South African
NATIONAL PARKS

Kalahari Gemsbok National Park

Park Management Plan

For the period 2016 - 2026

Acknowledgement

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Section 1: Authorisation

This management plan is hereby internally accepted and authorised as required for managing the Kalahari Gemsbok National Park (KGNP) in terms of Sections 39 and 41 of the National Environmental Management: Protected Areas Act No 57 of 2003 (NEM:PAA).

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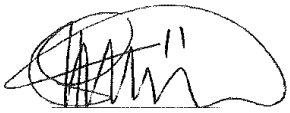

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Approved by the Minister of Environment Affairs

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Glossary

Co-management	An agreement between the park and any organ of state, local community, individual or any party which provides for the management of the park or portion thereof by the parties as stipulated in section 42 of NEM:PAA.
Desired state	The park desired state is based on a collectively developed vision and set of objectives of the desired future conditions (that are necessarily varying, across the full V-STEEP range) that stakeholders desire.
Dynamic pricing	Dynamic pricing, also called "real-time" pricing, is a pricing strategy in which businesses set highly flexible prices for products or services based on current market demands. The goal of dynamic pricing is to allow a company that sells goods or services over the Internet to adjust "prices" on the fly "in response to market demands".
Endorheic pan	A closed basin that accumulate rainwater only after sufficient rain has fallen. It's usually an isolated system with no outlet.
Interpretation	Interpretation is the communication of information about, or the explanation of, the nature, origin, and purpose of historical, natural, or cultural resources, objects, sites and phenomena using personal or non-personal methods.
MICE	Meetings, Incentives, Conferences and Events. Used to refer to all function types available.
Mission	An articulation of the Vision that describes why the park exists and its overall philosophy on how to achieve its Vision.
Objectives hierarchy	The objectives for a park, with the most important, high level objectives at the top, cascading down to objectives at finer levels of detail, and eventually to operational actions at the lowest level.
Responsible tourism	Tourism that maximises benefits to local communities, minimises negative social or environmental impacts, and helps local people conserve fragile cultures, habitats and species. Or, it is a tourism or leisure activity implementing a practice that is respectful of natural and cultural environment and which contributes, in an ethical manner, to local economic development.
Servitude	Is a registered right that an entity / person has over the immovable property of another. It allows the holder of the servitude to do something with the other person's property, which may infringe upon the rights of the owner of that property.
Stakeholder	A person, an organ of state or a community contemplated in section 82(1)(a); or an indigenous community contemplated in section 82(1)(b) of NEM:BA.
Tourism development node	A location or an area, possibly an intersection that is identified for multi- tourism services. Depending on volumes, this will generally offer a variety of products and services and may include an activity departure point and would likely be zoned as high-intensity leisure.

Transfrontier park	An area comprising of two or more protected areas, which border each other across international boundaries, and whose primary focus is wildlife conservation.
Vision	A word 'picture' of the future, or what the stakeholders see as the future for the park.
Visitor	A person who visits the land and waters of a park or protected area for purposes mandated for the area. A visitor is not paid to be in the park or does not live permanently in the park. Typically the purpose for the visit is outdoor recreation for natural parks and cultural appreciation for historic sites (World Commission on Protected Areas, 1999)
Visitor management	A process of balancing nature conservation and visitor satisfaction, which must be: • visitor orientated; • nature-based; • provide a quality of experience; • sustainable; and • pro-active.
Vital attributes	Unique or special characteristics of the park, the determinants of which management should strive to protect, and the threats towards which management should strive to minimise.
V-STEEP	The values (social, technological, economic, ecological and political), used to understand, with stakeholders, the social, economic and ecological context of the system to be managed, and the principles / values that guide management. These are used to develop a broadly acceptable vision for the future.

Acronyms and abbreviations

1	AIS	Alien and Invasive Species
2	AMSL	Above Mean Sea Level
3	APO	Annual Plan of Operations
4	BMS	Biodiversity Monitoring System
5	BSP	Biodiversity Social Projects
6	CAPS	Curriculum Assessment Policy Statement
7	CARA	Conservation of Agricultural Resources Act (Act 43 0f 1983)
8	CDF	Conservation Development Framework
9	CDV	Canine Distemper Virus
10	CPF	Co-ordinated Policy Framework
11	CRMF	Corporate Risk Management Framework
12	CSD	Conservation Services Division
13	DANCED	Danish Corporation for Environment and Development
14	DEAT	Department of Environment Affairs and Tourism
15	DEA	Department of Environmental Affairs
16	DWNP	Department of Wildlife and National Parks
17	EIA	Environmental Impact Assessment
18	EPWP	Expanded Public Works Programme
19	FPA	Fire Protection Association
20	GNP	Gemsbok National Park (Botswana)
21	GG	Government Gazette
22	GN	Government Notice
23	GVI	Global Vision International
24	HIL	High Intensity Leisure
25	IDP	Integrated Development Plan
26	IUCN	International Union for Conservation of Nature
27	JMB	Joint Management Board
28	JOS	Joint Operational Strategy
29	JPMP	Joint Park Management Plan
30	KGNP	Kalahari Gemsbok National Park (South Africa)
31	KTP	Kgalagadi Transfrontier Park
32	LIL	Low Intensity Leisure
33	NRMP	Natural Resource Management Programmes
34	NEMA	National Environmental Management Act (Act no 107 of 1998)
35	NEM:BA	National Environmental Management: Biodiversity Act (Act no 10 of 2004)
36	NEM:PAA	National Environmental Management: Protected Areas Act (Act no 57 of 2003)
37	NHRA	National Heritage Resources Act (Act no 25 of 1999)
38	PAF	Park Advisory Forum
39	PDF	Product Development Framework
40	PDI	Previously Disadvantage Individual
41	PM	Park Management
42	SADC	Southern African Development Community
43	SAHRA	South African Heritage Resources Agency
44	SAM	Strategic Adaptive Management
45	SANDF	South African Defense Force
46	SANParks	South African National Parks
47	SAPS	South African Police Service
48	SDF	Spatial Development Framework
49	SHRs	SANParks Honorary Rangers
50	SMO	Special Management Overlay
51	SMME	Small, Medium and Micro-Sized Enterprises
52	SWA	South-West Africa

53	SWOT	Strengths, Weaknesses, Opportunities and Threats
54	TFCA	Transfrontier Conservation Area
55	TPC	Threshold of Potential Concern
56	UA	Universal Access
57	VM	Visitor Management
58	WfW	Working for Water
59	WIMS	Water Information Management System

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Executive summary

In compliance with the NEM:PAA, SANParks is required to develop management plans for each of its parks. In developing the management plan for this park, SANParks has attempted to integrate, implement and review the biodiversity conservation, tourism and constituency building components that make up its core business, whilst ensuring continual learning and compliance. This plan only focuses on the KGNP component of the Kgalagadi Transfrontier Park (KTP).

The park is situated in the Northern Cape Province, between Namibia and Botswana in an area characterised by sparse populations of people and long distances for infrastructural lines of support. There is a high level of poverty in the surrounding area, with the main income-generating activities being small-stock and game farming, craft manufacturing and tourism enterprises. The park is an integral part of the KTP which together with the neighbouring wild life management areas in Botswana forms one of the largest contiguous conservation areas in the world. Its major biodiversity characteristics are a large herbivore migratory and nomadic arid ecosystem, which supports a fully functional large predator / prey system and an important refuge for a large raptor population. It is also an important cultural heritage area for the Khomani-San people. The area is characterised by a striking landscape of wide vistas, attractive red sand dunes, large camelthorn trees and desert bloom. The park is a popular destination amongst South Africans and International tourists and the high average occupancy of 80% demonstrate this. Furthermore, the park plays an important role in the local and regional economy by contributing to direct and indirect local-socio economic upliftment.

The desired state of the park is based on a vision, mission, vital attributes and objectives. It is primarily set around the conservation of the unique biodiversity characteristics of the area. A set of appropriate programmes has been set up to achieve the desired state. The strongest emphasis falls on biodiversity, Responsible Tourism and cultural heritage management.

The first management plan for the park was submitted to, and approved in part, by the Department of Environment Affairs and Tourism (DEAT) in 2008. This first review builds on the foundation of the first plan and addresses its inadequacies. The layout of the plan follows the format provided in the guideline drawn up by the DEA (Cowan and Mpongoma 2010) while also incorporating the adaptive planning process adopted by SANParks. Local municipalities, the district municipality, other organs of state, various stakeholder groups and members of the public were consulted as required (Appendix 2).

Introduction

The plan serves as a reference to the management and development of the park in its current and envisaged future form with information on the background, biophysical context, desired state, management and programmes at strategic and operational levels.

This management plan will come into effect following the approval by the Minister in terms of sections 39 and 41 of NEM:PAA. It is intended for a timeframe of 10 years after commencement unless it is replaced earlier by a newly approved plan. SANParks will review this plan no later than ten years after the commencement date.

The plan contains the following sections**:**

- **Section 1** - provides for the required authorisation;
- **Section 2** - provides a record of the legal status of the park, descriptions of its context as well as relevant local, regional, national and international agreements;
- **Section 3 -** sets out the framework of legislation, national policies, SANParks structures, policies, guidelines, practices regarding management;
- **Section 4** - describes the consultation process followed in the preparation of this plan;
- **Section 5** - presents the vision, purpose, values, principles and attributes considered in developing a desired state for the park and provides the high level objectives as basis for the management programmes contained in Section 10 of the plan;
- **Section 6** - outlines the zoning plan;
- **Section 7** - describes access and facilities;
- **Section 8 -** summarises the expansion and consolidation strategy;
- **Section 9** - sets out the concept development plan;
- **Section 10** - provides a strategic plan with programmes, objectives and activities with cost estimates. Monitoring and evaluation are integrated into the actions;
- **Section 11 -** contains detailed costing of the programmes; and
- **Appendices** to this plan contain further details such as declarations, stakeholder participation report, park development framework, internal rules and maps.

Section 2: Legal status

2.1 Name of the area

The Kalahari Gemsbok National Park was initially proclaimed in 1931 (Government Gazette No 1963 dated 3 July 1931). A full list of the declarations appears in Appendix 1.

2.2 Location

The park is situated in the Northern Cape Province from approximately 22° 10" east, 20° 0" west, 24° 6" north and 26° 28" south (Appendix 2, Map 1). The western border is the international boundary with Namibia and the eastern border along the Nossob River is the international boundary with Botswana, where it adjoins the Gemsbok National Park (GNP). These two national parks form the KTP. The closest town is Askham (72 km from Twee Rivieren), while Upington is located 250 km to the south.

2.3 History of establishment

Biltong hunters penetrated the area and by the late 1920's game numbers had deteriorated. Accordingly in 1931 the area between the Nossob and Auob rivers and the South West Africa (SWA) border was proclaimed a national park. Land was purchased south of the park to resettle "Coloured" people and the borehole structures were abandoned. The first warden of the park with one assistant focussed on the protection of wildlife in the area. In 1934 they both died from malaria after the park experienced an exceptional rainy season. His successor, re-commissioned the old boreholes in the riverbeds in order to "persuade" the animals to remain in the park instead of leaving the unfenced boundaries where they were poached.

In 1938 the British Government proclaimed a new game reserve across the Nossob in Bechuanaland (Botswana). After World War II, game fences were erected along the Kalahari Gemsbok Park's western and southern boundaries. The eastern boundary remained unfenced leaving this border open to animals that needed to migrate from east to west. In Botswana, the Mabuasehube Game Reserve was added in 1971 and was incorporated into Gemsbok National Park in 1992.

In March 1999, the Khomani San community of some 300 people succeeded in a land claim for a portion of the park with the proviso that co-management, between the Khomani San and SANParks, would ensue. The Khomani intend using this restitution to recapture their language and culture and reconstruct their identity. The Mier community's land claim of land adjacent to the Khomani San land claim, was also successful in 1999 and settled with the same proviso of co-management.

2.4 Contractual agreements

An important priority for the park is the implementation of the Ae!Hai Kalahari Heritage agreement (Bosch and Hirschfeld 2002), which is the tri-lateral agreement drawn up at the finalisation of the joint land claims. The agreement, signed by the Ministers for Land Affairs and Environment and Tourism, and the duly nominated representatives of the Mier and Khomani San Communities, committed the parties to establish and develop the contractual park (see Table 1). The spirit and letter of the agreement contribute towards the fulfilment of several obligations, including current legislation (NEM:PAA; The Restitution of Land Rights Act 22 of 1994), relevant SANParks policies; and South Africa's formal endorsement of international instruments including the International Union for Conservation of Nature (IUCN) Durban Accord on the promotion of community conserved areas and the co-management of protected areas, as well as the UN Declaration on the Rights of Indigenous Peoples.

The first edition of the joint management plan was prepared in March 2002 and appended to the contractual agreement. This provided the basis for the operational plan required to ensure

effective co-management of the Ae!Hai Kalahari Heritage Park, in line with the above statutory requirements. The contract park will be managed by a Joint Management Board (JMB) with representation by the Mier community, Khomani San and SANParks to oversee the implementation of the joint management plan for the relevant area.

Table 1. Private land included, by declaration, into the park.

Title deed	Farm name	Portion No	Extent (Ha)	Owner	GG	Proclamation date	Period
T2456/2002	Farm 643	1	30, 134.7803	Mier Local Transitional Council	24065	2002-11-22	99 years
T2457/2002	Farm 643	2	27, 769.2969	Khomani-San Communal Property Association	24065	2002-11-22	99 years

2.5 Co-management agreements

SANParks is responsible for the daily conservation management of the contractual area as mentioned in section 2.4. While the owners of the land retain all rights to the extent that these are not limited by the agreement, including the right to use the respective areas for economic, symbolic and cultural purposes permitted in terms of the agreement (Appendix5, Map 3).

2.6 Total area

The park is currently 957, 764 ha in size, all of which has been declared (Appendix 5, Map 3).

2.7 Highest point

The highest point in the park is 1, 093 m above mean sea level (AMSL). The latter is of note, for the airspace above the park up to 2, 500 feet above the highest point is also deemed National Park (Appendix 5, Map 2). Therefore, the park's airspace ranges from 3, 585 feet AMSL to 6, 085 feet AMSL.

2.8 Municipalities within which the park falls

The park is situated within the following local and district authority boundaries:

- Mier local municipality; and
- Z.F. Mgcawu district municipality.

2.9 Land claims

There is currently (2016) no land claim registered against any portion of land within the park however, the land claims process has been re-opened until 30 June 2019.

2.10 International, national and provincial listings

The KTP has been *de facto* in existence since 1948 through a verbal agreement between the South African and Botswana conservation authorities, sufficient to maintain the area as a single ecological unit. On 7 April 1999 the Presidents of Botswana and South Africa signed a treaty that would link the KGNP and the GNP under one unifying name – The KTP. It was officially opened on 12 May 2000 as the first formally declared transfrontier park in Africa. The park forms part of one of the largest conservation areas in the world, approximately 3, 799, 100 ha in size.

2.11 Environmental authorisations

Environmental authorisations has been issued for the following developments:

- The Nossob redesign (including wilderness camping close to Gharagab); and
- Self-service camp at Craig Lockhart (10 campsites).

2.12 Biophysical description

2.12.1 Climate

2.12.1.1 Historic

The park is situated in the arid to semi-arid southern Kalahari region. The southwestern Kalahari falls within a summer rainfall area and the mean annual rainfall ranges from 120 mm in the southwest to 350 mm in the northeast into Botswana. Rainfall is highly erratic and at a specific locality can vary from less than a 100 mm up to more than 450 mm per annum. The highest rainfall occurs in the four months January to April, with a peak in March. Annual rainfall has a high coefficient of variation and the rain often falls as short–duration, high-intensity thunderstorms. Temperatures are extreme with winter lows reaching -10.3 ºC and summer highs reaching up to 45.4 ºC (Van Rooyen *et al*., 1990). The relative humidity is low and the annual evaporation rate is high.

2.12.1.2 Future

By 2050, average temperatures in the park are expected to increase by between 1.7 ºC and 2.9 ºC (DEA, 2013; Driver et al. 2012; Holness & Bradshaw, pers. comm.). While average increases of 1 ºC - 3 ºC may not appear alarming, they will have significant impacts. Analysis of weather data from Twee Rivieren over the last 50 years (1960 - 2009), showed a 1.2 ºC increase in average minimum and 1.95 ºC increase in average maximum temperature (van Wilgen *et al*., 2016). Though these changes might sound small, these increases have resulted in an increase of a massive 37 additional days (compared to 1960) per year where the temperature exceeds 35 ºC.

No major rainfall changes have been detected in the historical rainfall record for the past 50 years, although missing data could have played a role in this. Medium and high risk scenarios predict a decrease of between 31 mm and 95 mm in rainfall by 2050 (DEA, 2013; Driver et al. 2012; Holness & Bradshaw, pers. comm.). This driest scenario would effectively mean no rainfall for the region. The wettest scenario would see an increase in rainfall of 64 mm per year, but this scenario is less likely. No major changes in the distribution of the savanna biome are predicted for the park under intermediate scenarios. However, under the driest predicted future, up to 80% of the park would have climatic conditions more similar to desert or succulent Karoo than savanna.

Unbearably hot temperatures through most of the year could become a reality. Along with predicted drying trends, this has huge implications for wildlife and tourism. Warmer temperatures also mean faster evaporation of any rain that does fall, which will further exacerbate the current water availability and quality problems. There is a possibility that the area will face a decline in tourism, especially if charismatic fauna and flora are also negatively affected.

2.12.2 Topography

The park is situated in the southwest of the Kalahari Basin, which includes the Kalahari Dessert, and is coincident with the Aeolian Kalahari Sand system. Regionally, topography is subdued, increasing from about 870 m AMSL in the south to about 1, 090 m AMSL in the north, an approximate gradient of 220 m over 200 km.

2.12.3 Geology and soils

The Kalahari is a large sand filled basin in the west of the southern and central African subcontinent covering over 2.5 million km², forming what is probably the largest sand-veld area

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

The floor rocks of the Kalahari Group are only known from boreholes. It consists of rocks of the Karoo Sequence with its associated intrusions of dolerite. The pre-Kalahari topography was dissected by rivers which drained in the direction of the present Botswana. The distribution of the oldest formation of the Kalahari Group, the Wessels Formation (clayey gravel), and the overlying Budin Formation (clay) was also determined from borehole records. The Karoo Sequence was probably the source of these rocks. The overlying Eden Formation (sandstone, grit and conglomerate) had a source which could yield much sand. All these formations were deposited under fluviatile conditions. The Mokalanen Formation (calcrete) and the Gordonia Formation (sand) indicate a change from humid to an arid environment. The Lonely Formation (clayey diatomaceous limestone) was deposited in a lacustrine environment. It also indicates a higher rainfall in an otherwise arid period. The Goeboe Goeboe Formation consists of clay and sand in the pans and rivers (Malherbe 1984).

The soils were classified by Van Rooyen (1984) into five main groups of which the red and yellow sands took precedence over the other soils because of their geographical distribution and pedological significance. These are:

- Red eutrophic fine and medium sandy soils of the Hutton soil form (Soil Classification Working Group 1981);
- Yellow-brown eutrophic and calcareous fine to medium sandy soils of the Clovelly soil form;
- Deep calcareous reddish brown and grey-brown loam and clay soils of the Oakleaf, Dundee and Valsrivier soil forms;
- Brown calcareous sandy clay loam soils of the Swartland soil form;
- Shallow brown and yellow-brown calcareous sands and loams of the Mispah soil form.

2.12.4 Fresh water ecosystem

2.12.4.1 Rivers

The southern Kalahari lies about 900 m above sea level with a gentle south westerly slope. The area is drained by the Nossob, Auob, Molopo and Kuruman Rivers. Both the Nossob and Auob Rivers have their sources in the Anas Mountains near Windhoek, Namibia. They flow south east joining 6 km north of Twee Rivieren and continue on as the Nossob to the Molopo and Kuruman Rivers outside the park 60 km to the south, which flow in from the east. There they become the Molopo River continuing to flow south towards the Orange River. At Noenieput sand dunes have blocked its course for at least the last 1, 000 years. The rivers are predominantly dry, only flowing for short periods after abnormally high rainfall. The Auob and Nossob rivers differ in that the Auob cuts a steep sided, narrow valley (100 m - 500 m wide) through the calcrete along its entire course, while the Nossob flows in a shallow, sandy trough until it cuts through the calcrete near Kameelsleep windmill south of which it continues in a similar form to the Auob. Both these rivers are relics of a wetter epoch and often referred to as “fossil” rivers or “dry” rivers. Recorded floods for the Auob and Nossob Rivers are scanty, but the former is known to have flooded in 1933 – 34 and the latter in 1806, 1933 – 34, 1963 and 1987 (Nash 1996).

Within the predominantly sandy southern Kalahari the availability of natural supplies of drinking water is strictly seasonal, being restricted to the harder bottomed pans and fossil riverbeds for short periods during the rainy season. In historical times the region was generally devoid of water in the dry season. The indigenous wildlife had to either move to permanent sources of drinking water or use alternative sources such as underground storage organs or melons. Human settlement around the periphery of the park interferes with the natural movement patterns of wildlife. It was believed that this interference prevented access to permanent natural water sources and, to compensate, artificial water points, fed from boreholes, was introduced (Parris 1983). 88 Boreholes have been erected within the park, predominantly along the riverbeds of which only 68 is active. The water in the boreholes is often highly mineralised.

2.12.4.2 Pans

A characteristic of the Kalahari is the number of large shallow depressions or pans, which hold water periodically during the wet season. Pans are small, closed basins or flat bottom depressions that contain water periodically and are characteristic globally of arid to semi-arid regions of low relief. These pans do not occur evenly throughout the protected area, nor do they appear to have any characteristic size, shape or pattern, apart from a slight linear arrangement in the north-western part of the park. Examples within the park include Polentswa Pan in the bed of the Nossob River, and Bitterpan which is situated in the heart of the dunefield, midway between the Auob and the Nossob Rivers. The pans in this area tend to be endorheic calc-pans, the most common form of pans, are underlain by lime with varying quantities of clay (Thieme *et al.,* 2005). Other kinds of pans include rarer rock pans, dune pans, and salt pans, due to the high concentrations of sodium and chloride on its floor.

The most important and fundamental difference between rivers and the pans is that the rivers have open drainage as opposed to the endorheic drainage of the pans. Although the pans and rivers are normally dry they have many features not found in the sandveld, and so form important subsystems in the overall ecosystem. They are also of considerable importance as water point sources for wildlife.

2.12.5 Terrestrial flora

The whole area of the park is fairly homogeneous because of the predominance of a sand mantle covering the area and is being characterised by Camel thorn *Vachellia erioloba,* "Driedoring" *Rhigozum trichotomum* and "Suurgras" *Schmidtia kalahariensis*. Topographically the area can be divided into dunes (dune crests and dune valleys), sandy plains on red to pinkish sand, and the rivers and pans (including terraces and calcrete outcrops) on whitish, compact calcareous sand and clay. The vegetation on fine-textured soils show less correlation with climatic factors and frequently show Karoo-Namib affinities (Van Rooyen *et al.,* 2008). The vegetation structure is predominantly a savanna, except in the north and along the Auob and Nossob Rivers, where an open woodland is found.

Van Rooyen *et al*. (2008) has classified, mapped and described 13 landscape units and associated plant communities for the park (Appendix 5, Map 8), which could be grouped into three main landscapes (Table 2). The classification, description and mapping of plant communities and their associated habitats or landscape units are vital first steps in building the framework to understand, protect, conserve and manage the ecology of the park. The ecological patterns and processes between the landscape units are often elusive. The same plant species occur in most of the units, and the differences between the units can often only be ascribed to the abiotic terrain morphology, *e.g.* dune height and pattern, soil characteristics which relate to soil-water and nutrient supply and by changes in plant species dominance and structure of the vegetation.

Table 2: Landscape and plant communities of the park (Van Rooyen *et al*., 2008).

	Landscape unit
A.	**High dunes**
1.	*Acacia haematoxylon* parallel high dune veld
2.	*Acacia haematoxylon* irregular high dune veld
3.	*Acacia erioloba-Acacia mellifera* parallel high dune tree savanna

B.	**Low dunes**
4.	*Acacia erioloba-Schmidtia kalahariensis* low dune tree savanna
4a.	*Acacia luederitzii or Albizia anthelmintica* patches
5.	*Acacia haematoxylon-Stipagrostis ciliata* irregular low dune veld
6.	*Acacia haematoxylon-Centropodia glauca* undulating shrubby grassland
C	**Plains on deep reddish sand**
7.	*Acacia haematoxylon-Stipagrostis amabilis* undulating plains shrubby grassland
8.	*Stipagrostis amabilis* plains grassland
D	**Calcretes**
9.	Calcrete outcrops
E	**Plains and terraces along riverbeds and grass pans on compact whitish sand**
10.	*Acacia erioloba-Rhigozum trichotomum-Stipagrostis obtusa* open tree savanna
11.	*Acacia mellifera-Rhigozum trichotomum-Stipagrostis obtusa* shrubland
12.	*Salsola* spp. - *Eriocephalus decussatus* terraces and pan edges
13.	*Stipagrostis obtusa* river terraces
F.	**Riverbeds and pans**
14.	*Sporobolus rangei* pan floor
15.	*Panicum coloratum* riverbed
16.	*Galenia africana-Lagerra decurrens* riverbed
17.	*Lebeckia linearifolia* riverbed
18.	*Acacia erioloba-Acacia haematoxylon* riverine savanna
19.	Grassy pans
G.	**Highly irregular dunes**
20.	Highly irregular dunes

A list of 625 plant species has been compiled for the park (Van Rooyen and Bezuidenhout 1997). According to Van Rooyen *et al.* (2008) there are a number of plant species that are of special interest in the park. These plant species are all common and abundant species elsewhere, but are of rare occurrence in the park. For example, *Parkinsonia africana* is known only by a small population that occurs in the lower Nossob River. Other relatively rare woody species in the park include *Boscia foetida* subsp. *foetida* on calcrete ridges in the south of the park, *Vachellia karoo* individuals in the Nossob River as well as individual sparsely distributed *Cadaba aphylla*, *Diospyros austro-africanum* and *Ehretia albida* in the park. A few individuals of *Dichrostachys cinerea* are found in a small area in the north near Unions End. Likewise, *Catophractes alexandrii* is limited to the extreme northern part of the park on calcrete ridges adjacent to the Nossob River. The *Albizia anthelmintica* and to a large extent also the *Vachellia luederitzii* patches have been mapped as one landscape unit. *Terminalia sericea* is locally prominent on the higher dunes in the northern part of the park.

2.12.6 Terrestrial fauna

The park has a bird species list of approximately 300 species, of which only about 86 are resident. The park is also an important refuge for raptors and bustards. Two thirds of all raptor species that have been recorded in South Africa have been seen in the KTP (Mills and Mills 2013). Resident large raptor species found in the park are the secretary bird *Sagittarius serpentarius,* white backed vulture *Gyps africanus*, lappet-faced vulture *Aegypus tracheliotus*, black-chested snake eagle *Circaetus pectoralis*, martial eagle *Polemaetus bellicosus*, tawny eagle *Aquila rapax* and the bateleur *Terathopius ecaudatus*. Smaller raptors such as the pale chanting goshawk *Melierax canorus*, gabar goshawk *Micronisus gabar*, greater kestrel *Falco rupicoloides*, pygmy falcon *Polihierax semitorquatus* and lanner falcon *Falco biarmicus* are also found throughout the park. In addition, seven species of owls have been recorded for the park, the largest being the Verreaux's eagle-owl *Bubo lacteus* and the smallest the African scops owl *Otus sengalensis*. The park is also an important refuge for the threatened kori bustard *Ardeotis kori* as well as the related northern black korhaan *Afrotis afraoides* and red-chested korhaan *Lophotis ruficristsa*. The introduction of the permanent

water supplies within the park has probably artificially increased the number and species composition of water dependent bird species, such as doves and sandgrouse species. Common dove species such as the cape turtle dove *Streptopelia capicola* and laughing dove *Spilopelia senegalensis* collect in large numbers around water holes at sunrise and sunset, while large numbers of the Namaqua sandgrouse *Pterocles namaqua* and Burchell's sandgrouse *Pterocles burchelli* can be found at waterholes about two hours after sunrise (Maclean 1984; Mills and Mills 2013).

Forty-six reptile species have been recorded in the park which includes 29 lizard species, 18 snake species and two tortoise species (Haacke 1984; Mills and Mills 2013). After heavy rains six species of amphibians can be seen in the park, including the African bullfrog *Pyxicephalus adspersus* (Haacke 1984; Mills and Mills 2013). Sixty-seven mammal species have been recorded in the park with Rodentia (28%) and Carnivora (28%) representing the largest families. Seventeen species of rodents are known to occur in the park, ranging in size from the 5 g African pygmy mouse *Mus minutoides* to the 12 kg porcupine *Hystrix africaeaustralis*, however the majority (13 species) being less than 100 g in mass (Nel *et al.,* 1984).

Landscapes that are focal points for the large animals of the region include the calcrete outcrops, riverbeds and pans. Ecological conditions dictate that the large herbivores need to be highly mobile giving rise to a nomadic existence for many species. Of the larger herbivorous animals; gemsbok *Oryx gazella*, blue wildebeest *Connochaetes taurinus* and ostrich *Struthio camelus* are the more sedentary, whereas springbok *Antidorcas marsupialis*, red hartebeest *Alcelaphus buselaphus* and eland *Tragelaphus oryx* numbers fluctuate widely within the park as they "migrate" between the KGNP and the GNP. Herbivores tend to concentrate along the riverbeds during the wet season and disperse in the dry season. Eland are the most mobile antelope species in the park, continually on the search for good foraging areas. An influx of eland into the park was recorded in 2007 and again in 2012. Over 16, 000 eland moved down into the south-western area of the park and a massive die off of these animals was seen once they reached the boundary fence and could not move any further south. Not much is known about this sporadic eland movement, however it is known that they come from northern Botswana and are possibly in search of better forage, but more research is needed to explain this mass southern movement of the eland. It is essential for the park to maintain the ecological relationship with the GNP through the joint management of the KTP to ensure the continued existence of these herbivore populations and their unique ecological relationships with the system.

Mammalian carnivores are well represented in the park, comprising six families. Five cat species namely lion *Panthera leo*, leopard *Panthera pardus*, cheetah *Acinonyx jubatus*, caracal *Felis caracal* and African wild cat *Felis lybica* can be seen. There are also three hyaena species namely spotted hyaena *Crocuta crocuta*, brown hyaena *Hyaena brunnea* and aardwolf *Proteles cristatus.* Three canid species namely black-backed jackal *Canis mesomelas*, bat-eared fox *Otocyon megalotis* and Cape fox *Vulpes chama* are also found in the park. The endangered African wild dog *Lycoan pictus* was last recorded in the park in 1984 when a small pack settled close to the Nossob rest camp (Mills and Mills 2013). Two Mustelids, (honey badger *Mellivora capensis* and striped polecat *Ictonyx striatus)*, three Herpestids, (Meerkat *Suricata suricatta*, yellow mongoose *Cynictis penicillata* and slender mongoose *Galerella sanguinea)* and one Viverrid, small-spotted genet *Genetta genetta* are also found in the park. Sightings of the banded mongoose *Mungos mungo* have been reported around Nossob and in the far north; however they do not appear to be resident in the park. Because of its size, habitat and pristine status, the KTP is one of the few areas where these species can exist under near natural conditions and exhibit their full range of behavioural and ecological evolutionary adaptations in the purest form of biodiversity conservation. Here again through its incorporation into the KTP, the park plays a crucial role in maintaining a natural predator-prey system. Two threatened species, lion and cheetah, and a unique gemsbok hunting spotted hyaena population are important components of this system.

2.13 Cultural heritage

Before white settlements or exploitation, the area now included in the park was part of the San people's domain for hunting and gathering food. Pre 1900's, no government claimed the land and the San were the only people residing here. Eventually the land became attached to the Cape Colony. The government, from 1897, began to survey the land and subdividing it into farms for white settlers. However, the white settlers were slow to take advantage of the newly surveyed farms and the Cape Government decided to give them to Coloured ("Basters") farmers instead.

In 1904 war was declared by the old Hottentot Captain Hendrik Witbooi, leader of the Witbooi Nama's, against German rule in German South West Africa. The area presently known as Mier and Botswana was annexed from Britain. One Hottentot leader named Simon Koper provided resistance. The Germans, led by Captain Frederich von Erckardt, pursued Koper into the Kalahari. Captain von Erckardt setup a posting station at Geinab, the old Hottentot name for Grootkolk. After some time Simon Koper and his men attacked the German posting station and defeated the Germans.

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

2.14 Socio-economic context

The area around the park is characterised by sparse populations of people, and long distances for infrastructural support. The Khomani San and the Mier are the two communities bordering the park. The Khomani San represents the last indigenous South African San. There is a high level of poverty within this group. Their recent history is one of dispossession in terms of land and access to natural resources, and of disempowerment resulting in the loss of language and culture. Main income-generating activities are small-stock herding for farmers of the Mier community, craft manufacturing and selling of products by the San coupled with cultural performances.

The Integrated Development Plan (IDP) of the Mier Municipality describes the park as an important draw-card for tourism in this area. The Mier community consists of six settlements of which Rietfontein is the largest. The residents of Mier live in less favourable conditions. A small number of people completed their school career and attended tertiary institutions. The direct effect is a high level of unemployment and a major challenge for the area's population. In relation to the total labour force, 33% are unemployed (Census 2011). Unemployment affects the ability of the local municipality to render quality services, due to the lack of payment for services by the community. Another concern to the local municipality is the number of people employed in elementary occupations, again reflecting on the lack of skills development and capacity within the local municipality.

Major employers in the region are; the government, the local municipality, commercial farmers and SANParks. The Mier area is predominantly an extensive livestock - and seasonal game farming area. Generally the local economy is very small, representing only between 1% and 2% of total output for the Z.F. Mgcawu District which represents approximately a quarter (25%) of the Northern Cape's economy. More than 80% of the park's staff originates from Mier.

Although the tourism sector in the Mier local municipality has the natural resources to play a significant role in order to fulfil in the economy of the area, the sector is still not fully developed to its ultimate potential. Another potential which has not yet been investigated is the economic spin-offs from current as well as future salt mining on the salt pans in the Mier municipal area and the probability of one private solar power station. The planned Auob Lodge in partnership with the Khomani San, close to the confluence of the Auob and Nossob Rivers, will contribute substantially to the economic beneficiation of the Khomani San.

2.15 Tourism

Being part of the KTP, both South Africa and Botswana benefit by the raised international profile of the park and most importantly by guaranteeing the long-term conservation of the valuable wildlife resources and their natural migratory patterns, thus helping to maintain the integrity of the Kalahari ecosystem. The park is one of SANParks' top performing and financially sustainable parks and includes three rest camps and six wilderness camps, with a total of 97 accommodation units and 81 campsites available.

Twee Rivieren is the largest of the rest camps and the southern entrance to the park, as well as a South African tourist access facility. Other tourism structures include a restaurant, shop, swimming pool, and petrol station. Open vehicle game drives are also conducted from the camp. The second largest camp is Nossob. The camp is situated in the middle of the park between Twee Rivieren and Union's End, on the banks of the Nossob River and includes accommodation, a shop, petrol station, information centre and a game hide overlooking a waterhole. Open vehicle game drives are also being conducted. The third rest camp is Mata Mata, which is situated on the banks of the Auob River on the Namibian border northwest of Twee Rivieren. Facilities include accommodation, a shop, petrol station, Namibian tourist access facility and game hide overlooking a waterhole. The six unfenced wilderness camps are Kieliekrankie, Urikaruus, Kalahari Tented Camp, Bitterpan, Gharagab and Grootkolk. The park offers a four day, 4 x 4 Eco-trail that runs through the dunes between Twee Rivieren and Polentswa, north of Nossob rest camp with three overnight campsites at Swartbas, Rosyntjiebos and Witgat. The park also has six picnic sites at Kamqua, Melkvlei, Dikbaardskolk, Lijersdraai, Union's End and a museum / picnic site at Auchterlonie.

There were a total of 40, 084 visitors in 2014 / 2015, of which 7, 918 were day and 32, 166 overnight visitors. Of these, 23.44% were International visitors, 2.32% from Southern African Development Community (SADC) countries and 74.24% local. Of the 29, 759 South African visitors most originate from the Western Cape, Gauteng and Northern Cape, and only 2.99% of these visitors were black. Of the 9, 397 International visitors most originate from Germany, The Netherlands, France, and Switzerland and of the 928 SADC visitors most are from Namibia. During 2014 / 2015 financial year, the park achieved 89.4% unit occupancy of with 31, 436 units occupied which is significantly higher than SANParks' average of 60.5%. Campsite occupancy achieved was 78.0%. The number of visitors participating in offered activities totalled 5,166 seats sold on game drives and day walks. There were 217 participants in the guided 4 x 4 Eco-trail.

The !Xaus Lodge which opened in July 2007 as part of the Kgalagadi Transfrontier Park, is owned by the Khomani San and Mier communities, and is the first fully catered luxury lodge to be located in the park. Whilst the park is performing exceptionally well, it is limited in terms of growth potential, due to an agreement with Botswana that limits tourism accommodation development.

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Section 3: Policy framework

3.1 Introduction

SANParks, like all protected area management authorities, is subject to the constitution, legislation, international agreements, national policies and government priorities. Section 41 of the NEMA:PAA requires that management plans be located within the context of a coordinated policy framework (CPF). The CPF can be downloaded from the SANParks website using the following link http://www.sanparks.org/conservation/park_man/.

The CPF will provide the information required by the DEA guideline for management plans (Cowan and Mpongoma 2010). This document will summarise the institutional, ecological, economic and social environment for park management and includes:

- An introduction to the management plan requirements of the NEM:PAA, what it means for stakeholders, and the corporate provisions SANParks has made to comply with NEM:PAA;
- SANParks as an organisation: including its organisational structure, vision, mission, biodiversity values and performance management system (by means of the balanced scorecard), and its approach to strategic adaptive management; and
- Policies and guiding principles:
    - Finances and commercialisation;
    - Tourism;
    - Zoning system in parks;
    - Stakeholder relationships;
    - Management to maintain biodiversity and ecosystem processes;
    - Risk management;
    - Safety and security;
    - Cultural heritage resources;
    - Resource use; and
    - Research.

SANParks policies are guided by its vision and mission statements. As a public entity, SANParks is committed to act in pursuit of transformation of South Africa's society in support of entrenching South Africa's democracy. And as such, this policy framework is open to public review by stakeholders.

The relationship between the park-specific adaptive management planning cycles and the SANParks CPF is outlined in Figure 1, where the planning cycle for management plans in SANParks is 10 years. The programmes and costing could be revised at shorter time intervals, as required.

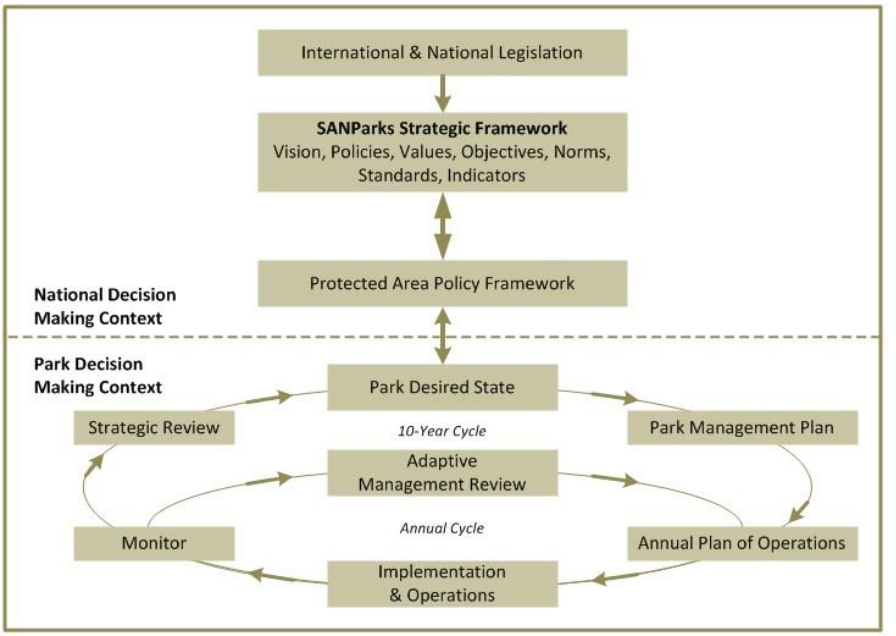

Figure 1. Protected area planning framework used by SANParks.

3.2 Strategic adaptive management

Protected areas are increasingly viewed as complex social-ecological systems. The social-ecological coupling acknowledges multiple interactions that take place between people and natural landscapes – even fenced-off protected areas are influenced by external social issues. These systems are regarded as complex because the results of interactions between the social and ecological components, as well as between components within each of these sub-systems, are often unpredictable. A further complication in the management of protected areas is that the suite of stakeholders may have widely varying or even conflicting expectations, based on different world views and values. Under these conditions of divergent stakeholder interests and limited predictability, it might be impossible to agree on an optimal solution and similarly unrealistic to expect certainty in terms of management outcomes. Strategic Adaptive Management (SAM) has emerged as the SANParks approach of choice to deal with the complexity and multi-stakeholder tensions that characterise park management decisions (Figure 2). SAM is designed to be strategic (facilitate action with foresight and purpose), adaptive (facilitate learning whilst we are doing) and participatory (facilitate engagement and co-learning with stakeholders) (Grant *et al*., 2008).

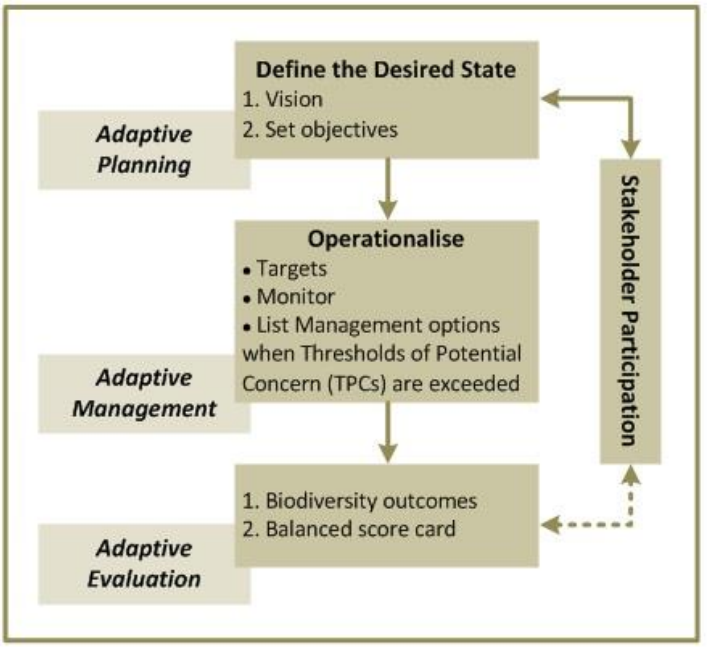

Figure 2. Steps in the adaptive management cycle used by SANParks.

SAM begins with determining the desired future state of a particular social-ecological system (Figure 3). The aim of this step is to build a sense of common purpose among all relevant stakeholders and to develop a collective roadmap for moving from a current reality to a more desirable social-ecological system. This desired state or vision needs to be described within the context of associated stakeholders and their respective values, as well as social, environmental, ecological, technological, political and economic (V-STEEP) influences. Description of the future state is further enriched by deliberating the distinctive and special features (called vital attributes) of the park.

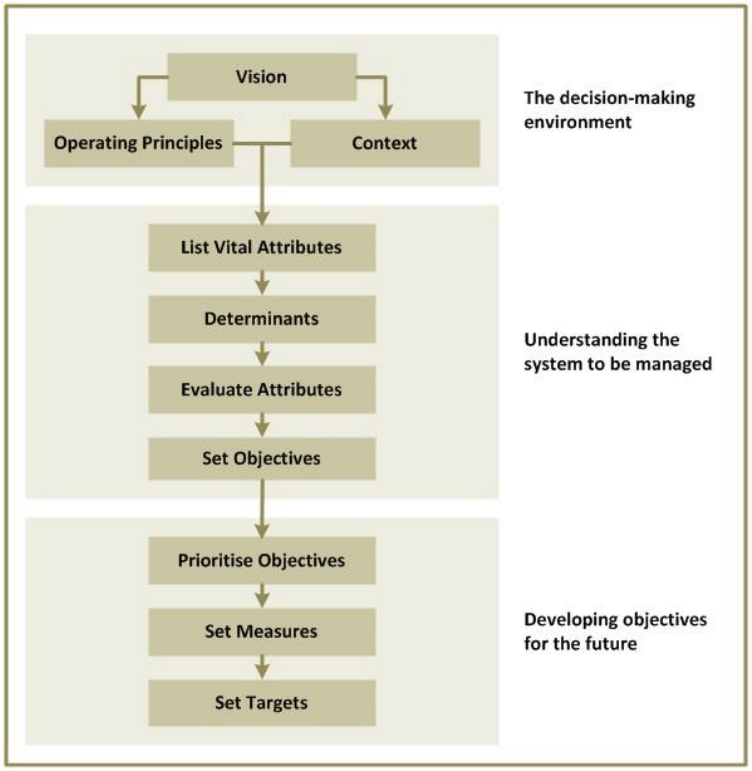

Figure 3. The adaptive planning process used by SANParks.

The vision, together with the vital attributes of the system to be managed, informs the setting of objectives. A nested hierarchy of objectives starts with high-level objectives that are deconstructed into a series of lower-level objectives and, ultimately, management options for achieving those objectives. Alternative management options are considered by looking at resources, constraints, potential threats and risks associated with a particular management option, while anticipating likely results. From these options the most appropriate is selected, followed by a planning stage and implementation.

A critical component of SAM is to monitor and evaluate the consequences of management decisions. Constant scrutiny of emerging results and evaluation against objectives are essential to allow strategy and methodology to be adjusted as new understanding and knowledge emerges. (See section 10.8 Evaluation and learning). Of critical importance is the participation and engagement of all relevant stakeholders.

3.3 Park specific framework

All park managers (except for Kruger National Park) report to the Managing Executive: Parks through a regional general manager. In the case of KGNP, reporting is via the Regional General

Manager for the Arid Region. The park's organogram (Figure 4) sets out the reporting structure in the park.

3.4 Park regulations and internal rules

In addition to the regulations for the proper administration of special nature reserves, nationals parks and world heritage sites, as gazetted on 28 October 2005 in GG 28181, the park has also drafted applicable internal rules in terms of Section 52 of the NEM:PAA, (Appendix 4).

3.5 Support to the park

Park management is primarily supported by head office, providing human resource, financial, marketing, review and auditing services. The regional operations office assists the park with line management support. The park also receives support from functions such as park planning and development, veterinary wildlife service, scientific services *etc.*

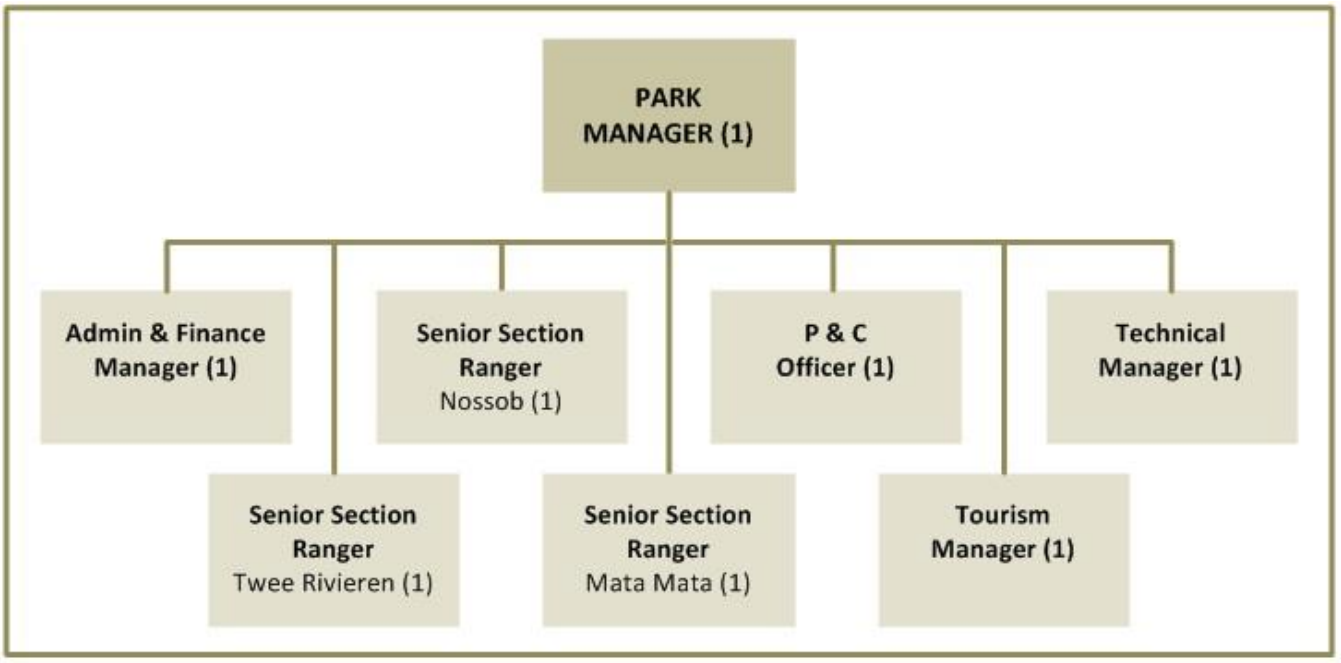

Figure 4. Kalahari Gemsbok National Park organogram.

Section 4: Consultation

SANParks recognises that parks must serve societal values and that they need to be part of and interrelate with the broader landscape and socio-economic context within which they are situated. The goal of the park within the public participation process is to work directly with stakeholders to ensure that the stakeholder concerns and aspirations are consistently understood and considered. Therefore stakeholders, both interested and affected, were included in the revision process of the park management plan by notifying them of participation processes through mechanisms suitable for the different stakeholder groups. These processes provided the opportunity for input from all stakeholders within reasonable timeframes, with the emphasis on sharing of information and joint learning. Processes also aim to recognise all knowledge, indigenous, ordinary and expert, as well as the diversity of values and opinions that exist between stakeholders. The commitment to the incorporation of public opinion into this plan is rooted in the park's management activities and is therefore geared towards promoting conservation values (and society's connection with those values, as also outlined in the NEM:PAA) and promoting this goal in part, by engaging the broader context in which the park is situated. The adaptive planning process that was followed was designed to (i) help stakeholders express opinions and values in a structured way, (ii) to use the opinions and expressed values to formulate a vision for the park, (iii) to translate the vision into management objectives that reflect the values as expressed by stakeholders and (iv) comment on the draft park management plan.

The objectives of the stakeholder participation process are to:

- Create a channel for the accurate and timely dissemination of information to interested and affected stakeholders;
- Create the opportunity for communication between SANParks and the public;
- Promote opportunities for the building of understanding between parties;
- Provide the opportunity for stakeholders to give meaningful input into the decision-making processes that drive the development of the park management plan.

The approach to the stakeholder participation process is based on the principles embodied in the following legal framework, namely:

- The Constitution of the Republic of South Africa Act No. 108 of 1996;
- The National Environmental Management Act No. 107 of 1998 (NEMA); and
- The National Environmental Management: Protected Areas Act No. 57 of 2003 as amended by the National Environmental Management: Protected Areas Act No.21 of 2014.
- The World Heritage Convention Act No. 25 of 1999.

In addition to the above legal framework, the stakeholder process was developed with the guiding principles for SANParks stakeholder participation in mind. SANParks thus undertakes to:

- Seek to notify stakeholders of participation processes through appropriate mechanisms;
- Ensure that the process provides the opportunity for input from all stakeholders within reasonable timeframes, emphasising the sharing of information, joint-learning and capacity building;
- Promote participation by stakeholders through timeous and full disclosure of all relevant and appropriate information;
- Provide feedback on the outcome of the process to stakeholders and demonstrate how their inputs have been considered in the decision making process;
- Ensure that methodologies accommodate the context of the issue at hand and the availability of resources (people, time, money) and do not conflict with these guiding principles; and
- Give particular attention to ensuring participation by marginalised communities, communities with specific concerns, or communities that have contractual rights in the national park.

Details regarding the stakeholder process that was followed are outlined in Appendix 2.

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Section 5: Purpose and vision

5.1 Purpose of the park

The NEM:PAA requires that the park be managed in accordance with the purpose for which it was declared. The original purpose of the park is not officially specified, neither in the first gazetted declaration nor any subsequent addition. However, the park was initially proclaimed due to hunting pressure and to secure a part of the open Southern Kalahari ecosystem. SANParks will manage the park firstly in accordance with its organisational vision and secondly in accordance with the mission and objectives hierarchy that were derived through consultation with stakeholders, as set out in this section.

5.2 Desired state for the park

In order for the current and future extent of the park to be protected and managed effectively, a desired state for the park has been developed through an adaptive planning process to guide park management in its daily operations. To formulate this desired state, focus was placed on the mission, park context, operating principles and, vital attributes that make this park unique, or at least very special in its class. Each attribute was discussed along with important factors determining / strengthening or threatening / eroding these attributes. Using this information helped focus the exact formulation of the park objectives, which must strengthen positive determinants and weaken or remove negative ones so that objectives are appropriate to the uniqueness and special nature of this park. In this way the management plan is customised according to its local context, without detracting from some of its more generic functions along with certain other parks. This framework forms a bridge between the SANParks CPF and its vision for the park, and the medium term (five year) priorities to attain the vision and mission in cooperation with its stakeholders.

5.2.1 Vision and mission

The vision is an inspirational statement designed to provide a picture of the envisaged future for the park. It answers the question of 'where do we want to go?'. SANParks' corporate vision, which holds for all national parks including KGNP, is as follows:

VISION

"South African National Parks connecting society"

The mission defines the fundamental purpose of the park, succinctly describing why it exists and what it does to achieve its vision. The following mission was developed after consultation with stakeholders at a workshop on 21 April 2015:

MISSION

The Kalahari Gemsbok National Park, as an integral part of the Kgalagadi Transfrontier Park, will be managed by SANParks to protect, recognise and / or integrate: biodiversity, living culture and heritage assets to ensure long term benefit by connecting society.

5.2.2 SANParks corporate vision of the desired state

Examined from the perspective of the entire system of national parks, SANParks has identified a broad vision and strategic direction for each individual park. This corporate strategic direction is intended to complement the role of other parks in adding overall value to South Africa's national park system in terms of biodiversity conservation, recreational opportunities and regional socio-economic contribution.

Thus, the following strategic direction for the park has also informed the programmes of implementation, as can be seen in section 10 of this document.

There is significant potential for improvement in cultural heritage value, depending on interpretation capacity. There are planned tourism development projects for which funding has been secured. The high potential to increase surplus income should therefore be realised. The potential of local communities to contribute to tourism and cultural heritage should be developed to increase the socio-economic impact of the park. This park is one of the parks with potential to set an example through the development of sustainable living practices. Supporting infrastructure needs include staff housing, road networks and bulk services. The biodiversity value is predicted to remain stable over the next 20 years. Risks to the biodiversity are low, being confined to alien and invasive species and the impact tourism developments principally have on the water supply.

5.2.3 Operating principles or values

SANParks has adopted eleven corporate values which serve as guiding principles around which all employee behaviour and actions are governed and shaped. Stakeholders recognised and endorsed the SANParks corporate and conservation values as outlined in the CPF. These principles or values are:

Corporate values:

- Show **leadership** in all we do.
- Be guided by **environmental ethics** in all we do.
- Promote **transformation** within, and outside of the organisation.
- Strive for **scientific** and **service excellence** at all times.
- Act with **professionalism** at all times.
- Adopt, and encourage **initiative** and innovation by all.
- Treat all our stakeholders with equity and **justice**.
- Exercise **discipline** at all times.
- Show **respect** to all.
- Act with **honesty** and **integrity**.
- Strive for **transparency** and open **communication** at all times.

Biodiversity values:

- We adopt a **complex systems view** of the world while striving to ensure the **natural functioning** and **long term persistence** of the **ecosystems** under our care.
- We aim at persistent achievement of **biodiversity representivity** and **complementarity** to promote **resilience** and ensure **ecosystem integrity**.
- We can **intervene in ecosystems responsibly and sustainably**, but we focus management on **complementing natural processes** under a **"minimum interference"** philosophy.
- We accept with humility the **mandate of custodianship** of biodiversity **for future generations** while recognising that both natural and social systems change over time.

5.2.4 Park context

The context refers to the current circumstances and the conditions that determine these circumstances. The context is therefore important as a set of agreed-upon realities that will influence the setting of management objectives. The context is summarised under sections 2.1 to 2.15.

5.2.5 Vital attributes

The vital attributes of the park are the important characteristics and / or properties of the park that concisely describe the key features of the park. The park identified six attributes that are vital to the approach by which it is managed. The key vital attributes are:

1. One of the largest contiguous conservation areas in the world that allows for a fully functioning open large predator-prey system;
2. Cultural heritage, including the land ownership of the Khomani San and Mier communities and symbolic rights of the Khomani San;
3. Successful joint management of the Kgalagadi Transfrontier Park;

4. Uniqueness (vastness / remoteness / wildness) of the landscape;
5. Iconic species;
6. The park is an economic driver / hub / catalyst in the region.

5.2.6 Determinants and risks to the vital attributes

A major component of park management's responsibility is to ensure the maintenance of the determinants or strengths of the vital attributes and to limit the influence of threats to the system where possible.

The boxes below reflect the vital attributes, determinants and threats.

1. One of the largest contiguous conservation areas in the world that allows for a fully functioning open large predator-prey system.	
Determinants: Institutional arrangement, open system, park size, climate.	
Threats	
• Climate change. • Over development.	• Erecting fence along the international border (Nossob River). • Disease.

2. Cultural heritage, including the land ownership of the Khomani San and Mier communities and symbolic rights of the Khomani San.	
Determinants: Long history of human habitation, land restitution in relation to the Khomani San and Mier land claims, traditional hunting and collecting traditions, unique language, environmental adaptation for survival, cultural ceremonies.	
Threats	
• Management not creating an enabling environment to allow the Khomani San to transfer cultural heritage to younger generation. • Ignorance of management regarding the management of cultural heritage assets. • Younger generation not interested in learning culture.	• Breakdown in relationship between SANParks and Khomani San / Mier communities. • Marginalisation and indifferences amongst communities. • Legislative and policy changes impacting rights.

3. Successful joint management of the Kgalagadi Transfrontier Park.	
Determinants: Signed treaty and memorandum of understanding, good SANParks / Botswana Department of Wildlife and National Parks (DWNP) relationship, governmental buy-in / support, joint operations, financial support, common conservation goals, integrated management, non-commercial ports of entry, enabling regional access / tourism, healthy political relationships between South Africa and Botswana, traversing the countries within the transfrontier park.	
Threats	
• Political instability. • Breakdown in relationship between SANParks and DWNP.	• Closure of ports of entry. • Insufficient support from government. • Breakdown in communication.

4. Uniqueness (vastness / remoteness / wildness) of the landscape.	
Determinants: Limited development in the park, relatively free of pollution, geomorphology, vegetation, climate, uninterrupted landscape.	
Threats	
• Climate change. • Pollution.	• Over development (inside / outside the park). • Increase in day visitor numbers.

5. Iconic species.	
Determinants: Kalahari lions, birds of prey, gemsbok, "herds of springbok, camelthorn trees, unique ecological adaptations of wildlife, semi-desert climate – hot and dry, lack of natural surface water, openness of system and vast distances.	
Threats	
• Climate change. • Human wildlife conflict. • Disease. • Semi-desert climate – hot and dry, lack of natural surface water, openness of system and vast distances.	• Poaching. • Erecting a border fence between KGNP and GNP. • Numbers of iconic species dropping below critical levels. • Poorly situated artificial water points.

6. The park is an economic driver / hub / catalyst in the region.	
Determinants: Implement various biodiversity social projects, major CAPEX / OPEX spending, one of the few major employers in the region.	
Threats	
• Reprioritisation of national objectives.	

5.2.7 High level objectives

While the Mission sets out the "Where do we want to go", high level objectives act as the roadmap to achieve the Mission, these high level objectives tend to flow naturally from the vital attributes. The desired state is achieved by means of a hierarchy of objectives (Figure 5), starting with an overall objective aligned with SANParks' organisational structure and the park's Vision and Mission statements, then broad, high level objectives (this Section) and to more detailed levels, ending with specific operational or management actions (Section 10). Discussions at the stakeholder meeting gave rise to an initial set of high level objectives. These were refined to reflect the following:

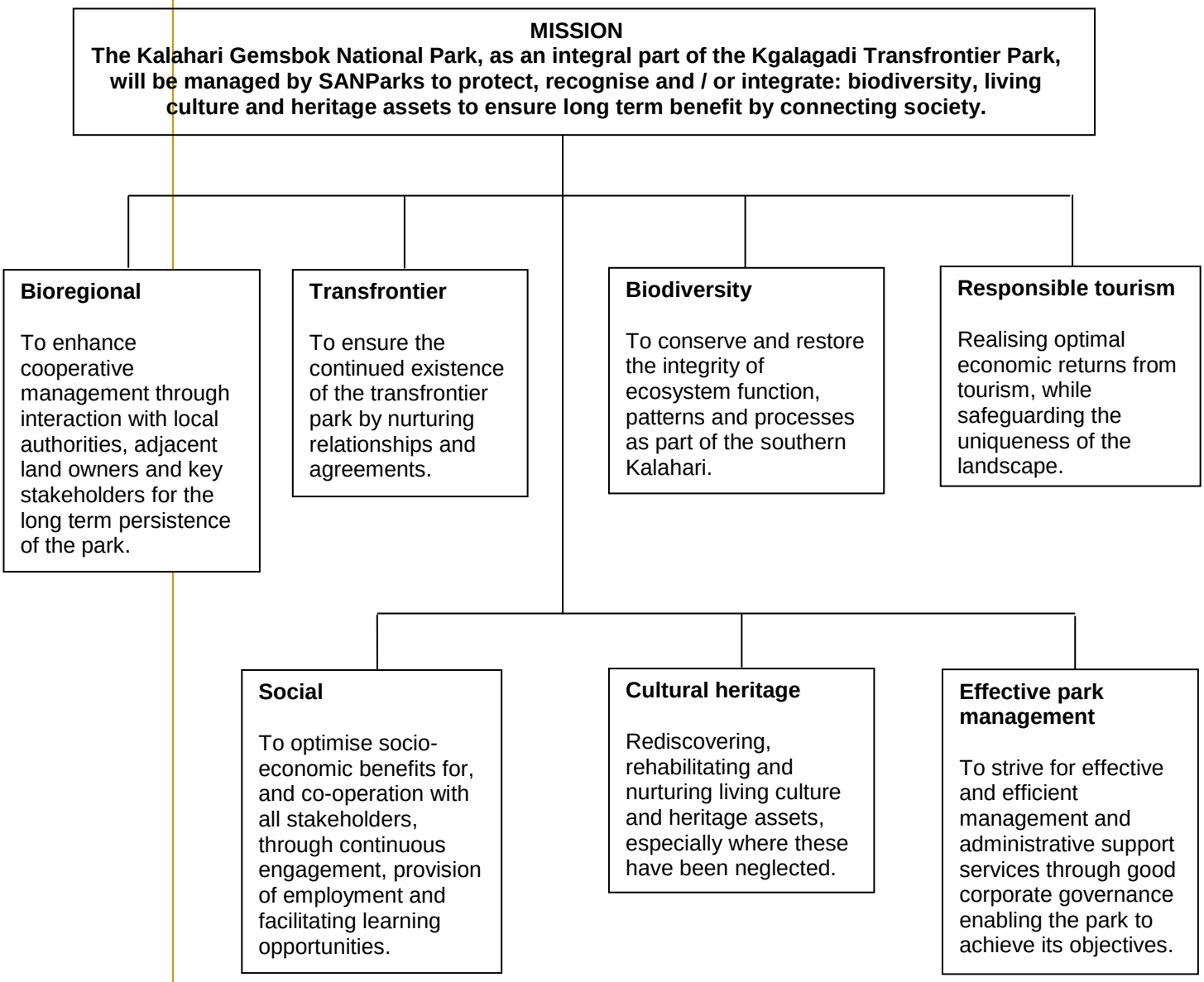


Figure 5: Kalahari Gemsbok National Park high level objectives.

1. Bioregional high level objective: To enhance cooperative management through interaction with local authorities, adjacent land owners and key stakeholders for the long term persistence of the park.

- **1.1 Mainstreaming biodiversity objective:** To minimise the potential conflicts that arise from different land uses in the park buffer zone through responsible engagements with land owners and local authorities and promoting mitigating options.

Figure 6: Bioregional high level objective and supporting objective.

2. Transfrontier high level objective: To ensure the continued existence of the transfrontier park by nurturing relationships and agreements.

- **2.1 Kgalagadi Transfrontier Park objective:** To combine expertise and resources in order to guarantee the long-term conservation of wildlife resources, increase the local and international status of the area and to encourage the economic potential of the region.

Figure 7: Transfrontier high level objective and supporting objective.

3. Biodiversity high level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the Southern Kalahari.

- **3.1 Habitat and vegetation objective:** To determine potential change of key habitats and plant communities and its consequences to the faunal component.
- **3.2 Herbivore objective:** To understand the spatial and temporal distribution of key herbivores in order to understand population trends and habitat uses.
- **3.3 Fresh water ecosystem objective:** To ensure sustainable utilisation of water resources.
- **3.4 Fire objective:** To allow the role of fire, as a natural driver, in maintaining biodiversity through implementing adaptive interference practices.
- **3.5 Species of special concern objective:** To prevent the decline or loss of species of special concern by identifying, monitoring and managing, where applicable, such species.
- **3.6 Disease objective:** To understand the incidence and impact of disease.
- **3.7 Restoration objective:** To ensure effective restoration of ecosystem functionality.

Figure 8: Biodiversity high level objective and supporting objectives.

4. Responsible Tourism high level objective: To realise optimal economic returns from tourism, while safeguarding the uniqueness of the landscape.

- **4.1 Responsible Tourism alignment objective:** To align park tourism planning to SANParks' 2012-2022 Responsible Tourism Strategy.
- **4.2 Responsible Tourism performance objective:** To enable the measurement and continuous improvement of the park's Responsible Tourism performance, in line with the principles of responsible tourism as addressed in SANParks' Responsible Tourism policy and minimum standards as per SANS1162:2011.
- **4.3 Customer focused service excellence objective:** To enable appropriate customer focused service excellence.
- **4.4 Grow tourism revenue to drive the conservation-based economy objective:** To provide visitors with appropriate and diverse range of products and services at market related prices, that act as an economic catalyst locally and regionally**.**
- **4.5 Reduce cost of tourism operations objective:** To enable cost savings within tourism operations of the park.
- **4.6 Promotion objective:** To promote KTP and its individual attractions as an unforgettable experience offering unique environmental and cultural experiences.
- **4.7 Visitor experiences objective:** To continually improve the visitor experience within the park.
- **4.8 Equitable access objective:** To enable equitable (both affordable and facilitated) park access for targeted communities.

Figure 9: Responsible tourism high level objective and supporting objectives.

5. Social high level objective: To ensure societal relevance through the optimisation of social and economic beneficiation, consistent stakeholder participation and implementation of educational programmes.

- **5.1 Stakeholder participation objective:** To use formal platforms for community participation and management engagement in order to ensure inclusivity thereby enabling the realisation of social and economic benefits of the park.
- **5.2 Educational objective:** To create awareness, understanding of and support for the park's conservation endeavours by playing a significant, targeted and effective role in promoting a variety of formal and informal educational programmes and community oriented initiatives.
- **5.3 Local socio-economic beneficiation objective:** To create social and economic benefits through skills development programmes, employment creation and sustainable resource use, in order to improve local livelihoods.

Figure 10: Social high level objective and supporting objectives.

6. Cultural heritage high level objective: To rediscover, rehabilitate and nurture living culture and heritage assets, especially where these have been neglected.

- **6.1 Nurture living culture objective:** To enable, encourage and support the nurturing and expression of authentic local traditions, cultural ceremonies, oral history, environmental adaptation and language to conserve these for future generations.
- **6.2 Preserve heritage assets objective:** To create an inventory of and continuously improve the management and interpretation of cultural heritage assets.

Figure 11: Cultural heritage high level objective and supporting objectives.

7. Effective park management high level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.

- **7.1 Environmental management objective:** To ensure compliance with environmental legislation and best practise principles for all management activities.
- **7.2 Risk management objective:** To establish and maintain effective, efficient and transparent systems of risk management.
- **7.3 Financial management and administration objective:** To ensure sound financial management and administration.
- **7.4 Human capital development objective:** To ensure sufficient and effective staff capacity to achieve management objectives by adhering to corporate human resource policies and guidelines.
- **7.5 Information management objective:** To implement best practices in the field of records and information management.
- **7.6 Infrastructure objective:** To upgrade and maintain existing infrastructure and develop new infrastructure in support of conservation and tourism in compliance with the zonation.
- **7.7 Safety and security objective:** To provide a safe and secure environment for both visitors and SANParks employees and to ensure that the integrity of the natural and cultural resources is secured.

Figure 12: Effective park management high level objective and supporting objectives.

Section 6: Zoning

6.1 Introduction

The primary objective of a park zoning plan is to establish a coherent spatial framework in and around a park to guide and co-ordinate conservation, tourism and visitor experience initiatives, and minimise conflict between these sometimes antagonistic activities. A zoning plan is also a legislated requirement of the NEM:PAA, which stipulates that the management plan, which is to be approved by the Minister, must contain "a zoning of the area indicating what activities may take place in different sections of the area and the conservation objectives of those sections".

The zoning of the park was based on an analysis and mapping of the sensitivity and value of the park's biophysical, heritage and scenic resources (SANParks, 2005a); an assessment of the regional context; and an assessment of the park's current and planned infrastructure and tourist routes / products – all interpreted in the context of park objectives. This was undertaken in an iterative and consultative process. This section – which is guided by the SANParks Conservation Development Framework (CDF) planning manual (SANParks, 2005b) – sets out the rationale for use zones, describes the zones, and provides management guidelines for each of the zones. The use zoning of the park is shown in Appendix 5, Map 4, and summarised in Table 3.

6.2 Synopsis of updates to the 2008 management plan

The zonation presented in this document has a number of departures from the previous 2008 plan. Most notably, the standard SANParks zonation scheme has been adopted, rather than the Transfrontier Park zonation scheme. While this has only resulted in zone name changes, the underlying zonation characteristics of most areas are still the same. The most important actual zonation change has occurred south of the Auob River, on the land owned by the San and Mier Communities, and in the San Commercial Preferential Zone (V-Zone). This has been rezoned Primitive, which is appropriate to accommodate small scale potential tourism products the communities may wish to develop there in accordance with the Agreement. Current management roads that might form part of an extended tourism transport network have been zoned primitive, as these would mostly be 4x4 and / or controlled access. Increasing resolution of satellite imagery improved the accuracy of park infrastructure and prompted minor adjustments to zone boundaries to better accommodate this.

6.3 Guiding principles underpinning the Conservation Development Framework

The principles underpinning park zonation, as listed below, were informed by the SANParks CDF manual, the guidelines for strategic environmental assessment in South Africa, integrated environmental management and the NEMA. Accordingly the zonation:

- Is the foundation of all planning and development within a park, with the aim of ensuring its long term sustainability;
- Accommodates strategic, flexible and iterative planning procedures;
- Is a "framework for planning" not a "plan for implementation" (*i.e.* implementation is dealt with through lower level plans and programs);
- Recognises that the mandate of SANParks is to conserve biodiversity and heritage resources of national and international significance, significance, in terms of both the NEM:PAA, the World Heritage Convention Act No. 25 of 1999 and the National Heritage Resources Act (NHRA) No. 25 of 1999;
- Ensures the integrity of the park's scenic quality by limiting human intrusions into the landscape;
- Accommodates a wide range of unique opportunities for experiences of solitude and nature based recreation which do not conflict with the desired social and environmental states;
- Confines development within the park to areas that are robust enough to tolerate transformation and without detracting from the "sense of place";

- Rationalises and channels access into the park and internal movement through it;
- Sets the limits of acceptable change; to minimise the loss of biodiversity and to reduce conflict between different park uses;
- Recognises that park boundaries are not static in time and there are factors beyond the current or future boundaries that can positively or negatively influence the park; and
- Recognises that the park cannot exist in isolation and that planning needs to ensure that the park is integrated with the surrounding landscapes, and economic and social structures at local and regional scales.

6.4 Rationale for use zones

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

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

6.5 The zoning system

SANParks has adopted a multiple zoning system for its parks. The system comprises:

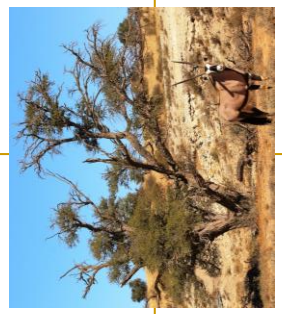
- Visitor use zones covering the entire park,
- Special management overlays; and
- A buffer zone surrounding the park.

6.5.1 The zoning process and its linkage to the underlying environmental analysis

The zoning for the park was underpinned by an analysis and mapping of the sensitivity and value of the park's biophysical, heritage and scenic resources. This analysis examined the biophysical characteristics of the park including: habitat value (in particular the contribution to national conservation objectives) and vegetation vulnerability to physical disturbance; special habitat value (the value of the area based on rare and endangered species); hydrological sensitivity (areas vulnerable to disruption of hydrological processes such as pans and floodplains). In addition, the heritage value and sensitivity of sites was examined (mostly archaeological and cultural aspects). Certain sensitivity informants usually incorporated into sensitivity analysis were not useful at park level due to the uniformity of the environment, such as the topographic, visual and soil sensitivity layers. These aspects of sensitivity should instead be considered at a local or site scale. The sensitivity analysis was used to inform the appropriate use of different areas of the park, as well as to help define the boundaries between zones. The zoning was also informed by the park's current infrastructure and tourism products, as well as the regional context (especially linkages to neighbouring areas and impacts from activities outside the park). Planned infrastructure and tourism products were also accommodated where these were compatible with the environmental informants. These were all interpreted in the context of the park objectives and undertaken in an iterative and consultative process.

Table 3. Summary of use zone characteristics for the Kalahari Gemsbok National Park.

Zone	General Characteristics	Experential Qualities	Interaction between users	Type of Access	Type of activities	Type of Facilities	Limits of acceptable change: Biophysical	Limits of acceptable change: Aesthetics and recreational	Guidelines for operational infrastructure
REMOTE*	Retains an intrinsically wild appearance and character (essentially **no infrastructure**), or capable of being restored to such.	Solitude and awe inspiring natural characteristics	None to very low	**Controlled access, non-motorised**	Guided hiking in small groups.	Established footpaths where erosion may be a problem. **Essentially undeveloped** and roadless	Deviation from a natural/pristine state should be minimized, and existing impacts should be reduced	Activities which impact on the intrinsically wild appearance and character of the area will not be tolerated.	Ideally there should be no management infrastructure, but temporary infrastructure may be present only to limit biodiversity loss
PRIMITIVE	Generally retains wilderness qualities, but with **basic self-catering facilities**. **Access is controlled, or limited to 4x4 vehicles**. Provides access to the Remote Zone, and can serve as a buffer.	Experience wilderness qualities	Low	**Controlled access. Accompanied or Unaccompanied. Foot; 4x4 vehicles**	Guided hiking; 4x4 drives; game viewing	Small, basic, self-catering, distributed to avoid contact between users; or limited concessions with limited numbers; 4x4 trails; hiking trails	Deviation from a natural/pristine state should be small and limited to restricted impact footprints. Existing impacts should be reduced.	Activities which impact on the intrinsically wild appearance and character of the area should be restricted, and impacts limited to the site of the facility.	Small, isolated permanent but low spec (usually dirt road) infrastructure may be present. This may be to help manage biodiversity, or service tourist facilities
LOW INTENSITY LEISURE	The underlying characteristic of this zone is **motorised self-drive access with basic self-catering facilities**. The numbers of visitors are higher than in the Remote and Primitive Zones. Camps are without large commercial facilities such as shops and restaurants.	Comfortable facilities in a relatively natural environment.	Moderate to high	**Motorised self-drive access**	Motorised self-drive game viewing, picnicking, guided walking or hiking,	Facilities limited to **basic self-catering picnic sites; ablution facilities; information/education centres; parking areas. Small self-catering (incl. camping) rest camps with ablution facilities.** May contain small or seasonal convenience stores or tea gardens. Low spec access roads to provide a more wild experience.	Deviation from a natural/pristine state should be minimized and limited to restricted impact footprints as far as possible. However, it is accepted that some damage to the bio physical environment associated with tourist activities and facilities will be inevitable	Although it is inevitable that activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area, these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience	Where this is the highest usage zone anticipated in a Park, management infrastructure should be concentrated here as far as is feasible; allowing management to efficiently make use of existing high volume infrastructure. To limit impacts, management infrastructure should be placed close to the park boundary.
HIGH INTENSITY LEISURE	The main characteristic is that of a **high density tourist development node, with commercial amenities**, where more concentrated human activities are allowed.	Comfortable and sophisticated facilities while retaining a natural ambiance	High	Accessible by motorised transport (car/bus) on **high volume transport routes, including delivery vehicles**.	As above. Additional sophisticated infrastructure. Larger, organised adventure activities. Dining at restaurants.	High density tourist camps with commercial amenities. Footpaths, transport systems, **accommodation, restaurants, curio and refreshment stalls; information/education centre**s. High volume roads.	The greatest level of deviation from a natural/pristine state is allowed in this zone, and it is accepted that damage to the bio physical environment associated with tourist activities and facilities will be inevitable.	Although it is inevitable that the high visitor numbers, activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area, these should be managed and limited to ensure that the area generally still provides a relatively natural outdoor experience appropriate for a national park.	Where this is the highest usage zone in a Park, management infrastructure should be concentrated here as far as is feasible; allowing management to efficiently make use of existing high volume infrastructure. To limit impacts, management infrastructure should be placed close to the park boundary.



Map 5 in Appendix 5 shows the relationship between the use zoning and the summary products of the biodiversity and landscape sensitivity-value analysis. This indicates that the zoning in this park was only partially successful in including the environmentally sensitive and valuable areas into zones that are strongly orientated towards resource conservation rather than tourist use. Table 4 below summarises the percentage area of the park covered by each zone, as well as the percentage of the highly environmentally sensitive and valuable areas (defined as areas with values in the top quartile of the sensitivity value analysis) that are in each zone. Just over 91% of the park is covered by zones that are strongly conservation orientated in terms of their objectives (*i.e.* remote and primitive), with nearly 65% being in the most strongly conservation orientated zone. This reflects the "wilderness" aspects of the parks objectives. However, although large portions of the park are well protected, the correlation between the spatial distribution of environmentally sensitive habitats and the conservation orientated zones is not strong in the park, with the remote zone containing just over 50% of the highly sensitive habitats even though it covers nearly 65% of the surface area. Critically, the tourist orientated low intensity leisure zone covers almost 9% of the park yet contains almost 24% of the most sensitive habitats. This contrasts with the situation in most other parks where the high use zones are generally kept out of sensitive habitats. The key issue is that the very sensitive riverine and calcrete habitats are the focus areas of most tourist activity and contain a very large portion of the established roads. Although unfeasible at present, unless the road network is significantly re-orientated a suitable distance from the river valleys, this mismatch between the zoning and the environmental sensitivity will persist.

Table 4: Summary of the percentage area of the Kalahari Gemsbok National Park covered by each zone, as well as the percentage of the highly environmentally sensitive and valuable areas (defined as areas with values in the top quartile of the sensitivity value analysis) that are in each zone.

Zone emphasis	Use zone	Zone as a % of park area	% of highly sensitive areas that are in a zone
Conservation orientated	Remote	64.9	50.2
	Primitive	26.3	26.1
Tourism orientated	Low intensity leisure	8.8	23.7
	High intensity leisure	0.02	0.03

6.5.2 Remote zone

Objective

The objective of this conservation orientated zone is to protect sensitive environments from almost all development impacts and tourism pressures.

Characteristics

This is an area retaining an intrinsically wild appearance and character, or capable of being restored to such a state, and which is essentially undeveloped and road less. There are no permanent improvements or any form of human habitation. It provides outstanding opportunities for solitude with awe inspiring natural characteristics. If present at all, sight and sound of human habitation and activities are barely discernible and at a far distance.

Visitor activities and experience

Activities: Access is strictly controlled and non-motorised. Groups must be small, and can either be accompanied by a guide or unaccompanied. Several groups may be in area at the same time, but if necessary densities and routes should be defined so that groups are unaware of each other. The principle of "Pack it in Pack it out" must be applied. Specially arranged once-off events may involve higher visitor numbers for a brief limited period, but these events are not the norm.

Interaction with other users: There is no interaction between groups. The number of groups within the area will be determined by the ability to ensure that there is no interaction between groups.

Limits of acceptable change

Biophysical environment: Deviation from a natural / pristine state should be avoided, else minimised where unavoidable, and existing impacts should be reduced.

Aesthetics and recreational environment: Activities which impact on the intrinsically wild appearance and character of the area, or which impact on the wilderness characteristics of the area (solitude, remoteness, wildness, serenity, peace, *etc.*) will not be allowed.

Facilities

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

Sophistication of facilities: Permitted visitor/s are allowed to make use of self-carried tents. Guidelines for washing, ablution and cooking must be defined according to the "Pack it in Pack it out" principle.

Audible equipment and communication structures: None.

Access and roads: Where permitted, public access is non-motorised, generally guided and strictly controlled. Vehicular access and parking is provided in the adjoining zone.

Location in park: Most of the park north of the Auob River is classified as remote, except where there is current or potential tourism infrastructure.

Guidelines on management infrastructure and utilisation

Ideally there should be no management infrastructure, and natural processes should be allowed to function without management intervention. However, in reality, most parks require some management intervention in ecological processes (fire, disease management, fecundity – particularly of large predators). For this reason, concessions are made on management infrastructure in this zone, but only to prevent loss of biodiversity or infrastructure. Thus, infrastructure might include footpaths where erosion might be a problem, or identified (barely) traversable management 4x4 Eco-trails for fire management or securing area integrity. Temporary management infrastructure, as might be used for game capture or anti-poaching activities, such as temporary bomas or helicopter landing sites would be permissible, as would vehicular access by staff for specific management interventions, although this should be circumspect.

6.5.3 Primitive zone

Objectives

The objective of this conservation orientated zone is to protect sensitive environments from development impacts by limiting the size, number and sophistication of infrastructure, and reduce tourism pressure by controlling access and visitor numbers.

Characteristics

The primary characteristic of this zone is the experience of wilderness qualities with the emphasis on controlled access. Access is controlled in terms of numbers, frequency and size of groups. The zone shares the wilderness qualities of wilderness areas and the remote zone, but with the provision of small basic self-catering facilities with controlled access. It also provides

access to areas zoned as remote or wilderness. Views of human activities and development outside of the park may be visible from this zone. This zone serves to protect sensitive environments from high levels of development, and may act as a buffer between conservation orientated and tourist orientated zones, *e.g.* remote (or wilderness areas) and low intensity leisure respectively. The primitive zone may contain concession sites and other facilities where impacts are managed through strict control of the movement and numbers of tourists, for example if all tourists are in concession safari vehicles.

Visitor activities and experience

Activities: Access is controlled in terms of the number, frequency and size of groups. Activities include hiking, 4x4 Eco-trails and game viewing. In the park, access control is mostly passive, with 4x4 Eco-trails marked as restricted to 4x4 vehicles only, thus limiting numbers on these routes. The guided 4 x 4 Eco-trail require booking in advance. Access may also be controlled either through only allowing access to those with bookings for specific facilities, or alternatively through a specific booking or permit for a particular hiking trail or 4x4 route in more sensitive areas. Several groups may be in area at the same time, but access should be managed to minimise interaction between groups if necessary.

Interaction with other users: Interaction between groups of users is low, and care must be taken in determining the number and nature of facilities located in the area in order to minimise these interactions.

Limits of acceptable change

Biophysical environment: Deviation from a natural / pristine state should be small and limited to restricted impact footprints. Existing impacts should be reduced. Any facilities constructed in these areas, and activities undertaken here should be done in a way that limits environmental impacts. Road and infrastructure specifications should be designed to limit impacts.

Aesthetics and recreational environment: Activities which impact on the intrinsically wild appearance and character of the area, or which impact on the wilderness characteristics of the area (solitude, remoteness, wildness, serenity, peace, *etc.*) should be restricted and impacts limited to the site of the facility. Ideally visitors should only be aware of the facility or infrastructure that they are using, and this infrastructure / facility should be designed to fit in with the environment within which it is located in order to avoid aesthetic impacts.

Facilities

Type and size: Facilities are small, often very basic, and are distributed to avoid contact between users. To achieve this, camp development should be limited to 15 beds. Alternatively facilities can be designed for high levels of luxury, but with limited visitor numbers (*e.g.* controlled access camps or concession sites).

Sophistication of facilities: Generally facilities are small, basic and self-catering, though concession facilities may be significantly more sophisticated.

Audible equipment and communication structures: None.

Access and roads: Vehicular access to facilities is limited to low-spec roads, often 4x4 only. Tourist and game viewing roads are usually 4x4. Established footpaths are provided between units to avoid erosion and braiding.

Location in park

The San and Mier Community owned land, and SANParks land south of the Auob River, which included the San Commercial Preferential Zone (V-Zone) was designated primitive, to allow for the development of community managed tourism products, in accordance with the Agreement. Once these tourism products are in place or the routes are decided, the feasibility of parts of this area reverting back to remote should be investigated, as 57.7% of the total area of Auob Duneveld (Mucina and Rutherford, 2006) in South Africa is contained in the park south of the Auob River, and this vegetation type is not represented in any other protected area. The current and future potential 4x4 road network north of the Auob River, the established smaller campsites and wilderness camps were also designated primitive, as well as the area between the Nossob 4x4 Eco-trail and the Nossob River.

Guidelines on management infrastructure and utilisation

Permanent management infrastructure is permissible in this zone, but these should be relatively small and isolated. Park operations staff may need to service tourist facilities in this zone. Examples may include “twee spoor” management tracks, permanent bomas for wildlife, ranger camps and outposts, and possible even permanent helipads. The onus is on park management to coordinate tourist road network usage in such a way that tourists do not encounter management infrastructure in this zone, or by the use of no entry signs. Low volume access gates or entrances to access 4x4 Eco-trails could be accommodated in this zone.

6.5.4 Low intensity leisure zone

Objectives

The objective of this tourist orientated zone is to provide infrastructure for day and overnight visitors in a natural environment. Impacts should be mitigated by using infrastructure to direct and manage the movement of park visitors away from the more sensitive areas that may occur within this zone.

Characteristics

The underlying characteristic of this zone is motorised self-drive access, with basic self-catering facilities. Small or seasonal commercial or catered facilities could be accommodated; however, these should be small and still align within the general ambiance of the zone. Numbers of visitors are higher than in the remote and primitive zones. Relatively comfortable facilities are positioned in the landscape retaining an inherent natural and visual quality which enhances the visitor experience of a more natural and mostly self-providing experience. Access roads are low key, preferably gravel roads and / or tracks to provide a more natural experience, however higher volume roads may be tar. Facilities along roads are generally limited to basic self-catering picnic sites with toilet facilities. Large busses and open safari vehicles may be permitted subject to certain restrictions.

Visitor activities and experience

Activities: Self-drive motorised game viewing, guided game drives, picnicking, guided walking or hiking.

Interaction with other users: Moderate to high

Limits of acceptable change

Biophysical environment: Deviation from a natural / pristine state should be minimised and limited to restricted impact footprints as far as possible. However, it is accepted that some damage to the biophysical environment associated with tourist activities and facilities will be inevitable.

Aesthetics and recreational environment: Although it is inevitable that activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area (solitude, remoteness, wildness, *etc*.), these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience.

Facilities

Type and size: Picnic sites, view sites, information centres, ablution facilities, parking areas, education centres *etc*. Small self-catering (including camping and caravanning) camps of low to

medium density (up to 50 beds). Additional facilities could include swimming pools. Trails for 4x4 vehicles can also be provided. Small or seasonal (facilities are only open as required or during peak season) commercial facilities could be provided; such as kiosks, small tourist convenience stores, or tea gardens. However, these should still fall within the general ambiance of the zone. Larger commercial facilities and larger concessional operators (*e.g.* Cattle Barons, Mug-and-Bean), should rather be placed in the high intensity leisure (HIL) zone. Day visitor sites are not placed within the camps, and must be compliant with the general self-catering or smaller-scale catered characteristics of the zone.

Sophistication of facilities: Mostly self-contained self-catering accommodation units with bathroom facilities. Campsites mostly include ablution and kitchen facilities. Tourist facilities may include modern commercial facilities such as shops, kiosks, tea gardens and small tourist convenience stores, as long as these are small.

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

Access and roads: Motorised self-drive sedan car access (traditional game viewing) on designated routes which are preferably gravel roads. Large busses and open safari vehicles are restricted to high volume roads designed to accommodate them, and indicated as such. Roads may be tarred, secondary gravel tourist roads, or minor game viewing roads.

Location in park

Low intensity leisure (LIL) areas were designated on the established sedan road network along the Auob and Nossob Rivers, as well as two sedan linkage roads between these, and the road linking the !Xaus Lodge to the Auob River road.

Guidelines on management infrastructure and utilisation

The placement of permanent management infrastructure is encouraged in this zone, particularly when this is the highest level use zone in the park. In parks where HIL already exists, such as in this park, attempts should be made to concentrate the development of park management and operational infrastructure in the highest usage zone of the park, where feasible, and especially when this is situated close to the boundary of the park. In very large parks, where distances may be great, it may be preferable to house some management infrastructure in LIL, at convenient locations distant from HIL. Where it may be preferable to include non-industrial components of management infrastructure on the periphery of the park, these could be accommodated in LIL. Examples may include park reception, or park management offices (which may wish to be close to park reception facilities). This would allow management and operations to make use of high volume access routes, which would be built to accommodate high traffic volume, and if positioned close to the boundary of the park, would involve shorter commuting distances, limiting disturbance to both wild life and tourists, and limiting wear and tear to roads. Types of operational infrastructure that could be accommodated here include: park offices and administration, or moderate to high volume access or main entrance gates.

6.5.5 High intensity leisure zone

Objective

The main objective of this tourist orientated zone is the concentration and containment of commercial, tourism, managerial, operational and industrial park activities in a restricted and designated area, which is robust enough to tolerate development, and where these diverse activities can share multi-use infrastructure (roads, plumbing, power), thus reducing their overall footprint. As impacts and particularly cumulative impacts are higher, where possible the HIL zone should be placed, in areas that have low sensitivity values, and are robust enough to tolerate development, and ideally on the periphery of the park.

Staff not directly associated with tourism facilities should be accommodated outside of the park if possible. When inside a park, all industrial type facilities such as laundries, maintenance depots and workshops, should ideally be located close to the park boundary or, if possible, outside of the park within municipally suitably zoned adjoining urban or rural areas.

Characteristics

The main characteristic is that of a high density tourist development node with modern commercial amenities such as restaurants and shops. This is the zone where more concentrated human activities are allowed. High intensity leisure is accessible by motorised transport (car / bus) on high volume transport routes. More concentrated and commercialised (concessional) activities occur here than in than LIL areas.

Visitor activities and experience

Activities: Traditional game viewing routes with associated more sophisticated infrastructure, sightseeing at tourist destinations, picnicking, guided walking and hiking, activities associated with amenities such as dining in larger or concessional restaurants.

Interaction with other users: High

Limits of acceptable change

Biophysical environment: The greatest level of deviation from a natural / pristine state is allowed in this zone, and it is accepted that damage to the biophysical environment associated with tourist activities and facilities will be inevitable. However, care must be taken to ensure that the zone still retains a level of ecological integrity consistent with a protected area.

Aesthetics and recreational environment: Although it is inevitable that the high visitor numbers, activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area (solitude, remoteness, wildness, *etc*.), these should be managed and limited to ensure that the area generally still provides a relatively natural outdoor experience.

Facilities

Type and size: High density camps providing tourist accommodation with diverse modern amenities. Restaurants, shops, education / information centres, view sights, ablution facilities, parking areas, botanical gardens and aircraft landing strips. Day visitor sites are provided outside of rest camps. Day visitor sites or picnic sites may provide catered facilities and kiosks. Where it may be necessary to provide high density recreational sites with a wide range of intensive activities, an attempt should be made to concentrate these sites close to the periphery of the park. Staff villages and administrative centres should be restricted to core staff. Non-essential staff housing, administration and industrial infrastructure should be positioned outside of or close to the periphery of the park were possible.

Sophistication of facilities: Moderate to high density facilities. Self-catering and catered. Camps often have diverse modern facilities such as shops and restaurants, which may be concessional.

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

Access and roads: The zone is highly motorised, including busses and delivery vehicles on designated routes which are often tarred. Care must be taken to distinguish between roads that serve as high access delivery routes to camps, link roads between camps, and game viewing roads, to minimise conflict between users.

Location in park

A high intensity leisure area was designated around the established rest camps at Mata Mata, Nossob and Twee Rivieren.

Guidelines on management infrastructure and utilisation

Management guidelines that apply to LIL apply to HIL as well. Generally, the presence of HIL in a park indicates higher or more intense utilisation or development, with a higher diversity and concentration of facilities, and thus may require additional management or operational facilities. As HIL is by definition a high use area, and should be located in an area of low sensitivity, the development of management and operations infrastructure in this zone should be favoured. In the park, most operations and administration infrastructure are situated in the existing and well established HIL tourist node at the Twee Rivieren rest camp.

6.6 Overview of the special management overlays

Special management overlays (SMO) which designate specific areas of the park that have special management characteristics, notably community use, were identified (Appendix 5, Map 4; Table 5).

Table 5: Special management overlays, community use.

Special management overlays		
	San symbolic and cultural zone (S-Zone)	An area in which the community can express their symbolic and cultural activities, as well as undertake resource use and extraction.
	San commercial preferential zone (V-Zone)	Designated area where the community has preferential tourism rights to undertake a variety of commercial activities appropriate in a protected area, such as: • day and night drives in the concession area using SANParks-compliant game-viewing vehicles; • guided 4x4 Eco-trail with wilderness / bush camps; • develop a Wilderness Leadership trail; • guided walks; and • cultural performances and interactions involving the ǂKhomani San.

6.7 The park buffer zone

The park buffer zone show the areas within which landuse changes could affect the park. The zones, in combination with guidelines, will serve as a basis for: (i) identifying the focus areas in which park management and scientists should respond to environmental impact assessments (EIA), (ii) helping to identify the sort of impacts that would be important at a particular site, and most importantly (iii) integrating long term protection of the park into the spatial development frameworks (SDF) of municipalities and other local authorities. To this end, the park will endeavour to forge closer collaborative relationships with its neighbouring land owners, including (but not limited to) the Mier and Khomani San communities, as well as in the Mier local municipality. The park will interact with all spheres of government, whether local, provincial, or national, as required, to achieve a positive conservation outcome in the buffer zone. International matters will be mediated through the KTP JMB. In terms of EIA response, the buffer's zones serve largely to raise red-flags and do not remove the need for carefully considering the exact impact of a proposed development. In particular, they do not address activities with broad regional aesthetic or biodiversity impacts *e.g.* renewable energy development projects.

In the park, there are two categories within the park buffer zone, the priority natural area and the viewshed protection area (Appendix 5, Map 6).

6.7.1 Priority natural areas

This category aims to ensure the long term persistence of biodiversity, within and around the park, by identifying the key areas on which the long term survival of the park depends. This includes areas important to both biodiversity pattern (especially reasonably intact high priority natural habitats) and processes (ecological linkages, catchments, intact hydrological systems, *etc*.). This does not imply any loss of existing rights (*e.g.* current agricultural activities or legal extractive biodiversity use such as fishing), but rather aims to ensure the parks survival in a living landscape.

Priority natural areas may include areas identified for future park expansion as well as reasonably natural areas of high biodiversity value which are critical for the long-term persistence of biodiversity within the park. These include adjacent natural areas (especially high priority habitats) which function as an ecologically

integrated unit with the park, as well as areas critical for maintaining ecological links and connectivity with the broader landscape.

Development guidelines: Inappropriate developments and negative land use changes (such as additional ploughing permits for natural veld, development beyond existing transformation footprints, urban expansion, and intensification of landuse) should be opposed within this area. Developments with site specific impacts (*e.g.* a lodge on a game farm) should be viewed favourably if they contribute to ensuring conservation friendly land use within a broader area. Guidelines applicable for the catchment protection section would also apply to these priority natural areas.

6.7.2 Viewshed protection

These are areas outside the park where developments could impact on the aesthetic quality of a visitors experience in the park. This category is particularly concerned with visual impacts (both day and night), but could also include sound pollution.

Development guidelines: 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 category would be perfectly suited for development. Further, very obtrusive developments outside this zone would also have to be considered, as they may impact on the park.

6.8 Future improvements

Certain elements of the park CDF have not been revised. During the next zonation revision, once these tourism products are in place or the routes are decided, the feasibility of parts of this area reverting back to remote should be investigated, as 57.7% of the total area of Auob Duneveld (Mucina and Rutherford, 2006) in South Africa is contained in the park south of the Auob River, and this vegetation type is not represented in any other protected area. Remote areas may still be investigated for possible formal designation as wilderness areas in terms of Section 22 of the NEM:PAA.

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Section 7: Access and facilities

7.1 Public access and control

The park is situated approximately 250 km from Upington in the far Northern Cape and 904 km from Johannesburg.

Visitors driving from Johannesburg have a choice of two routes, either via Upington (250 km tarred road) or via Kuruman, Hotazel and Vanzylrus (+/- 340 km gravel). Upington airport is the nearest airport to the Park and has car-hiring facilities. The road to Twee Rivieren, via Vanzylrus, is gravel whereas, the road via Upington / Askham is a tarred road that is in good condition.

Other travelling distances to the park:

- Upington to Twee Rivieren: 250 km;
- Kuruman to Twee Rivieren: 383 km;
- Kimberley to Twee Rivieren: 621 km;
- Cape Town to Twee Rivieren: 1, 076 km;
- Johannesburg to Twee Rivieren: 1, 090 km;
- Durban to Twee Rivieren: 1, 463 km; and
- Mata-Mata to Keetmanshoop: 280 km.

Additional travel distances:

- Kaa gate to Maun: 797 km;
- Mabuasehube gate to Gaborone: 533 km;
- Mabuasehube gate to Maun: 787 km;
- Mabuasehube gate to Tsabong: 115 km;
- Two Rivers to Gaborone: 810 km; and
- Two Rivers to Tsabong: 310 km.

Roads in the park have gravel surfaces. Hired cars may be collected at Twee Rivieren provided that an advance booking is made with a car hiring company. When driving from one rest camp to the other, travellers should depart with travelling times in mind to ensure arrival before sunset as no travelling is allowed in the park after dark.

7.2 Areas with restricted access

All guests are restricted to the designated tourist roads. Accommodation facilities are for the use of overnight guests only, whilst management tracks are marked with no entry signs.

7.3 Airfields and flight corridors

Section 47 (2) of the NEM:PAA applies to the use of the landing strips located within the park. These are located at Twee Rivieren, coordinates 26° 27' 03" S, 20° 36' 30" E and Nossob, coordinates 25° 25' 36" S, 20° 35' 47" E. No aircraft may enter the park's airspace without express authorisation from park management. Light aircraft may land on the tarred runway at Twee Rivieren, if prior permission has been obtained from the park. The airstrip at Nossob, is only used for operational purposes.

7.4 Administration and other facilities

The facilities listed below in Table 6 (Appendix 5, Map 7) are utilised for operational purposes enabling the park in fulfilling its' legal mandate.

Table 6. Current administrative infrastructure in the park.

Infrastructure	Current status / use	Zone	Proposed role by 2026
Mata Mata section			
Generator room	In use	HIL	No change
Management roads	In use	Various	No change
Rangers office at reception	In use	HIL	No change
Refuse site	In use	HIL	No change
Sewerage plant	In use	HIL	No change
Staff housing	In use	HIL	No change
Tourist access facility	In use	HIL	No change
Workshop and store room	In use	HIL	No change
Nossob section			
Generator room	In use	HIL	No change
Management roads	In use	Various	No change
Pump station	In use	HIL	No change
Rangers office at house	In use	HIL	No change
Refuse site	In use	HIL	No change
Sewerage plant	In use	HIL	No change
Staff housing	In use	HIL	No change
Workshop	In use	HIL	No change
Twee Rivieren section			
Administrative building	In use	HIL	No change
Boreholes in camp	In use	HIL	No change
Management roads	In use	Various	No change
Parking area (Bus / Other)	In use	HIL	No change
Park entrance gate with tourist access facility	In use	HIL	No change
Pump station	In use	HIL	No change
Research facilities	In use	HIL	No change
Staff housing	In use	HIL	No change
Storage facility	In use	HIL	No change
Technical services workshop	In use	HIL	No change

7.5 Visitor facilities

Visitor facilities include all non-commercial facilities and points of interest available to visitors, to the exclusion of any management and administrative facilities, and are set out in Table 7 below.

Table 7. Visitor facilities and points of interest.

Infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026
Mata Mata section			
Look out point	In use	LIL	No change

Infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026
Mata Mata section			
Kalahari Tented camp swimming pool	In use	LIL	No change
Mata Mata swimming pool	In use	HIL	No change
Mata Mata laundry and ironing facility	In use	LIL	No change
Mata Mata waterhole and hide	In use	LIL	No change
Nossob section			
Dikbaardskolk picnic site	In use	LIL	No change
Information centre at Nossob	In use	HIL	No change
Lijersdraai Picnic / day visitors site	In use	LIL	No change
Nossob laundry and ironing facility	In use	HIL	No change
Nossob predator information centre	In use	HIL	No change
Nossob rest camp swimming pool	In use	HIL	No change
Nossob waterhole and hide	In use	HIL	No change
Union's End picnic / day visitors site	In use	LIL	No change
Twee Rivieren section			
Auchterlonie Museum	In use	LIL	No change
Auchterlonie Picnic / day visitors site	In use	LIL	No change
Gemsbokplein Environmental Education Centre	In use	LIL	No change
Kamqua Picnic / day visitors site	In use	LIL	No change
Various look out points	In use	LIL	No change
Melkvlei Picnic / day visitors site	In use	LIL	No change
Twee Rivieren ATM facility	In use	HIL	No change
Twee Rivieren Laundry and ironing facility	In use	HIL	No change
Twee Rivieren Swimming pool	In use	HIL	No change

7.6 Commercial activities

For purposes of this management plan, commercial activities include all income generating facilities, products and services offered, and are broken down into those operated by the park and those operated by third parties for example concession lodges.

7.6.1 Accommodation

Accommodation facilities within the park are currently limited, with much potential for expansion. Existing facilities include those listed in Table 8, below.

Table 8. Accommodation facilities available in the park.

Infrastructure	No of units	Current status / use	Zone	Proposed role by 2026
Mata Mata section				
Bitterpan				
2 bed Reed cabins	4	In use	PRI	No change
Kalahari tented camp				
2 bed Desert tents	10	Self-catering - serviced - economy accommodation	LIL	New development in process
4 bed Family desert tents	4	Self-catering - serviced - economy accommodation	LIL	No change
2 bed Desert tent - honeymoon	1	Self-catering - serviced - economy accommodation	LIL	No change
Mata Mata camp				
3 bed Chalets	3	Self-catering - serviced - economy accommodation	HIL	Proposed addition of 2 x Riverfront chalets with 4 beds each.
6 bed Family chalets	2	Self-catering - serviced - economy accommodation	HIL	No change
2 bed Riverfront chalet	4	Self-catering - serviced - economy accommodation	HIL	No change
4 bed Riverfront chalet	6	Self-catering - serviced - economy accommodation	HIL	No change
25 x Caravan / campsites	24	Camping - budget facilities (power)	HIL	No change
Nossob section				
Nossob camp				
2 bed chalets	7	Self-catering - serviced - economy accommodation	HIL	In development process: 6 x 2 bed Riverfront chalets 4 x 4 bed Riverfront chalets
3 bed chalets	3	Self-catering - serviced - economy accommodation	HIL	No change
4 bed chalets	4	Self-catering - serviced - economy accommodation	HIL	No change
6 bed chalets	1	Self-catering - serviced - economy accommodation	HIL	No change
6 bed family cottage	1	Self-catering - serviced - economy accommodation	HIL	No change
4 bed guest houses	2	Self-catering - serviced - economy accommodation	HIL	No change
Caravan / campsite	4	Camping - budget facilities (no power)	HIL	No change
Caravan / campsite	21	Camping - budget facilities (power)	HIL	No change
Gharagab				
2 bed Log cabins	4	In use	PRI	No change
Grootkolk				
2 bed Desert cabins	4	In use	LIL	No change

Infrastructure	No of units	Current status / use	Zone	Proposed role by 2026
Twee Rivieren section				
Kieliekrankie				
2 bed Dune cabins	4	Self-catering - serviced - economy accommodation	LIL	In development process: 1 x 2 bed Dune cabin
Twee Rivieren rest camp				
4 bed Family cottages	22	Self-catering - serviced - economy accommodation	HIL	No change
2 bed Cottages	2	Self-catering - serviced - economy accommodation	HIL	No change
3 bed Family cottages	6	Self-catering - serviced - economy accommodation	HIL	No change
6 bed Family chalet	1	Self-catering - serviced - economy accommodation	HIL	No change
Caravan / campsite	7	Camping - budget facilities (no power)	HIL	No change
Caravan / campsite	24	Camping - budget facilities (power)	HIL	No change
Urikaruus				
2 bed Riverside cabins	4	Self-catering - serviced - economy accommodation	LIL	
Honeymoon cabin	1	Self-catering - serviced - economy accommodation	LIL	

7.6.2 Concessions

!Xaus lodge is currently (2016) the only concession operating within the park.

7.6.3 Retail and other facilities

There are a number of retail facilities available within the park (Table 9), located at each of the three rest camps.

Table 9: Retail and other facilities available in the park.

Product type infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026
Mata Mata section			
Filling station at Mata Mata rest camp	Operational	LIL	No change
Tourist shop at Mata Mata rest camp	Operational	LIL	Desired upgrade to facilities
Nossob section			
Filling station at Nossob rest camp	Operational	HIL	No change
Tourist shop at Nossob rest camp	Operational	HIL	Desired upgrade to facilities
Twee Rivieren section			
Filling station at Twee Rivieren rest camp	Operational	HIL	No change
Tourist shop at Twee Rivieren rest camp	Operational	HIL	Desired upgrade to facilities

Product type infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026
Twee Rivieren section			
Restaurant at Twee Rivieren rest camp	Operational	HIL	Desired upgrade to facilities

7.6.4 Activities

There are a number of 4x4 Eco-trails used to access some of the wilderness camps, including !Xaus lodge (58 km), Gharagab (61 km) and Bitterpan (120 km). These trails are for the exclusive access of residents staying in these camps. In addition there is a 13 km 4x4 Eco-trail at Leeuwdril that is accessible to all park visitors. The variety of activities currently available is limited to game drives and a 4x4 Eco-trail as shown in Table 10 below.

Table 10: Activities available in the park.

Product type infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2025
Mata Mata section			
Game drives – Mata Mata rest camp (including Kalahari tented camp)	Morning, sunset and night drives available	LIL	Possible expansion on game drive options
Nossob section			
Game drives – Nossob rest camp	Morning, sunset and night drives available	HIL	Possible expansion on game drive options
Nossob 4x4 guided Eco-trail	3 Night guided 4x4 trail (214km), which includes an overnight stay at Swartbos, Rosyntjiebos and Witgat	HIL	No change
Twee Rivieren section			
Game drives – Twee Rivieren rest camp	Morning, sunset and night drives available	HIL	Possible expansion on game drive options

7.7 Cultural heritage sites

There is only one cultural heritage site in the park (Table 11) that includes physical infrastructure that is open to tourists.

Table 11. Cultural heritage site in the park open to the public.

Infrastructure	Current status / use	Zone	Proposed role by 2025
Twee Rivieren section			
Auchterlonie	Museum and picnic site	LIL	No planned development at this time, though some interpretation may be considered.

7.8 Community use

The section of the park lying south of the Auob River belongs to the San and Mier communities and is managed by SANParks and forms part of the Ae!Hai Kalahari Heritage Park. The Khomani San community may access the Heritage Park and V and S zones to hunt and harvest medicinal plants, using traditional methods.

7.9 Mining

There is currently no mining taking place in the park and no mining rights / permits have been issued on land in the park.

7.10 Servitudes

There are no servitudes in the park.

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Section 8: Consolidation and expansion

There is no planned expansion of the KGNP.

The size of the park (KGNP 957, 764 ha and GNP 2, 840, 000 ha respectively of the greater KTP 3, 797, 764 ha) ensures that it is a self-regulating natural system, with habitat types that's well represented and protected within its current extent. With the exception of its western and part of its southern boundary it remains unfenced and thus open to nomadic movement of wildlife with Botswana making the park effectively larger in size. Of the seven national vegetation types represented in the park, five (Auob Duneveld, Gordonia Duneveld, Gordonia Kameeldoring Bushveld, Nossob Bushveld and Southern Kalahari Mekgacha) have their protected area level targets met; while two, Gordonia Plains Shrubland and Southern Kalahari Salt Pans are classified as partially protected but of low urgency (DEAT, 2008). As the largest areas of these latter two vegetation types are located far from the park, and indeed within its buffer zone, park expansion would not add significantly to their representation.

Furthermore, the park is situated between Namibia and Botswana with only the southern area available for possible expansion. This area is currently being used for small stock and game farming. The landowners have shown little interest in either selling their land or contractually including it into the park. However, should any landowner wishes sell his / her land, or opt for a contractual inclusion, then SANParks would gladly discuss the matter. Park management will continue to strengthening the evolving institutional and management arrangements to support collaborative management between SANParks, the Khomani San community, the Mier community and the Botswana DWNP to maintain the open nature of this large ecosystem.

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Section 9: Concept development plan

9.1 Long term development plan

Development is not considered lightly and is only done so in order to fulfil a real operational need or tourism opportunity. The park is a high income generating park, however it has limited development potential due to the contractual arrangements as part of the Transfrontier Park.

There are a number of development projects currently in process. The first is the construction of two new accommodation units, of which one is being built at Urikaruus and one at Kieliekrankie, which commenced in May 2015. The park is also currently in the process of developing two information centres, for the Twee Rivieren and Mata Mata rest camps, with a target completion by the end of the 2016 / 2017 financial year.

Another project is the provisioning of 10 new river view units and 10 self-service luxury camping sites at Nossob. This project will include the upgrading of the Nossob shop, the replacement of the campsite ablution facilities, as well as the replacement of the sewer system at Nossob camp.

The provisioning of a rustic camping site south of the Mata Mata camp, between the dunes at Craig Lockhart, will consist of 10 individual self-service campsites. These campsites will be dispersed to maintain the feeling of remoteness.

Caution should be exercised when considering any tourism development. The zonation of the park will dictate the placement of any development and it is important to note that the implementation of identified projects is dependent on the availability of funds.

9.2 Development nodes

Limited development potential exists within the park due to existing Transfrontier Park agreements. Primary development nodes remains the Twee Rivieren, Nossob and Mata Mata rest camps and planned development will be limited to the expansion of a few units in existing camps, community development projects within the Heritage Park and possible expansion of activities.

9.3 Communication routes

A limited communication network exist within the park with remote camps having limited access to communication systems. Improvements of this communication is likely to remain limited due to the cost and accessibility of communication. However some expansion and improvements are expected, at all gates within the greater KTP boundaries.

9.4 Service supply routes

Limited supply routes exist. The two main routes is the Twee Rivieren - Mata Mata road and the Twee Rivieren - Nossob road. However, an upgrade of these routes will be required in due time.

9.5 Infrastructure development proposals

All infrastructure development proposals, including activity development proposals are presented in Tables 12 - 13 below.

9.5.1 Administration and other infrastructure

There is no anticipated development of new administrative and other park infrastructure. Only standard maintenance or upgrades is anticipated to occur during this period. The infrastructure set out in Table 12 below is earmarked for a major upgraded.

Table 12. Proposed administrative infrastructure development.

Infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026	Probability
Additional staff housing at Mata Mata, Nossob and Twee Rivieren	New developments	HIL	No change	High
Twee Rivieren – Union end road	In use	HIL / LIL	Road surface upgrade	Low
Twee Rivieren – Mata Mata road	In use	HIL / LIL	Road surface upgrade	Low

9.5.2 Visitor facilities

Visitor facilities include all non-commercial facilities and points of interest available to visitors, to the exclusion of any management and administrative facilities, and are set out in Table 13 below.

Table 13. Proposed visitor facility development.

Infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026	Probability
Mata Mata section				
Picnic / day visitors site at Dertiende waterhole	In planning phase	LIL	Day visitors site developed	High
Nossob section				
Picnic / day visitors site in the Bedinkt area	In planning phase	LIL	Day visitors site developed	High
Twee Rivieren section				
Kamqua picnic site	In existence	LIL	Relocate to new site	High
Information centre at Twee Rivieren	In planning phase	HIL	New information centre	Medium

9.5.3 Commercial facilities and activities

There are a variety of commercial activities that could be developed within the park, in order to expand the tourism product and thus park sustainability, and these are listed in the Tables 14 – 15 below.

All activities will be individually investigated and their priority determined based on feasibility and income potential. Following these studies, some potential activities may be excluded from potential development. In addition, there are a large number of activities for potential development that are excluded as they are considered unlikely to be developed within the term of this plan. However, should the market change or a third party supplier present an real opportunity, any and all products may be considered based on the agreed terms and locations, as per the park Product Development Framework (PDF) presented in Appendix 4.

9.5.3.1 Accommodation

Table 14. Proposed accommodation development.

Infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026	Probability
Mata Mata section				
Rustic camping site south of Mata Mata camp	In planning phase	Primitive	10 Individual, fully serviced, tourism campsites	High

Infrastructure / visitor sites	Current status / use	Zone	Proposed role by 2026	Probability
Twee Rivieren section				
Auob lodge development	In planning phase	Primitive	Development of a lodge (12 x 2 bed units) on the Auob river valley north of Twee Rivieren.	High

9.5.3.2 Concessions

No new concession development is planned at this time.

9.5.3.3 Retail and other facilities

A possibility exists that a living museum / sales outlet could be developed at Twee Rivieren that would enable the Khomani San to showcase their traditions and sell their crafts.

9.5.3.4 Activities

Leisure activities are a mechanism for income generation, with the potential for community development and without the high capital investment required for accommodation. Key challenges regarding provision of leisure activities in future will be diversity of offering, customer demand and increasing the 'adventure' element of activities in order to engage the younger markets and markets with a high disposable income.

Activity development will need to take the visual impact of each activity into account, in order to ensure the unique selling proposition of remoteness of the park is maintained. Certain activities will also need to cater for different product grades and visitor experience levels. The park will investigate the feasibility of launching guided hiking trails.

9.5.4 Cultural heritage sites

There are no planned development of cultural heritage sites at this time. It is likely that interpretation of locations throughout the park may be improved.

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Section 10: Strategic plan

10.1 Introduction

Sections 3, 4 and 5 of this plan outlined the policy framework, the consultation process and vision, mission and high level objectives for the park. In this section the higher level objectives of the park are developed into lower level objectives and sub-objectives and finally into operational actions. In this way decision-making, even at the operational level, can be traced all the way back to the core values and inputs from stakeholders on which they have been based. This approach conforms to the requirements of the NEM:PAA and the National Environmental Management: Biodiversity Act No 10 of 2004 (NEM:BA), SANParks policy and ratified international conventions.

Programmes of implementation, developed as outlined above, form the strategic plan for this planning cycle, are arranged under the following headings:

- Bioregional;
- Transfrontier;
- Biodiversity;
- Tourism;
- People and Conservation; and
- Effective park management.

Each programme is presented as follows:

- **Programme name:** A name describing the programme.
- **Background:** Overview of intent**,** guiding principles, description, outcome, research and monitoring and risk (all where applicable);
- **Tables:** Outline of objectives, initiatives and management actions within the scope of the objective with an indication if the programme is once off, continuing or conditional on the availability of resources. These tables have the following headings:
    - **Objectives** The various objectives derived from the hierarchy of higher level objectives, which make up each programme;
    - **Actions**: The actions necessary to achieve the objective;
    - **Responsibility**: The SANParks person, section, department, division or unit responsible for implementing the action;
    - **Indicator**: A measure whereby the achievement of the objective can be evaluated;
    - **Timeframe**: An indication of when the action is likely to be completed (indicated by year in the planning cycle); and
    - **References**: References to relevant programmes, lower level plans (LLP's) or other documents.

The commitments outlined in the various programmes under section 10 are aligned with the performance management system of the operational staff. This is revised annually to ensure all the actions will be implemented.

10.2 Bioregional

The purpose of the bioregional objective is to conserve natural systems and processes within and around the park to ensure a positive conservation outcome to the park and in the park buffer zone, by influencing developmental projects outside the park. The park recognises that partnerships could be developed with other likeminded organisations to maintain the faunal and floral assemblages and ecological processes representative of the area for the long-term beneficiation of the region and country. It aims to collaborate with relevant international, national, provincial and local government structures; non-governmental organisations (NGOs) and other stakeholders. The park is an important driver of the regional economy, through tourism, and by direct and indirect employment opportunities. The park is fairly unique in having a fairly limited interface with South Africa, with only about 17.5% of its perimeter shared with South Africa.

This particular section deals with the South African component of the park's surrounds. The majority of the park's perimeter (58.3%) is on the international border with Botswana. Interactions here mediated through the Kgalagadi Transfrontier Park Joint Management Board (JMB), are discussed under the Transfrontier programme section. The remainder of the parks perimeter (24.2%) is located on the international border with Namibia, and potential impacts are addressed through reactive informal discussions between park management and private landowners.

10.2.1 Mainstreaming biodiversity programme

The purpose of this programme is to engage and interact with local and district municipalities, non-governmental organisations, neighbours, surrounding communities *etc.* bordering the park to ensure that biodiversity considerations of the park are taken into account as far as possible and as appropriate, in all developmental decisions. The park has a limited number of land uses occurring on its borders, with traditional small-stock and commercial livestock farming most common, being an important economic activity in the area. Other activities include game farming and accommodation for park visitors not able to find accommodation in the park. While large tracts of land in the Northern Cape Province have been identified, as part of South Africa's Renewable Energy Development Zones, particularly solar, there are currently (2016) no proposed developments in the immediate proximity of the park.

While there is no immediate developmental pressures which could compromise the park, however, the park should be alert to potential future activities that can negatively affect the natural systems in the park and its future to conserve biodiversity, if left unchecked and uninformed. Generally, the park would aim to oppose or minimise the negative impacts of development along its borders that will affect biodiversity, through the proactive engagement with relevant stakeholders. The park should be cautious of concentrated boundary development, for example, a growing tourism industry on the outside of the park that could form a "hard" edge, and place added day visitor pressure on park infrastructure and affect park ambiance. The primary mechanism to address these concerns is through the park's buffer zone (Appendix 5, Map 6), in accordance with the gazetted DEA Strategy on buffer zones. The buffer zone serves as a guide to indicate areas within which landuse changes could affect the park, and where park management and scientists should assess, and where required, respond to EIA as an interested and affected party. SANParks may also respond to developments with broader regional impacts, even if these occur outside the buffer zone, but are deemed to have an impact on the park. Ultimately, the park and its buffer zone should be integrated into the IDP and SDF of local and district municipalities.

The achievement of the park's aspirations depends on understanding the relationships and inter-dependencies between various strategic planning processes and partnerships in the region. The park will co-operate with the relevant stakeholders insofar as these affect the park and keep track of issues affecting the park and region to ensure functional ecosystems are protected. Through education about the importance of biodiversity, the park intends to raise awareness of people and communities, in the buffer zone, to the importance of conservation in the region. By building positive relationships with land owners and providing a central point for conservation ideas and examples, the park can achieve the objective of this programme.

This programme links with high level objective 1 and objective 1.1 on page 35.

MAINSTREAMING BIODIVERSITY PROGRAMME					
High level objective: To enhance cooperative management through interaction with local authorities, adjacent land owners and key stakeholders for the long term persistence of the park.					
Objective: To engage relevant stakeholders and enable alignment with local and regional plans or programmes thereby minimising conflict and mitigating risk to the park in the buffer zone.					
Sub-objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To minimise potential conflicts that arise from the differing objectives of non-aligned land-uses in the park buffer zone through responsible engagement with land owners and local authorities and development of conservation options.	Identify land use and transformation trends in park buffer zone, and how these may affect the park.	PM, CSD	Report	Ongoing	
	Landuse planning database for landuse assessment in the buffer zone, using remote sensing.	CSD	Data bases	Year 3	
	Identify possible external threats from development.	CSD, PM	List of threats	Ongoing	
	Participate in IDP and SDF processes to influence decisions.	PM	Minutes of meetings	Annually	
	Maintain working relationship with Mier Farmers Union and project advisory forum to improve communications.	PM, CSD	Minutes of meetings, plans	Quarterly	
	Respond to EIA, scoping reports *etc.*	CSD, PM	Scoping, EIA reports	As required	
	Engage with identified and prioritized land owners to achieve common conservation goals.	PM, CSD	Minutes of meetings	Ongoing	

10.3 Transfrontier

The Republic of South Africa has committed itself to implement the Transfrontier Conservation Area (TFCA) programme. Being part of the KTP, the park is involved in various programmes with its counterpart on the Botswana side.

10.3.1 Kgalagadi transfrontier park programme

The purpose of this programme is to ensure that park operations are aligned with the agreed treaty, bilateral agreement, Memorandum of Understanding (MoU) and protocols, so that the KTP is retained as far as possible in its natural state, for the benefit of biodiversity conservation, research, tourism and those communities adjacent to the KTP.

The KTP will be managed in accordance with the following objectives:

- To guarantee the long term conservation of the wildlife resources in the southern Kalahari which will help to maintain the integrity of the Kalahari ecosystem;
- To share and pool expertise and experience between the Botswana DWNP and SANParks on a good neighbourly basis;
- To increase the local and international profile of this important conservation area, thereby greatly enhancing its potential as a tourist destination;
- To encourage the full realisation of the economic potential of the park and surrounding areas which will bring economic benefits to the Republic of Botswana and the Republic of South Africa, especially to the local communities adjacent to the park;
- To develop joint promotional campaigns that will stimulate the two-way flow of tourists, thereby increasing the tourism potential for the Republics of Botswana and South Africa and taking steps to facilitate the freedom of movement within the KTP;

- To comply with the requirements of international law regarding the protection of the environment; and
- To integrate as far as possible the managerial, reservation, research and marketing of other systems of the DWNP and SANParks in respect of the park.

A joint park management plan (JPMP) serves as the strategic guiding framework for the governance, management and decision-making relating to the development and management of the KTP. This plan has a ten year horizon and will be operationalised through the joint operational strategy (JOS) and annual plan of operations, together these will guide the activities of the institutional structures of the KTP.

Senior management from both institutions, meet on a regular basis to discuss operational issues. These joint park management committee (JPMC) meetings forms the basis for joint operations and ultimately ensures that a coordinated approach is followed. A JMB oversees the programme and the JPMC reports bi-annually to the JMB regarding the implementation of the JPMP and JOS.

This programme links with high level objective 2 and objective 2.1 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

KGALAGADI TRANSFRONTIER PARK PROGRAMME					
High level objective: To ensure the continued existence of the transfrontier park by nurturing relationships and agreements.					
Objective: To combine expertise and resources in order to guarantee the long-term conservation of wildlife resources, increase the local and international status of the area and to encourage the economic potential of the region.					
Sub-objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To ensure efficient, effective and functional institutional arrangements.	Participate in joint park management committee meetings.	PM	Minutes of meetings	Quarterly	
	Participate in the joint management board meetings.	PM	Minutes of meetings	Bi-annually	
	Implement the KTP joint park management plan and JOS.	PM	Minutes of meetings, audit reports	Ongoing	KTP joint park management plan
	Participate in the revision of the JPMP and JOS.	CSD, PM	Updated documents	Year 5, 10	

10.4 Biodiversity

Biodiversity management is the core mandate of the park. The park's approach to biodiversity is in line with SANParks policies and the principles of strategic adaptive management. The primary biodiversity objective is: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.

As such, a number of biodiversity management programmes were developed to conserve and restore the diversity, patterns and processes unique to the Kalahari. The key management strategies listed below cover the planning phase, in order to advance towards the park's desired state in terms of biodiversity management. The objectives of the Biodiversity programme are as follows:

- To understand the spatial and temporal distribution of key herbivores in order to understand population trends and habitat uses;
- To ensure sustainable utilisation of water resources;
- To allow the role fire, as a natural driver, in maintaining biodiversity through implementing adaptive interference practices;
- To prevent the decline or loss of species of special concern by identifying, monitoring and managing, where applicable, such species;
- To understand the incidence and impact of disease;
- To determine potential change of key habitats and plant communities and its consequences to the faunal component; and
- To ensure effective restoration of ecosystem functionality.

10.4.1 Habitat and vegetation programme

The purpose of this programme is to determine potential change of key habitats and plant communities and its consequences for the faunal component and aesthetic values that may affect the park's potential as a tourist attraction.

Protected areas are under increasing threat from a range of external and internal factors. With a primary mandate being the conservation of biodiversity, monitoring is an essential component of measuring the performance of protected areas. The requirement for biodiversity monitoring in national parks is specified in national legislation and international policy, as well as by SANParks' own adaptive management philosophy. SANParks' Framework for Biodiversity Monitoring guides the structure and development of the Biodiversity Monitoring System (BMS) for SANParks (McGeoch *et al*., 2011).

Event driven dynamic behaviour, unpredictable and low rainfall and complicated interactions between plant species make it difficult to gather sufficient understanding of vegetation dynamics to be able to develop guidelines for sustainable management. A study by Van Rooyen *et al*., (1990) documented vegetation changes around artificial watering points in the park from 1978 to 1989. Both rainfall and grazing influenced the vegetation but rainfall appeared to be more significant. The above-average rainfall during the years preceding 1978 contributed to a relatively high basal cover in 1978. Between 1978 and 1988 below average rainfall resulted in a decline in basal cover, presence, frequency and density of most of the plant species. It seems likely that a wet cycle commenced in 1988, which was reflected in higher rainfall and an increase in basal cover, presence, and density to the end of the study. The vegetation of the park, being largely representative of the southern Kalahari in general, is protected from the over-utilization common in the adjacent farming areas and is well preserved. However, over-utilised patches do occur around some watering points in the park. Van Rooyen *et al*. (1984) concluded that it is clear that in the short to medium term, the woody plant species composition or density remained more or less constant. On the other hand the herbaceous plant species are more dynamic and are greatly influenced by seasonal climatic factors. The work done by Van Rooyen *et al.* (1984, 1990, and 1991) provides an important point of reference against which changes in vegetation over time can be compared and which can provide us with a better insight into the resilience of different vegetation types.

The results of monitoring of population turnover of medicinal plant species including but not exclusive of the following plant species *Elephanthorrhiza elephantina*, *Kedrostis africana*, *Indigofera flavicans*, *Coccocinia rehmannii*, *Boophane disticha*, *Harpagophytum procumbens*, *Melhania burchellii* and *Antizoma angustifolia* need to inform sustainable yield, and provide the scientific basis for the development of harvest prescriptions (Bezuidenhout and Annecke 2011). Where interim harvest prescriptions have been implemented, based on best available knowledge at the time, harvest prescriptions should be refined as more reliable data on population turnover (or product replacement) become available.

SANParks scientific services will in collaboration with external researchers of different tertiary organisations and government organisations continue with the current monitoring that was initiated and done by the Botany Department of the University of Pretoria. Past research has however focussed on the northern sections of the park but this should be expanded to the southern sections and also to the Khomani San and Mier land in the park.

This programme links with high level objective 3 and objective 3.1 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

HABITAT AND VEGETATION PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.					
Objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To determine potential change of key habitats and plant communities and its consequences to the faunal component.	Collate all old and current vegetation research.	CSD	Documentation and GIS layers.	Year 1	
	Implement monitoring project to assess veld condition.	CSD, PM	Report	Year 2, 4, 6, 8 and 10	
	Develop resource use monitoring programme.	CSD, PM	Document	Year 1	
	Implement resource use monitoring programme.	CSD, PM	Report	Year 2	

10.4.2 Herbivore management programme

The purpose of this programme is to understand the spatial and temporal distribution of key herbivore species in the park, in order to understand population trends and habitat use of these herbivores.

Management of herbivores is governed by the SANParks herbivore management policy which focuses on three main issues, namely biodiversity values, adaptive management and methods for controlling herbivores. Since herbivory, together with water provision and climatic conditions, are regarded as ecosystem drivers and therefore affect ecosystem function, management has to pay attention to the requirements as expressed in legislation and park objectives.

The park is one of a few National Parks in the world that is still a large protected area which is able to represent a wider range of habitats due to the fact that this park has a full spectrum of complementing functioning natural processes. The major biodiversity characteristic of the park is that it is an arid ecosystem populated by large migratory and nomadic herbivores. The ungulates in the park need to be highly mobile due to the harsh ecological conditions, giving rise to a nomadic existence for many species. The gemsbok, blue wildebeest and ostrich are more sedentary, whereas springbok, red hartebeest and eland numbers fluctuate widely between the wet and dry seasons and between years.

The most heavily utilised habitats found within the park are the riverbeds of the Auob and Nossob Rivers, which support widely fluctuating numbers of springbok, gemsbok, blue wildebeest and red hartebeest. Moreover, whereas the springbok numbers fluctuated annually along the riverbeds during the 1970's and 1980's, they have remained far more constant in recent years (G. Mills pers. coms). The apparent decline in the nomadic species such as springbok and red hartebeest is a concern and needs to be investigated, thus emphasising the importance of long-term monitoring studies.

Studies undertaken in the park showed that the provision of artificial water along the Auob River bed only favours the blue wildebeest and that movement patterns of springbok and gemsbok were not affected (Knight *et al.,*1988; Mills and Retief 1984). Eland are the most mobile antelope species in the park, continually in the search for good foraging areas. An influx of eland into the park was recorded in 2002, 2007 and 2012. Not much is known about this sporadic eland movement, however, and more research is needed to explain this mass southern movement of the eland.

Human settlement around the periphery of the park, and the erection of farming and park boundary fences, interferes with the natural migration patterns. It was believed that this interference prevented access to permanent natural water sources and, to compensate, artificial water points, fed from boreholes, were introduced (Van Wyk and Le Riche 1984). The major threats for this park are climate change and the scarcity of fresh water. Predictions on climate change for South Africa state that temperatures will increase and rainfall decrease in arid areas.

This programme links with high level objective 3 and objective 3.2 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

HERBIVORE MANAGEMENT PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.					
Objective: To understand the spatial and temporal distribution of key herbivores in order to understand population trends and habitat uses.					
Sub-objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To continue long term monitoring of large ungulate population estimates and trends in population numbers and movement patterns during the wet and dry seasons.	Monitor and record the movement of eland populations in the park.	PM, CSD	Monthly report	Monthly	
	Conduct quarterly ground counts on all large herbivore species.	CSD	Quarterly report	Quarterly	
	Conduct biennial aerial census on all large herbivore species.	CSD, PM	Report	Biennially	
	Understand the impacts that permanent water provision has on the ecosystem and what factors are involved in the apparent decline of the nomadic ungulate species.	CSD	Research outcome	Ongoing	
	Implement recommendations from Wildlife Management Committee and applicable research regarding herbivore management.	PM, CSD	Monthly report	As required	

10.4.3 Fresh water ecosystem programme

The purpose of this programme is to efficiently, effectively and wisely utilise water resources within the park as well as determining the quantity used, by whom and where.

The National Water Act (Act No 36 of 1998) and National Environmental Management Act (Act 107 of 1998) provides the framework which governs water- use and management. Authorisation to use water, these include surface and groundwater, is legislated under the above and requires permitting from the Department of Water and Sanitation. The aquifers are of a trans-boundary nature which requires international water law considerations. All members of the SADC are therefore committed to support the SADC Protocol on Shared Water Resources. This Protocol defines watercourses in accordance with the UN Convention on Use of International Watercourses, which are defined in that Convention as systems in which surface and ground waters flow into a common terminus.

The park is water stressed with groundwater being the only supply of freshwater and therefore it is a valuable and finite resource. The Stampriet Artesian Basin is a transboundary groundwater system shared by Namibia, Botswana and South Africa (Peck 2010). The SAB lies within the Orange River Basin and covers 7.1 % of its total area in Southern Africa (ORASECOM 2007). The groundwater quality is poor in this region with particularly high Sodium Chloride and Nitrates present over large areas of the SAB which limits groundwater uses. Groundwater systems are dynamic and adjust continually to short-term and long-term changes in climate and groundwater withdrawal. Groundwater recharge is thought to occur on Namibian territory from surface runoff into the different aquifer layers. Estimates are that recharge to the artesian aquifers in normal rainfall years is relatively low but that considerable recharge may occur during wet years, *i.e.* about once every fifty years (Peck 2010).

A long-term groundwater level monitoring programme needs to be implemented. Water level measurements from supply and observation wells are the principal source of information about the hydrologic stresses acting on aquifers and how these stresses affect groundwater

recharge, storage, and discharge. Long term groundwater level information is fundamental to dealing with the issues of many complex problems related to groundwater availability and sustainability.

This programme links with high level objective 3 and objective 3.3 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

FRESHWATER MANAGEMENT PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.					
Objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To ensure the sustainable utilisation of water resources.	Gauging water-use (consumption) at the main water supply boreholes (rest camps).	PM	Records	Daily	
	Measure groundwater levels at abstraction boreholes and observation boreholes.	PM	Records	Weekly	
	Measure groundwater quality at water supply boreholes.	PM	Records	Quarterly	
	Support regional groundwater monitoring.	PM	Annual Report	Quarterly	

10.4.4 Fire management programme

The purpose of this programme is to allow fire as a natural driver to maintain biodiversity through implementing adaptive interference practices.

According to the National Veld and Forest Fire Act, No 101 of 1998, SANParks is obliged to be a member of the local fire protection association (FPA) to gain full legal benefit thereof and stakeholder support.

Fire is a rare but quite natural phenomenon in the southern Kalahari (including the park), occurring predominantly in above average rainfall years after sufficient fuel loads have accumulated. The estimated fire return interval is approximately every 11 years. Large fires within the region have been noted seven times (in 1934, 1968, 1974, 1975, 1976, 1988 and 1989) in the last 60 years in the region (Van der Walt and Le Riche 1984, Knight 1991). Natural fires occur during the summer months (August to April) in association with lightning storms. Outside of this period fires are normally started by man. Human-induced fires have played an important role since prehistoric times. Permitting all anthropogenic fires to penetrate the park could lead to an excessive frequency of burning, so some fire control might be necessary.

The importance of fire, a natural disturbance, in ecological processes is multiple (Collins 1990). Minerals and elements locked in senescent or long-lived plant material are released back into the system, soil moisture is influenced and patch dynamics is promoted which in turn stimulates species richness thus enhancing instability and a system that is dynamic, productive and diverse. The effect of fire in grasslands and open tree savanna is indirect in that the most important factor is the removal of accumulated litter layer which has a retarding effect on soil organism activity and mineral availability through its cooling effect (Wallace 1990). Thus, the prime goal is to conserve essential ecological processes within the southern Kalahari, and therefore natural fires should be considered as an integral part of the ecosystem.

The following protocol will be followed:

- Fires that occur in the rainy season after a lightning storm should be allowed to burn to its fullest extent unless life or infrastructure (buildings and equipment) are threatened;
- All fires which occur out of the rainy season and which are not associated with lightning storms should be controlled if logistically possible;
- Fires that may exit the park into the neighbouring farms should be suppressed;
- The existing road network within the park (boundary and internal tourist roads) will be used as firebreaks. No additional firebreaks will be burnt or graded; and
- The extent and apparent cause of all fires will be recorded.

This programme links with high level objective 3 and objective 3.4 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

FIRE MANAGEMENT PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.					
Objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To allow the role of fire, as a natural driver, in maintaining biodiversity through implementing adaptive interference practices.	Maintain spatial records of fires inside and adjacent to the park.	PM, CSD	GIS database, maps	As required	
	Establish a park based fire protection association.	PM	Fire protection agency	Year 2	

10.4.5 Species of special concern programme

The purpose of this programme is to prevent the decline or loss of endemic or internationally threatened species of special concern that occur within the park.

The National Environmental Management Biodiversity Act, No. 10 of 2004 makes provision for the protection of ecosystems that are threatened or in need of protection to ensure the maintenance of their ecological integrity; provides for the protection of species that are threatened or in need of protection to ensure their survival in the wild; gives effect to the Republic's obligations under international agreements regulating international trade in specimens of endangered species; and ensures that the utilisation of biodiversity is managed in an ecologically sustainable way. However, except in crucial instances for the survival of globally critically endangered species, that are threatened or in need of protection to ensure their survival in the wild, management for system integrity and biodiversity must take precedence over species management.

The park has 17 species of special concern (Table 15). Currently, only two species of large mammals found in the park are threatened. The cheetah and lion are classified as vulnerable and these are two of the iconic species found within the park. The leopard is under evaluation at present (2016) and due to a decline in the population it has been proposed to upgrade the leopard to vulnerable status. Extensive research has been conducted on these threatened carnivore species in the past (Bothma and le Riche 1984; Eloff 1984; Mills 1984). However more recently, a six year study (2006 – 2012) on the cheetah ecology was conducted by Dr Gus Mills from 2006. A two year study (2013 – 2015) on the lion ecology was conducted by Maya and Otto Beukes. Continuous monitoring of these threatened species is ongoing by collaboration with external researchers and the initiation of public science participation programmes. Transgressing lions (individual moving out of the park) is a concern, however, a SOP has been developed in conjunction with Botswana DWNP to limit human-wildlife conflict. There are a number of bird species found in the park that are regionally and globally threatened (Lotz 2015). Monitoring of the large raptors is ongoing through the collaboration with Endangered Wildlife Trust's Birds of Prey Programme, which focuses its activities on the monitoring and conservation of all raptors in the Kalahari-region.

Table 15. List of species of special concern that occur in the park.

Taxonomic group	Scientific name	Common name	IUCN category - regional	IUCN category - global
Amphibian	*Pyxicephalus adspersus*	Giant bullfrog	Near threatened	Least Concern
Birds	*Gyps coprotheres*	White-backed vulture	Endangered	Endangered
	Torgos tracheliotus	Lappet faced vulture	Endangered	Vulnerable
	Aegypius occipitalis	White-headed vulture	Endangered	Vulnerable
	Polemaetus bellicosus	Martial eagle	Endangered	Vulnerable
	Neotis ludwigii	Ludwig's bustard	Endangered	Endangered
	Terathopius ecaudatus	Bateleur	Endangered	Near threatened
	Aquila rapax	Tawny eagle	Endangered	Least Concern
	Circus maurus	Black harrier	Endangered	Vulnerable
	Falco biarmicus	Lanner falcon	Vulnerable	Least Concern
	Sagittarius serpentarius	Secretary bird	Vulnerable	Vulnerable
	Ardeotis kori	Kori bustard	Near Threatened	Near Threatened
	Cursorius rufus	Burchell's courser	Near Threatened	Least Concern
	Rhinoptilus africanus	Double banded courser	Near Threatened	Least Concern
Mammals	*Acinonyx jubatus*	Cheetah	Least Concern	Vulnerable
	Panthera leo	Lion	Vulnerable	Vulnerable
	Panthera pardus	Leopard	Near Threatened	Near Threatened

This programme links with high level objective 3 and objective 3.5 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

SPECIES OF SPECIAL CONCERN PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.					
Objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To prevent the decline or loss of species of special concern by identifying, monitoring and managing, where applicable, such species.	Inventorise and map plant species of special concern based on red data lists and IUCN criteria.	CSD, PM	Reports	Ongoing	
	Evaluate, inform and revise species of special concern management through collaborative research and monitoring agreements.	CSD, PM	Reports	Ongoing	

10.4.6 Disease management programme

The purpose of this programme is to understand the ecology of indigenous diseases as a component of biodiversity within the park, while limiting the introduction or impact of alien diseases and minimising the spread of disease from the park to neighbouring communities and commercial agriculture as well as from the neighbouring communities into the park.

SANParks acknowledges its legal responsibilities with regard to managing diseases, especially controlled diseases, in the light of the requirements as set out in the Animal Diseases Act No 35 of 1984. However, disease management options are limited in free-ranging wildlife populations and therefore the emphasis is on the prevention of disease introduction and minimising the spread of indigenous and exotic wildlife diseases from national parks to neighbouring communities and domestic livestock. The introduction of diseases from livestock to our parks is also a critical component of disease risk management. Due to the dynamic nature of disease and the continuous improvement of diagnostic tests, disease management depends on making the best decisions with the data available at the time.

Rabies, anthrax and sarcoptic mange are believed to be endemic diseases circulating in the park. In terms of rabies, the bat-eared fox is the dominant maintenance host, with spill-over into various wild species

possible. The maintenance of the disease in bat-eared fox is likely bolstered by spill-over from domestic dogs *Canis lupus familiaris*. Several sarcoptic mange outbreaks have also been reported in black-back jackals in the park. Although, individual mortality can be dramatic, in a self-sustaining population, the mange epizootic does not seem to affect long term population dynamics. The park also falls within the anthrax endemic region in the Northern Cape; however, no dramatic outbreaks have been reported. The only other infectious disease outbreak reported in the park has been canine distemper virus (CDV) disease, a Morbillivirus maintained in domestic dogs is believed to occasionally spill-over into wild carnivores. An outbreak in the park in 2009 killed at least four lions and affected several others clinically. There is circumstantial evidence that other carnivores also died from distemper during that outbreak. Though the CDV outbreak did not have a dramatic impact on lion population abundance, the population sex-skewing seen in the KTP lion population could be further exacerbated by differential disease effects (Ferreira *et al.,* 2012).

This programme links with high level objective 3 and objective 3.6 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

DISEASE MANAGEMENT PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.					
Objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To understand the incidence and impact of disease.	Set up an adequate passive surveillance system for dead and dying animals.	PM	Monthly report	Year 1	
	Conduct a training course to equip and train park conservation staff to conduct basic post mortem investigation, and collect and store appropriate samples.	CSD	Training register	Ongoing	
	Conduct opportunistic post mortem investigations with suitable sample taking.	PM	Monthly report	As required	
	Communicate any disease outbreak or notifiable / controlled disease incident to the state veterinarian and VWS for appropriate disease response.	PM	Monthly report	As required	
	Ensure blood, tissue and associated materials are banked whenever an animal is handled or captured for veterinary or research purposes.	CSD, PM	Samples banked	As required	

10.4.7 Degradation and rehabilitation programme

The purpose of this programme is to assess any disturbance that may result in degradation of ecological processes and how these impacts may be prevented or minimised.

The degradation and rehabilitation report for the park was first compiled in 2013 and identified soil erosion, unnatural pans, quarry pits, unwanted infrastructure and invasive alien plants as the major degradation challenges. Rehabilitation projects are already in place addressing these challenges but mapping is still being undertaken on an annual basis to cover the entire park. Alien and invasive species will be addressed in programme 10.4.8 below.

Soil degradation entails loss of actual or potential productivity or utility as a result of natural or anthropogenic factors (Lal 1994). Soil erosion in the park is mainly associated with the water runoff from the roads and the impacts are minimal. Some erosion impacts can also be observed

on all the 4x4 Eco-trails due to forced off road driving and the bad condition of these trails. The sensitive riverbed and riparian habitat areas, where much of the tourism activity and vehicle traffic is currently concentrated, were identified as priority areas for rehabilitation. Soil erosion by wind plays a major role in the formation of dunes in the park. The areas that were excavated for road usage are undergoing passive rehabilitation and stabilised by vegetation regrowth. There are also unnatural pan excavations, possibly for holding rain water. In terms of rehabilitation, all artificial excavations on pans should be rehabilitated.

In line with the desired state of the park, specifically the emphasis on wilderness qualities, and supported by the zonation programme, unused structures should be removed and the sites rehabilitated.

This programme links with high level objective 3 and objective 3.7 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

DEGRADATION AND REHABILITATION PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the Southern Kalahari.					
Objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To minimise or prevent degradation impacts by maintaining or restoring key ecological processes which support long term persistence of biodiversity.	Mapping of the riverine habitats and identification of sensitive habitat types prone to degradation.	CSD	Sensitivity map	Year 2	
	Implement erosion control measures.	PM, BSP	Monthly report	Ongoing	
	Rehabilitate all artificial excavations on pans.	BSP, PM	BSP reports	Year 3	
	Rehabilitate identified quarries.	BSP. PM	BSP reports	Year 5	

10.4.8 Alien and invasive species programme

The purpose of this programme is to prevent entry and control alien and invasive species in order to reduce their distribution, abundance and impacts, thereby maintaining the integrity of the indigenous biodiversity of the park.

There are sixteen National Acts, Provincial ordinances and Municipal by-laws that govern the management of alien and invasive species (AIS). Of these, the most immediately relevant are; the NEMBA and the Conservation of Agricultural Resources Act (No. 43 of 1983) [CARA] and regulations made under these Acts. CARA requires for the management of listed alien invasive plants, there are three categories of plants each with its own management and control regulations. NEM:BA provides for the protection of South Africa's biodiversity within the framework of the National Environmental Management Act (Act No. 107 of 1998) [NEMA]. This Act puts in place a framework for the management of IAS, regulations governing the management of IAS was published in July 2013 (Government Gazette No. R. 506). Many international conventions call for the management of invasive alien species (*e.g.* the Convention on Biodiversity). In South Africa, the management of AIS is mandatory under the NEM:BA. The CARA provides additional guidance for the management of AIS plants. The AIS management framework for SANParks (Hendricks and Symonds 2009) provides the context within which all management of AIS is implemented.

Alien and invasive species are accepted to be one of the largest, and fastest growing, threats to biodiversity and the ecosystem services they support. These species can transform the structure and species composition of ecosystems by replacing indigenous species, either directly by out-competing them for resources or by changing the way nutrients are cycled through the ecosystem. They also increase biomass which in turn changes fire regimes and fire intensity (McNeely *et.al.* 2001). Foxcroft *et.al.* (2013) identify biological invasions as one of the greatest threats to Protected Areas. They also identified that the threat of alien and invasive species pose on the management of protected areas is increasingly been recognised as a major concern. The development of robust decision making tools that are based on both invasive species traits as well as ecological principles, along with effective implementation, is key to the success of alien and invasive species management programmes. The likelihood of protecting the park from the threats of these species is dependent on sound management strategies, adequate resources and effective engagement with key stakeholders, effective legislation and policing of legislation. The likelihood of eradication or maintenance control varies considerably with species and terrain invaded, with, for example, the likelihood

of eradicating established fish populations is highly unlikely. As with alien and invasive plants, rapid response is required to remove species before being allowed to build up large populations.

List of alien and invasive species occurring in the park

Ten alien plant taxa have been recorded for the park and is listed in Table 16 below.

Table 16. List of alien and invasive species recorded in the park.

Taxonomic group	Scientific name	Common name	NEM:BA category	Current perceived level of threat
Plant	*Argemone mexicana*	Yellow-flowered Mexican Poppy	1b	Low
	Argemone ochroleuca	White-flowered Mexican Poppy	1b	Low
	Cirsium vulgare	Scotch thistle	1b	Low
	Nicotiana glauca	Wild tobacco	1b	Low
	Prosopis glandulosa	Mesquite	3	Low
	Schinus molle	Pepper Tree	N/A	Low
	Tephrocactus articulatus	Spruce cone cactus	N/A	Low
	Parkinsonia aculeata	Jerusalem thorn	N/A	Low
	Salsola spp.	Saltwort	N/A	Low
	Syngonium podophyllum	Goosefoot	N/A	Low

Description of the land infested, assessment of the extent of infestation

Drainage lines are recognised as zones of high resource availability, however these areas are also prone to greater disturbances such as flooding as well as heightened pressure from herbivory and human activities that include water abstraction and other inappropriate landuse practises (Milton *et al*., 2010). Resource availability drives invasion biology along with resource utilisation, propagule pressure (Richardson and Pysêk 2006) as well as land disturbances such as flooding, herbivory pressure and inappropriate land use contribute to plant invasions.

Current invasions in the park are primarily restricted to the two river systems, rest camps and infrastructure areas as well as ground water extraction points along the river courses. One of the key challenges in the management of AIS within the park is the international boundaries shared between Botswana and Namibia. There is at present no formal AIS management strategy between the three countries thereby compounding the challenge of AIS management in the park.

In 2015 it was estimated that 8, 726 ha within the park boundary are infested by AIS which occur at different densities of infestation. The Biodiversity Social Projects (BSP) program have also further estimated 940 ha within the parks' buffer zone (private and state land), where AIS may have a negative influence on the park achieving its biodiversity objectives.

Status report on the efficiency of past control measures

SANParks received funding in 2012 to do alien clearing in the park. During July and October of 2012, initial *Prosopis glandulosa* treatment was done on 68 ha in the area south of Twee Rivieren. A total of 976 person days was allocated to this clearing which cost R223, 573. However it is noted that park management has worked *on P. glandulosa, Schinus molle, Salsola* spp., *Parkinsonia aculeate* amongst other alien plants. The Working for Water (WfW) program has been active in the park since 2014 / 2015, during this period R 283, 830 has been invested into the treatment of alien invasive control and eradication. The WfW program has treated a total of 2, 829 ha (2, 761 ha in 2014/15, and 68 ha in 2012) in the park where the focus has been on

P. glandulosa and *Argemone mexicana* specifically. The project has employed 31 beneficiaries for a total of 2, 032 person days (1, 056 in 2014).

Though all AIS and its current densities (2015) are considered a low threat to the biodiversity and other assets of the park, management interventions must still be implemented. *Nicotiana glauca, Tephrocactus articulates and P. aculeata* are considered to have been eradicated from the park so these species have been categorised under "rapid response" which necessitates management to respond proactively to the re-emergence of these species. *P. glandulosa* and *S. molle* that are growing in the camps, at view sites and in the staff villages, have been categorised as "phase out". These species acts as shade trees and a replacement program must be developed. The remaining species, *Commelina benghalensis* and *Syngonium podophyllum* have been put under "no management required" which necessitates the monitoring of the species to ensure that there invasive status does not change.

Current measures to monitor, control and eradicate alien invasive species

Currently there have been no formal measures to monitor IAS management within the park. All BSP IAP management activities are managed through the Water Information Management System (WIMS), the WIMS allows for rudimentary monitoring of IAS between treatments over the period of time that the parks Working for Water program has been operational. Legislation now requires for the management of AIS within the park and buffer zone and follows a five year cycle as per NEM:BA regulations. At the end of each cycle progress towards the NEM:BA management aims is assessed and revised for the next five year period. The SANParks AIS management framework, guided by NEM:BA, requires (i) assessment, (ii) allocation of NEM:BA management aims, (iii) implementation of management actions, (iv) monitoring of AIS and AIS management actions and (v) valuation and reporting. The objective is to transgress from one management aim to another towards a final desired state achievable for the park that would include eradication, extirpation or containment of AIS. The NEM:BA decision making process has identified management objectives for all AIS listed in the park, see relevant sections above, as well as corridors and pathways that pose a risk to the park which has highlighted the need for cross boarder collaboration with both Namibia and Botswana.

All AIS have been put through the NEM:BA decision making process and assigned to different management aims in relation to each AIS or group of AIS habit as well as the zonation of the park taking into consideration invasion corridors. In addition, preferred treatment methods have been identified for each of the key species or species groups. Control methods implemented to date by both park management as well as the BSP have been effective and do follow the guiding principles. This has included both (i) mechanical and chemical as (ii) manual control methods. In the case of Prosopis, the key to suppression and eradication is ensuring the correct follow-up periods are adhered to.

Indicators of progress and success, indications of when the programme is to be completed

Because of the parks' international boundaries and it being situated in the lower reaches of the Auob and Nossob Rivers, eradication of the listed AIS will not be feasible in the short to medium term. In Namibia upstream from the Mata Mata rest camp on the Auob River, established and dense *Prosopis* stands have been identified. The Auob and Nossob Rivers has a flood cycle of 20 - 50 years which are likely to transport the established seed banks into the park. The projected resources required over the next ten years is estimated at R 4, 176, 000, to clear 9, 666 ha within the park and park buffer zone.

It is unlikely that alien invasive control will ever be completed within the three management areas identified and associated with the park, due to the extreme complexity of natural systems and the dispersive agents present in the environment. Therefore and continues effort consisting of monitoring, risk assessment and control will have to be undertaken into the foreseeable future. A detailed lower level plan outlining the rationale and operational approach is available.

This programme links with high level objective 3 and objective 3.7 on page 35. To achieve the purpose of this programme the actions listed in the table below will be implemented.

ALIEN AND INVASIVE SPECIES PROGRAMME					
High level objective: To conserve and restore the integrity of ecosystem function, patterns and processes as part of the southern Kalahari.					
Objective: To minimise or prevent degradation impacts by maintaining or restoring key ecological processes which support long term persistence of biodiversity					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To systematically survey and list alien species in and around the park.	Survey the park and buffer zone, to determine alien and invasive species (fauna and flora) abundance and distribution, and maintain updated species lists.	PM, BSP, CSD	Survey report	Annually	
	Monitor the spread of high priority species (fauna and flora).	PM, BSP	Monthly reports	Ongoing	
To prevent, where possible, the introduction of alien species.	Prohibit the presence of alien species (fauna and flora) in staff quarters and tourism accommodation.	PM, BSP	Monthly reports	Ongoing	
	Monitor, and / or where necessary, manage previously degraded areas within the park and the park buffer zone to reduce post clearing reinvasion.	PM, BSP, CSD	Monitoring results	Ongoing	
To ensure the effective and timely development and implementation of integrated control strategies, in such a manner that rapid response and long-term maintenance goals are met.	Introduce biological control agents (where applicable) and / or other appropriate and novel methods (subject to risk-benefit evaluation) where appropriate and necessary.	BSP, PM	APO	Annually	
	Maintain control of alien invasive species according to the NEM:BA clearing plans ascribed to per species.	PM, BSP, CSD	Annual plan of operation	Annually	
	Eradicate, where possible, all new incursions of alien species (fauna and flora) and monitor the efficiency of the eradication programme.	PM, CSD, Bio-technician	Monthly report	Ongoing	
	In cooperation with Namibian and Botswana stakeholders, strategise and implement cross border buffer alien clearing plans.	PM, BSP	Document	Annually	

10.5 Responsible Tourism programme

The purpose of the responsible tourism programme is to act as an enabler for conservation through enhancement of the financial sustainability of the park with optimal benefit to the local communities. Currently, the majority of tourism income is generated by accommodation offered within the park and the conservation fees charged for park access.

Implementation of the Responsible Tourism strategy would enable operational efficiency and thus creates the environment for new product development, packaging and dynamic pricing in order to maximise yield, though dependencies such as the availability of advanced technologies do exist. SANParks' has adopted the National Responsible Tourism Standard, SANS1162:2011, and thus the principles of responsible tourism, will be used in order to guide the strategic development of the park. The Responsible Tourism programme thus looks at all aspects of the current and potential tourism product and service offering in order to ensure that the park meets the required standards for environmental and financial sustainability, local community

beneficiation and customer service excellence, and this starts by establishing the parks responsible tourism baseline.

This baseline will need to be established in 2015 / 2016, in order to identify a clear point of departure from which to work. A measure for customer service excellence is measuring the customer feedback, tourism quality standards, universal access standards, and then evaluating the visitor management aspects relating to the park, for example gate efficiency.

The park is considered a high value park operating at high occupancy levels and income generation. It has limited potential for development, due to the agreed KTP limits that has nearly been reached. It is unlikely that these limits would be adjusted in the medium term, and thus the development focus would be around enhancing the existing service offering, driving community concession lodge development and assisting lodges and camping facilities in Botswana to find traction in the market.

Currently, the majority of tourism income is generated by accommodation offered within the park and the conservation fees charged for park access. Whilst the park is seen by the organisation as a driver of the conservation mandate, and as a socio-economic catalyst in the region, significantly extending the parks revenue generating potential can only be achieved with extensive and effective tourism planning, regular review and adapting to the constantly changing environment. The Responsible Tourism objectives aim to drive the process of continued growth.

Since 2014, there has been a substantial growth in the number of day visitors and vehicles entering the park at Twee Rivieren gate making use of the limited tourism roads network in the southern section of the park. This increase in visitor demand during high season periods started to exceed the available capacity inside the park, leading to congestion, over-loading of available infrastructure and negatively affecting the road network condition and sense of place. A day visitor's gate quota of 20 vehicles (50 persons) will be implemented to place a cap on the current volume of visitors that visit the park in order not to exacerbate the current situation.

Aligning SANParks' and Botswana tourism operations in order to improve standards and controls is ongoing, with tourism training projects currently being implemented and standardisation of tourism systems being considered by Botswana. One of the main objectives is to ensure that this park remains a flagship product which is financially sustainable and to further develop the tourism brand in order to continue offering tourists a quality experience.

A detailed lower level plan is available. This programme links with high level objective 4 and objectives 4.1 – 4.8 on page 36.

RESPONSIBLE TOURISM PROGRAMME					
High Level Objective: Realising optimal economic returns from tourism, while safeguarding the uniqueness of the landscape.					
Objective: Responsible Tourism alignment - To align park tourism planning to SANParks' 2012-2022 Responsible Tourism strategy.					
Sub-objective	**Action**	**Responsibility**	**Indicators**	**Timeframe**	**References**
To communicate 2022 Responsible Tourism strategy to all park stakeholders.	Educate and motivate staff in the responsible tourism principles and enhance tourism capacity and skills base within staff complement.	Manager Tourism Standards, PM	Training register	Year 4	Responsible Tourism Policy 2012-2022 Responsible Tourism Strategy
	Inform the park stakeholders of the SANParks 2022 Responsible Tourism Strategy and potential impact on the park.	PM	Brochures	Year 3 and ongoing	2022 Responsible Tourism Strategy
To ensure milestone delivery on Tourism plan actions within the required timeframes.	Monitor and report progress in regards of implementation of the actions identified in the Tourism plan.	PM	Monthly Reporting and KPA's and contracting documents	Annually	

RESPONSIBLE TOURISM PROGRAMME					
High Level Objective: Realising optimal economic returns from tourism, while safeguarding the uniqueness of the landscape.					
Objective: Responsible Tourism alignment - To align park tourism planning to SANParks' 2012-2022 Responsible Tourism strategy.					
Sub-objective	**Action**	**Responsibility**	**Indicators**	**Timeframe**	**References**
To ensure milestone delivery on Tourism plan actions within the required timeframes.	Communicate progress and prioritisation to stakeholders and public.	PM	PM reporting and KPA's	Annually	Park Forum minutes
Objective: Responsible Tourism Performance – To enable the measurement and continuous improvement of the park's Responsible Tourism performance, in line with the principles of responsible tourism as addressed in SANParks' Responsible Tourism Policy and minimum standards as per SANS1162:2011					
To enable continuous improvement of Responsible Tourism performance	Establish a baseline (gap analysis) to identify current performance in regards of the Responsible Tourism Standard, SANS1162:2011.	Manager: Tourism Standards	Responsible Tourism Standards Manual	Year 1	SANS1162 Responsible Tourism Strategy
	Engage in Responsible Tourism assessment, in order to measure performance improvement in relation to set Responsible Tourism targets.	Manager: Tourism Standards	Responsible Tourism Assessment / Audit Report	Annually	SANS1162
	Engage in Tourism quality assurance assessments and grading, as appropriate.	Manager: Tourism Standards	Tourism Quality Assessment Report Tourism Grading Assessment Report	Annually	Responsible Tourism Strategy
	Engage in Universal Access assessments	Manager: Tourism Standards	Universal Access Assessment Report	Annually	Universal Access Strategy UA Protocol
	Implement reticulation (sewer and water systems) and hybrid energy systems within the key camps in the park	PM	Responsible Tourism Assessment / Audit Report	Year 5 - 10	
	Renovate, upgrade or adapt existing infrastructure as part of the infrastructure plan, to ensure responsible tourism practices are effectively implemented.	PM	Infrastructure plan	Annually	Infrastructure programme
Objective: Customer focused service excellence - To enable appropriate customer-focused service excellence.					
To continually enhance customer service standards applicable to all visitors and other travellers.	Manage and resolve feedback received from the public (all sources) visiting or having visited the park.	PM, GM: Tourism	Customer feedback received	Ongoing	Online feedback
	Regularly assess facilities to ensure operational procedures are carried out and facilities re maintained to SANParks' standards.	PM	Checklists	Weekly / Monthly	

RESPONSIBLE TOURISM PROGRAMME					
High Level Objective: Realising optimal economic returns from tourism, while safeguarding the uniqueness of the landscape.					
Objective: Customer focused service excellence - To enable appropriate customer-focused service excellence.					
Sub-objective	**Action**	**Responsibility**	**Indicators**	**Timeframe**	**References**
To grow loyalty of all visitors and other travellers.	Sell loyalty initiatives and / or membership to visitors and recreational users.	PM	Wild Card Membership Sales	Ongoing	Wild Card Sales
	Identify opportunities for growing loyalty amongst existing park visitors and communicate these to Wild Card Management.	PM	Proposals	Ongoing	
Objective: Grow tourism revenue to drive the conservation-based economy – To provide visitors with appropriate and diverse range of products and services at market related prices, that act as an economic catalyst locally and regionally.					
To ensure appropriate and optimal pricing of tourism products and services.	Provide input into the annual pricing of tourism products and services, in order to optimise financial returns without eroding the conservation values.	PM	Annual Price Updates	Annually	
	Implement yield management for high-demand products.	Yield Manager	Annual Price Updates	Annually	
To ensure optimal development and maintenance priorities to enable revenue optimisation.	Identify all possible activities and facilities that may be considered for development within the park.	PM	Product Development Framework	10 Years	Park Management Plan
	Identify specific sites (including cultural / heritage sites) with tourism development potential.	PM	Product Development Matrix	As required	
	Conduct a feasibility study of priority opportunities in order of perceived value added and income generated.	Product Development Steering Committee	Site specific feasibility study	As required	Product development guideline
	Implement identified projects	PM	Tourism Development Plan	Ongoing	
To ensure optimal returns from commercial operations.	Maximise profits from retail, (adding curios).	PM	Retail Income	Ongoing	
	Implement a single system for enhanced controls throughout the park and improving occupancies of all facilities within the KTP.	PM	KTP Integrated Development Plan	Ongoing	
To identify alternative tourism income generating opportunities.	Identify packaging opportunities of existing and/or 3rd party packaging opportunities, and implement where appropriate.	PM	Sales and Marketing Plan	Quarterly	
	Analyse, and where necessary test, opportunities, in order to identify most lucrative and manageable opportunities for implementation.	Product Development Steering Committee	Packaging Matrix	Ongoing	
Objective: Reduce cost of tourism operations - To enable cost savings within tourism operations of the park					
To optimise use of tourism human resources.	Review staffing practices and where possible improve management of staff complement through peaks and troughs.	PM	Scheduling	Ongoing	
	Provide regular staff training in operational procedures and customer service.	PM	Training register	Quarterly	

RESPONSIBLE TOURISM PROGRAMME					
High Level Objective: Realising optimal economic returns from tourism, while safeguarding the uniqueness of the landscape.					
Objective: Promotion - To promote the park and its individual attractions, as an unforgettable experience offering unique environmental and cultural experiences.					
Sub-objective	**Action**	**Responsibility**	**Indicators**	**Timeframe**	**References**
To market the park to SANParks and park specific target markets.	Identify park specific markets, and devise strategies for expanding on these markets, where not included in the strategic and focus markets for SANParks.	GM: Sales & Marketing	Sales and Marketing Plan	Ongoing	Sales and Marketing Strategy
	Tap the photography travelling magazines, as a promotional medium.	PM	Sales and Marketing Plan	Ongoing	Sales and Marketing Strategy
To enhance the research and collection of data relating to untapped tourism markets.	Look at the opportunity of attracting the photographic market for photographic safaris, and a more specialised market.	PM	Sales & Marketing Plan	Ongoing	
	Implement targeted discounting to optimise revenue generation for the park.	Yield Manager	Sales and Marketing Plan	Ongoing	Sales and Marketing Strategy
Promote park events.	Where appropriate, promote park events, internally, to the customer base and/or target markets.	Park GM / Park Communications	Sales and Marketing Plan	Ongoing	
To ensure effective visitor management in the park.	Create a park visitor management (VM) Plan, including priorities for implementation.	GM: Visitor Management	VM Plan	Year 2	Visitor Management Protocol
	Maintain the visitor management Plan taking changes in the environment into account.	GM: Visitor Management	VM Plan	Regularly (2-3 years)	
	Effectively manage visitor numbers through seasonal peaks.	PM	VM Plan	Ongoing	
Objective: Visitor experiences - To continually improvement the visitor experience within the park.					
To enable a quality visitor experience through dynamic interpretation of biodiversity, cultural and heritage value of the park.	Develop a park Interpretation Plan, taking existing interpretation into account, and including priorities for implementation.	GM: Visitor Management	Interpretation Plan	Year 1	Interpretation Protocol
	Implement the Interpretation Plan actions according to the prioritised list.	PM	Interpretation Plan	Ongoing	Interpretation Protocol
	Maintain all interpretation communications as implemented throughout the park.	PM	Interpretation Plan	Ongoing	Interpretation Protocol
	Prioritise the sustainable upgrade and maintenance of the existing road network.	PM	VM Plan	Ongoing	

RESPONSIBLE TOURISM PROGRAMME					
High Level Objective: Realising optimal economic returns from tourism, while safeguarding the uniqueness of the landscape.					
Objective: Visitor experiences - To continually improvement the visitor experience within the park.					
Sub-objective	**Action**	**Responsibility**	**Indicators**	**Timeframe**	**References**
To enable a quality visitor experience through dynamic interpretation of biodiversity, cultural and heritage value of the park.	Improve the standard of Visitor information centres facilities.	PM	KGNP VM Plan	Ongoing	
	Identify mechanisms for improving the parks Universal Access (UA) facilities and services, with reference to existing facilities for persons with mobility impairments and access for the aged.	Manager: Tourism Standards	Universal Access Plan	Annually	Universal Access protocol
To ensure adequate, effective and accurate visitor communication within and on approach to the park.	Complete the implementation of and maintain signage requirements.	PM	Signage Manual	Annually	
	Ensure all staff are adequately trained (including conservation and support staff), to communicate key park, tourism and biodiversity information to visitors, and where appropriate to access the information, if unknown.	PM	Tourism Plan	Ongoing	
	Assist the Khomani San to setup a living museum to see how they lived and experience it.	PM	Agreement	Ongoing	
Enhance park accessibility.	Implement technologies to improve efficiency of access, through the use of new technologies.	PM	Tourism Plan	Ongoing	Tourism System Strategy
	Engage national, regional and/or local stakeholders to ensure the maintenance of access routes on approach to the park.	PM	Stakeholder Minutes	Ongoing	Tourism Plan
	Reach agreement with the Khomani San regarding a gate management mechanism.	PM	Agreement	Ongoing	Tourism Plan
Objective: Equitable Access - To enable equitable (both affordable and facilitated) park access for targeted communities.					
To engage local and regional government in order to enable access to park by a variety of transport mechanisms	Engage with commercial business operators to identify opportunities for improving local community (especially PDI) access to the park	PM	PDI numbers	1 Year	
To understand the desired community interaction with the park in order to encourage community visitation and interaction with the park.	Attend quarterly Joint Management Board meeting.	PM	Minutes JMB	Quarterly	JMB Forum
	Attending Farmers Union meetings to communicate with neighbouring farms to keep communications open.	PM	Minutes of Stakeholder meetings	Quarterly	Stakeholder Workshops
	Identify unexplored opportunities for encouraging visitation by communities surrounding the parks.	PM	Minutes of Community Meetings	1 Year	Community engagement

10.6 Constituency building and benefit sharing

The People and Conservation department in SANParks was established to build constituencies among people in support of the conservation of the natural and cultural heritage assets within national parks. This is achieved through strengthening relationships with neighbouring communities, management of cultural resource and indigenous knowledge management, environmental education, awareness and interpretation, social science research, and youth outreach. Stakeholders are engaged with on different levels and in diverse ways according to their needs. It is vital to the existence, development and expansion of the park to maintain good relations with these stakeholders.

10.6.1 Stakeholder relationship programme

The purpose of this programme is to establish and maintain meaningful and beneficial relationships with a wide range of stakeholders supporting SANParks' core business of biodiversity conservation and tourism.

The park advisory forum (PAF) has been constituted and is functioning as an advisory body that meets quarterly. It is a means of providing a legitimate platform to communicate park / SANParks matters to ensure participation by stakeholders on matters of mutual relevance affecting the park. It is expected that the PAF will facilitate constructive interaction between the park and surrounding communities / stakeholders and to build constituencies in support of natural and cultural heritage conservation goals of the park. Organisations represented on the PAF include amongst others, Mier local municipality, Khomani San, South African Police Service (SAPS), Community Development Officers (Welkom, Askham, Philandersbron, Rietfontein, Loubos, Klein Mier and Groot Mier).

The Ae! Hai Kalahari Heritage Park Joint Management Board (JMB) was established in 2003 and oversees all matters with regards to the management of the Ae! Hai Kalahari Heritage Park and meets quarterly. The JMB has been established as a forum where representatives of the principal parties may take decisions on a basis of sufficient consensus on aspects subject to the powers and functions of the JMB, subject to a principal party not refusing its consent unreasonably. SANParks remain responsible for the management of the biodiversity assets within the contractual park. Organisations represented on the park forum include amongst others, Mier Municipality, Khomani San, Community Property Association (currently an administrator) and SANParks.

The park enhances biodiversity conservation through developing a healthy community custodianship that would be regarded as part of the parks' conservation equity. Where required, special task teams are set up to address issues of mutual interest or to resolve potential conflict of interest. Co-operative governance systems are being developed and strengthened. These aim to promote inclusivity and compliance with legislation through improved relationships and collaboration with government (national, provincial and local) and various governing bodies.

The park has a close working relationship with the Honorary Rangers (SHRs). They contribute both in funds and in kind to the park programmes. Their vast expertise is used by the park to fulfil its vision and mission. They contribute in the following ways, to name but a few:

- Support and assist in environmental education and community outreach programmes;
- Fundraising;
- Participate in park operations during weekends when requested; and
- Participate and assist with holiday programmes.

This programme links with high level objective 5 and objective 5.1 on page 36. To achieve the purpose of this programme the actions listed in the table below will be implemented.

STAKEHOLDER RELATIONSHIP PROGRAMME					
High level objective: To ensure societal relevance through the optimisation of social and economic beneficiation, consistent stakeholder participation and implementation of educational programmes.					
Objective: To use formal platforms for community participation and management engagement in order to ensure inclusivity thereby enabling the realisation of social and economic benefits of the park.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To improve co-operation and build sound stakeholder relationships.	Co-ordinate and support the PAF meetings.	PM	Minutes	Quarterly	
	Support the Heritage Park Joint Management Board meetings.	PM	Minutes	Quarterly	
	Identify park requirements and ensure that these are communicated to the Honorary Rangers.	PM	List of needs	Ongoing	
To maintain and improve a healthy relationship with the media and other governmental and non-governmental entities.	Regular submission of articles.	PM	Articles / Reports	Ongoing	
	Co-operate with relevant government systems and ensure healthy communication channels.	PM	Programmes / Minutes / Reports	Ongoing	
	Liaise with conservation entities, NGOs to share information and improve relationships.	PM	Programmes / Reports	Ongoing	

10.6.2 Environmental education and interpretation programme

The purpose of this programme is to build constituencies amongst people in support of the parks' conservation endeavours by playing a significant, targeted and effective role in promoting a variety of educational opportunities and initiatives.

An integrated approach to environmental education and interpretation has been adopted in SANParks which includes a broader stakeholder base and develops relevant programmes addressing a variety of issues *i.e.* caring for the environment and impacts that negatively affect the environment. The current beneficiaries of this program are mainly school and youth groups as well as the broader community. This approach is taking the form of organised, high quality and interactive activities which are categorised into:

- Formal programmes:
  These programmes will target the formal education sector and will be directed at school groups visiting the park, and through outreach programmes at communities adjacent to the park. These programmes are aligned with the school curriculum assessment policy statement (CAPS). Examples of these formal programmes are the revised Junior Rangers - and the Kids in Parks programmes.

- Informal programmes:
  The informal programmes are aimed at community oriented initiatives targeting specific stakeholders such as the broader community mainly women and youth and the content will be conservation issue-specific. Examples of the informal programmes are creating awareness, information sharing between communities and the park, and *ad hoc* request for support.

The Gemsbokplein Environmental Education Centre provides an overnight environmental education learning experience to groups consisting of maximum 50 learners plus six educators. Educational programmes can be provided according to specific topics / themes / learning area / subjects.

A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 5 and objective 5.3 on page 36. To achieve the purpose of this programme the actions listed in the table below will be implemented.

ENVIRONMENTAL EDUCATION AND INTERPRETATION PROGRAMME					
High level objective: To create awareness, understanding of and support for the park's conservation endeavours by playing a significant, targeted and effective role in promoting a variety of formal and informal educational programmes and community oriented initiatives.					
Objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To plan, develop and present formal education programmes for organised school and other youth groups.	Develop an environmental education plan and update annually.	PM	Document	Year 1 and Ongoing	
	Organise and conduct applicable environmental education programmes for schools including the special funded programmes (*i.e.* Kids in Parks, Junior Rangers, and special environmental calendar days).	PM	Monthly reports	Annually	
	Organise and conduct applicable youth development programs (*i.e.* Khomani San Veldt school, Junior Rangers, Environmental Monitors and SA College for Tourism).	PM	Monthly reports	Annually	
	Organise and conduct outreach programmes in the communities including in the Transfrontier Conservation Area (*e.g.* calendar day programmes, and other).	PM	Monthly reports	Annually	
	Develop new and update existing programme information.	PM	Documents	Annually	
To plan, develop and present informal education programmes for the broader stakeholder group of the park.	Arrange and facilitate community awareness programme initiatives targeting specific stakeholders on conservation issue-specific matters.	PM	Monthly reports	As required	
	Review and update current materials (programmes and activities).	PM	Monthly reports	Annually	

10.6.3 Local socio-economic development programme

The purpose of this programme is to play a significant, targeted and effective role in contributing to local economic development, economic empowerment and social development in communities and neighbouring areas. This will be achieved by partnering with local government through the IDP, participating in government programmes such as the Expanded Public Works Programme (EPWP), beneficiation and local and regional procurement.

SANParks has established a Socio- Economic Development programme. This programme is aligned to Government's National Development Plan and the DEA objectives to enhance fair and equitable sharing of benefits from biological resources and to improve the socio- economic benefit flow from biodiversity conservation. A number of programmes are being implemented to contribute to the development of local communities, including, the wildlife economy, blue economy, waste management, social legacy, Expanded Public Works Programme, and Environmental Protection and Infrastructure Development. The sourcing of goods and services

from the local communities is also promoted through the identification and ring fencing of opportunities for the benefit of the local enterprises. The wildlife economy initiative, being one of the key programmes of the socio-economic development strategy, contributes to the participation of local communities in the wildlife industry value chain. It is centered on game farming activities that relate to the stocking, trading, breeding of game as well as enhancing the tourism experience. The establishment of viable ecotourism enterprises for the economic benefit of the local communities is another key area for the programme.

The EPWP remains a significant focus area of the organisation to effectively contribute to local socio-economic development. The park currently manages various BSP programmes as mentioned including Environmental Monitors. These programmes focus on poverty alleviation and are labour intensive projects that create temporary jobs in the short term while simultaneously achieving biodiversity objectives. Since the inception of these programmes hundreds of temporary jobs were created and R 3, 283, 464 spend on salaries and operational requirements. Skills development and capacity building is regarded as a cornerstone to enable economic activity. Great emphasis is placed on skills development in the above programmes. The park will continue to facilitate and encourage skills development through learnership and internship programmes in a broad range of fields (*i.e.* reception, field guiding experiential training for students).

The park continues to support and develop local initiatives or small businesses that provide services that are required during specific events or functions. Where possible, local small, medium and micro-sized enterprises (SMME), especially previously disadvantage individuals (PDI) are favoured when sourcing contractors, provided that all procurement conditions as stated in SANParks procurement policy are adhered to.

Through the Heritage Park JMB, three mutually beneficial objectives have been implemented to build capacity amongst the local Khomani San community. These are; (i) to improve environmental education of the community, (ii) economic upliftment and (iii) improving conservation importance of the park are addressed. The focus is on SANParks to assist in training opportunities and funding of such courses to equip the community with the necessary skills especially in terms of long term planning regarding the youth.

The annual recruitment of female students for the S.A. Tourism College in Graaff-Reinet in partnership with the park also supports job creation in the communities. Several local community staff members are also supported with studies at Higher Institutions. The Tsammaland Crèche for early childhood development has been registered with the Department of Social Development.

The park further supports local economic development agreements through the outsourced !Xaus lodge and the proposed Khomani San Auob lodge project. These contractual agreements with the local communities aim to symbolise co-operation between the principal parties, to assist the promotion of their other eco-tourism facilities and to jointly establish a facility for eco-tourism, which will generate income and alleviate poverty.

A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 5 and objective 5.3 on page 36. To achieve the purpose of this programme the actions listed in the table below will be implemented.

LOCAL SOCIO-ECONOMIC DEVELOPMENT PROGRAMME					
High level objective: To ensure societal relevance through the optimisation of social and economic beneficiation, consistent stakeholder participation and implementation of educational programmes.					
Objective: To create social and economic benefits through skills development programmes, employment creation and sustainable resource use, in order to improve local livelihoods.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To provide social and economic benefits to local communities by enabling job creation.	Provide employment and business opportunities to local communities (park and EPWP projects).	PM	Number of employees, BBBEE and SMME ratings	Ongoing	
	Promote procurement from local and regional businesses.	PM	BBBEE and SMME ratings	Ongoing	
To facilitate and implement skills development programmes.	Support the implementation of park EPWP programmes.	PM	Monthly Reports	Ongoing	

LOCAL SOCIO-ECONOMIC DEVELOPMENT PROGRAMME					
High level objective: To ensure societal relevance through the optimisation of social and economic beneficiation, consistent stakeholder participation and implementation of educational programmes.					
Objective: To create social and economic benefits through skills development programmes, employment creation and sustainable resource use, in order to improve local livelihoods.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To facilitate and implement skills development programmes.	Liaise with local municipalities regarding implement park based IDP projects.	PM	Minutes of meetings, IDP document	Ongoing	
	Provide appropriate capacity development through BSP training and mentoring.	BSP, PM	Training register	Ongoing	
	Provide opportunities for learnerships and internships.	PM	Monthly report	Ongoing	
To support local beneficiation through sustainable resource use.	Continue supporting the existing !Xaus lodge.	PM	Monthly report	Ongoing	
	Supporting the process in finalising the agreement of the proposed Khomani San Auob lodge project.	PM	Monthly report	Year 1	
	Initiate and support a wildlife economy project in the region.	PM	Monthly report	Year 3	

10.6.4 Cultural heritage programme

The purpose of this programme is to enable, encourage and support the nurturing and expression of cultural heritage resources, authentic local traditions, cultural ceremonies, oral history, environmental adaptation and language to improve the management and interpretation of thereof for both the park and the Ae! Hai Kalahari Heritage Park.

The management of the cultural heritage resources will be guided by a number of national legislations, policies and procedures within SANParks. The heritage resources is being maintained and conserved in accordance with the standards and procedures set out by the South African Heritage Resources Agency (SAHRA). There are also SANParks policies like; the cultural heritage policy (2011), the heritage objects collections management policy (2011), the guidelines for burials and scattering of ashes (2010) and the guidelines on development and maintenance of heritage sites.

The park incorporates various cultural heritage sites. While some areas in the park are known to contain important artefacts, none of these are at risk. The successful land claims by both the Mier and Khomani San communities necessitated the preparation of cultural heritage plans to manage the cultural resources of the park that includes the Ae! Hai Kalahari Heritage contractual park.

The mapping of cultural heritage sites by the Khomani San in the park area is in planning. In the case of the Khomani San, rights of symbolic and cultural use of resource exist. This includes medicinal plant utilisation and traditional hunting in the defined “V” (Commercial preference) and “S” (Symbolic Use) zones. This is in addition to those rights existing on their portion of the Contractual Park. Instances where general park regulations and internal rules do not harmonise with the rights of the contractual park land owners as entrenched in the trilateral agreement will be addressed (*i.e.* including traditional hunting and other sustainable resource use). Resource

use protocols will be drafted through the Joint Management Board and will be implemented. Monitoring and evaluation systems will be developed between SANParks Scientific Services and the Khomani San.

The cultural resource programme highlight the necessity for adequate funding, the consolidation of information, the rehabilitation and management of cultural assets, capturing of oral history and indigenous knowledge and on-going monitoring. In addition, interactions with stakeholders' have highlighted the need for appropriate tourism plans and zonation to sustain the all-important sense of place. As soon as funding becomes available an implementation officer will be appointed to monitor compliance with the agreements norms / standards that will be set. The Heritage Park JMB will monitor the compliance. Additional to the contractual park issues, the park aims to map all known sites of cultural significance, draw up site management plans and develop cultural exhibitions at various information centres. To this end assessment of historic buildings and structures on the old farm sites along the Auob River has already been done by the National Cultural History Museum as part of a Danish Corporation for Environment and Development (DANCED) sponsored project. The study included the history of the farms on which the buildings as indicated provided an inventory of assessed sites and their associated culture resources projected on maps and suggested a restoration plan for buildings that have potential to be used for tourism. Cultural mapping has also been done by the South African San Institute on the cultural sites related to the Khomani San.

The DEA has launched a process to obtain World Heritage Site status for the Khomani Cultural Landscape comprising the Kalahari Gemsbok National Park. The nomination of the Khomani Cultural Landscape is done within the context of the World Heritage Convention Act No 49 of 1999. SANParks has to date (2015) participated in various meetings with the DEA and the appointed service provider, EcoAfrica regarding the nomination. SANParks is supportive of this endeavor.

This programme links with high level objective 6 and objectives 6.1 and 6.2 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

CULTURAL HERITAGE PROGRAMME					
High level objective: To rediscover, rehabilitate and nurture the living culture and heritage assets, especially where these have been neglected.					
Objective: To create an inventory of and continuously improve the management and interpretation of cultural heritage assets.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To fully understand the park's cultural heritage value, by compiling and maintaining a comprehensive inventory and record of all cultural heritage assets.	Support the process of mapping all the cultural heritage sites in partnership with the Khomani San.	PM	Registered projects	Ongoing	
	Develop and update the cultural heritage database.	Regional P&C, PM	Inventory	Ongoing	
	Recover the oral history and other relevant information relating to cultural heritage assets.	Regional P&C, PM	Reports	Year 2	
	Documentation of newly discovered cultural heritage assets and associated oral histories.	Regional P&C, PM	Documents, data base	Year 5	
	Facilitate the research of information and documentation of available resources through series of projects.	PM	Reports, research projects	Year 2	
	Develop cultural heritage site management plans for sites that have been identified for educational, research and tourism purposes.	PM	Documents	As required	
To create an awareness of, and appreciation for, park and regional cultural heritage, by developing a variety of mechanisms for interpreting and communicating the history with different audiences.	Identify opportunities to promote the unique cultural heritage characteristics of the people of the area.	PM, Regional People & Conservation, Manager: Cultural Heritage	Reports	Year 5	

CULTURAL HERITAGE PROGRAMME					
High level objective: To rediscover, rehabilitate and nurture the living culture and heritage assets, especially where these have been neglected.					
Objective: To enable, encourage and support the nurturing and expression of authentic local traditions, cultural ceremonies, oral history, environmental adaptation and language to conserve these for future generations.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To create an awareness of, and appreciation for, park and regional cultural heritage, by developing a variety of mechanisms for interpreting and communicating the history with different audiences.	Develop cultural heritage displays (including the promotion of indigenous languages and living culture) and other relevant cultural information.	PM, Regional People & Conservation	Cultural heritage interpretation area / centre	Year 3	
	Support the World Heritage Site nomination process.	PM	Dossier, minutes of meetings	As required	

10.7 Effective park management

Effective park management programmes (including daily, weekly, monthly quarterly and annual actions, reports and reviews) are geared to ensuring that the values and objectives of the park are maintained. These programmes put in place the systems and processes that enable proactive management of the park's objectives. This section outlines the management programmes, objective and actions that assist in effective park management such as environmental management, financial management (*e.g.* procurement, reporting), budgeting, maintenance planning, and monitoring compliance.

10.7.1 Environmental management programme

The purpose of this program is to minimise negative operational impacts on the park and set clear guidelines for the management of environmental impacts.

Given the national and international importance of the park, it is vital to manage this park to world class accepted standards. Proper management of development and operational activities within the park can only be achieved through appropriate planning tools and effective controls. A number of management tools are being used to develop and manage the park in a manner consistent with the relevant legislation and SANParks policy framework. These key tools and controls used by the park forms the basis of an environmental management framework.

The Minister of the Department Environmental Affairs has, in terms of section 24(2) of the NEMA, identified activities that may not commence without authorisation from the competent authority. NEMA is of general application throughout South Africa and relevant provisions therefore apply to the park. Further to the provisions of NEMA, the park will develop standards of best practice to guide all operational activities that may have an impact on the environment. These activities will include any new infrastructure development that is not listed under NEMA; as well as general maintenance. The development of best practice standards will be guided by the precautionary principal. The precautionary principal states that if an action might cause harm to the environment, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who would advocate taking the action.

This programme links with high level objective 7 and objective 7.1 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

ENVIRONMENTAL MANAGEMENT PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To ensure compliance with environmental legislation and best practise principles for all management activities.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To manage and reduce the impacts of park activities on the vital attributes.	Make all environmental legislation available to park management.	PM	Electronic / hard copy of applicable legislation	Ongoing	
	Conduct internal scoping for all activities / developments that may potentially impact on the environment and ensure that EIA and heritage impact assessments are completed.	PM	Documents / reports	As required	
	Review and implement a set of best practice principles for the identified activities as required.	PM	Standard operating procedures	Ongoing	
	Develop and implement emergency response plan for identified activities.	PM	Plans	As required	
	Explore latest technologies to minimise water and electricity use.	PM	Report	Ongoing	

10.7.2 Risk management programme

The purpose of the programme is to update and maintain the park's risk profile and to manage risks accordingly. The management of business risks is regarded by SANParks as an integral part of management across all operations.

In line with corporate governance best practices and as per PFMA requirements, the Board of SANParks has formalised the risk management processes by adopting a Corporate Risk Management Framework (CRMF). As its foundation, the risk management framework follows an enterprise-wide risk identification and assessment process, based on thorough understanding of the environment in which the organisation operates and the strategic corporate objectives it intends to deliver on.

The main aim of the CRMF is to instil a culture of corporate risk management awareness and risk ownership being practised as the responsibility of all. This will provide SANParks with a comprehensive understanding of all identified risks and their potential impact on the achievement of objectives, thereby creating a good basis for the effective management of all risks to remain within the risk appetite of the organisation. Acknowledging that all activities occurring at different levels within the organisation are exposed to the various types of risks, the focus of this framework is to shift the attention of this organisation towards a philosophy of optimising the balance between potential risks and the potential rewards that may emanate from both pro-active and conscious risk oriented actions. As such, SANParks maintains a corporate profile of the identified key strategic challenges the organisation faces. This profile is communicated to the Board and is reviewed on an on-going basis. The risk profile reflects among others the risks identified as well as how each is addressed and or monitored.

At individual park level, the park manager is responsible for risk management. Being the link between the operational activities and its environment on the one hand, and the corporate support and management structure on the other, the park manager is in many instances, responsible for implementation of corporate initiatives, programmes, management plans and others that form part of the SANParks strategy to address or mitigate issues of risk. Examples are the implementation and roll-out of a safety and security plan, implementing and maintaining ecological monitoring systems to identify and assess the impact of environmental change, and complying with financial and cash-flow directives especially in economic depressed times.

Similarly, the park manager needs to ensure that emerging issues of risk, that can jeopardise achievement of park (and SANParks corporate) objectives, are timely identified and assessed in terms of possible severity. In consultation with the corporate support structure such issues are either assessed to be within the management capacity of the park and its existing resources, or the matter is elevated to a corporate level, where a specific risk management strategy is agreed upon, resources allocated where applicable, and a risk management or monitoring plan is implemented.

This programme links with high level objective 7 and objective 7.2 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

RISK MANAGEMENT PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To establish and maintain effective, efficient and transparent systems of risk management.	To identify and assess risks for all business operations in the park.	PM	Risk register	Annually	CRMF
	To develop responses to address and prevent or mitigate issues of risk.	PM	Risk response plan	Annually	PFMA, OHS Act, NEM:PAA, NHBRC regulations
	To monitor effectiveness in terms of the risk response plan and improve as needed.	PM	Report	Quarterly	Park risk profile

10.7.3 Financial management and administration programme

The purpose of the programme is to ensure sound financial management and administration. As a public entity, SANParks manages the public funds entrusted to the organisation in accordance with the Public Finance Management Act, Act 1 of 1999 (as amended by Act 29 of 1999), and it is listed as Schedule 3 Part A: 25 public entity. The financial management and administration unit consists of the following sections, trade income, reconciliations, creditors, financial administration and supply chain management. Without incisive financial management of the park, there can be no realistic conservation effort.

Trade income manages all income received by the park which includes monthly billing of trade debtors, shops, restaurant, fuel stations and confirming payments received. The reconciliation unit will verify and ensure that all transactions captured in the financial system correspond with the income received and expenditure incurred. The creditors unit ensures payment of all suppliers and service providers and will follow up on outstanding invoices and queries received from suppliers. The financial administration unit is responsible to supervise, guide and provide the necessary assistance with the budget process, asset management and related administration. SANParks budget policy dictates a zero-based approach, which implies that every category must be critically assessed, evaluated and supported by an approved business plan. Annual budgets should be compiled in accordance with budget guidelines and instructions issued by the Corporate Finance Division. The financial and administration unit in collaboration with senior and middle management to ensure sound and proper budget management.

The supply chain management unit assists the park in procuring goods and services, ensures compliance and manages contracts. The financial and administration unit is responsible for asset control and manages a wide range of assets in support of the park.

For the next implementation cycle the park will ensure that all park operations and park projects are cost effective and financially sound. In addition, particular attention will be given to developing a diverse income base and proactive financial network to maintain and improve the financial sustainability of the park.

This programme links with high level objective 7 and objective 7.3 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

FINANCIAL MANAGEMENT AND ADMINISTRATION PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To ensure sound financial management and administration.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To attain effective financial management.	Ensure less than 1% variance on cost of operations.	PM	Statements	Ongoing	
	Ensure sound financial management of special projects - WfW, WoF.	PM	Budget targets achieved	Ongoing	
	Participate in the independent audit of financial records.	PM	Audit report	As required	
	Address audit findings.	PM	Audit findings report	As required	
To grow revenue (Including alternative sources of revenue).	Identify new and align existing business opportunities within the commercialisation programme of SANParks.	PM	Opportunities identified in line with policy.	Ongoing	
	Identify possible external funding to supplement current income streams.	PM	Funding proposals submitted	Year 1, ongoing	
	When required, develop support mechanisms and procedures for the park to receive grants and donations.	PM	Procedures	Year 1	
To improve the management of financial resources.	Prepare accurate and realistic annual budgets in consultation with management team that are in line with the sound management plan objectives.	PM	Annual budgets prepared	Annually	
	Provide monthly financial reports timeously by cost centre.	PM	Financial reports	Monthly	
To ensure proper asset management and supply chain management (SCM).	Verify and manage assets registers.	PM	Asset register	Bi-annually	
	Assist with the procurement of goods and services.	PM	Monthly reports	Monthly	
	Manage and maintain existing contracts for the supply of goods and services.	PM	Contract register	Monthly	

10.7.4 Human capital development programme

The purpose of the human capital development programme is to ensure that the park has an adequate human resources function to render effective conservation, visitor and supporting services. SANParks has developed corporate human resources policies, guidelines and procedures to guide the park and its workforce in an effectively organised structure while delivering the outputs of the management plan.

By adhering to these policies, guidelines and procedures the park will ensure that competent staff is appointed, and that current staff will be managed in an effective manner to keep them positive, proactive and committed to their tasks and responsibilities. This will also ensure that human resource management will comply with the relevant national legislation.

Park human resource capacity is not only defined by development of current staff, but requires the holistic management of the appropriate human capital. This includes the creation of a learning environment, developing leadership skills, sharing of knowledge and experiences as well as making staff wellness

programmes available to employees and their families. This will assist staff in dealing with the negative effects of lifestyle diseases and other lifestyle challenges (*i.e.* financial planning). Park administration must report on deaths, new appointments, attendance registers, overtime claims, leave *etc.* A salary instruction is prepared from this for processing and preparation of monthly salaries. The park reviews training needs on an annual basis and submits the training need analysis and requirements for approval. Compilation of training needs starts off with the Individual Development Plans for each staff member and is then followed by training, skills development and performance appraisals. Park management encourages all staff to improve their levels of skills and qualifications in their relevant field of expertise through study bursaries and training on an on-going basis.

The park currently (2016) has 117 permanent positions, 98 contract positions (including internships, temporary workers, BSP and EPWP workers). Additional management functions especially in tourism and conservation departments as outlined in this plan will make it necessary to grow the staff establishment.

This programme links with high level objective 7 and objective 7.4 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

HUMAN CAPITAL DEVELOPMENT PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To ensure sufficient and effective staff capacity to achieve management objectives by adhering to corporate human resource policies and guidelines.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To ensure the park attracts and retains the most suitable human capital.	Implement the corporate selection and recruitment policy.	PM	Procedures followed for appointments	Ongoing	SANParks recruitment and selection policy
	Promote awareness and ensure that category C and up have signed balance scorecards contracting documents.	PM	Balance scorecard and contracting documents	Quarterly	Performance management policy
	Preparation and processing of monthly salaries and leave management.	PM	Salary instructions	Ongoing	
	Ensure implementation of the prescribed disciplinary code and procedures.	PM	Reports	As required	
	Establish EE forum and develop an EE plan	PM	Meetings, plan	Year 1	
	Fill vacancies as per EE targets.	PM	EE statistics	Ongoing	
To implement plans and skills development strategies to meet the strategic goals of the organisation.	Identify training needs and conduct training interventions within budget allocation.	PM	Training plan in place, % of employees trained, and of budget spent on training	Annually	
	Develop human capital in the fields of tourism, conservation and administration through the internship programmes.	PM	Implementation of internship programme	Bi-annual & Annual	

HUMAN CAPITAL DEVELOPMENT PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To ensure sufficient and effective staff capacity to achieve management objectives by adhering to corporate human resource policies and guidelines.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To implement plans and skills development strategies to meet the strategic goals of the organisation.	Develop human capital in the field of people & conservation and ecotourism by introducing tourism and conservation experiences to learners and community groups.	PM	Learner and community groups addressed	Annually	
Implement workplace wellness programmes.	Conduct wellness awareness workshops.	PM	Workshops	Annually	Corporate HIV policy
	Provide private facilities areas within the park to enable employee's access to health risk management programme.	PM	Facilities	Ongoing	People well-being Policy
	Invite professionals to the park to promote awareness on OHS and health issues.	PM	Attendance registers	Ongoing	OHS Act
	Commemorate all events related to wellness (*e.g.* AIDS day, world blood donor day, days of activism on non-violence against women).	PM	Attendance registers	Annually	People well-being Policy

10.7.5 Information management programme

The purpose of the programme is to establish and maintain a database of park information.

Management of the park requires that appropriate data and information is collected, maintained and made readily accessible to staff responsible for all aspects of management. Such data is not only essential for formulating effective long-term management objectives, plans, programs and systems, but also for educating and informing residents, associations, user groups, local authorities, provincial and national decision and policy makers, international organisations and aid / donor agencies.

The priorities for research will be developed through a priority needs analysis which will be articulated through the development of an overarching science plan. This plan will determine the suitable park indicators (including Thresholds of Potential Concern) to monitor, as well as the varying mechanisms to collect the data (*e.g.* internal research, universities, commissioned studies, *etc.*).

This programme links with high level objective 7 and objective 7.5 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

INFORMATION MANAGEMENT PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To implement best practices in the field of records and information management.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To develop and implement a records management and file plan for the park in accordance with SANParks policies and procedures.	Review the existing records management and file plans within the various areas of the park, and implement a single file plan.	PM	File plan	Year 2	National Archives and Records Services of SA Act

INFORMATION MANAGEMENT PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To implement best practices in the field of records and information management.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To develop and implement a records management and file plan for the park in accordance with SANParks policies and procedures.	Implement the records management and file plan.	PM	Records and documents filed	Ongoing	Corporate file plan and policy
	Ensure appropriate access to park files and records in accordance to corporate records management policy and guidelines.	PM	Access procedures recorded and implemented	Ongoing	Corporate file plan and records managemen t policy

10.7.6 Infrastructure programme

The purpose of this programme is to provide guidance for the upgrading and maintenance (day to day and scheduled) of infrastructure. This is primarily to ensure that the park's infrastructure (buildings, roads, fences *etc.*) and services infrastructure (provision of water, electricity and waste management) is well maintained and its capacity is continually improved in order to provide safe, reliable and affordable products to its clients and visitors. The Technical department's key responsibility is to provide leadership and guidance in the delivery and implementation of departmental programmes and to ensure the realisation of set goals regarding the above.

Infrastructure in the park consists of facilities in support of conservation (such as management roads and tracks, office facilities, staff housing, fences, bulk services, workshops and stores) and tourism (such as tourist roads and tracks, walking trails, office facilities, staff housing, bulk services, public viewing points, bird hides, picnic sites and tourist accommodation). These facilities enable staff to execute their respective duties towards achieving the park's objectives and providing a tourism product at the best possible standard.

Management policies and procedures ensure that 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 and water saving measures and minimising waste. The five year rolling maintenance plan addresses issues related to securing funding for upgrading, renovation / maintenance and replacement. The technical department continues to periodically review and assess performance in an attempt to align activities and allocate resources.

This programme links with high level objective 7 and objective 7.6 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

INFRASTRUCTURE PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To upgrade and maintain existing infrastructure and develop new infrastructure in support of conservation and tourism in compliance with the zonation.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To ensure that infrastructure in the park is maintained to a desired state.	Compile an inventory of all infrastructure in the park, assess construction types and determine extent of maintenance needed.	PM	Inventory	Year 1	

INFRASTRUCTURE PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To upgrade and maintain existing infrastructure and develop new infrastructure in support of conservation and tourism in compliance with the zonation.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To ensure that infrastructure in the park is maintained to a desired state.	Document the scope of maintenance needs in accordance with relevant specifications.	PM	Reports	Year 1	Building and Electrical regulations
	Develop a five year rolling maintenance plan for the park.	PM	Maintenance plan and schedules	Year 1	
	Implement the five year rolling maintenance plan according to the annual maintenance schedules.	PM	Monthly and annual reports	Annually	
	Assess progress, revise annual maintenance schedules and evaluate standard of work.	PM	Annual report	Annually	
	Assess and where feasible, implement water and energy saving products, as well as making use of renewable energy sources.	PM	Report	Year 1 - 10	
	Appoint and manage a contractor to provide maintenance support to alleviate maintenance backlog.	PM	Fixed term contract	Year 1 - 3	
To ensure that all mechanical and electrical equipment is maintained to a desirable state.	Compile an inventory of all mechanical and electrical equipment in the park, determine maintenance schedules of each and list service providers.	PM	Inventory	Year 1	
	Develop and implement annual maintenance schedule for all equipment.	PM	Schedule	Annually	OHS Act, Electrical regulations
To regulate all unwanted structures and facilities.	Identify and list all such structures *etc*.	PM	List	Year 1	
	To regulate or remove relevant structures.	PM	Reports, Notices	Year 5	

10.7.7 Safety and security programme

The purpose of this programme is to provide a safe and secure environment for both staff and visitors to the park while at the same time will ensure that the integrity of the natural and cultural resources of the area is maintained in a sustainable manner.

Although the park is home to only two of the “Big 5”, it still represents very unique biodiversity. Any compromise with regards to safety would receive negative international coverage. The risks to visitors to the park and the natural resources remains low.

All staff must be familiar with the standard operating procedures related to safety and security and receive regular training. The Safety and Security Plan comprehensively addresses both the strategic and operational aspects of visitor, staff safety and security as well as area integrity. A SWOT analysis of issues affecting safety and security in the park has been developed and the resulting strengths, weaknesses, opportunities and threats have been converted into achievable objectives and are reviewed regularly. Proactive consideration including those listed are discussed in some detail: working hours, law and order, high risk areas, personnel, infrastructure, resources, equipment, staff training, reporting, data capture, record keeping, monitoring, information and intelligence. In addition to this a number of reactive

considerations including: immediate action drills, emergency procedures and evacuation plans have been developed.

This programme links with high level objective 7 and objective 7.7 on page 37. To achieve the purpose of this programme the actions listed in the table below will be implemented.

SAFETY AND SECURITY PROGRAMME					
High level objective: To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To provide a safe and secure environment for both visitors and SANParks employees and to ensure that the integrity of the natural and cultural resources is secured.					
Sub-objectives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To provide a high level of safety and security to staff, visitors and natural resources.	Review relevant safety and security plan and emergency action drills.	PM	Updated documents	Annually	Safety and security plan
	Develop a security plan for the concession areas and heritage park.	PM	Safety and security plan	Year 1	
	Implement safety and security plans for concession holders and review quarterly.	PM	Safety and security plan	Year 1, annually	
	Train staff in area integrity management, conservation guardianship and readiness to react to emergency situations.	PM	Training plan	Ongoing	
	Implement the SOP for vehicle breakdown support.	PM	Monthly report	As required	
	Assess readiness of staff and functionality of equipment.	PM	SoAIM audits	Annually	
	Conduct regular patrols to ensure that area integrity is maintained.	PM	Monthly reports	Ongoing	
	Conduct regular joint transfrontier operations to ensure that area integrity is maintained.	PM	Monthly reports	Quarterly	
To improve overall park safety through interactions with external role players.	Align safety and security activities to accommodate collaborative operations with external partners, *e.g.* SAPS, SANDF.	PM	Safety and security plan	Ongoing	
	To participate in external safety and security forums.	PM	Reports	Annually	

10.8 Evaluation and learning

10.8.1 Introduction

Section 5 has dealt with the jointly-agreed desired state, and section 10 with all the specific programmes which are necessary to achieve this. However, the desired state cannot be effectively maintained without explicit attention being given to prioritisation, integration,

operationalisation, and above all, reflection and adaptation according to the principles in the SANParks biodiversity custodianship framework (Rogers 2003).

The need for reflection and adaptation (*i.e.* adaptive learning) comes from acknowledging that the world of conservation is complex and that the existing knowledge base is imperfect. Complexity implies that feedbacks between components of the conservation system are likely to change in unpredictable ways and the only way to stay abreast of such changes is through ongoing learning and adaptation. Lack of effective feedback and reflection is the commonest underlying cause of failure of strategic adaptive management, and hence of reaching the desired outcomes of the park. Evaluation should furthermore test the appropriateness of an intervention and monitoring, the predictive capacity, societal acceptability and accomplishment of broad goals (Kingsford & Biggs 2012; Figure 13).

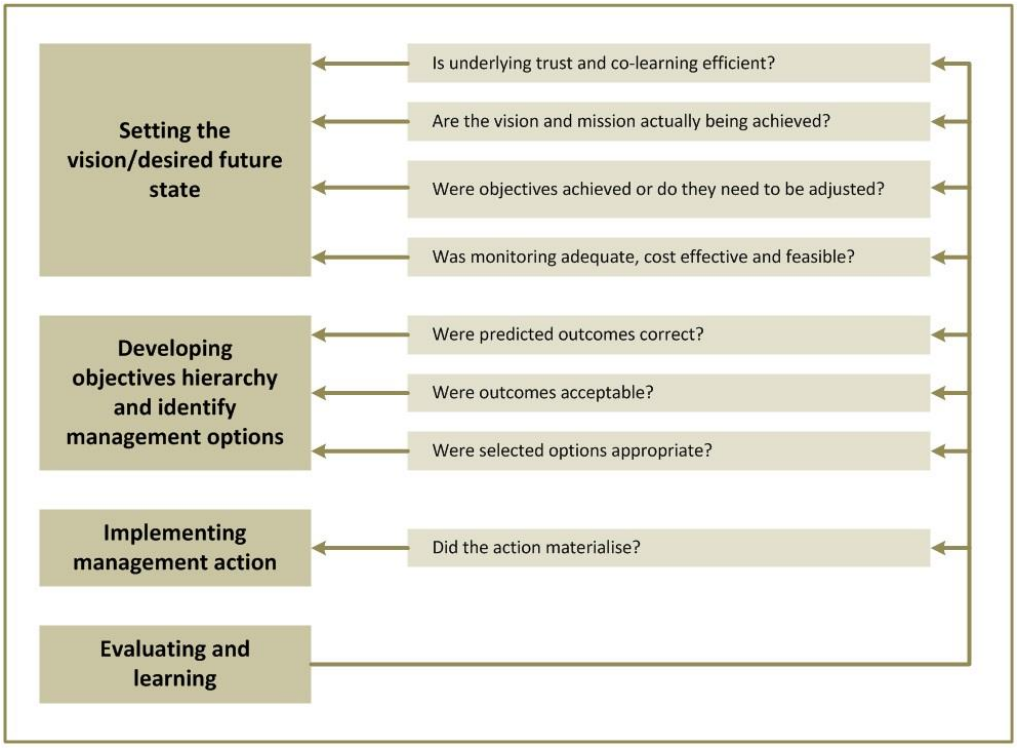

Figure 13. Feedback questions essential for adaptive learning (from Kingsford and Biggs, 2012).

10.8.2 Operationalisation

Given the desired state, and the programmes outlined in Section 10, specific action and operational plans need to inform the Key Performance Areas (KPA's) of staff members (applicable personnel working in the Parks, CSD and Tourism Divisions) to ensure that the outcomes are achieved. In addition, explicit reflection and co-learning opportunities need to be maintained and honoured to facilitate an adaptable, learning approach that can cope with unexpected events or surprises. An example are those opportunities provided by the science-management forum engagements at park or regional level.

A critical component of strategic adaptive management is to monitor and evaluate the consequences of management decisions and actions. This involves assessment of the outcome of management interventions, but also frequent evaluation of early warning signals (referred to in SANParks as Thresholds of Potential Concern, or TPCs) of whether the intervention is on an appropriate trajectory for achieving the particular objective. Ongoing evaluation of emerging results against objectives is essential to allow strategy and methodology to be adjusted as new understanding and knowledge emerges. Continuous evaluation and learning is facilitated by making time for reflecting on the following questions (Roux and Foxcroft, 2011):

- Has the intended plan of operation materialised?
- Were the selected options appropriate?
- Were the predicted consequences correct and, if not, why?
- Is the monitoring adequate, cost effective and feasible?

- Were the consequences actually acceptable?
- Even if the predicted consequences were correct and are acceptable, are the objectives and vision being met?

Science-Management Forum discussions are aimed at ensuring that feedbacks take place, best available knowledge and understanding is incorporated into decision-making and Thresholds of Potential Concern are timeously flagged and considered. In addition, annual reflection workshops involving managers and scientists will evaluate what has been learnt in each programme, and what should be adjusted.

If this process is effectively honoured, it is believed that the park will be practicing strategic adaptive management, and in accordance with our overarching values around complex systems, will have the best chance of achieving the desired state in a sustainable way.

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Section 11: Costing

11.1 Introduction

In line with the legal requirements, the programmes of implementation to achieve the desired state have been costed below.

The park will adhere to the guiding principles listed below:

- Responsibly manage the allocation of budget, revenue raising activities and expenditure;
- Ensure solid financial management support the achievement of the objectives of this plan;
- Compliance to the Public Finance Management Act as well as SANParks financial policy and procedures.

Using the zero based budgeting approach a funding estimate was derived based upon the activities in this management plan. When estimating the costing the following items were considered:

- Those costs and associated resources which could be allocated to specific activities and which were of a recurring nature;
- Those costs and associated resources which could be allocated to specific activities but which were of a once-off nature;
- Unallocated fixed costs (water, electricity, phones, bank fees *etc*.);
- Maintenance of infrastructure;
- Provision for replacement of minor assets, (furniture, electronic equipment, vehicles, *etc*.).

11.2 Income

SANParks manages a number of national parks as part of the national park system, currently twenty in total. Not all of these parks are financially viable, currently only five national parks *i.e.* Addo Elephant National Park, Augrabies Falls National Park, Kalahari Gemsbok National Park, Kruger National Park and Table Mountain National Park make a surplus. SANParks receives an annual grant from the DEA to carry out its mandate, but this is not sufficient to cover the management costs. The organisation utilises its own revenue derived from commercial activities to subsidise the shortfall. The surplus generated by the aforementioned parks is used to fund management costs across all national parks. An organisation of this magnitude also has overhead costs relating to support services such as human resources, tourism and marketing, finance, conservation support *etc.* which is not allocated to individual parks and must also be funded by the revenue generated in financially viable parks. Total income for 2016 / 2017 is budgeted at -R 52, 354, 706 increasing to -R 66, 096, 610 in 2020 / 2021. A summary is presented in Table 15.

Table 17. A summary of the total income for the park management plan over the next five years.

	2016 / 2017	2017 / 2018	2018 / 2019	2019 / 2020	2020 / 2021
Total income	**-R 52, 354, 706**	**-R 55, 495, 988**	**-R 58, 825, 747**	**-R 62, 355, 292**	**-R 66, 096, 610**

11.3 Expenditure

11.3.1 Recurring costs

The annual directly allocated cost (includes staff, travel and supplies and tools) is estimated at R 34, 870, 091 for 2016 / 2017. These ongoing costs are split according to the programmes listed in Table 18.

Table 18. The estimated annual operational costs for 2016 / 2017.

Programme	Amount	Percentage of total
Responsible Tourism programme	R 15, 395, 372	44.2%
Infrastructure programme	R 11, 333, 730	32.6%
Degradation and rehabilitation programme	R 2, 353, 537	6.8%
Financial management and administration programme	R 1, 500, 871	4.3%
Alien and invasive clearing programme	R 847, 284	2.4%
Safety and security programme	R 786, 643	2.3%
Species of special concern programme	R 313, 271	0.9%
Herbivore programme	R 306, 809	0.9%
Human capital development programme	R 305, 418	0.9%
Habitat and vegetation programme	R 232, 001	0.7%
Fresh water ecosystem programme	R 230, 974	0.7%
Stakeholder relationship programme	R 213, 597	0.6%
Environmental education and interpretation programme	R 204, 826	0.6%
Disease management programme	R 155, 392	0.4%
Kgalagadi Transfrontier programme	R 152, 851	0.4%
Fire management programme	R 127, 203	0.4%
Risk management programme	R 102, 461	0.3%
Cultural heritage programme	R 102, 263	0.3%
Local socio-economic development programme	R 54, 520	0.2%
Environmental management programme	R 38, 405	0.1%
Mainstreaming biodiversity programme	R 23, 905	0.1%
Information management programme	R 20, 684	0.1%
Total	**R 34, 802, 018**	**100%**

11.3.2 Once off costs

In addition to the above there is a further once-off cost estimated at R 269, 410, 432 over the next five years (Table 19).

Table 19. The estimated once off cost of the infrastructure programme.

Programme	Estimated budget
Infrastructure	R 269, 410, 432
Total	**R 269, 410, 432**

11.3.3 Unallocated fixed costs

The unallocated fixed costs for 2016 / 2017 amounts to R 8, 181, 363.

11.3.4 Maintenance

A breakdown of the infrastructure, both existing and new with their replacement value and an estimate of the ongoing annual maintenance for 2016 / 2017 is provided in Table 20. The projected maintenance for existing infrastructure is estimated at R 8, 881, 526 in 2016 / 2017. If the new planned infrastructure is developed it will add a further R 4, 130, 007 (at 2016 / 2017 rates) onto this annual maintenance budget, increasing it to R 13, 011, 533. The maintenance requirement was calculated as a percentage of the replacement value.

Table 20. The estimated replacement value of the existing infrastructure and any new infrastructure required with the estimated annual maintenance budget for the existing and new infrastructure.

	Estimated replacement value			**Estimated maintenance**		
	Existing (R)	**New (R)**	**Total (R)**	**Existing (R)**	**New (R)**	**Total (R)**
Buildings	187, 932, 296	29, 831, 845	217, 764, 141	2, 706, 225	433, 139	3, 139, 364
Roads & tracks	269, 749, 860	245, 496, 000	515, 245, 860	5, 390, 331	3, 535, 142	8, 925, 473
Trails	240, 620	0	240, 620	346, 493	0	346, 493
Fencing	44, 546, 500	0	44, 546, 500	343, 602	0	343, 602
Water system	3, 496, 940	0	3, 496, 940	50, 355	0	50, 355
Electricity	0	2, 529, 602	2, 529, 602	0	50, 592	50, 592
Sewerage	890, 400	7, 717, 611	8, 608, 011	44, 520	111, 134	155, 654
Other	0	0	0	0	0	0
Total	**506, 856, 616**	**285, 575, 058**	**792, 431, 674**	**8, 881, 526**	**4, 130, 007**	**13, 011, 533**

11.3.5 Replacement of minor assets

With many of the vehicles being leased along with the computers, this will significantly reduce this requirement as these items are expensive and require frequent replacement. To calculate the replacement provision, the cost price of the assets was divided by the estimated useful life. SANParks applies certain standards in this regard. The estimated asset value for various categories based on their original purchase price and the estimated budget required annually to make provision for their replacement. Management should make provision for about R 1, 134, 562 in 2016 / 2017, this figure is presented in Table 21.

Table 21. The total value of the various categories of minor assets and replacement value thereof (based on original purchase value).

Asset type	**Asset value**	**Provision for replacement**
Air conditioners	R 447, 088	R 67, 702
Computer equipment	R 942, 935	R 142, 787
Firearms	R 16, 629	R 2, 518
Furniture	R 1, 286, 937	R 194, 879
Mechanical equipment	R 2, 604, 084	R 394, 333
Office equipment	R 86, 553	R 13, 107
Vehicles and trailers	R 1, 204, 520	R 182, 399
White goods	R 903, 644	R 136, 837
Total	**R 7, 492, 391**	**R 1, 134, 562**

11.4 Summary

It is estimated that the park will require an annual operating budget of R 57, 265, 626 for 2016 / 2017, increasing to R 72, 296, 534 in 2020 / 2021. In addition to this amount, the park will also require R 269, 410, 432 over the next five years for once off costs. A summary is presented in Table 22.

Table 22. A summary of the annual and once off costs that is required to fully implement the activities in the management plan over the next five years.

	2016 / 2017	2017 / 2018	2018 / 2019	2019 / 2020	2020 / 2021
Annual operational costs	**R 57, 197, 553**	**R 60, 629, 406**	**R 64, 267, 171**	**R 68, 123, 201**	**R 72, 210, 593**
Once off costs over five years	**R 269, 410, 432**				
SANParks budget for KGNP	**R 45, 643, 608**	**R 48, 382, 224**	**R 51, 285, 157**	**R 54, 362, 267**	**R 57, 624, 003**
Shortfall	**R 11, 553, 946**				

The shortfall can be broken down as follows:

- An additional amount of R 9, 370, 797 is required to cover the current maintenance shortfall;
- An additional amount of R 2, 073, 149 is required for additional tourism personnel, OPEX and km's to manage the new and existing tourism products; and
- An additional amount of R 110, 000 is required to replace assets.

11.5 Implications

Should the park be unsuccessful in securing the shortfall amount of R 11, 553, 946 then the following programmes will be affected;

- Infrastructure programme: The park will not be able to maintain the current infrastructure to a high standard;
- Tourism programme: The park will not be able to open and operate the new camp and restaurant optimally therefore adversely affect the income stream; and
- Assets: The park will not be able to replace assets that have reached the end of their life span.

The park will submit motivations to SANParks Head Office for additional funding, to cover the shortfall.

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Appendix 1: Declarations

1. Land declared

Government Notice 134 / Government Gazette 2 287 of 12 July 1935 declared the following land as part of the Kalahari Gemsbok National Park in terms of the National Parks Act (Act No. 56 of 1926)

1. Farm Ooikolk, situated in the division of Gordonia;
2. Farm Kameelsleep, situated in the division of Gordonia;
3. Farm Sekwats, situated in the division of Gordonia;
4. Farm Twee Rivieren, situated in the division of Gordonia;
5. Farm Houmoed, situated in the division of Gordonia;
6. Farm Monro, situated in the division of Gordonia;
7. Farm Auchterlonie, situated in the division of Gordonia;
8. Farm Bato Lama, situated in the division of Gordonia;
9. Farm Kamqua, situated in the division of Gordonia;
10. Farm Klein Skry Pan, situated in the division of Gordonia;
11. Farm Groot Skry Pan, situated in the division of Gordonia;
12. Farm Caldecote, situated in the division of Gordonia;
13. Farm Sitzkas, situated in the division of Gordonia; and
14. Farm Kafirs Pan, situated in the division of Gordonia.

Government Notice 05 / Government Gazette 10 565 of 02 January 1987 declared the following land as part of the Kalahari Gemsbok National Park in terms of the National Parks Act (Act No. 57 of 1976)

1. Portion 2 of the farm Mier 566, in extent of 362.3704 ha, situated in the division of Gordonia;
2. Portion 3 of the farm Mier 566, in extent of 10, 893.5794 ha, situated in the division of Gordonia;
3. Portion 4 of the farm Mier 566, in extent of 1, 754.8153 ha, situated in the division of Gordonia;

Government Notice 1442 / Government Gazette 24065 of 22 November 2002 declared the following land from the Kalahari Gemsbok National Park under section 2B(1)(b) of the National Parks Act (Act No. 57 of 1976)

1. Portion 1 of the farm 643, in extent of 30, 134.7803 ha, situated in the division of Gordonia, held under Title Deed No T2456/2002; and
2. Portion 2 of the farm 643, in extent of 27, 769.2969 ha, situated in the division of Gordonia, held under Title Deed No T2457/2002.

2. Land excluded

Government Notice 05 / Government Gazette 10 565 of 02 January 1987 excluded the following land from the Kalahari Gemsbok National Park in terms of the National Parks Act (Act No. 57 of 1976)

1. Portion 1 of the farm Monro 69, in extent of 0.6194 ha, situated in the division of Gordonia;
2. Portion 1 of the farm Caldecote 76, in extent of 50.1302 ha, situated in the division of Gordonia;
3. Portion 1 of the farm Kaffirs Pan 77, in extent of 4.8271 ha, situated in the division of Gordonia;
4. Farm 568, in extent of 5.6156 ha, situated in the division of Gordonia;
5. Portion 1 of the farm Twee Rivieren 97, in extent of 5, 019.2199 ha, situated in the division of Gordonia;

Government Notice 1442 / Government Gazette 24065 of 22 November 2002 excluded the following land from the Kalahari Gemsbok National Park under section 2A(2) of the National Parks Act (Act No. 57 of 1976)

1. Portion 1 of the farm 643, in extent of 30, 134.7803 ha, situated in the division of Gordonia, held under Title Deed No T2456/2002; and
2. Portion 2 of the farm 643, in extent of 27, 769.2969 ha, situated in the division of Gordonia, held under Title Deed No T2457/2002.

Appendix 2: Stakeholder participation report

STAKEHOLDER EVENTS AND ACTIVITIES

Stakeholder consultation

This table reflects the various organisations that were identified to participate in the park management plan process. The government departments are at national, provincial and local level. The intention is to show that, in terms of the spirit of co-operative governance SANParks has approached these parties.

Local government	Mier local municipality, Z.F. Mgcawu district municipality
Provincial government	Northern Cape Province – Departments of Economic Development and Tourism, Land Reform and Agriculture and Environment and Nature Conservation
National Government	Department of Home Affairs, South African Police Service
International	Botswana Department of Wildlife and National Parks
Contractual partners	Ae!Hai Kalahari Heritage Park
Local residents / neighbours	Kgalagadi Lodge, Pulai Community game farm
Research	Cape Peninsula University of Technology, University of Free State
Conservation organisations	EWT Birds of Prey SATIB Conservation Trust
Tourist associations	Green Kalahari Tourism Forum, Red dune route

Desired state workshop

A range of key stakeholders and SANParks specialists participated in the development of the desired state which entails developing a vision for the park supported by higher level objectives which forms the basis of the management plan.

Activities	Description
Invitations	Park management, certain SANParks specialists and key stakeholders were invited.
Desired state workshop	The workshop took place on 21 April 2015 at the Molopo Lodge close to Andriesvale.
Attendance:	26 Participants (13 stakeholders and 13 SANParks staff members) partook, representing the following constituencies: • Eastern Cape Province: Department. of Economic Development and Tourism; • Botswana Department of Wildlife and National Parks; • Red Dune Route; • Ae!Hai Kalahari Heritage Park; • Members of the public; • South African Police; and • SANParks.

Registration as an interested and affected party

Stakeholders had the following opportunities to register as interested and affected parties.

Mechanism to register	Description
Media advertisements	Advertisements to inform interested and affected parties of the public days and request to register to participate was placed in the following national newspapers on 17 January 2016: • Sunday Times; • Rapport. An advertisement to inform interested and affected parties of the public days and request to register to participate was placed in the Gemsbok local newspaper on 22 January 2016.
Registration at meetings	Participants were also able to register at the following meetings: • Desired state workshop on 21 April 2015; • Public meeting on 09 February 2016 in Middleburg; • Public meeting on 09 February 2016 in Cradock; • Public meeting on 10 February 2016 in Pearston; and • Public meeting on 10 February 2016 in Graaff-Reinet; • Public meeting on 11 February 2016 in Upington; and • Public meeting on 24 February 2016 in Andriesvale.

Public days to allow comment on the draft management plan

Six public day meetings were held.

Venue	Date	Number of stakeholders that attended
Welkom Community Hall	09 February 2016	33
Askham Community Hall	09 February 2016	33
Klein-Mier Community Hall	10 February 2016	30
Rietfontein Community Hall	10 February 2016	10
Tol Speelman Community Hall	11 February 2016	0
Andriesvale Community Hall	24 February 2016	70

Dissemination of documentation and feedback to stakeholders

Item	Action
Dissemination of comment and response document	The document will be available on the SANParks website, or emailed, mailed, faxed or delivered by hand where no contact details were supplied.
Dissemination of approved park management plan	The plan will be available on the SANParks website once approved by the Minister.

Appendix 3: Tourism product development framework

The product development framework provides park management with a guideline in order to inform the development potential of the park. Identified opportunities remain subject to comprehensive feasibility study prior to implementation, thus listing an activity does not automatically result in development.

Similarly, whilst specific products or activities may be developed within the park, they will be restricted to specific areas within the park or on the periphery (buffer zone), and may be further restricted to guided activities or events only. The park is zoned into various visitor use zones, based on its environmental sensitivity, as described in the legend below, and products are applicable to the various use zones accordingly.

LEGEND

No.	Visitor use zones	Description
1	**Wilderness / remote**	Pristine natural environment, essentially undeveloped and road less. Controlled non-motorised access - usually on foot visitors. Could have paths where erosion is a problem or for safety
2	**Primitive**	Almost completely natural state to be maintained. Development footprints absolute minimum. Controlled access - 4x4's and horse-riding. Small basic overnight facilities.
3	**Quiet**	General natural state to be maintained. Only non-motorised access. Access not specifically controlled. Ablution facilities can be allowed.
4	**Low intensity leisure**	Motorised self-drive with basic facilities. Small - medium sized camps. Infra-structure should be minimised in order to maintain natural state.
5	**High intensity leisure**	High density tourism development node with concentrated human activities. High volume roads, high density camps with modern amenities.
6	**Buffer / adjacent**	Land in the buffer zone or adjacent to national parks. Products indicated are those with which SANParks is comfortable to be associated with.

For the purposes of this management plan, the focus of the framework listed in Table 23 is to indicate which products already exist, which new products may be allowed, and in which visitor use zones these may occur.

Table 23: Tourism product development framework for the park.

PRODUCT CATEGORY		PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
							Within boundaries of national-/ contractual park					Buffer / adjacent
			YES	NO	YES	NO	1	2	3	4	5	6
Over-nigh facilities	Self-catering - limited service (serviced prior to arrival & after departure only)	Accommodation (budget)		√	√					√	√	√
		Accommodation (economy)		√	√					√	√	√
		Accommodation (premium) / guest house		√	√					√	√	√
		Accommodation backpacking / youth hostels		√		√						√
		Dormitories / school groups / educational facilities		√	√						√	√
		Game / bird hide		√	√					√	√	√
		Military bunker / fort / gun sites		√		√						√
		Tree Houses / platforms		√	√			√		√	√	√
		Fly camp / platform / sleep out		√	√			√		√	√	√
	Self-catering - serviced (serviced daily)	Accommodation (budget)	√		√					√	√	√
		Accommodation (economy)	√		√					√	√	√
		Accommodation (premium) / guest house	√		√					√	√	√
		Accommodation backpacking / youth hostels		√		√						√
		Dormitories / school groups / educational facilities	√		√					√	√	√
		Houseboat (economy)		√		√						√
		Houseboat (premium)		√		√						√
	Camping	Camping (budget facilities) (power/no power)	√		√			√		√	√	√
		Camping (premium facilities, with ablutions) (power/no power)	√		√			√		√	√	√
		Camping bush rustic (protected) (budget facilities)		√	√			√		√	√	√
		Camping bush rustic (protected) (premium facilities / self-sufficient)		√	√			√		√	√	√

PRODUCT CATEGORY		PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
							Within boundaries of national-/ contractual park					Buffer / adjacent
			YES	NO	YES	NO	1	2	3	4	5	6
Over-nigh facilities	Camping	Camping bush rustic (unprotected) (self-sufficient)		√	√			√		√	√	√
	Full service (generally some/all meals and activities included)	Game / Bush / Safari / Boutique lodge - under 20 beds	√		√			√		√	√	√
		Game / Bush / Safari / Boutique lodge - 20 beds plus		√	√			√		√	√	√
		Conference lodge / Hotel - 21 - 50 beds		√		√					√	√
		Conference lodge / Hotel - 50 beds plus		√		√					√	√
		Houseboat		√		√					√	√
		Luxury tented safaris		√	√			√		√	√	√
		Remote camp / Fly camp / platform / sleep Out		√	√			√		√	√	√
		Overnight train rides		√		√					√	√
	Additional services	Cook & Guide provided		√	√			√		√	√	√
		Cook, Guide and OSV provided		√	√			√		√	√	√
		Meal packages *e.g.* breakfast, half board or full board		√	√					√	√	√
Leisure / recreational		4x4 Eco-trails (multi-day, self-drive, basic facilities)	√		√			√	√	√	√	√
		4x4 Eco-trails (multi-day, self-drive, No facilities)		√	√			√	√	√	√	√
		4x4 Eco-trails (Full-day / Half-day / Guided or Unguided)	√		√			√		√	√	√
		Abseiling / rappelling		√		√						√
		Animal interaction activities (limited)		√		√						√
		Animal tracking activities		√	√			√	√	√	√	√
		Archery		√		√						√
		Base jumping		√		√						√
		Bird watching	√		√			√		√	√	√
		Boat cruises		√		√						√
		Boat cruise - birding		√		√						√
		Boat cruises - sunset		√		√						√
		Botanical sightseeing		√	√		√	√	√	√	√	√
		Bouldering		√		√						√
		Bungee / bungee jumping		√		√						√
		Cableway		√		√						√
		Canoe trails (varying facilities)		√		√						√
		Canoeing		√		√						√
		Canopy tour (acrobranch)		√		√						√
		Canopy tour (boardwalk)		√	√			√		√	√	√
		Canopy tour / flying fox (Tree Top / Cliff to Cliff)		√		√						√
		Caving / spelunking / potholing		√		√						√
		Clay-pigeon / clay target shooting		√		√						√
		Coasteering		√		√						√
		Cruise - birding		√		√						√
		Cycling		√		√						√
		Cycling (Downhill cycling)		√		√						√
		Cycling (BMX track area)		√		√						√
		Diving (scuba)		√		√						√
		Dog walking		√		√						√
		Elephant backed rides / safaris		√		√						√
		Fishing (catch & release)		√		√						√
		Funicular		√		√						√

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
						Within boundaries of national-/ contractual park					Buffer / adjacent
						1	2	3	4	5	6
		YES	NO	YES	NO						
Leisure / recreational	Game drives - night drive	√		√			√	√	√	√	√
	Game drives - night drive (night Vision aided)		√	√			√	√	√	√	√
	Game drives - Premium		√	√			√	√	√	√	√
	Game drives - Standard	√		√			√	√	√	√	√
	Game drives - Universal access		√	√			√	√	√	√	√
	Games facilities (e.g. table tennis, pool, etc.)		√	√						√	√
	Geocaching		√	√			√		√	√	√
	Golf		√		√						√
	Golf club membership		√		√						√
	Green hunting / darting safaris		√		√						√
	Hang gliding		√		√						√
	Hiking		√	√		√	√	√	√	√	√
	Hiking trails - Wilderness (full service)		√	√		√	√	√	√	√	√
	Hiking trails - Wilderness (no facilities) (backpack)		√	√		√	√	√	√	√	√
	Hiking trails (Budget)		√	√		√	√	√	√	√	√
	Hiking trails (Premium)		√	√		√	√	√	√	√	√
	Horse riding		√		√						√
	Horse riding trails (varying facilities)		√		√		√	√	√	√	√
	Jet skiing		√		√						√
	Jogging / running		√		√						√
	Kayaking / paddling		√		√						√
	Kayaking / paddling trails		√		√						√
	Kitesurfing / kiteboarding / fly surfing		√		√						√
	Kloofing (guided)		√		√						√
	Mini golf / Putt-Putt		√		√						√
	Model aircraft flying		√		√						√
	Motorcycle trails (varying facilities)		√	√							√
	Motorcycling		√	√							√
	Motorcycling - off-road		√	√							√
	Motorised boating		√		√						√
	Mountain bike tails (Varying facilities)		√		√						√
	Mountain biking		√		√						√
	Mountain biking - unicycling		√		√						√
	Mountaineering		√		√						√
	Paddle boards		√		√						√
	Paddle boats		√		√						√
	Paddle skiing		√		√						√
	Paragliding		√		√						√
	Parasailing		√		√						√
	Park & ride		√	√			√		√	√	√
	Photography	√		√		√	√	√	√	√	√
	Picnicking (basic facilities)	√		√					√	√	√
	Picnicking (full facilities)		√		√				√	√	√
	Picnicking (no facilities)	√		√					√	√	√

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
						Within boundaries of national-/ contractual park					Buffer / adjacent
		YES	NO	YES	NO	1	2	3	4	5	6
Leisure / recreational	Quad biking		√		√						√
	Railway		√		√						√
	Rap jumping (deepelling)		√		√						√
	River rafting		√		√						√
	Rock climbing		√		√						√
	Sailing		√		√						√
	Sandboarding	√			√						√
	Self-drive night drives		√		√				√	√	√
	Skate boarding / roller blading		√		√						√
	Skate boarding / roller blading (downhill)		√		√						√
	Skydiving		√		√						√
	Snorkelling		√		√						√
	Spear fishing		√		√						√
	Speed gliding		√		√						√
	Sports facilities (*e.g.* tennis, squash, bowls, etc.)		√		√						√
	Stairway (via ferrata / ironway)		√		√						√
	Stargazing	√		√			√		√	√	√
	Surf skiing		√		√						√
	Surfing		√		√						√
	Swimming	√		√					√	√	√
	Trail running		√		√						√
	Trail running (night time)		√		√						√
	Tubing		√		√						√
	Vessels (cruise boats, yachts, river / paddle boats)		√		√						√
	Walking		√		√						√
	Walks - day	√		√		√	√	√	√	√	√
	Walks - night		√		√						√
	Wildlife / game viewing	√		√			√		√	√	√
	Wingsuit flying / wingsuiting		√		√						√
Airborne (Implications of CAA)	Drones over national parks		√		√		√	√	√	√	√
	Flights over national parks		√		√		√	√	√	√	√
	Helicopter flips		√		√		√	√	√	√	√
	Hot-air ballooning		√		√		√	√	√	√	√
	Microlight flying / ultra-light aviation		√		√		√	√	√	√	√
Interpretive	Archaeology		√	√			√	√	√	√	√
	Endangered species breeding centre		√		√						√
	Films - amphitheatre		√	√						√	√
	Films - auditorium		√	√						√	√
	Interpretive centres		√	√						√	√
	Palaeontology		√		√						√
	Theatre		√	√						√	√
	Tours - astronomy		√	√			√	√	√	√	√
	Tours - birding		√	√			√	√	√	√	√
	Tours - botanical		√	√			√	√	√	√	√
	Tours - specialist (fauna, flora or birds)		√	√			√	√	√	√	√

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
						Within boundaries of national-/ contractual park					Buffer / adjacent
						1	2	3	4	5	6
		YES	NO	YES	NO						
Interpretive	Tours - tree (dendrology)		√	√			√	√	√	√	√
	Trail - mobility Impaired		√	√					√	√	√
	Trails - brail		√	√					√	√	√
	Trails - sensory		√	√					√	√	√
Cultural / historical	Cleansing ceremonies (including baptism)		√	√			√	√	√	√	√
	Cultural dances		√	√					√	√	√
	Cultural points of interest		√	√			√	√	√	√	√
	Cultural village		√	√						√	√
	Gold panning (recreational)		√		√						√
	Historical points of interest		√	√			√	√	√	√	√
	Mountain worship		√		√		√	√	√	√	√
	Museums		√	√						√	√
	Religious facilities (prayer or otherwise)		√	√						√	√
	Storytelling		√	√					√	√	√
	Tours - battlefield /military		√	√			√	√	√	√	√
	Tours - cultural		√	√			√	√	√	√	√
	Tours - historical		√	√			√	√	√	√	√
	Tours - medicinal plants		√	√			√	√	√	√	√
	Tours - rock art		√		√		√	√	√	√	√
	Tours - South African struggle		√		√						√
Medical / health	Health spa		√	√					√	√	√
	Gymnasium		√	√					√	√	√
	Wellness centres		√		√						√
Developmental	Astronomy training		√	√			√	√	√	√	√
	Birding course		√	√			√	√	√	√	√
	Botany course		√		√						√
	Bush homeopathy		√	√			√	√	√	√	√
	Bush skills		√	√			√	√	√	√	√
	Field guide training		√	√			√	√	√	√	√
	Firearm skills		√	√					√	√	√
	First aid		√	√					√	√	√
	Game capture training		√	√			√		√	√	√
	Nature / wildlife photography course		√	√			√	√	√	√	√
	Nature based hospitality training		√	√					√	√	√
	Off-road driving skills training		√	√			√		√	√	√
	Orienteering		√	√		√	√	√	√	√	√
	Rope skills course		√	√			√	√	√	√	√
	Scuba diving skills		√		√						√
	Specialised training / courses		√	√			√	√	√	√	√
	Survey and mapping skills		√	√			√	√	√	√	√
	Survival skills		√	√			√	√	√	√	√
	Tracking skills		√	√			√	√	√	√	√
	Training - ranger		√	√			√	√	√	√	√
	Volunteering		√	√			√	√	√	√	√
	Wilderness search and rescue		√	√			√	√	√	√	√

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
						Within boundaries of national-/ contractual park					Buffer / adjacent
						1	2	3	4	5	6
		YES	NO	YES	NO						
Children/ Youth	Babysitting		√	√					√	√	√
	Child care centres in camps		√		√						√
	Children activity centres (jungle gym)		√	√					√	√	√
	Children encounter zone		√		√						√
	Children game drives		√	√			√		√	√	√
	Children holiday programmes in camps		√	√			√		√	√	√
	Children trails		√	√			√	√	√	√	√
	Learner programmes		√	√			√	√	√	√	√
	Paint ball		√		√						√
	Youth camps (Kamp Kwena, "summer" camps)		√	√					√	√	√
Business tourism & events	Events - any		√	√			√	√	√	√	√
	Events - adventure		√	√			√	√	√	√	√
	Festivals		√	√							√
	Fundraising events *e.g.* WWF swim for nature		√	√			√		√	√	√
	Lapas / bomas (to rent)		√	√					√	√	√
	MICE (Meetings, Incentives, Conventions & Exhibitions)		√		√						√
	Musical concerts		√	√			√		√	√	√
	Photographic shoots & filming	√		√			√	√	√	√	√
	Product launches		√	√			√		√	√	√
	Races / competitions - marathons / trail running		√		√						√
	Races / competitions - Mountain-biking		√		√						√
	Races / competitions - other		√		√						√
	Races / competitions - adventure / expedition racing		√		√						√
	Scientific conferences		√		√						√
	Team building		√	√					√	√	√
	Weddings		√	√					√	√	√
Retail / services	Apparel outlets		√	√						√	√
	Airport / aerodrome / airstrip		√	√					√	√	√
	Banking - bank or ATM	√		√					√	√	√
	Rental - bicycle		√		√						√
	Camping equipment rental		√	√						√	√
	Rental - car		√	√						√	√
	Car wash		√	√						√	√
	Casinos		√		√						√
	Clinics / Doctor / First aid		√	√							√
	Outlets - community curios		√	√					√	√	√
	Outlets - Curios	√		√					√	√	√
	Essential commodities in camps (ice, wood, *etc.*)	√		√					√	√	√
	Fast-moving consumer goods (FMCG) outlets		√	√						√	√
	Fuel stations	√		√						√	√
	Gas equipment hire		√	√						√	√
	Hop-on guides		√	√					√	√	√
	Internet café / Wi-Fi hotspot	√		√					√	√	√
	Laundromats & laundry service		√	√						√	√
	Pharmacies		√		√						√

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
						Within boundaries of national-/ contractual park					Buffer / adjacent
		YES	NO	YES	NO	1	2	3	4	5	6
Retail / services	Photo booth		√		√						√
	Pop-up retail		√	√						√	√
	Postal services		√		√						√
	Proshop		√		√						√
	Road emergency services		√	√						√	√
	Shuttle services		√	√					√	√	√
	Vending machines		√	√					√	√	√
	Vendors		√		√					√	√
	Wi-Fi facilities (paid / free service)		√	√					√	√	√
	Bars	√		√					√	√	√
Food & beverage	Boma / lapa meals		√	√					√	√	√
	Bush meals		√	√			√		√	√	√
	Coffee shops / tea rooms		√	√					√	√	√
	Fast-food outlets		√	√					√	√	√
	Game drives picnic baskets		√	√			√		√	√	√
	Local cuisine		√	√					√	√	√
	MICE catering		√		√						√
	Picnic baskets		√	√			√		√	√	√
	Pop-up food, retail		√	√					√	√	√
	Restaurants	√		√					√	√	√
	Room service		√	√					√	√	√
	Sports bar		√		√						√
Non tourism related activities											
Mining/ Exploratory	Prospecting		√		√						√
	Mining		√		√						√
Consumptive / Subsistence	Fishing (non-release)		√		√			√	√	√	√
	Hunting (lethal)		√		√						√
	Sustainable harvesting of resources		√	√			√	√	√	√	√

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Appendix 4: Internal rules

1. Tourists wanting to exit the park at any other point than the point of entry, must kindly note that all immigration procedures must be completed at Twee Rivieren / Two Rivers, and that a two night stay in the park is compulsory before visitors will be allowed to travel via the park to or from Namibia or Botswana.
2. Tourists staying within the boundaries of the Kgalagadi Transfrontier Park do not need to stamp their passports and therefore do not need to move through immigration.
3. Tourists wanting to exit the park at any other point than the point of entry must kindly note that they need to report to reception at the point of exit.
4. All tourists arriving or leaving the rest camps must firstly report to reception.
5. All road traffic regulations apply inside the park, as the roads inside the park are public roads.
6. Visitors must remain inside their vehicles at all times – unless in a designated area.
7. No open game drive or game viewing vehicles or vehicles modified for the use of photographic purposes with an open or lifted roof or open or fold down side panels or window panels where occupants will be partly or fully exposed or outside the vehicle with no proper protection will not be allowed in the park.
8. The speed limit is 50 km/h for tourist- and 70 km/h for official vehicles. Speed enforcement is done throughout the park by means of radar. All speeding transgressors will be fined according to the latest fines as approved by the local magistrate.
9. Overnight visitors is only allowed to stay at a designated overnight facility inside the park and must report at reception before occupying any accommodation or camping site.
10. All accommodation and camping sites may be occupied from 14:00 on the day of arrival and must be vacated by 10:00 on the date of departure. Request for late departure, in special cases only, must be made to the Duty Manager.
11. Gate times must be strictly adhered to. Guests should be inside their allocated overnight camp by the time the gate is closed. The gate times are as such:

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

12. All fire-arms must be declared and sealed at the entrance gate.
13. Smoking is not allowed inside any of the park facilities.
14. No children below the age of 12 years will be allowed on game drives.
15. No children under the age of 12 years will be allowed in wilderness camps.
16. Only two guests are allowed per unit in the Wilderness camps, excluding Kalahari tented camp.
17. All commercial filming and photography is only allowed according to the SANParks filming policy.
18. Permits must be handed in at the end of each day at camp reception and collected before leaving a camp into the park each day. When stopped by park officials, visitors must be able to deliver their relevant permits at all times.

19. No loud noise is allowed between 21:00 and 06:00.
20. The use of motorbikes and quad bikes are not allowed in the park.
21. The collection of firewood or any part of plant or animal is strictly prohibited.
22 The use of the landing strip at Twee Rivieren is limited for the use by park visitors that will stay over in the park. Twee Rivieren reception desk must be informed at least 48 hours in advance in order to make the necessary arrangements for the planned use of the landing strip. No direct flights from outside the borders of South Africa to Twee Rivieren are allowed due to South African Customs regulations. Such flights must first check through South African Customs at the Upington International Airport before they can proceed to Twee Rivieren.

Appendix 5: Maps

Map 1: Kalahari Gemsbok National Park: Regional context

Map 2: Kalahari Gemsbok National Park: Physical

Map 3: Kalahari Gemsbok National Park: Land tenure and park expansion

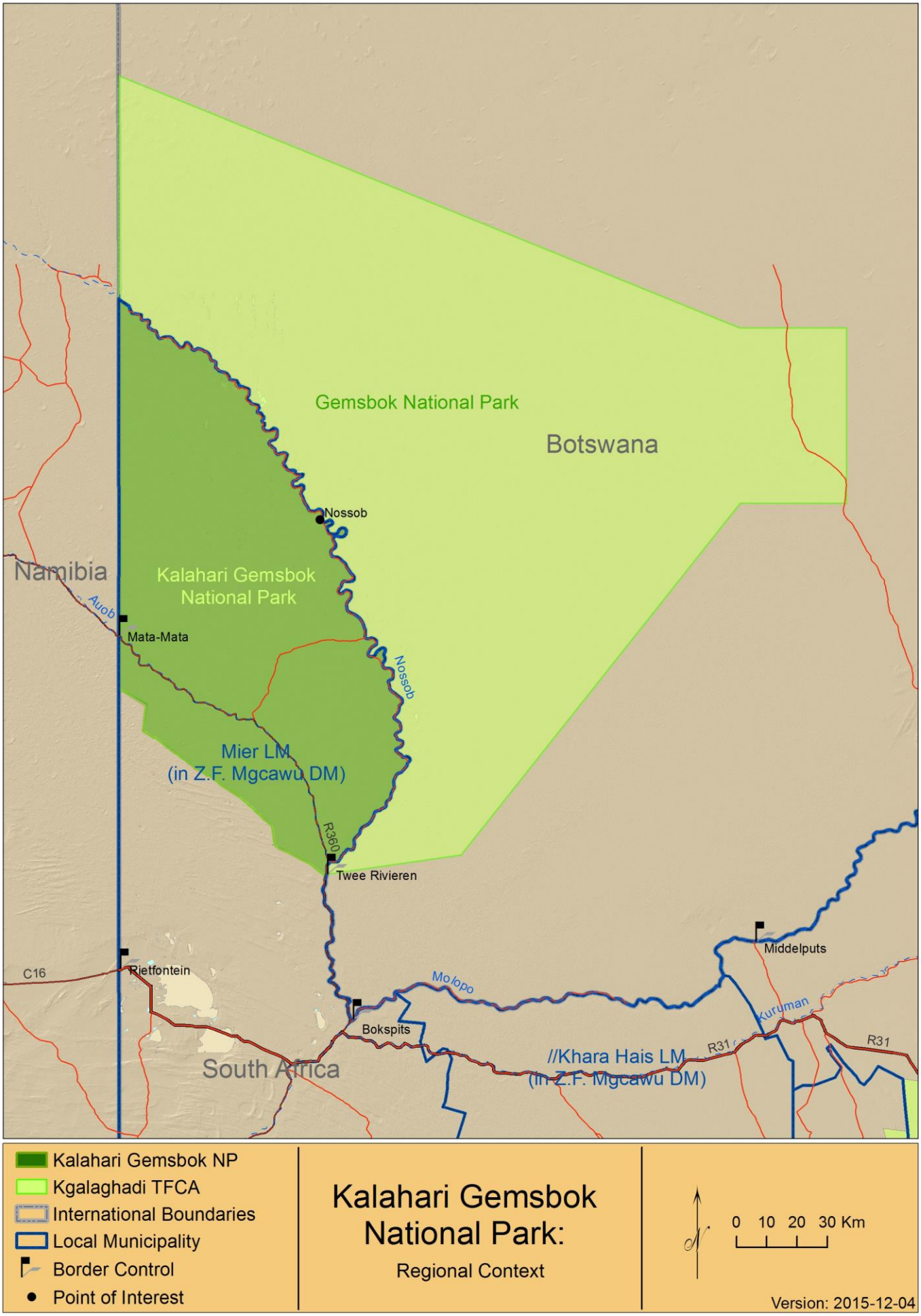
Map 4: Kalahari Gemsbok National Park: Zoning

Map 5: Kalahari Gemsbok National Park: Zoning with sensitivity value

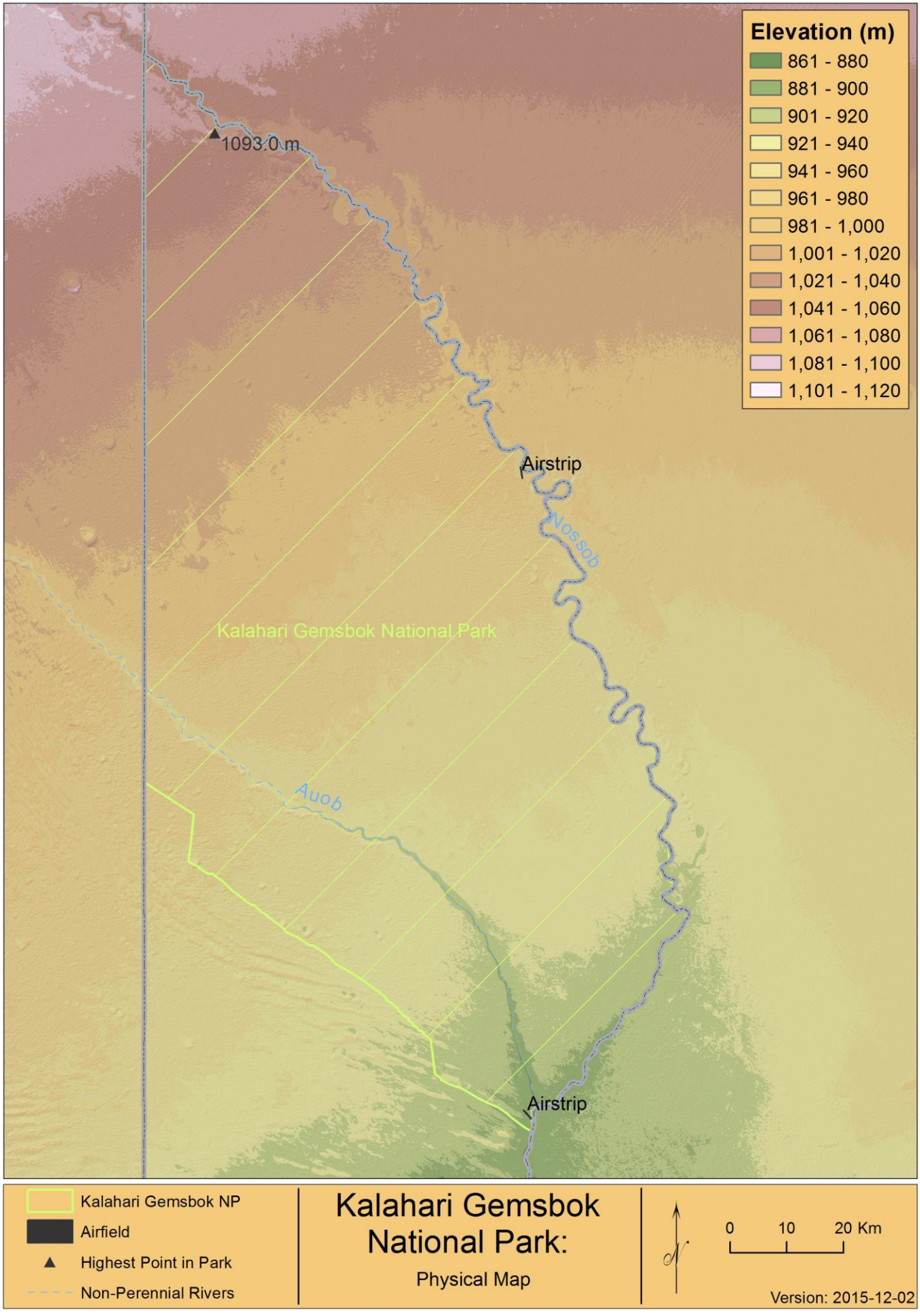
Map 6: Kalahari Gemsbok National Park: Buffer areas

Map 7: Kalahari Gemsbok National Park: Infrastructure and development

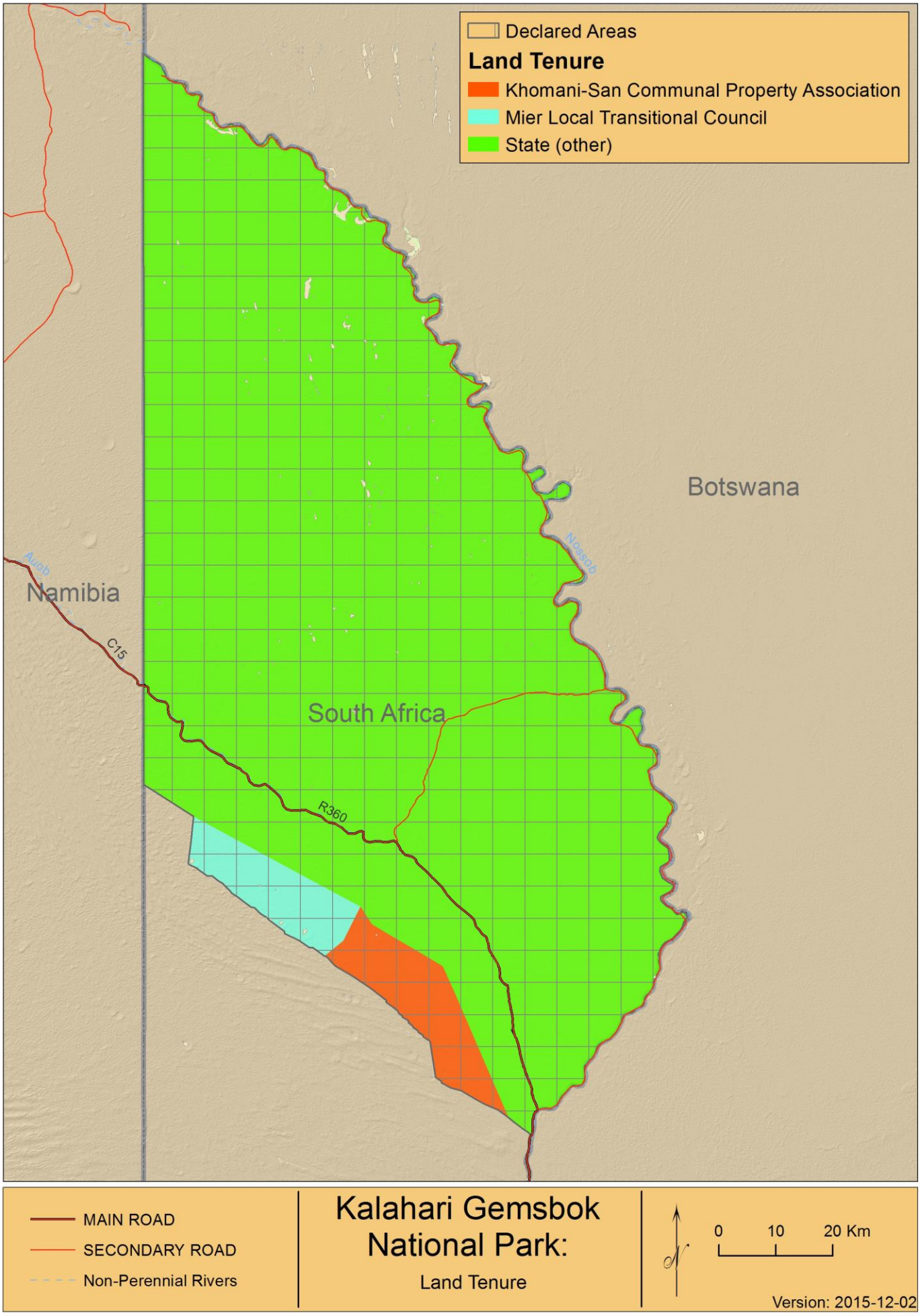
Map 8: Kalahari Gemsbok National Park: Vegetation



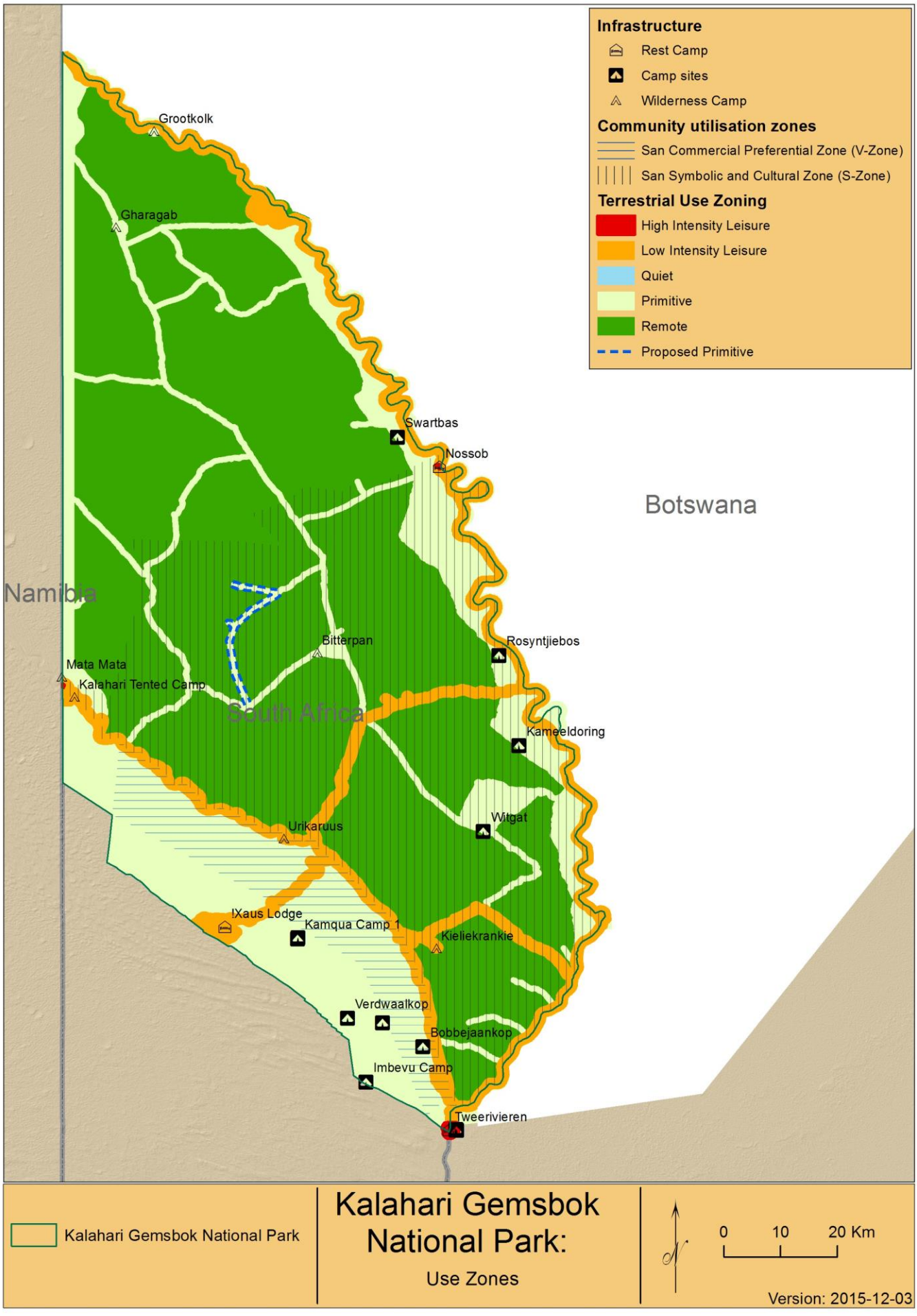
Map 1: Regional context



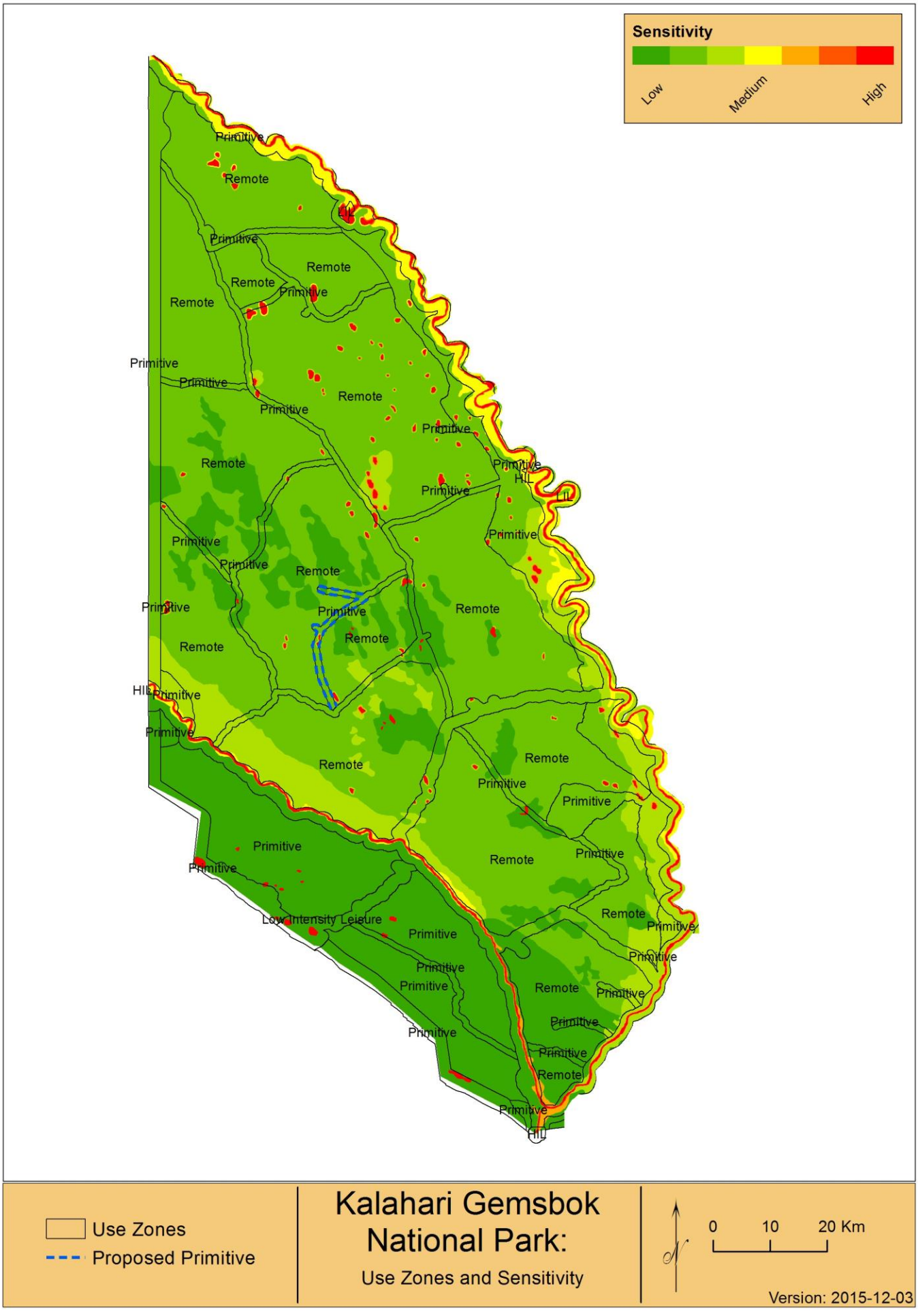
Map 2: Physical features



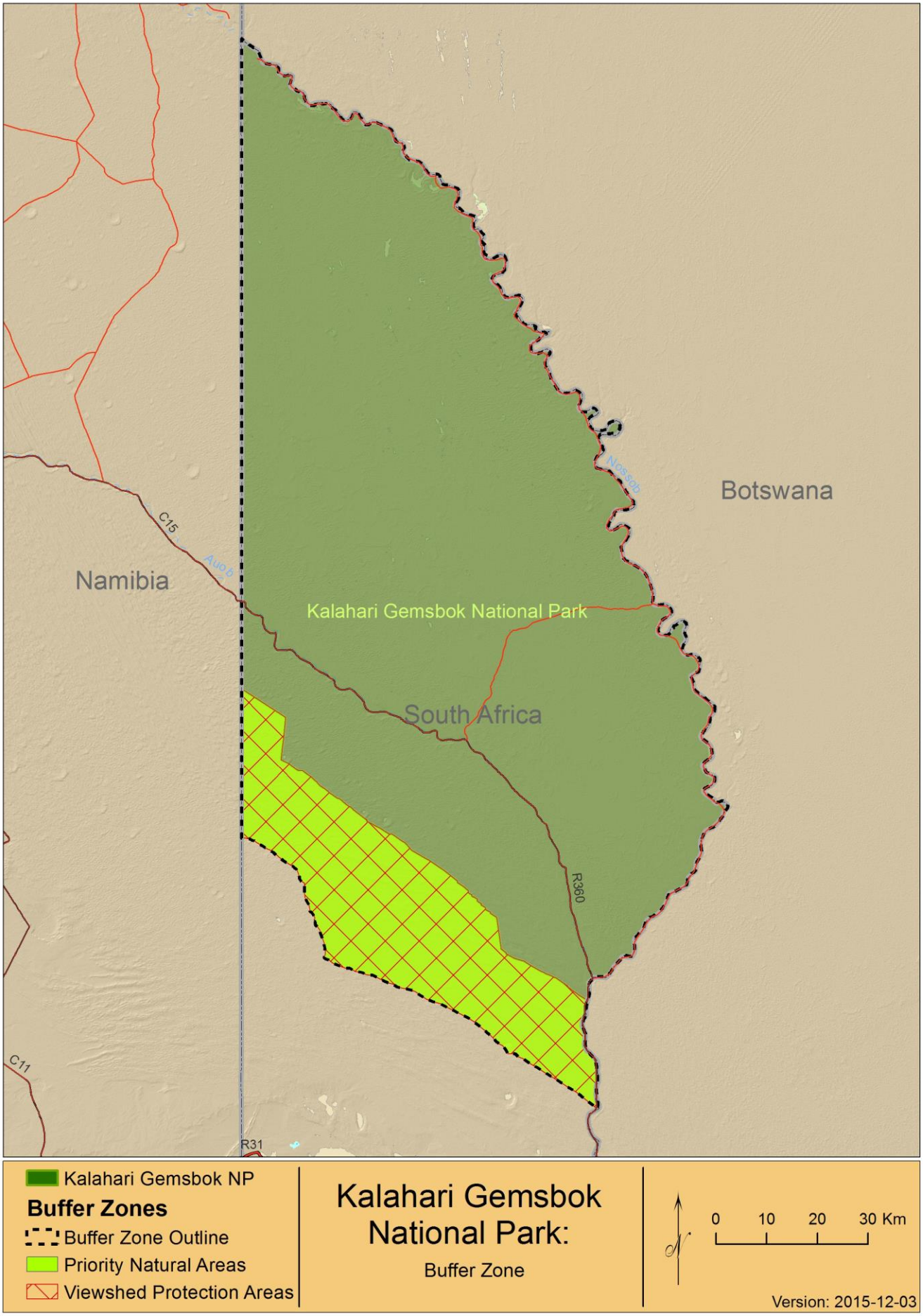
Map 3: Land tenure and potential expansion


Infrastructure
Rest Camp
Camp sites
Wilderness Camp
Community utilisation zones
San Commercial Preferential Zone (V-Zone)
San Symbolic and Cultural Zone (S-Zone)
Terrestrial Use Zoning
High Intensity Leisure
Low Intensity Leisure
Quiet
Primitive
Remote
Proposed Primitive
Grootkolk
Gharagab
Swartbas
Nossob
Botswana
Namibia
Bitterpan
Rosyntjiebos
Mata Mata
Kalahari Tented Camp
South Africa
Kameeldoring
Witgat
Urikaruus
!Xaus Lodge
Kamqua Camp 1
Kieliekrankie
Verdwaalkop
Bobbejaankop
Imbevu Camp
Tweerivieren
Kalahari Gemsbok National Park
Kalahari Gemsbok National Park:
Use Zones
0 10 20 Km
Version: 2015-12-03

Map 4: Zoning

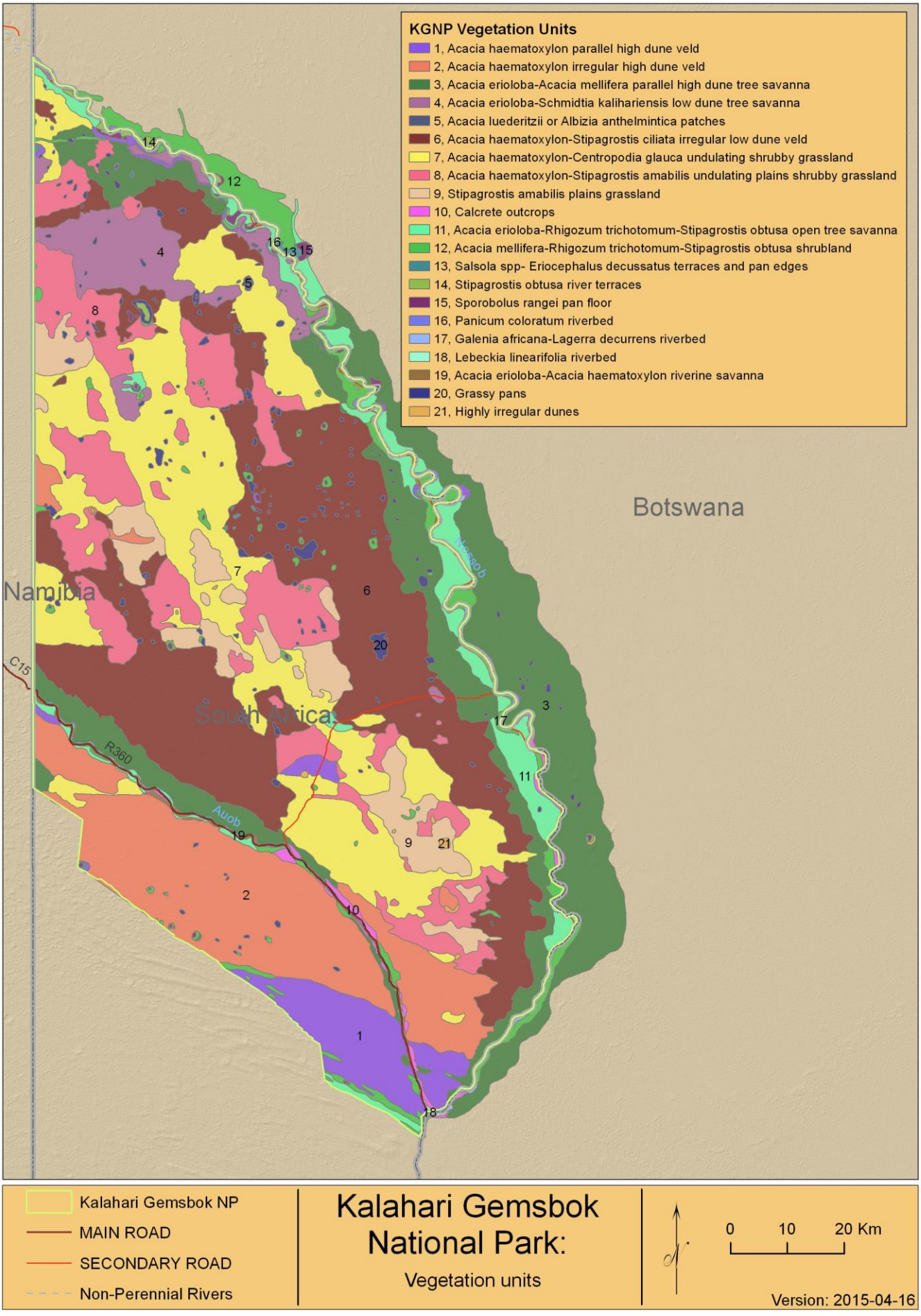


Map 5: Zoning and sensitivity



Map 6: Buffer zone

Map 7: Park infrastructure



Map 8: Vegetation