>Grand Total - Programme Costs - 5 years:</b>		<b>2,209,941,634</b>								

**Notes:**

1. SANParks approved budgets for 2008/2009 have been captured as "Secured" funding in year 1 only.
2. Where external funds have been granted these are reflected in the relevant year for which the grants have been approved.
3. Due to the nature of SANParks budgets not yet allocated for the 2009/2010 to 2012/2013 years all costs have been captured as "Unsecured funds" for these years with the exception of the external funds. It could be assumed that the "Secured Funds" in 2008/2009 would escalate by an inflation based percentage for the remaining four years.
4. This table must be read in conjunction with table x (Corporate Support Costs) and table x (Income)
5. It must be noted that any surplus generated by the KNP is used by SANParks to cross-subsidize other Parks. This cross-subsidization is not reflected in the tables.

**Table 37: Summary of KNP Corporate Support Costs**

<b>Costs - Corp Support</b>	<b>2008/2009</b>	<b>2009/2010</b>	<b>2010/2011</b>	<b>2011/2012</b>	<b>2012/2013</b>
	<b>Secured</b>	<b>Projected</b>	<b>Projected</b>	<b>Projected</b>	<b>Projected</b>
Managing Executive - KNP	10,490,345	11,749,186	13,159,089	14,738,179	16,506,761
Conservation Management	19,021,028	21,303,551	23,859,978	26,723,175	29,929,956
Public Relations & Communications	4,875,355	5,460,398	6,115,645	6,849,523	7,671,465
Human Resources	11,487,960	12,866,515	14,410,497	16,139,757	18,076,527
People & Conservation	2,094,000	2,345,280	2,626,714	2,941,919	3,294,950
Finance	8,147,176	9,124,837	10,219,818	11,446,196	12,819,739
Technical Services	42,807,488	47,944,387	53,697,713	60,141,439	67,358,411
Tourism & Marketing	2,300,000	2,576,000	2,885,120	3,231,334	3,619,095
Protection Services	5,114,053	5,727,739	6,415,068	7,184,876	8,047,061
Marula Region	7,422,289	8,312,964	9,310,519	10,427,782	11,679,115
Nkayeni Region	3,803,020	4,259,382	4,770,508	5,342,969	5,984,126
Nxanatseni Region	6,845,024	7,666,427	8,586,398	9,616,766	10,770,778
<b>Total Costs Corp Support</b>	<b>124,407,738</b>	<b>139,336,667</b>	<b>156,057,067</b>	<b>174,783,915</b>	<b>195,757,984</b>

<b>Grand Total for 5 years:</b>	<b>790,343,370</b>
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**Notes:**

1. The KNP Approved budget for 2008/2009 has been increased by an inflation based percentage for the following four years.
2. It must be noted that any surplus generated by the KNP is used by SANParks to cross-subsidize other Parks. This cross-subsidization is not reflected in the tables.
3. The amounts reflected for the three Regions are only the "support" component of their operations.

**Table 38: KNP Income**

<b>INCOME</b>	<b>2008/2009</b>	<b>2009/2010</b>	<b>2010/2011</b>	<b>2011/2012</b>	<b>2012/2013</b>
	<b>Projected</b>	<b>Projected</b>	<b>Projected</b>	<b>Projected</b>	<b>Projected</b>
Concession fees	-33,865,968	-37,328,176	-39,941,148	-42,737,029	-45,728,621
Conservation fees	-65,583,401	-64,606,363	-69,128,808	-73,967,825	-79,145,573
Retail Gross Profit	-12,564,182	-10,832,130	-11,590,379	-12,401,706	-13,269,825
Tourism Income	-244,459,157	-280,877,988	-300,539,447	-321,577,208	-344,087,613
Other Income	-9,012,227	-7,988,101	-8,547,268	-9,145,577	-9,785,767
<b>Total Income</b>	<b>-365,484,935</b>	<b>-401,632,758</b>	<b>-429,747,051</b>	<b>-459,829,345</b>	<b>-492,017,399</b>

<b>Grand Total for 5 years:</b>	<b>-2,148,711,487</b>
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**Notes:**

1. The KNP approved budget for 2008/2009 has been increased by 10% for the next year (2009/2010) and thereafter by 7% for the remaining three years.
2. SANParks Baseline Tourism tariffs have been adjusted for the 2009/2010 year and thus the 10% increase in this year vs. the 7% increase for the following years.
3. It must be noted that any surplus generated by the KNP is used by SANParks to cross-subsidize other Parks. This cross-subsidization is not reflected in the tables.
4. A Community Levy has been proposed to offset the effect of Land Claims.
5. An amount of R67 million was generated with the sale of the stockpiled ivory. These funds will be ring-fenced in a special fund and used for elephant management and community based conservation projects only.

**Table 39: Summary of Income, Corporate Costs & Programme Costs - KNP**

	<b>2008/2009</b>	<b>2009/2010</b>	<b>2010/2011</b>	<b>2011/2012</b>	<b>2012/2013</b>	<b>5 Year Total</b>
Total Income	-365,484,935	-401,632,758	-429,747,051	-459,829,345	-492,017,399	-2,148,711,487
Total Corporate Support Costs	124,407,738	139,336,667	156,057,067	174,783,915	195,757,984	790,343,370
Net Surplus (-) / Deficit before Programme costs	-241,077,197	-262,296,091	-273,689,985	-285,045,430	-296,259,414	-1,358,368,118
Total Programme Costs	441,670,021	507,104,392	426,365,997	427,120,784	407,680,440	2,209,941,634
<b>Net Surplus (-) /Deficit after Programme costs</b>	<b>200,592,824</b>	<b>244,808,301</b>	<b>152,676,012</b>	<b>142,075,354</b>	<b>111,421,026</b>	<b>851,573,516</b>

**Note:**

1. Overall summary for the following five year period of overall income and costs for ongoing park management in line with specifications of this management plan to work towards achieving the desired state for KNP.  
This includes all programme costs, including rehabilitation, development and operating costs.
2. Any surplus generated by the KNP is utilized by SANParks Corporate Office to cross-subsidize other Parks.  
The effect of this cross-subsidization of other Parks is not taken into account in this table.

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## **6. SUPPORTING DOCUMENTS (DETAILING LOWER LEVEL PLANS FOR IMPLEMENTATION) TO THIS PLAN – AVAILABLE ON REQUEST**

- Lower Level Plan 1: An objectives hierarchy for Kruger National Park
- Lower Level Plan 2: Integrated biodiversity management Programme for KNP
- Lower Level Plan 3: Kruger National Park Zoning Programme
- Lower Level Plan 4: Rehabilitation Programme
- Lower Level Plan 5: Wilderness Management Programme
- Lower Level Plan 6: Problem- and Damage-causing Animal Responses Programme
- Lower Level Plan 7: Cultural Heritage Management Programme
- Lower Level Plan 8: Tourism Programme
- Lower Level Plan 9: Environmental Education and Interpretation Programme
- Lower Level Plan 10: Stakeholder Relationship Management Programme
- Lower Level Plan 11: Local Socio-Economic Development Programme
- Lower Level Plan 12: Communications Strategy
- Lower Level Plan 13: Solid Waste Management Programme
- Lower Level Plan 14: Effluent Management Programme
- Lower Level Plan 15: Water Management Programme
- Lower Level Plan 16: Infrastructure Development Programme
- Lower Level Plan 17: Electro-mechanical Programme
- Lower Level Plan 18: Roads Management Programme
- Lower Level Plan 19: Safety and Security Programme