



Augrabies Falls National Park

Park Management Plan

**For the period
2024 - 2033**





Acknowledgement

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Section 1: Authorisation

This management plan is hereby internally accepted and authorised as required for managing the AFNP in terms of Sections 39, 40 and 41 of the National Environmental Management: Protected Areas Act No. 57 of 2003 (NEM: PAA).



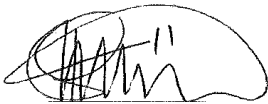
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Glossary

Climate change	Any significant long-term change in the expected pattern of temperature, precipitation, wind and/or other measures of climate in a particular region, as a result of changes in the earth's atmosphere.
Climate change adaptation	Anticipating the negative effects of climate change (e.g. uncertain rainfall, increased temperatures) and taking appropriate action to reduce vulnerability, i.e. preventing or minimising the damage of predicted change, or taking advantage of opportunities that may arise.
Contractual park	An area which has been declared as National Park through the Minister and which contributes to the objectives of a National Park, but of which SANParks is not the landowner. Contractual National Park agreements and/or co-management agreements are signed, and SANParks may be assigned to be part of a joint management authority through a range of possible institutional arrangements.
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-STEOP range) that stakeholders desire.
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.
Servitude	A servitude refers to a registered right that an entity / person has over the immovable property of another. It allows the holder of the servitude utilise 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 the National Environmental Management: Biodiversity Act, (Act No. 10 of 2004) (NEM: BA).
Strategic adaptive management	Strategic adaptive management integrates research, planning, management and monitoring in repeated cycles of learning how to better define and achieve goals. Built on the assumption that natural systems are complex, our knowledge is imperfect but we can learn from purposeful goals and actions.
Universal access	Refers to the design of products, devices, services, or environments to cater for people with disabilities.
Vision	A word 'picture' of the future, or what the stakeholders see as the desired long-term future for the park.
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-STEOP	The values (social – including cultural heritage, technological, ecological, economic 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 aspects provide context and are used to develop a broadly acceptable vision for the future.



Acronyms and abbreviations

1	AFNP	Augrabies Falls National Park
2	AMSL	Above Mean Sea Level
3	APO	Annual Plan of Operations
4	BDU	Business Development Unit
5	BP	Before Present
6	BSC	Balance Scorecard
7	BSP	Biodiversity Social Projects
8	CAPEX	Capital Expenditure
9	CBA	Critical Biodiversity Area
10	CBD	Convention on Biological Diversity
11	CDF	Conservation Development Framework
12	CPF	Co-ordinated Policy Framework
13	CRMF	Corporate Risk Management Framework
14	CSIR	Council for Scientific and Industrial Research
15	DEA	Department of Environmental Affairs
16	DEAT	Department of Environment Affairs and Tourism
17	DFFE	Department of Forestry, Fisheries and the Environment
18	DM	Duty Manager
19	DWS	Department of Water and Sanitation
20	EIA	Environmental Impact Assessment
21	EMP	Environmental Management Plan
22	EPWP	Expanded Public Works Programme
23	FEPA	Freshwater Ecosystem Priority Area
24	ESA	Ecological Support Area
25	HIL	High Intensity Leisure
26	HOD	Head of Department
27	HR/Admin Officer	Human Resource and Administration Officer
28	HSM	Hospitality Services Manager
29	IAP	Invasive and Alien Plants
30	IAS	Invasive and Alien Species
31	IDP	Integrated Development Plan
32	IUCN	International Union for Conservation of Nature
33	KBA	Key Biodiversity Area
34	KGLM	Kai! Garib Local Municipality
35	km	Kilometer
36	LIL	Low Intensity Leisure
37	LLP	Lower-Level Plan
38	LOWMA	Lower Orange Water Management Area
39	LUMS	Land-use Management Scheme
40	METT	Management Effectiveness Tracking Tool
41	NGO	Non-Governmental Organisation
42	NBSAP	National Biodiversity Strategy and Action Plan
43	NEMA	National Environmental Management Act (Act No. 107 of 1998)
44	NEM: BA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
45	NEM: ICMA	National Environmental Management: Integrated Coastal Management Amendment Act (Act No. 36 of 2014)
46	NEM: PAA	National Environmental Management: Protected Areas Act (Act No. 57 of 2003)
47	NHRA	National Heritage Resources Act (Act No. 25 of 1999)
48	NTSS	National Tourism Sector Strategy

49	OHS	Occupational Health and Safety
50	OPEX	Operational Expenditure
51	ORASECOM	Orange-Senqu River Commission
52	PFMA	Public Finance Management Act (Act No. 1 of 1999)
53	PM	Park Manager
54	PoE	Portfolio of Evidence
55	PPD	Park Planning and Development
56	PPP	Public Private Partnership
57	RCDT	Riemvasmaak Community Development Trust
58	RCM	Regional Communication Manager
59	RGM	Regional General Manager
60	RMM	Regional Marketing Manager
61	RQO	Resource Quality Objectives
62	RT	Responsible Tourism
63	SAHRA	South African Heritage Resources Agency
64	SANDF	South African National Defense Force
65	SAM	Strategic Adaptive Management
66	SANParks	South African National Parks
67	SANS	South African National Standard
68	SAPS	South African Police Service
69	SAWS	South African Weather Service
70	SCM	Supply Chain Management
71	SDF	Spatial Development Framework
72	SET	Socio-Economic Transformation
73	SHEQ	Safety, Health, Environment and Quality
74	SMME	Small, Medium and Micro Enterprise
75	SoAIM	State of Area Integrity Management
76	SOP	Standard Operating Procedure
77	SPARC	Stratosphere-troposphere Processes And their Role in Climate
78	SR	Section Ranger
79	SS	Scientific Services
80	SSC	Species of Special Concern
81	SWSA	Strategic Water Source Area
82	TPC	Threshold of Potential Concern
83	UNCCD	United Nations Convention to Combat Desertification
84	V-STEOP	Values - Social, Technological, Ecological, Economic and Political
85	WfE	Working for Ecosystems
86	WfW	Working for Water
87	WWF-SA	World Wildlife Fund South Africa
88	ZFMDM	Z.F. Mgcawu District Municipality



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Executive summary

In compliance with the NEM: PAA, SANParks is required to develop a management plan for each of its protected areas. The objective of a management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of the NEM: PAA and for the purpose for which it was declared. During the revision of the current management plan for the park, SANParks has reviewed the biodiversity conservation, Responsible Tourism (RT) and socio-economic components that make up its core business, whilst ensuring increased emphasis on strengthening stakeholder relationships and communication, continual learning, adaptive management and good governance.

An important objective for SANParks is to promote responsible experiential opportunities and products for visitors to appreciate and value national parks. Whilst the primary mandate of SANParks is that of the conservation of biodiversity, it recognises that RT also offers SANParks the best possible opportunity to supplement much needed funding for operational needs but also provides South Africa with an internationally recognised nature-based tourism destination of choice, further constituting an economically and culturally valuable asset to the region in which it occurs.

The desired state of the park is based on its vision, mission, vital attributes and objectives, whilst fully acknowledging that the park is embedded within a broader land-use mosaic. It encompasses the characteristic biodiversity components, including ecosystem services, processes and associated cultural, historical and scenic features while facilitating the sharing of benefits with the neighbouring communities by creating a range of consumptive and non-consumptive benefits such as job opportunities, other forms of income generation, access to resources and other opportunities, while remaining informed and constrained by its biodiversity values. Programmes to achieve the desired state fall within eight categories, i.e. Regional Integration, Biodiversity Conservation, RT, Cultural Heritage, Stakeholder Engagement, Access and Benefits and Effective Park Management.

The focus on integrated land-use over the next ten years will seek to deliver on the consolidation and development of the park in pursuit of resilient ecosystems and the protection of the cultural and historic heritage associated with the park. Major focus will also be placed on sustainable ecosystem services and the unlocking of socio-economic benefits, as well as to strengthen the park's position as a drawcard for tourism in the region, subsequently unlocking the tourism potential within a consolidated park. Equally important will be the emphasis placed on stakeholder engagement to improve communications, co-operation and mutually beneficial relationships with communities and all spheres of government where applicable. Simultaneously the park will strive to improve access to the park and diversified benefit in the region resulting from the park's existence in the Lower Gariep region. Heritage tourism opportunities, including natural and cultural, have been identified and the park will endeavour to improve the current products and activities, while also aiming to launch new and upgraded products and activities within the next ten years.

The first management plan for the park was submitted to and approved by the Department of Environment Affairs and Tourism (DEAT) in 2008. The first revised management plan was approved by the Department of Environmental Affairs (DEA) in 2013. This second review builds on the foundation of the previous plans and seeks not only to improve it but also to ensure that it remains relevant in a continually changing society. The layout of the plan follows the format provided in the guideline drawn up by the DEA (Cowan and Mpongoma, 2010), whilst also incorporating the adaptive planning process adopted by SANParks. Stakeholders from local and district municipalities, other organs of state, traditional authorities, non-governmental organisations (NGOs), local and metropolitan areas were consulted through public meetings, focus groups meetings, and written inputs (see Appendix 2).



Introduction

This Management Plan will provide the broad strategic and operational framework for the management of the park, thereby ensuring the protection of the SANParks values and achievement of the goals and objectives of the park within the context of the broader regional landscape over the next 10 years. The plan serves as the key driving document and 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, programmes at strategic and operational levels and costing.

This Management Plan will come into effect following the approval by the Minister of the Department of Forestry, Fisheries and the Environment (DFFE) in terms of sections 39, 40 and 41 of the NEM: PAA. It is intended to be implemented over a timeframe of 10 years after commencement but may be replaced earlier by a subsequently approved plan. SANParks will review this plan no later than 10 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.

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Section 2: Legal status

2.1 Name of the area

The Augrabies Falls National Park (AFNP) was proclaimed in Government Notice 216 in Government Gazette 1506 of 5 August 1966. A full list of proclamations is given in Appendix 1.

2.2 Location

The park is located in the Northern Cape, approximately 120 kilometer (km) west of Upington and 40 km west of Kakamas, along the southern edge of the Kalahari Desert and the eastern border of Namibia (Appendix 4, Map 1). It was initially proclaimed to conserve a small area of geological interest around the Augrabies Falls, which is the largest waterfall on the Orange River. The gorge below the falls is 18 km long and offers breath-taking views.

2.3 History of establishment

The first European who made mention of the falls was a Swedish-born soldier named Hendrik Wikar, who was in the service of the Dutch East India Company. Having deserted his post at the Cape, he came across the site and drew the first maps of the river and gorge. He was the first one to use the name Augrabies, derived from a Nama word, 'Aukoerebis', which means "place of great noise" (Mossop, 1935).

In 1954, the Publicity Society of Upington approached the then National Parks Board with a request to proclaim the falls as a national park. However, it was only after 12 years of negotiations that the Park was proclaimed in 1966.

In 1973 the area of Riemvasmaak, which lies to the north the park, was identified as part of the "black spot" forced removal programme by the apartheid government. Local communities living there were subsequently forcibly removed and relocated to the Eastern Cape, Namibia and the surrounding areas. The then South African National Defence Force (SANDF) took over the management of the area and used it as a military training facility.

In 1982, after negotiations with the SANDF, a piece of land of approximately 4,270 ha that forms part of the greater Riemvasmaak area was incorporated into the AFNP. This piece of land constitutes the current Melkbosrand. By 1988 about 54,000 ha of Riemvasmaak was jointly managed by the then National Parks Board and the SANDF.

With the onset of the new political dispensation in 1994, and the commitment that land would be returned to the previously dispossessed, those who had been relocated to Namibia and the Eastern Cape returned to Riemvasmaak in 1995. The returning communities established the Riemvasmaak Trust, which subsequently lodged land claims on behalf of the community soon after their return. Consequently, in 2004, Portion 1 of Farm No 498, known as Melkbosrand, was deproclaimed. Negotiations on the management of Melkbosrand between the community and SANParks are ongoing, while claims on other properties are in process.

2.4 Contractual agreements

There is currently no private land included through contractual agreements.

2.5 Co-management agreements

The Farm No 498, also referred to as Melkbosrand, is located within the northern section of the park. This property was part of a successful land claim by the Riemvasmaak community.

The parliamentary decision of 24 February 2004 based on the report of the Select Committee on Land and Environmental Affairs on the “Exclusion of Land from Augrabies Falls National Park” and subsequent publication thereof in the Government Gazette No 26574 of 28 May 2004 gives effect to the land claim.

The interim agreement between SANParks and the Riemvasmaak Community Development Trust (RCDT) allows SANParks to manage the de-proclaimed Melkbosrand section as a conservation area, until the future of this area has been finalised.

SANParks recognises the Riemvasmaak community as the owners of the Melkbosrand property. The community has access to the Melkbosrand section to visit grave sites and other sites of historical value.

A process is currently underway to support the establishment of a Joint Management Board between SANParks and the RCDT which will then stipulate joint responsibilities for the management of the Melkbosrand section and the implementation of suitable projects in that section.

2.6 Total area

The park is currently 52,822 ha in size of which 47,360 ha are declared whilst 4,137 ha are in the process of being declared (Appendix 5, Map 3). About 38,734 ha is lying south of the Orange River and a smaller portion of 9,950 ha is located to the north of the falls.

2.7 Highest point

The highest point in the park is Spieëlkop 904 m (2,965 feet) 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, as per legislation (NEM: PAA S47), is also deemed national park (Appendix 5, Map 2). Therefore, the park’s airspace ranges from ground level to 5,465 feet AMSL.

2.8 Municipalities within which the park falls

The park is situated within the Z.F. Mgcawu District Municipality (ZFMDM) and Kai! Garib Local Municipality (KGLM).

2.9 Land claims

The Riemvasmaak land claim was settled in February 1994, with the land rights restored to the community. The RCDT was subsequently established. SANParks entered into an agreement with the RCDT for the management of the 4,137 ha of land inside the Park (Melkbosrand) and an annual ex-gratia amount paid to the Trust. The establishment of a Joint Management Board in lieu of Melkbosrand is still being negotiated with the RCDT.

Land claims on the following properties are still in process:

- Portion 1 and the remainder of the farm Waterval No 497
- Portion 5 of the farm Omdraai No 492

Discussions with the claimants and the Land Claims Commission are ongoing with the aim of finding innovative approaches towards mutually beneficial co-management arrangements.

2.10 International, national and provincial listings

None

2.11 Environmental authorisations

There are no environmental authorisations.

2.12 Biophysical description

2.12.1 Climate



2.12.1.1 Historic

Augrabies experiences cold winter temperatures (coldest months June - July) as low as -7.3°C , while the summer temperatures (warmest months December, January and February) can peak above 40°C (Bezuidenhout, 1996). A record high of 48.6°C was recorded in January 2016 (analysis of SAWS data between 2001 and 2021). Weather data are available from the park from 2001, courtesy of the South African Weather Service (van Wilgen *et al.*, 2016). Trends indicate that both annual average minimum and maximum temperatures have increased by almost 1 degree and over 2°C respectively over just the last twenty years. Very hot days ($>35^{\circ}\text{C}$) have increased at an alarming average rate of two days per year. Data from Pofadder go further back and show an increase of 1.15°C in average minimum temperature between 1978 and 2009. The number of nights that stay warm (where the temperature does not drop below 20°C) also increased at Pofadder (van Wilgen *et al.*, 2016; van Wilgen & Herbst, 2017). While this has not yet been observed at the park, the duration of warm spells has also increased.

2.12.1.2 Future

Future increases in mean annual temperature of up to 3.5°C are predicted by 2050 (detailed in the CSIR Green Book, Le Roux *et al.*, 2019). These changes would have a dramatic effect on the number of extremely hot days experienced in the park, with models predicting increases as high as an additional 72 days above 35°C annually. Rainfall, which falls mainly during summer, is erratic and can be as high as 348.4 mm (measured in 1976) and as low as 8.4 mm (1951). The average annual rainfall between 1946 and 2021 was 119 mm (data courtesy of SAWS, the South African Weather Service).

There were no trends in rainfall totals at Pofadder over the past 65 years (van Wilgen *et al.*, 2016), although there were more rain days with less rainfall per rain event over time. Smaller rainfall events are biologically significant as they evaporate faster. While the Orange River is fed by catchments where rainfall may increase (Turpie *et al.*, 2021), the park is relatively arid, with the waterfall and river being confined to gorges and largely inaccessible within the current park boundaries. Future predictions from the CSIR Greenbook include drying of up 48 mm per year, to an increase of over 90 mm annually (Le Roux *et al.*, 2019), while the DEA biome vulnerability report (Turpie *et al.*, 2021) suggests limited rainfall change. Under the hottest and driest scenario, the entire park area could be outside of its current biome envelope, and more closely resemble desert (Driver *et al.*, 2012; DEA, 2013; Holness & Bradshaw, pers. comm.), although more recent projections suggest that the biome in large parts of the park could be more stable (Turpie *et al.*, 2021).

The Spatial Planning for Area Conservation in Response to Climate Change (SPARC) project (<http://www.sparc-website.org/>) also estimated changes in climate space (Roehrdanz *et al.*, 2019). Using basic temperature and rainfall parameters, global climates were grouped into one of 19 climate types, which can be used as a proxy for biomes. These climate types are divided into two groups - cold and hot climates and each is represented on a scale of wet to dry. Under current conditions, the park has two major climate classes, namely hot and arid (30%) and hot and dry (70%). Under the best case scenario for 2070, the entire park will fall within the "Hot and arid" class, while the most extreme scenario see the entire park area move into the class "Extremely hot and arid" (<http://www.sparc-website.org/gens>).

2.12.2 Topography

Large rock domes are scattered in a landscape with an otherwise very low relief. Flat areas between the domes are composed of gently undulating pink gneiss. Drainage lines are sandy and usually dry. A range of steep rocky hills in the central portion of the park is formed by dark-weathering, quartz-rich granulite, which is invariably white on fresh surfaces, but becomes black

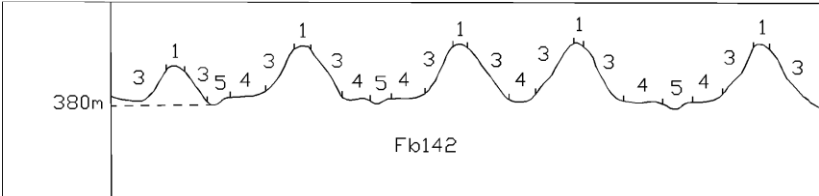
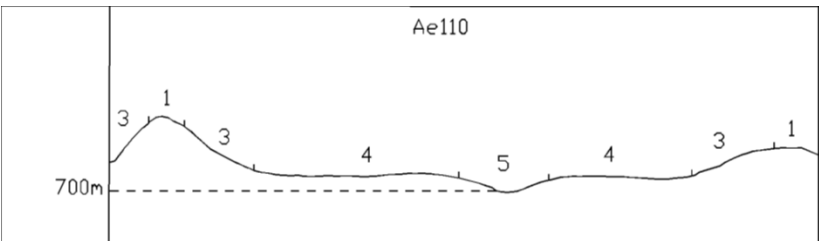
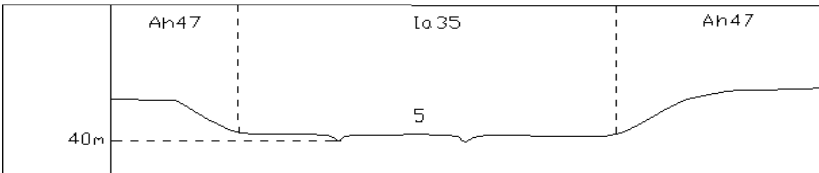
due to weathering. A fairly large flat, coarse sandy area occurs north and west of the black hills. Recent river terrace gravel and alluvium consisting of silt and fine sand occur along the Orange River. The alluvium also forms large islands in the Orange River (Werger & Coetzee, 1977).

The geology forms the foundation for topographic variety. Four major geomorphologic features (landscape terrain units) are recognised, namely:

- The undulating rugged hills;
- Sandy plains and rolling hills;
- The slightly rolling plain and
- The rugged Orange River and adjacent flat floodplain.

The seven land types (Ae110, Ag2, Ag72, Ic3, Ia1, Ib164 and Fb142) are used to identify four distinctive landscape terrain units as well as five vegetation landscape units for the park (Land Type Survey Staff, 1986; Land Type Survey Staff, 1987). The method was described by Bezuidenhout (1993). The Land Type Survey Staff (1986) definition of a land type is a delineation of an area into land types at a 1: 250 000 scale. The land type displays a marked degree of uniformity regarding terrain form, soil pattern and climate. The topography can be divided into three distinctive landscape terrain units, summarised in Table 2 below (Land Type Survey Staff, 1987).

Table 2. Landscape terrain units occurring in the park.

1. The undulating rugged hills landscape terrain unit	
In the southern section of the park the undulating hills consist of the following terrain units namely the flat plateau (1) terrain unit, the dominant relatively steep midslope (3) terrain unit and the footslope (4) or floodplain (4) terrain unit which is closely associated to the drainage line (5) terrain unit (Fig. 1). This section occurs on the southern side of the Orange River.	 Figure 1: The Fb142 land type terrain form sketch of the undulating rolling hills in the AFNP.
2. Sandy plains and rolling hills landscape terrain unit	
In the northern section of the park three land types Ag72, Ae110 and Ib164 are found with similar terrain forms. In these land types, sandy plains (terrain unit 4) occur in a mosaic with rolling hills (terrain units 1 (plateau), 3 (moderately steep midslopes) and 5 (the drainage lines)) on the northern side of the Orange River (Fig. 2). These rolling hills have three different geology substrates which will be discuss in the geology section.	 Figure 2: The Ae110 land type terrain form sketch of the rolling hills in the AFNP.
3. The slightly rolling plain veld landscape terrain unit	
In the most southwestern corner of the park, on the southern side of the Orange River, a slightly rolling plain is found. The terrain form sketch of the Ag2 land type represents the topography of this landscape terrain unit, and indicates the slightly rolling plain with plateau (1) which sometimes occurs also as ridges, midslope (3), footslope (4) and drainage lines (5) (Fig. 3).	 Figure 3: The Ag2 land type terrain form sketch of the slightly rolling plain veld in AFNP.



4. The rugged Orange River and adjacent flat floodplain landscape terrain unit

The Orange River topography could be divided in two distinct two topographies:

4.1 Upstream above the Orange River Falls the river (5) is wide with the floodplains included. Adjacent small hills with terrain units 1 (plateau) and 3 (midslopes) (Fig. 4) are also found in the Ia1 land type.

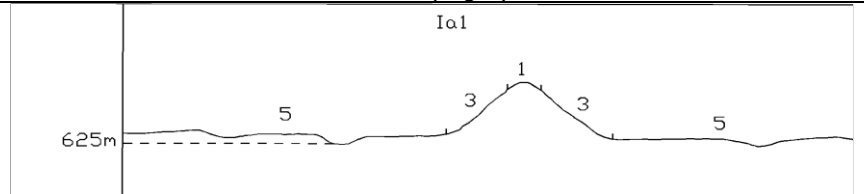


Figure 4: The Ia1 land type terrain form sketch above the Orange River falls of AFNP.

4.2 Downstream below the Orange River Falls the Orange River (5) flows in a gorge, with only floodplains (4) occurring many kilometres downstream, adjacent terrain units 1 (plateau) and 3 (midslopes) occur in this landscape terrain unit (Fig. 5).

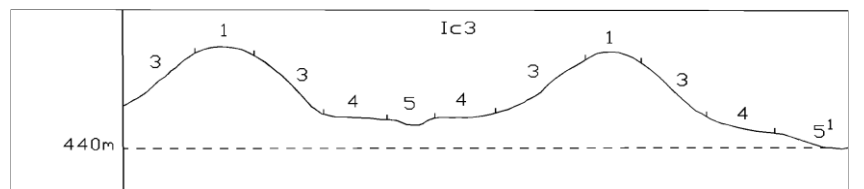


Figure 5: The Ic3 land type terrain form sketch below the Orange River falls of AFNP.

2.12.3 Geology and soil

The geological formations are reconstituted sedimentary rocks of the Kheis System and are part of the Archaean Complex. These sediments have undergone large-scale metamorphism, which changed them into crystalline gneiss and granulite. Most of the park is composed of red biotite granite gneiss, which is one of the three types of granite gneiss called pink gneiss. It typically has a brown colour on weathered surfaces. The pink gneiss resembles granite in mineralogical and chemical composition.

The granite and meta-gabbro of the Augrabies landscape have been shaped by interesting weathering patterns. Granite is a light grey rock consisting of quartz, feldspar and dark minerals. Due to intense pressure during the metamorphic event, dramatic zigzag folds are visible in the granite throughout the park. Meta-gabbro is a metamorphosed igneous rock, which contains no quartz and is made up entirely of dark ferromagnesian minerals and feldspar. This rock is found in the central part of the park in an area known as the "Swartrante" (Black Ridges).

Different weathering patterns can be seen in the park, such as hollows in the rock, exfoliation domes, and 'pop ups', which appear when thin slabs of rock detach from the rock surface due to extreme changes in the rock, pop up, and lean against another thin slab, forming an 'A-tent' shape. Hollows occur when decomposing feldspar causes hard granite to become crumbly, and wind and rainwater wear away parts of the rock. Exfoliating domes are created by chemical weathering stress along sub horizontal joints, which causes thin slabs of rock to detach from the rock surface. The falls were formed about 1.8 million years ago, progressively cutting back eastwards along faults in the pink gneiss (Werger & Coetzee, 1977; Mathee, 2017).

In the park the geology and soil form the basis for the biotic diversity. Four landscape terrain units are classified, namely:

1. The undulating rugged hills

The undulating rugged hills landscape terrain unit in the southern section of the park's geology consists of gneissic granite and other ultra-metamorphic rocks of the Namaqualand Metamorphic Complex. The soil of the dominant terrain units 3 (midslope) and 4 (footslope) rock-soil complexes are being dominated by rock and Glenrosa soil form (MacVicar *et al.*, 1977), the later soil depth is 0.1-0.3m deep with 5-10% clay-content (Fig. 2) (Land Type Survey Staff, 1987).

2. Sandy plains and rolling hills

The sandy plains and rolling hills landscape terrain unit in the northern section of the park's geology could be divided into three distinctive geology terrain units. Adjacent to the Orange River it consists of isolated Cenozoic Kalahari Group sandy patches (alluvium of Tertiary to Recent age) with also sometimes calc-silicate rocks with subordinate layers of marble, amphibolite and granulite (Biesje Poort Formation). Also found is Garnet-sillimanite-cordierite-biotite gneiss, granulite and quartz-feldspar with amphibolite (Toeslaan Formation). In some places, Dwyka Group tillites outcrop are found. The soil-rock complex is being dominated by terrain units 3 (midslope) and 4 (footslope) with shallow to moderate deep (0.1-0.75m) rocky Mispah and Hutton soil forms dominant (MacVicar *et al.*, 1977). The clay-content is between 2-6% in the soil horizon (Fig. 2) (Land Type Survey Staff, 1986).

The rolling hills veld landscape terrain unit sometimes consists of syntectonic intrusive rocks namely Colston Granite and the Cnydas Complex (Keimoes Suite) and pre-tectonic metasediments (Korannaland Sequence) with pegmatite and quartz veins. The dominant terrain unit is 4 (footslope) with the moderate deep (0.25-0.6m) Hutton soil form dominant with the clay-content between 3-9% (Fig. 2) (Land Type Survey Staff, 1986).

Some very interesting, isolated hills in the top northern section of the park's geology consists of metamorphosed sediments, volcanics and intrusives, probably of various ages, of the Korannaland Sequence. The soil-rock complex is rock, and the dominant terrain is 3 (midslope) (Fig. 2) (Land Type Survey Staff, 1986).

3. The slightly rolling plain

The slightly rolling plain landscape terrain unit on the southwestern section of the park's geology consists of migmatite, gneiss and granite predominantly with small outcrops of ultra-metamorphic rocks in places (Namaqualand Metamorphic Complex). Occasional small seif dunes; dorbank at many places; very dense sub-dendritic drainage lines and dissection pattern; occasional lime nodules and calcrete also with quartz veins have been noted. The dominant terrain unit is 3 (midslope). The soil-rock complex is dominated by the shallow (0.1-0.3m) Hutton soil form (MacVicar *et al.*, 1977), with the clay-content being 6-15% (Fig. 3) (Land Type Survey Staff, 1987).

4. The rugged Orange River and adjacent flat floodplain.

The rugged Orange River and adjacent flat floodplain landscape terrain unit as described in the topography section 2.12.2 could be divided into upstream and downstream from the Waterfalls which is clearly visible with the difference in geology.

The upstream geology consists of intrusive rocks (mainly granite) of the Namaqualand Metamorphic Complex and alluvium of Tertiary to Recent age. The dominant terrain unit is 5 (river but including the floodplain). The soil-rock complex is dominated by rock in the river but for the adjacent floodplain the deep (>2m), clay-content 10-35% Dundee soil form (MacVicar *et al.*, 1977), is dominant (Fig. 4) (Land Type Survey Staff, 1986).

The downstream geology consists of garnet-sillimanite-cordierite-biotite gneiss, granulite and garnet-bearing quartz-feldspar-gneiss with amphibolite of the Toeslaan Formation (Korannaland Sequence). The soil-rock complex is being dominated by rock and the terrain unit is 3 (midslope) (Fig. 5) (Land Type Survey Staff, 1986).

From June 2010 up to March 2012 frequent earth tremors were experienced in the park. The worst tremor occurred on 21 December 2011 and measured 5 on the Richter scale. The epicentre was believed to be inside or very near the park boundaries. Research on this



phenomenon is being conducted by the University of Pretoria in collaboration with the Council of Geo Science (Mathee, 2017).

2.12.4 Freshwater ecosystem

The Orange River is the longest and one of the most beautiful rivers in South Africa. Flowing through the arid landscape of the Northern Cape, the Orange River is critical in supporting diverse aquatic ecosystems and a vital source of water for irrigation and industrial processes. The Orange River is also famous for recreational activities such as canoeing and rafting, and a major source of hydroelectric power at the Gariep and Vanderkloof Dams. Sustainable management and protection of this vital resource is of utmost importance for the present and future socio-ecological viability of the region.

Groundwater

There are approximately 20 boreholes scattered across the park, nine production boreholes, four collapsed and seven potential monitoring boreholes. The production boreholes are used to supply water to animal drinking troughs. Water is pumped from the Orange River, treated and supplied to tourist and staff accommodation as well as the main office in the park. The water levels range between 17.93 mbc and 38.88 mbc, with one anomaly measured at 8.68 mbc. All the boreholes in the eastern region of the park exhibited significantly lower electrical conductivity values (516 uS/cm – 1,032 uS/cm) compared to the rest of the park with values measured above 2,000 uS/cm. These electrical conductivity differences are subjected to the different geological formations that the boreholes were drilled into.

Rivers

The park is drained by the perennial Orange River, dividing the park into the northern and southern section. The largest waterfall along the river, namely, The Augrabies Falls, is the focal attraction of the park. The waterfalls are particularly dramatic during high-flow events, the last of which was experienced in 1988 (7,800 m³/s), 2006 (1,933 m³/s), February 2010 (2,936 m³/s), January 2011 (4,779 m³/s), January 2022 (3,566 m³/s), November 2022 (3,846 m³/s) and March 2023 (4,596 m³/s).

The Orange River rises in the Drakensberg / Maloti Mountains in Lesotho, flowing westwards through South Africa to the Atlantic Ocean. There are three main storage reservoirs along the river, namely Gariep Dam and Vanderkloof Dam on the Orange River inside South Africa and the recently completed Katse dam in Lesotho on the Senqu River. The park falls within the Lower Orange Water Management Area (LOWMA) and in the Orange sub-catchment area. It is the largest LOWMA in the country and covers almost the entire Northern Cape Province. This core area forms part of the Orange-Senqu River Basin, which straddles four international basin states, i.e. Lesotho (Senqu River originating in the highlands), Botswana in the north-eastern part of the basin, the Fish River in Namibia and the largest area situated in South Africa (Department of Water and Sanitation, 2016). The Orange-Senqu River Commission (ORASECOM) was established by the Governments of Botswana, Lesotho, Namibia and South Africa through the "Agreement for the Establishment of the Orange-Senqu Commission" on 3 November 2000 in Windhoek, Namibia. ORASECOM is the first commission established following the regional ratification of the Revised Protocol on Shared Watercourses in the Southern African Development Community (Revised Protocol) in 2004 (<http://www.limpopo.riverawarenesskit.org/>).

The park is divided by the Orange River into a northern and southern section and plays hosts to the largest waterfall (Augrabies Falls) on the Orange River. The condition of the Orange River upstream of the park is classified as a "Category C" (moderately modified) whereas inside the park as "Category AB" (largely natural) (Driver *et al.*, 2011; Nel *et al.*, 2011a). The dramatic increases in the flow rate of water experienced from time to time are not the result of local climatic conditions but originate upstream. Especially high waterflow rates were experienced in 1988 (7, 800 m³/s - the

highest in recent time), 2006 (1, 983 m³/s), February 2010 (2, 936 m³/s), January 2011 (4, 779 m³/s) and January 2022 (3, 566 m³/s). The local land-use activities however seem to have an impact the water quality that could be impeding the park to reach the AB category class (Sithole & Matsapula, 2018; Sithole, 2019; Sithole *et al.*, 2020; Sithole *et al.*, 2022).

The “Ecological Reserve” or Environmental Water Requirement (EWR) is an allocation of water specified as a volume and quality underpinned by flow and duration requirements to sustain river ecosystems (Wyk *et al.*, 2007). Meeting these minimum flow requirements is critically important to maintain the ecological status of the river reach flowing through the park. The condition of the Orange River upstream of the park is classified as a “Category C” (moderately modified) whereas inside the park as “Category AB” (largely natural) (Driver *et al.*, 2011; Nel *et al.*, 2011a). This stretch of river is classified as “High” ecological sensitivity due to the diversity of riparian habitat types that act as critical protection and migration corridors for rare and endangered species. However, local land-use activities such as impoundments, alluvial diamond mining and extensive irrigation schemes along the river are negatively impacting the riverine ecosystem health by reducing natural flows, decreasing water quality and altering riparian habitats.

Wetlands

There are seven wetland ecosystem types in the park, 22% are in a “Good” condition, and 73% in a moderately modified and 5% heavily modified condition (Driver *et al.*, 2011; Nel *et al.*, 2011a).

2.12.5 Terrestrial flora

The park currently has representation of the Nama-Karoo Biome consisting of the Lower Gariep Broken Veld (NKb1), Blouputs Karroid Thornveld (NKb2), Bushmanland Arid Grasslands (NKb3), Kalahari Karroid (NKb5) and the Azonal vegetation of the Lower Gariep Alluvial (Aza3) (Mucina & Rutherford, 2006).

Five major vegetation landscape units have been identified in the park (Bezuidenhout, 1996; Werger & Coetzee, 1977), namely:

1. *Aloe dichotoma* sparse woodland

This sparse woodland is strongly associated with the undulating rugged hills landscape terrain unit in the park. The diagnostic species are the conspicuous tree-aloe *Aloidendron dichotomum* (new name), the conspicuous forbs *Berkheya spinosissima* subsp. *spinosissima*, *Cleome angustifolia* subsp. *diandra*, *Barleria rigida*, *Sutera ramosissima*, *Rhigozum trichotomum* and *Abutilon pycnodon*. The most prominent trees are *Aloidendron dichotomum*. The most prominent shrub species are *Adenolobus garipensis*, *Commiphora gracilifrons*, *Ceraria namaquensis*, *Searsia populifolia*, *Sutera ramosissima*, *Rhigozum trichotomum* and *Boscia foetida* subsp. *foetida*. Prominent grasses are *Triraphis ramosissima*, *Antheophora pubescens*, *Enneapogon scaber* and *Stipagrostis uniplumis* var. *uniplumis*. Forbs that are constantly present are the diagnostic forbs, *Forsskaolea candida*, *Trichodesma africanum*, *Codon schenckii* and *Monechma spartioides* (Bezuidenhout, 1996).

2. *Schotia afra* open woodland

This open woodland is strongly associated with the undulating rugged hills landscape terrain unit in the park. The diagnostic species are the conspicuous tree *Schotia afra* var. *angustifolia*, the conspicuous shrub *Sisymbrium sparteum* as well as the conspicuous forbs *Hibiscus engleri* and *Cleome foliosa* var. *lutea*. The trees *Schotia afra* var. *angustifolia*, *Ficus cordata* subsp. *cordata* and *Pappea capensis* are prominent in the tree stratum while the shrubs *Commiphora gracilifrons*, *Nymanina capensis*, *Euclea undulata* var. *myrtina*, *Boscia albitrunca*, *Searsia populifolia*, *Cadaba aphylla* and *Adenolobus garipensis* are very prominent. Forbs such as *Indigofera pechuelii*, *Euphorbia* cf. *peplus*, *Hibiscus engleri*, *Cleome foliosa* var. *lutea*, *Forsskaolea candida*, *Trichodesma africanum*, *Codon schenckii* and *Indigofera pungens* are present in this poorly developed herbaceous layer. The prominent grass species are *Triraphis ramosissima*, *Panicum coloratum*, *Enneapogon scaber* and *Stipagrostis uniplumis* var. *uniplumis* (Bezuidenhout, 1996).

3. *Acacia mellifera* open shrubland

This open shrubland is strongly associated with the sandy plains and rolling hills landscape terrain unit in the park. The diagnostic succulent *Zygophyllum stapfii*, the diagnostic conspicuous shrubs *Phaeoptilum spinosum* and *Hermannia stricta* characterise this Shrubland. The most



prominent tree is the conspicuous *Pappia capensis* as well as the other dominant conspicuous shrub *Senegalia mellifera* subsp. *detinens*. Prominent grasses are *Enneapogon scaber* and *Stipagrostis uniplumis* var. *uniplumis*. Prominent forbs are *Zygophyllum microphyllum* and *Monechma spartioides* (Bezuidenhout, 1996).

Two small, isolated patches of the *Ceraria namaquensis* open shrubland occur in this landscape unit. It is associated with quartz outcrops. These quartz outcrops are especially important since rare and endangered plant species are associated with it (Schmiedel, 2002).

4. *Stipagrostis* open grassland

This open grassland is restricted to the slightly rolling plains landscape terrain unit of the southwestern section of the park. The diagnostic plant species for the *Stipagrostis* species open grassland includes the grasses *Stipagrostis hochstetteriana* var. *secalina* and *S. ciliata* var. *capensis*, the inconspicuous but interesting tree *Parkinsonia africana* and the non-conspicuous forb *Monechma genistifolium* subsp. *genistifolium*. The trees are *Vachellia erioloba*, *Senegalia mellifera* subsp. *detinens* and *Parkinsonia africana*. The most prominent shrubs are the succulent *Euphorbia gregaria* and the conspicuous shrub *Boscia foetida* subsp. *foetida*. The herbaceous layer is dominated by the diagnostic grasses and *Stipagrostis uniplumis* var. *uniplumis*. No prominent forbs for this vegetation unit were noted (Bezuidenhout, 1996).

5. *Ziziphus mucronata* closed woodland

This closed woodland is closely associated with the rugged Orange River and adjacent flat floodplain landscape terrain unit in the park. The *Ziziphus mucronata* closed woodland is strongly associated with the relatively wetter drainage lines as well as with the flood banks and islands of the Orange River. It is characterised by the conspicuous trees *Vachellia erioloba*, *V. karoo*, *Ziziphus mucronata* subsp. *mucronata*, *Searsia pendulina*, *Euclea pseudebenus* and *Tamarix usneoides*, the conspicuous shrub *Maytenus linearis*, *Maerua gilgii*, *Diospyros lycioides* subsp. *lycioides*, the creeper *Protaspargus retrofractus*, the grasses species *Cenchrus ciliaris* and *Stipagrostis namaquensis* and the succulents *Mesembryanthemum crystallinum* and *Zygophyllum simplex*. The encroacher shrub/tree *Prosopis glandulosa* var. *torreyana* occur on degraded areas along the Orange River and major drainage lines and the robust reed *Phragmites australis* occur on deep wet sandy areas in the Orange River or on the sandy banks adjacent to the Orange River.

The riparian vegetation type has been identified as a threatened habitat. The Orange River riparian vegetation has been severely impacted by invasive plant species, such as *Prosopis glandulosa*, other threats include green energy and agricultural developments”

None of the other vegetation types are sensitive or endangered, except the *Ziziphus mucronata* closed woodland. However, there are rare and/or protected plant species such as *Vachellia erioloba*, *Ziziphus mucronata* and *Nymanian capensis* in these major vegetation units, which should be protected (Bezuidenhout, 1996).

Zietsman & Bezuidenhout (1999) compiled a list of flowering plant species for the park. The study indicated that 364 plant species which represents 210 genera, and 74 families are found in the park. The Monocotyledonae are represented by 76 species and the Dicotyledonae by 288 species. Approximately 54% of these species occur only in the park and not in another conservation area.

The following trees are protected plant species: *Vachellia erioloba*, *Boscia albitrunca* and *Aloidendron dichotomum* as well as the succulent *Hoodia gordonii*. A permit is necessary to cut or remove it. Rare and endangered plant species were noted but never collected or recorded especially on the quartz outcrops.

2.12.6 Terrestrial fauna

Aridity plays a role in species distribution as well as ecological and evolutionary diversity (Alatawi *et al.*, 2020). The aridity of the area makes the terrestrial species in the area vulnerable to limitations of population growth and dispersion (Gedir *et al.*, 2015). The faunal species are either adapted behavioural or physiological to the environment or have the ability to migrate during times of unfavourable conditions such as low rainfall or high daytime temperatures. The presence of the Orange River enables the persistence of species that otherwise would not occur in an arid environment. On the species checklists of the park are 49 mammal species, 186 bird species, 41 reptile species, six amphibian species and 12 fresh-water fish species.

Amphibians

Amphibians have adaptations that allow them to live in arid environments. Some adaptations include changing activity time seasonally and during the day (Shoemaker, 1988). The use of permanent sources of water such as rock pools is important seasonally, within and among years (Zylstra *et al.*, 2018). Six amphibian species have been documented in the park. The Marbled rubber frog, *Phrynomantis annectens* is endemic to the park.

Birds

Environmental cues can trigger altered feeding, breeding and nesting behaviour in birds. In arid environments these changes can be stimulated by punctuated rainfall events (Dean *et al.*, 2009). Birds in arid environments therefore exhibit either nomadic or resident strategies for survival. There are 186 documented bird species occurring within the park. Of these the most notable are the Verreaux's eagle *Aquila verreauxii*, martial eagle *Polemaetus bellicosus* and African fish eagle *Haliaeetus vocifer*. Nine species of swallows and swifts also occur. Two members of the bustard family are represented by the Kori bustard *Ardeotis kori* and the Ludwig's bustard *Neotis ludwigii*.

Fish

Given the length and size of the Orange River, the catchment in and around the park provide a diversity of conditions (i.e. flow and habitat) for fresh-water fish (Allanson *et al.*, 1990). Specific to the park is the role of the riparian vegetation on the shelter, feeding and light influence on fresh-water fish (Pusey & Arthington, 2003). There are 12 known fresh-water fish species of which there are representations of the barb namely *Barbus trimaculatus*, *Barbus hospes* and *Barbus paludinosus*, yellowfish *Labeobarbus kimberleyensis* and *Labeobarbus aeneus* and tilapia *Tilapia sparmanii* species. The lower Orange River also has threatened ichthyofauna, including the red-listed Namaqua barb *Barbus hospes*.

Mammals

The fauna is adapted to arid conditions most notably through thermoregulation (Fuller *et al.*, 2021). Fauna species found in the area includes the conspicuous Hartmann's mountain zebra *Equus zebra hartmannae*, dassie *Procavia capensis*, giraffe *Giraffa camelopardalis*, klipspringer *Oreotragus oreotragus*, honey badger *Mellivora capensis*, springbok *Antidorcas marsupialis*, red hartebeest *Alcelaphus buselaphus*, kudu *Tragelaphus strepsiceros*, gemsbok *Oryx gazella*, eland *Tragelaphus oryx*, caracal *Caracal caracal*, leopard *Panthera pardus*, African wildcat *Felis silvestris cafra*, brown hyena *Proteles cristatus*, aardvark *Orycteropus afer* and bat-eared fox *Otocyon megalotis*. Historically, large mammals in arid environments were not resident and would migrate according to resource needs (Bartlam-Brooks *et al.*, 2011). For this reason, large mammal populations are kept to a minimum to manage the impact on the environment.

Reptiles

Reptile diversity and abundance tend to be high in arid habitats. Some of the observed adaptations of reptiles include using the environment to actively regulate their physiology (Cox & Cox, 2015). Similarly, reptiles can also use the environment when conditions become extreme or unfavourable (Barrows, 2011). The park is a hotspot for reptiles, including the well-known Augrabies flat lizard *Platysaurus broadleyi* which is endemic to the region. To date 42 reptile species have been identified in the area. These species are adapted for arid conditions and occur across the landscape.

2.13 Cultural heritage

In line with organisational policy and the concept of a cultural landscape, a project was undertaken from September 1999 to March 2001 to compile a cultural heritage inventory. The neighbouring Riemvasmaak was also included. As very little prior research had taken place, considerable time was spent on compiling a heritage inventory. The fieldwork identified 155 tangible heritage sites, of which 106 were within the park



boundaries while the remaining 49 were adjacent to the park. These sites include graves and burial grounds, Stone Age surface scatters, historic homesteads, military structures and rock engravings. The research showed that the park and surrounding area possesses a rich heritage, which includes a diversity of cultures and historic events.

A new assessment of cultural heritage for the park was undertaken during May 2022. The study was carried out in order to audit and re-assess significance and condition of heritage resources in the park previously identified as well as to identify any new heritage resources. The study resulted in an updated inventory with some sites that were previously recorded being removed whilst new ones were added. Desktop studies also contributed to the assessment findings despite very few studies having been previously undertaken on the cultural heritage of the area.

According to Almond & Pether (2008), the area where the park is located has no palaeontological significance. This view was based on the fact that no fossils had been discovered by then, something that has not changed to date (Orton & Webley, 2012a). There is always a possibility that some fossil deposits may in the future be found along the Orange River floodplains.

There is a good presence of stone tools, beads, pottery, and grindstones within the park. This is in keeping with what other archaeologists have discovered in the local surroundings (Smith, 1986, 1995; Morris & Beaumont, 1991; Halkett, 2010; Pelsner, 2011). Smith (1986), in a study conducted at a site near the park, found that occupation spanned between 4140 ± 70 before present (BP) (Pta-2889) at the base of the LSA to 2800 ± 60 BP (Pta-2870) near the top. Beaumont *et al.* (1995) attained dates of 1390 ± 70 BP (Pta-4772) and 120 ± 50 (Pta-4872) for the two sites near the park. Their findings have, however, been challenged by Parsons (2007).

A review of archaeological studies were conducted at the park and the surrounding areas revealed that the stone tool industry can be separated into two distinctive industries, namely, 'Swartkop' and 'Doornfontein'. The former is characterised by stone tools that were used by hunter-gatherers and occur much further away from large water courses which is in contrast to the latter. The 'Doornfontein' industry is said to have been used by herders and are mainly found along the banks of the Orange River and its large tributaries (Beaumont & Vogel, 1984). Based on the writings of Wikar in 1779, we know of the presence of Khoisan near the Augrabies Falls – they produced the hunter-gatherer industry called 'Swartkop'. Wikar has been credited as the first European that provided a written description of the area (Mossop, 1935; Binneman, 1998; Kadr, 2004; Morris, 2004).

According to Orton and Webley (2012c, 2012d, 2013), the area where the park is located has not been characterised with many circular stone structures which are commonly found elsewhere, particularly in most areas within the Karoo (Parsons, 2004). An Anglo-Boer War fort is situated within the park (Anonymous, 2001; Orton & Webley, 2013).

Besides biodiversity and archaeological artefacts, many graves have been discovered and studied over the years in the area (Dreyer & Meiring, 1937; Morris, 1995, 2010). Most of these graves have been assumed to belong to the Khoekhoe (Orton, 2012). The May 2022 field survey discovered a previously unrecorded area which could have been a cemetery. According to Morris & Beaumont (1991), there was an absence of ochre and specularite in the Augrabies burials. They argue that this may be an indication that people who lived in the area did not have access to such commodities. This could explain why there have been no rock art paintings recoded in the area, even though there is a sparse presence of rock shelters that could have been painted.

Intangible resources have also been documented, and include mythical creatures such as the water snake and lesser-known *Dassie-adder* (described by some as a small creature with the body of a snake and the head of a wrinkled old man).

Based on the May 2022 assessment, it was concluded that there are no heritage sites in the park that are significant enough to be used as tourism offerings. The assessment also found no sites with cultural significance worthy of grading and consideration for formal provincial (Grade 2) or national (Grade 1) status.

2.14 Socio-economic context

The park is located within the KGLM and falls within the ZFMDM. The three major towns in the region are Kakamas, Keimoes and Kenhardt. Between these towns, six settlements are found, namely, Riemvasmaak, Lutzburg, Cillie, Alheit, Marchand and Augrabies. The park is located ± 40 km west of Kakamas and situated in the midst of an intensive irrigation farming community stretching from Groblershoop in the east up to Blouputs in the west.

The Orange River is the biggest economic driving force in the region, stimulating significant expansion of economic activities especially over the last two decades. It provides water for the extensive agricultural practices on both sides of the river, especially with grapes for export, raisins and wine, while citrus types of fruit are also becoming more prevalent in the area, which is the mainspring of the local economy. The agricultural sector is still the main economic sector that makes the biggest contribution to the local economy. The agriculture sector is also a major employer in the region in terms of formal employment. It is also the sector with the largest potential for economic growth. The potential for agri-tourism remains to be explored.

The “Quiver Tree Food and Wine tourism route”, of which the park is an important component, attracts visitors to the area. The formal business sector also shows great potential for growth which will contribute to the economy in the Kai! Garib local municipal area (Kai! Garib Local Municipality, 2020). Recent interest in solar plant development in these areas have increased due to the areas’ potential to generate this source of energy.

The informal business sector in the municipal area is complex and unorganised which poses great challenges for interventions and incentives for future development. Concern was also raised during community meetings regarding the domination of foreign traders growing faster in the area.

From the Stats SA Census 2011 (<http://www.localgovernment.co.za/locals/view/183>), Community Survey 2016 (Statistics South Africa, 2018) and the General Household Survey 2020 (Statistics South Africa, 2021) the total population of the KGLM may be estimated at about 65,869. Currently there is an estimated 16,703 households in the area serviced by the local municipality. The unemployment rate is around 10% (https://www.statssa.gov.za/?page_id=993&id=kai-garib-municipality). Unemployment is high among the youth. Income disparities are significant, to the disadvantage of the majority in the area.

It was estimated that in 2018 7.10% of all the households in the KGLM were living on R 30,000 or less per annum. In comparison with 2008 when it was 28.01%, the number is significant lower. The R 192,000 – R 360,000 income category has the highest number of households with a total number of 2,480, 24% of the local population, followed by the R 72,000 – R 96,000 income category with 2,390 households, 30.3% of the local population. Only 0.2% of households fall within the R 0 – R 2,400 income category. For the period 2008 to 2018 the number of households earning more than R 30,000 per annum has increased from 71.99% to 92.90%. The number of households with income equal to or lower than R 6,000 per year has decreased by a significant number.

In 2018, 27,900 people were employed in the KGLM which is 30.94% of the total employment in ZFMDM (90,100), 8.63% of total employment in Northern Cape Province (323,000), and 0.17% of the total employment of 16.1 million in South Africa. Employment within Kai! Garib municipal area increased annually at an average rate of 0.88% from 2008 to 2018. The Kai! Garib municipal area average annual employment growth rate of 0.88% exceeds the average annual labour force growth rate of 0.72% resulting in unemployment increasing from 11.17% in 2008 to 12.00% in 2018.

During the past ten years the park contributed to the creation of temporary jobs in the municipal area through the Expanded Public Works Programme (EPWP). These projects included upgrading and ongoing maintenance of a number of chalets, boardwalks and viewpoints, as well as the management of invasive alien plant species. The Presidential Employment Stimulus Fund 2020/21 also contributed to temporary job creation with the appointment of two contractors with teams to assist with infrastructure and general maintenance in the park.

2.15 Tourism

The park is situated on the banks of the mighty Orange River. The Khoi people called it "Aukoerebis", or "place of great noise", as the powerful flow of water is unleashed from its rocky surroundings. Klipspringer and quiver trees stand in stark silhouette against African sky in this unique geological environment, where only



those that are able to adapt, ultimately survive. The park is home to the majestic Augrabies Falls, which falls 56 meters into the spectacular 18 km gorge below. The park offers various adventure activities such as hiking and cycling and a range of accommodation options. Table 1 summarises the overnight facilities available as well as the unit / room occupancy for previous year.

Table 1. Overnight facilities and unit / room occupancy figures.

Accommodation summary as of 31 March 2022						
Camp	Description	Number of			Category	Unit occupancy (2021 / 2022 financial year)
		Units	Beds	Total beds person capacity		
Augrabies	Chalets (2 bed)	50	2	100	Economy	39.1%
	Cottage (4 bed)	9	4	36	Economy	43.0%
	Camping	50	6	300	Budget	31.0%
Gorge	Cottage (2 bed)	1	2	2	Economy	84.4%
Total inventory	Units accommodation	110		438		
Overall occupancy		Accommodation				40.4%
		Camping				31.0%

During the 2018 / 2019 financial year, the park achieved a unit occupancy of 45.5% which is significantly lower than the SANParks average of 72.5%. The park does not presently offer any guided activities. There was a total of 39,396 visitors in 2018 / 2019, of whom 35,443 (90%) were day visitors and 3,953 overnight visitors. Of these, 38.3% were international visitors, 1% from Southern African Development Community countries and 60.7% local. South African visitors are mostly from the Western Cape, Gauteng and Eastern Cape, and 29.6% of South African visitors were black. Of the 15,072 international visitors, most were from Germany, the United Kingdom and Italy.

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Section 3: Policy framework

3.1 Introduction

SANParks, like all protected area management authorities, is subject to the Constitution of the Republic of South Africa, international agreements and treaties, legislation, national policies and government priorities. The NEM: PAA states the following: The purposes of the declaration of areas as protected areas are (a) to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas; (b) to preserve the ecological integrity of those areas; (c) to conserve biodiversity in those areas; (d) to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa; (e) to protect South Africa's threatened or rare species; (f) to protect an area which is vulnerable or ecologically sensitive; (g) to assist in ensuring the sustained supply of environmental goods and services; (h) to provide for the sustainable use of natural and biological resources; (i) to create or augment destinations for nature-based tourism; (j) to manage the interrelationship between natural environmental biodiversity, human settlement and economic development; (k) generally, to contribute to human, social, cultural, spiritual and economic development; or (l) to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

Section 41 of the NEM: PAA requires that management plans be nested within the context of a Co-ordinated Policy Framework (CPF) (SANParks, 2018a). The CPF can be downloaded from the SANParks website using the following link www.sanparks.org/conservation/park_man/.

The CPF provides the organisational guidance required by the DEA guideline for management plans (Cowan & 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;
 - Responsible 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. As such, this policy framework is available to stakeholders.

The relationship between the park-specific adaptive management planning cycles and the SANParks CPF is outlined in Figure 6, 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.

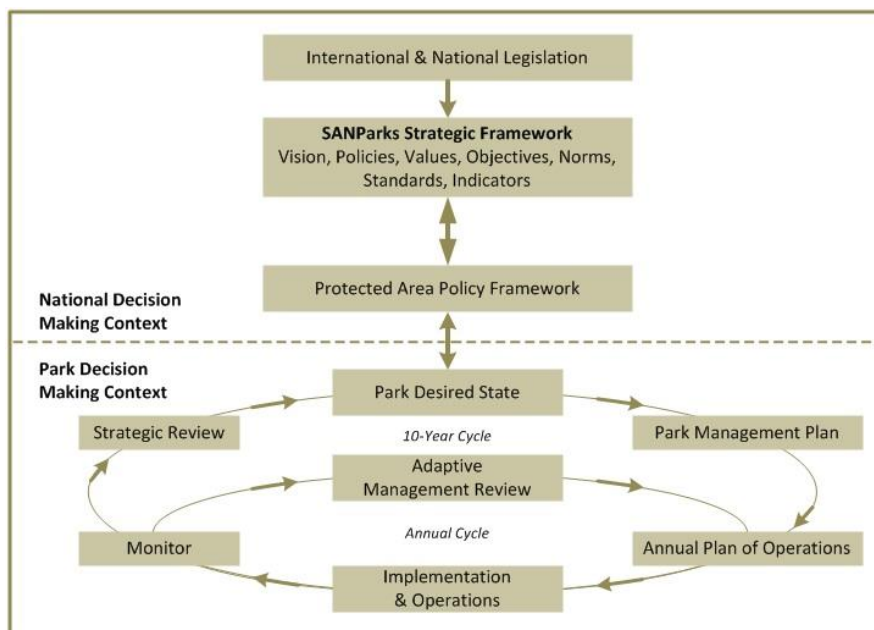
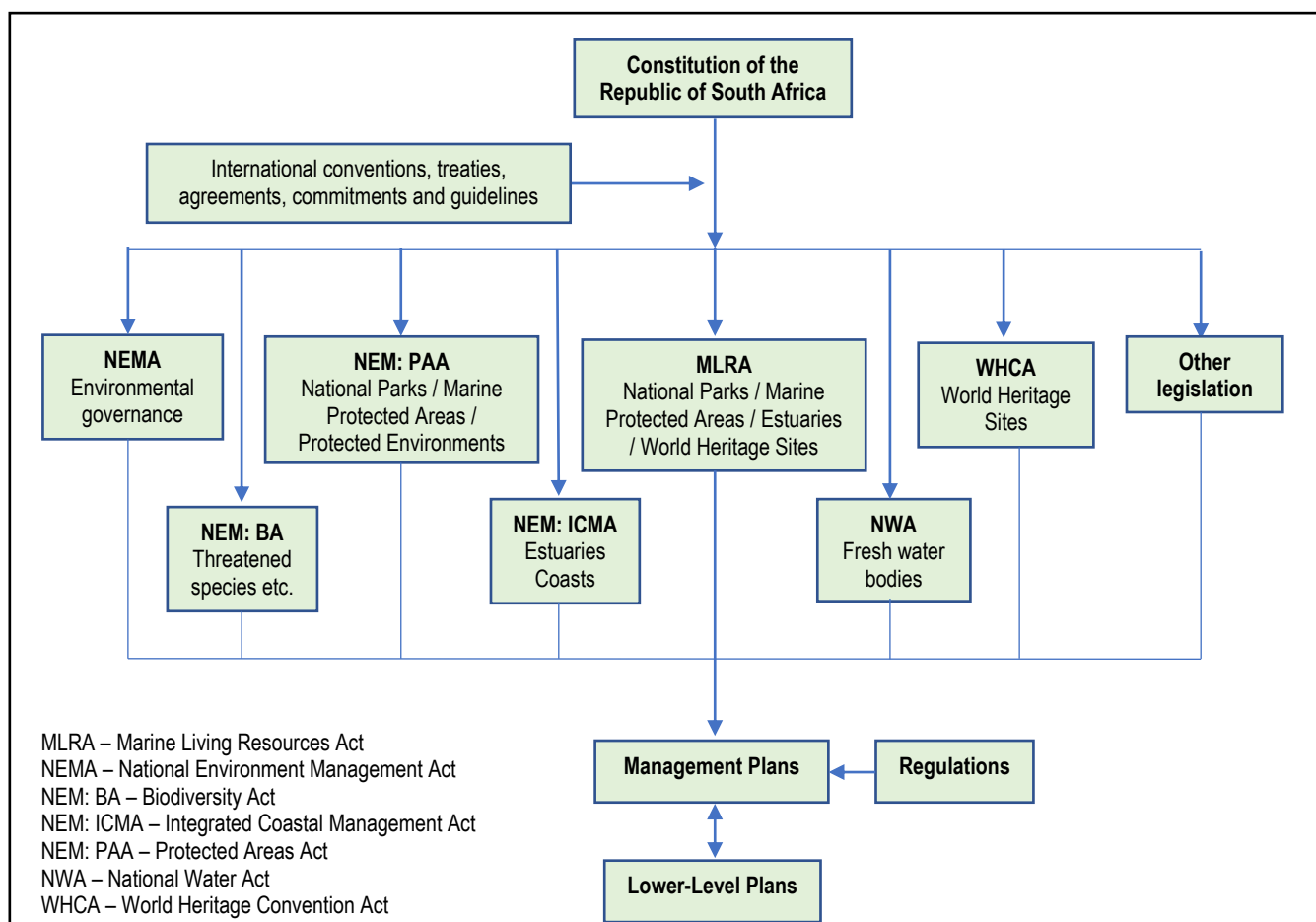


Figure 6. SANParks protected area planning framework.

3.2 Legislative context

Protected areas are subject to the principles and provisions of relevant international treaties and conventions, national legislation and policy, and any applicable contractual agreements. It is important to note that the park is a protected area in terms of the NEM: PAA. In terms of this Act, any conflicts with other legislation must be dealt with in accordance with article 7 of NEM: PAA. In essence it stipulates that where a provision of NEM: PAA specifically concerns the management or development of protected areas, and there is conflict with other national legislation, the relevant section of NEM: PAA prevails. The administration and management of the park is subject to the adherence to various legislative requirements. Figure ? below outlines the relationship between the key pieces of legislation that governs the management of protected areas for which SANParks is responsible and the associated Management Plans.





3.3 White Paper on Conservation and Sustainable Use of South Africa's Biodiversity

The White Paper on Conservation and Sustainable Use of South Africa's biodiversity (gazetted on 14 June 2023) was developed to promote the conservation of the rich, diverse biodiversity and ecological infrastructure, which supports ecosystem functioning for livelihoods and the well-being of people and nature. It is envisaged that this White Paper will set the country on a strong path of sustainable development, considering the historical, socio-economic, and environmental context of South Africa, including the aspirations and needs of her people.

The White Paper has the following vision: *"An inclusive, transformed society living in harmony with nature, where biodiversity conservation and sustainable use ensure healthy ecosystems, with improved benefits that are fairly and equitably shared for present and future generations."* The White Paper is aspirational and advocates for a society where all people have a high quality of life, a voice, and a nurturing earth supporting them. As such, the policy sets out the following impact statement: "Thriving People and Nature".

The White paper has four overarching goals and intentions as follows:

Goal 1 Enhance Biodiversity Conservation: Conserve all biological diversity and its components. The intention of this goal is to improve the conservation of the unique megadiverse nature of our biodiversity, including the diversity of land- and seascapes, ecosystems, habitats, ecological communities, species, populations, and genes.

Goal 2 Sustainable Use: Ensure that sustainable use of all biodiversity values enhances thriving living land- and seascapes and ecosystems, livelihoods, and human well-being, while environmental duty of care avoids, minimises, or remedy adverse impacts on biodiversity. The intention of this goal is to ensure that sustainable of all values of biodiversity use avoids, or minimises and remedies, adverse impacts on biodiversity, and enhances thriving living land- and seascapes and ecosystems, livelihoods, and human well-being.

Goal 3 Equitable Access and Benefit Sharing: Ensure that benefits are derived and shared from the use and development of South Africa's genetic and biological resources, without compromising the nation's interests. The intention of this goal is to ensure that benefits derived and shared from the use and development of South Africa's genetic and biological resources are shared equitably and serve national interests.

Goal 4 Biodiversity Conservation and Sustainable Use is Transformative: Gives effect to the environmental right as contained in Section 24 of the Constitution, facilitates redress, and promotes transformation.

The intention of this goal is to give effect to Section 24 of the Constitution, the environmental right, and other human rights, facilitate redress, and promote transformation. Furthermore, the intention of this goal is to capitalise and leverage on the megadiverse nature of biodiversity, and key biophysical attributes, and wild landscapes and seascapes to drive rural socio-economic development.

This Park Management Plan aligns with all the goals of the White Paper with a major focus on Goals 1 and 4. Section 10 provides more detail on the strategic plan, projects and actions that will be implemented to achieve this. This Management Plan will contribute substantially to Goal 1 Enhance Biodiversity Conservation through the extensive expansion of the protected area system and buffer zone management that is planned for the park. The Management Plan will also result in improved management effectiveness of the park overall. Bioregional integration and mainstreaming of park buffer zone biodiversity values into municipal planning processes (e.g. Integrated Development Plans, Strategic Development Frameworks and Land Use Zoning schemes) is also a key focus of investment. The Management Plan will also substantially

contribute to Goal 4 Biodiversity Conservation and Sustainable Use is Transformative through tourism development and associated job creation that in turn contributes to rural socio-economic development. The socio-economic opportunities programme aims to strive for equitable employment and business development by promoting fair access to a range of opportunities. This will be achieved through a significant, targeted and effective contribution to local economic development, economic empowerment and social development in communities and neighbouring areas adjacent to the park.

3.4 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 worldviews and values. Under these conditions of divergent stakeholder interests and limited predictability, it might be impossible to agree on an optimal solution and similarly it may be 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 7). 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).

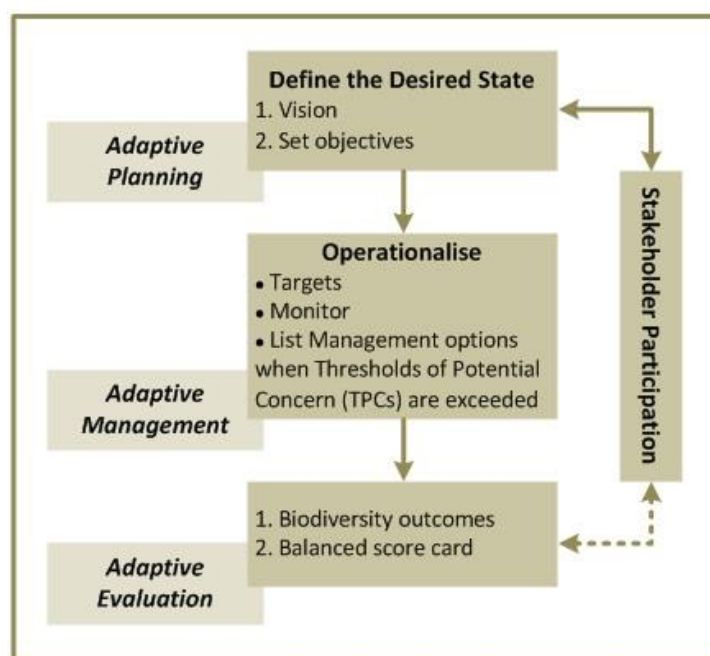


Figure 7. Steps in the adaptive management cycle as used by SANParks.

SAM begins with determining the desired future state of a particular social-ecological system (Figure 8). 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, technological, environmental, economic and political (V-STEEP) influences. Description of the future state is further enriched by deliberating the distinctive and special features (called vital attributes) of the park.

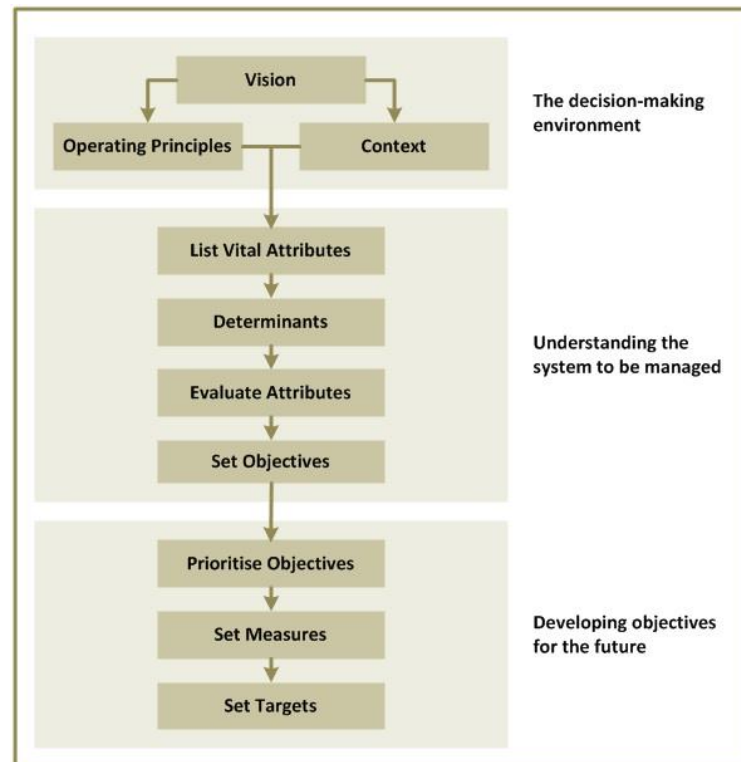


Figure 8. The adaptive planning process as used by SANParks.

The mission, 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). Of critical importance is the participation and engagement of all relevant stakeholders. One central construct of SAM within SANParks over the last 18 years has been that of thresholds of potential concern (TPCs) (Biggs & Rogers, 2003). The challenge with TPCs has been that even if a state change is predicted, the approach does not always link the TPC to the hypothesised mechanisms of change explicitly (Ferreira *et al.*, 2011), and does not always consider the complex social and economic drivers affecting the ecological parameters and are often merely social preferences rather than ecological thresholds. TPCs are therefore now used in more predictable fields, such as river biotic responses and fire management and are coupled with a mechanisms approach in other instances.

3.5 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 the park, reporting is done via the Regional General Manager for the Arid Cluster. The park's organogram (Figure 9) sets out the reporting structure in the park.

3.6 Park regulations and internal rules

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

3.7 Support to the park

Park management is primarily supported by head office, providing human resource, financial, supply chain management, Tourism and marketing, review and auditing services. The park also receives support from functions such as park planning and development, veterinary wildlife service, scientific services etc.

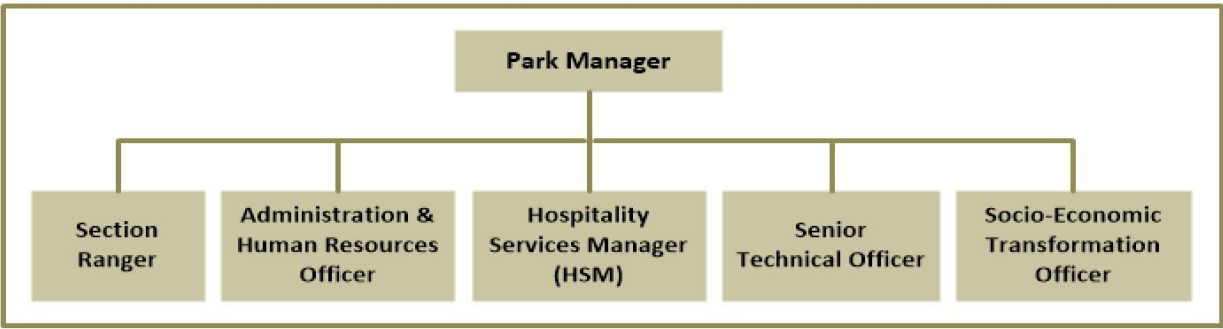


Figure 9. Augrabies Falls National Park organogram.



Section 4: Consultation

SANParks recognises that parks must serve societal values and that parks 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 stakeholder concerns and aspirations are consistently understood and considered (Spies & Symonds, 2011). Therefore, affected and interested stakeholders 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 forms, 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:

- The Constitution of the Republic of South Africa (Act No. 108 of 1996);
- The National Environmental Management Act (Act No. 107 of 1998 (NEMA)); and
- The NEM: PAA (Act No 57 of 2003) as amended.

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.

The stakeholder participation process followed during the revision process of this management plan is depicted in Figure 10 below.

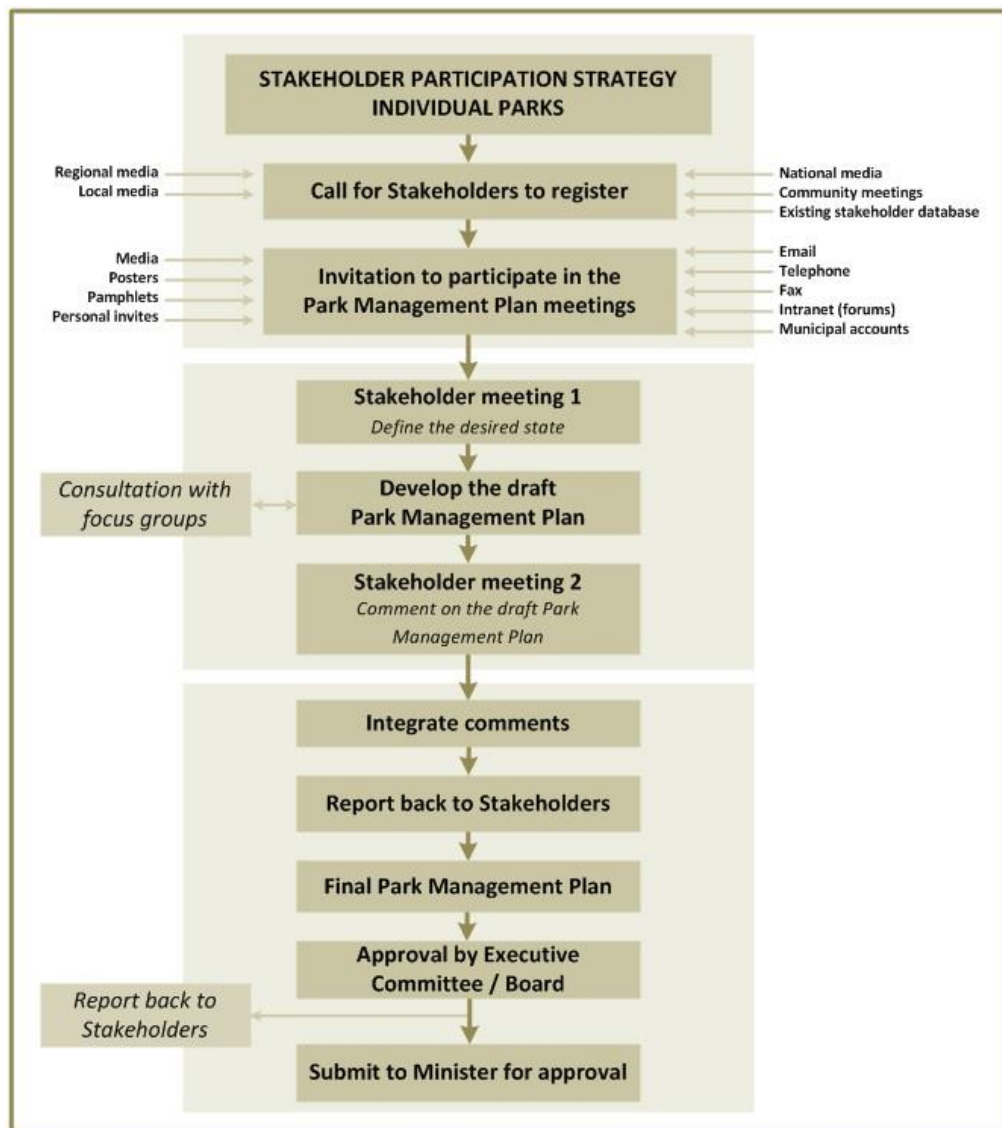


Figure 10. SANParks stakeholder participation process as applied in the AFNP management plan revision process.

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



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 was not officially specified, neither in the first gazetted declaration nor in any subsequent addition. However, the initial motivation for establishing the park was to protect and conserve the Augrabies waterfall. 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

Reconciling the need for participatory planning and governance and enabling ongoing adaptation, the adaptive planning process is an essential early component of strategic adaptive management. It is an easy and effective tool for enabling actual stakeholder participation in producing an effectively shared rationale or overall big picture 'desired state' for a national park. It requires an expression of the various stakeholders' value systems and then builds on the shared values to consider all possible system drivers (STEEP - social, technological, economic, environmental and political). The process enables stakeholders to consider opportunities to strengthen the vital attributes of the park and to counter and constrain threats to these. These opportunities are formulated as the high-level objectives of the park management plan. This ensures that the desired state of the park, its vision and mission, and high-level objectives are co-constructed with stakeholders. This strategic-level guidance obtained through stakeholder consultation is then unpacked into further detail and articulated as sub-objectives, either in-house or with relevant experts.

For more than a decade SANParks has been using the adaptive planning process with stakeholders. This often requires dealing with individual and/or group values, prejudices and sensitivities. Nevertheless, the process provides all participants with a space to express their own views and understand others' views. This ensures mutual understanding and commitment to both the process and the end product, namely the park management plan.

The purpose of the adaptive planning process is to source and incorporate stakeholder input into a more technical planning process. However, this purpose is situated within a broader context of forming and sustaining relationships with the public to secure mutual understanding and ongoing support and legitimacy. The desired state process reported here has therefore been an event in an ongoing, dynamic public engagement process.

5.2.1 Vision and mission

SANParks' corporate vision for all national parks including AFNP, revised in 2022, is as follows:

VISION

"A world class system of sustainable national parks reconnecting and inspiring society."

The mission of a national park defines its fundamental purpose, succinctly describing why it exists and what it hopes to achieve (i.e. the collective dream). The following mission was developed after consultation with stakeholders during a public workshop held on 24 May 2022:

MISSION

"To manage and conserve the biodiversity, geological landscape and cultural heritage as part of the Lower-Gariep region, through collaboration and awareness raising to enable better livelihoods, benefits and enjoyment for all."

5.2.2 SANParks Strategic Plan

The SANParks Strategic Plan is focused on all aspects of management of the organisation from the core areas of the mandate to corporate governance and business operational support management. The Balanced Scorecard (BSC) performance management approach has been followed to ensure consistent, effective and efficient execution of the organisational strategy and performance management regime. The strategic plan sets out the organisation's key strategic objectives necessary for the effective and efficient delivery of the organisation's mandate along the BSC perspectives. Park management must ensure an integrated approach is followed regarding the implementation of the SANParks Strategic Plan and the Management Plan.

5.2.3 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 (Section 10) of this management plan:

The park has high scenic value, and a high potential to generate income, but relatively low biodiversity and cultural heritage value. The diversity of tourism products is low. The components that are currently strong will be maintained, while cultural heritage, environmental education and diversity of tourism products have moderate scope for improvement. There are prospects for moderate surplus income generation. Over the next 20 years it is predicted that the relative biodiversity value of Augrabies will be stable, and risks are low compared to other parks.

5.2.4 Operating principles or values

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

1. Show **leadership** in all we do;
2. Be guided by **environmental ethics** in all we do;
3. Promote **transformation** within, and outside of the organisation;
4. Strive for **scientific** and **service excellence** at all times;
5. Act with **professionalism** at all times;
6. Adopt, and encourage **initiative** and innovation by all;
7. Treat all our stakeholders with equity and **justice**;
8. Exercise **discipline** at all times;
9. Show **respect** to all;
10. Act with **honesty** and **integrity**; and
11. Strive for **transparency** and open **communication** at all times.

In addition to the above, SANParks has also adopted biodiversity values as set out below:

1. 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;
2. We aim at persistent achievement of **biodiversity representivity** and **complementarity** to promote **resilience** and ensure **ecosystem integrity**;
3. We can **intervene in ecosystems responsibly and sustainably**, but we focus management on **complementing natural processes** under a "**minimum interference**" philosophy; and
4. We accept with humility the **mandate of custodianship** of biodiversity **for future generations** while recognising that both natural and social systems change over time.



At the above-mentioned workshop, the participants suggested adding an additional value. SANParks agreed to adopt the following:

1. To acknowledge that protection of the AFNP is vital while accepting accountability towards responsible management of the park;
2. Recognising the inherent uncertainties associated with managing the park, we strive to be adaptable and apply strategic thinking before making decisions with long-term effects;
3. We aim to learn with and from one another and where possible educate and empower one another; and
4. We strive for timely communication with stakeholders.

5.2.5 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. During the workshop, stakeholders were asked to reflect on the current and emerging context that is considered important for the development of the park management plan. All five STEEP categories were considered, namely social, technological, environmental, economic and political. The context is summarised under sections 2.1 to 2.15.

5.2.6 Vital attributes

The vital attributes of the park are the important characteristics and/or properties of the park that describe the key features of the park, or “what makes the park special?”. Vital attributes are in turn informed or strengthened by determinants and offset by constraints and/or threats. This information helps to focus the exact formulation of park objectives, which must strengthen positive determinants and reduce or mitigate threats, so that objectives are appropriate to the uniqueness and special nature of this national park. In this way, the Management Plan is customised in its fullest local extent, without detracting from some of its more generic functions. These are:

1. The presence of a well-known and spectacular waterfall (known as “Aukoerebis”, place of great noise) in a pristine landscape;
2. The Orange River is a key life support system in an arid region;
3. Unique and spectacular landscape and nightscape;
4. Unique arid zone biodiversity;
5. Evidence of long archaeological period and home to a living cultural heritage;
6. Easily accessible park with diverse tourism offering; and
7. “Augrabies, it’s a vibe”.

5.2.7 Determinants and risks to the vital attributes

A major component of 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.

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

1. The presence of a well-known and spectacular waterfall (known as “Aukoerebis”, place of great noise) in a pristine landscape.

Determinants: Geological processes (such as tectonic upliftment, erosion, weathering) Orange River, perennial water source, sufficient water flow, climate, topography

Threats

- | | |
|---|--|
| <ul style="list-style-type: none"> • Pollution (rubbish and wastewater) • Earthquakes / tremors • Inappropriate development (e.g. mining, renewable energy, increased agricultural practises) • Invasive alien plants | <ul style="list-style-type: none"> • Climate change (e.g. fluctuating water level) • Inappropriate catchment management (e.g. water abstraction) • Impoundments on the Orange River (e.g. dams and weirs) |
|---|--|

2. The Orange River is a key life support system in an arid region.

Determinants: Perennial water flow, river size, hydrology, catchment area, geology, catchment management, climate, strong regional co-operation

Threats

- | | |
|---|--|
| <ul style="list-style-type: none"> • Climate change • Inappropriate catchment management (e.g. agricultural practises) • Impoundment on the river (e.g. dams and weirs) • Inappropriate development (hydro power schemes) | <ul style="list-style-type: none"> • Water pollution • Increased water abstraction (including illegal) • Invasive alien plants • Changing land-use (e.g. mining, unsustainable agricultural practises, unsustainable urbanisation) |
|---|--|

3. Unique and spectacular landscape and nightscape.

Determinants: Geomorphology, diverse geology, sunsets, Nama-Karoo vegetation, Orange River, vast open spaces, minimal infrastructure, arid environment, low light pollution, clear night skies

Threats

- | | |
|---|--|
| <ul style="list-style-type: none"> • Light pollution • Inappropriate development (e.g. green energy) • Climate change (extreme events) | <ul style="list-style-type: none"> • Changing land-use (mining and illegal mining, agricultural practises) • Litter • Inappropriate visitor behaviour |
|---|--|

4. Unique arid zone biodiversity.

Determinants: Iconic species (e.g. quiver tree), climate, habitats, soil types, Orange River, topography, riparian vegetation, ecological processes

Threats

- | | |
|--|---|
| <ul style="list-style-type: none"> • Poaching (in particular reptiles) • Invasive and alien species • Ecological imbalances (e.g. predator imbalances, over-grazing) • Lag-time in wildlife management decisions • Illegal mining | <ul style="list-style-type: none"> • Climate change • Habitat degradation and loss • Desertification including dust pollution • Pollution • Relatively small park in the arid context affecting ecological viability |
|--|---|



5. Evidence of long archaeological period and home to a living cultural heritage.

Determinants: Stone age tools, grave sites, local cultures (e.g. languages and dialects, food, clothing, decorations, traditional dances, rituals, ceremonies), cultural evolution, tolerance, respect, oral history

Threats

- | | |
|--|--|
| <ul style="list-style-type: none"> • Loss of indigenous knowledge • Vandalism of cultural sites • Lack of management intervention | <ul style="list-style-type: none"> • Unauthorised removal of stone age tools • Inappropriate development • Disappearing Nama language |
|--|--|

6. Easily accessible park with diverse tourism offering.

Determinants: Location in the landscape, good national and regional road network, associated tourism products, activities and infrastructure

Threats

- | | |
|---|---|
| <ul style="list-style-type: none"> • Deteriorating provincial road network • Shrinking budget for maintenance | <ul style="list-style-type: none"> • Low Orange River water flow |
|---|---|

7. “Augrabies, it’s a vibe”.

Determinants: Unique experience, friendly and helpful staff, large open spaces, clear skies, striking sunsets, safe environment, climate, remoteness, low population density

Threats

- | | |
|---|---|
| <ul style="list-style-type: none"> • Climate change • Pollution • Inappropriate development • Over-crowding | <ul style="list-style-type: none"> • Crime • Rapid land-use changes in the surrounding landscape • Black flies |
|---|---|

5.2.8 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 flow naturally from the vital attributes. The desired state is achieved by means of a hierarchy of objectives (Figure 11), starting with an overall objective aligned with SANParks’ organisational structure and the park’s vision and mission statements, to 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:

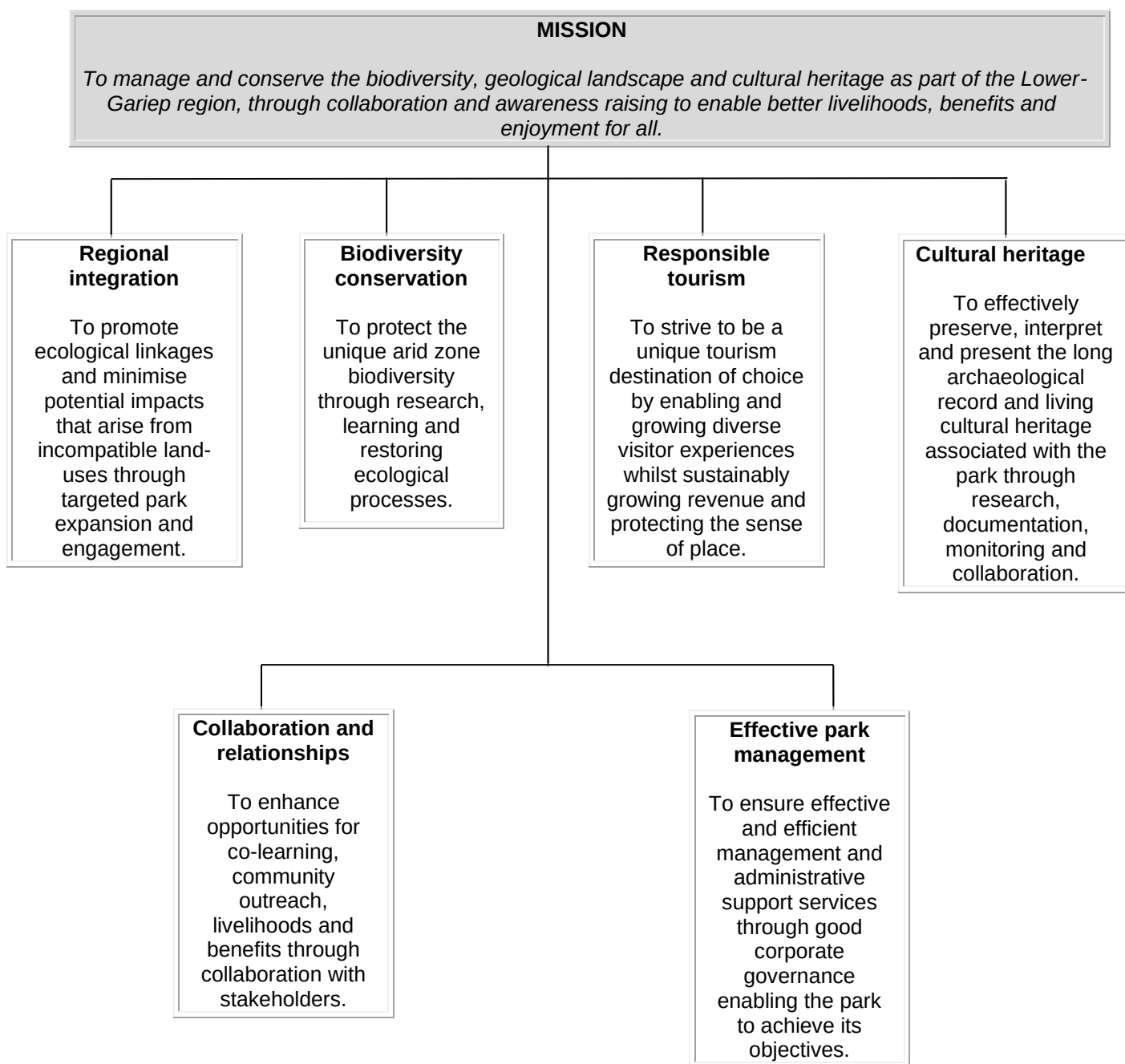


Figure 11. Park high-level objectives.

5.2.9 Unpacking the high-level objectives

The following unpacks the high-level objectives through a series of "objectives" of increasing focus. These are set out in Figures 12 – 18 below.



1. Regional integration high-level objective: To promote ecological linkages and minimise potential impacts that arise from incompatible land-uses through engagement and targeted park expansion.

1.1 Park consolidation and expansion objective: To consolidate and expand the park by incorporating and supporting conservation-worthy and strategically important properties.

1.2 Regional integration objective: To integrate biodiversity into local and other planning frameworks and respond to land-use development proposals through active engagement with governmental and non-governmental partners.

Figure 12. Regional integration high-level objective and supporting objectives.

2. Biodiversity conservation high-level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes.

2.1 Degradation and restoration objective: To restore functionality of natural systems by identifying, prioritising, monitoring and effective rehabilitation of degraded areas.

2.2 Invasive and alien species objective: To reduce the impact of invasive and alien species through the prevention, control and where possible eradication thereof.

2.3 Fresh water ecosystems objective: To promote sustainable water-use practices through collaborative participation, research, monitoring and effective management.

2.4 Habitat management objective: To maintain functionality and diversity of vegetation and habitats through research, monitoring and timeous intervention.

2.5 Species of special concern objective: To understand and maintain viable populations of species of special concern by research, monitoring, and adaptive management.

Figure 13. Biodiversity conservation high-level objective and supporting objectives.

3. Responsible tourism high-level objective: To become a unique nature-based and cultural tourism destination of choice by enabling and growing diverse visitor experiences whilst sustainably growing revenue and protecting the sense of place.

3.1 Responsible Tourism performance objective: To establish, maintain and continuously improve the park's Responsible Tourism performance, by implementing SANS1162.

3.2 Visitor experiences objective: To continually enhance the authentic visitor experience within the park, through effective visitor management, interpretation and quality of facilities offered.

3.3 Service excellence objective: To enable relevant customer-focused service excellence, by understanding and responding appropriately to market expectations and or preferences.

3.4 Grow tourism revenue objective: To sustainably grow income through tourism by providing visitors with an appropriate and a diverse range of products and services, whilst protecting the tranquillity and sense of place.

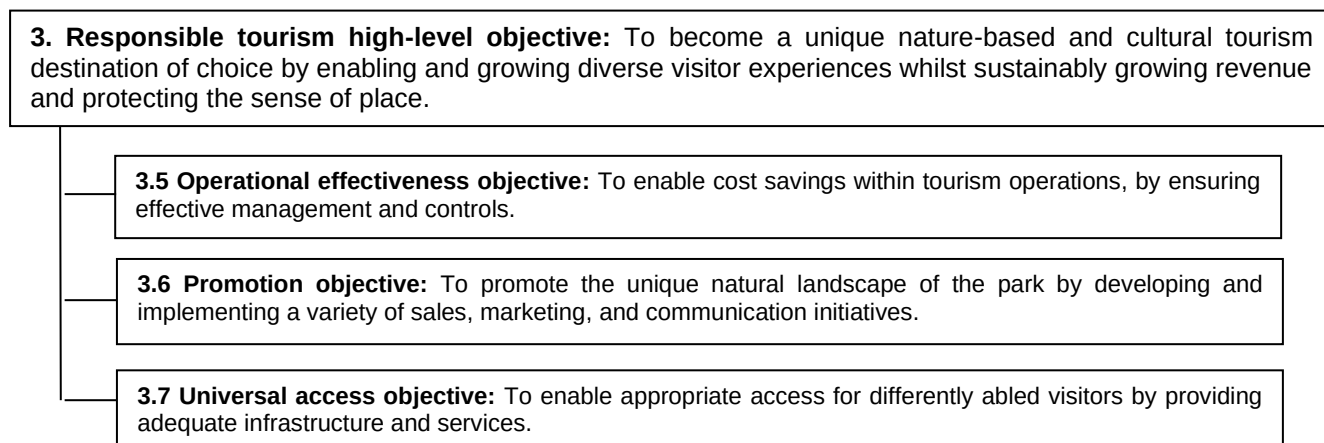


Figure 14. Responsible tourism high-level objective and supporting objectives.

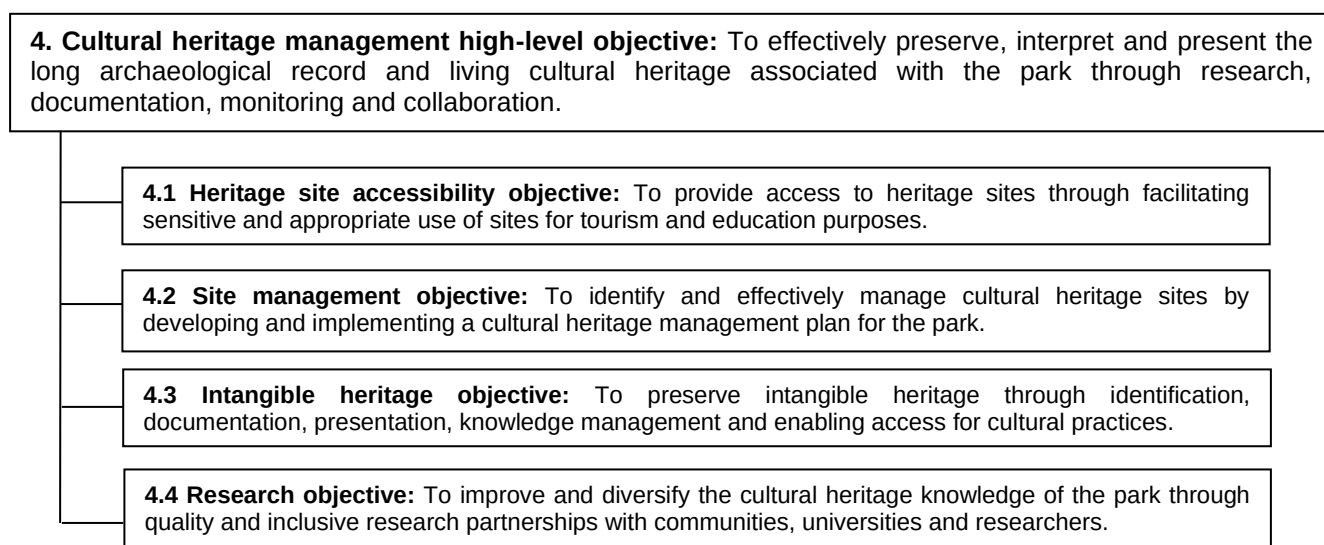


Figure 15. Cultural heritage management high-level objective and supporting objectives.

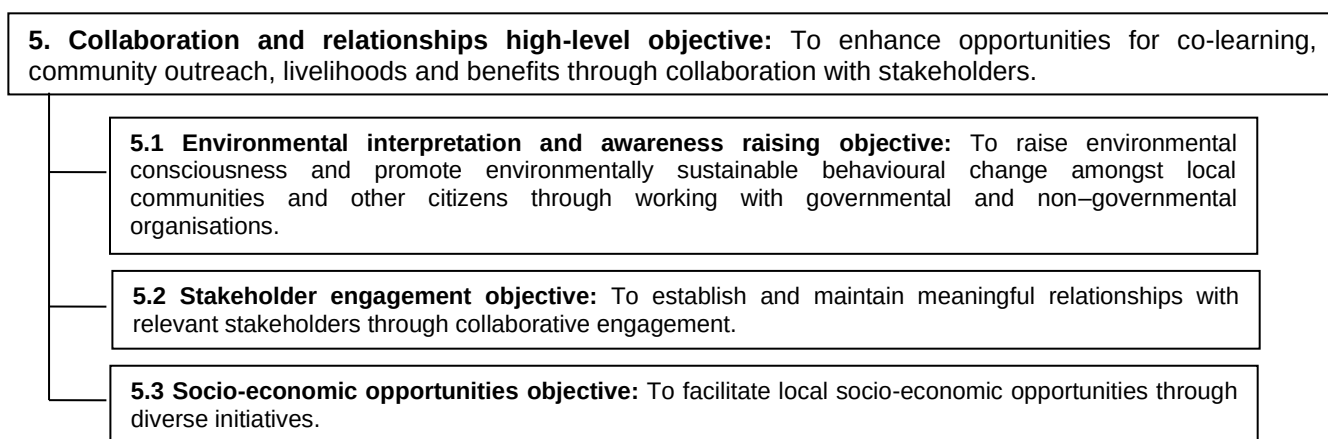


Figure 16. Collaboration and relationships high-level objective and supporting objectives.



6. Effective park management high-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives.

6.1 Environmental management objective: To strive for best practise and ensure compliance with environmental legislation through improved governance and environmental risk management.

6.2 Risk management objective: To establish and maintain effective, efficient and transparent risk management systems by creating an enabling environment for the management of risk.

6.3 Financial management and administration objective: To ensure sound financial management and administration through proficient budget management, effective internal controls and compliance to corporate governance prescripts.

6.4 Human capital management objective: To ensure sufficient and effective staff capacity to achieve management objectives by adhering to legislation, corporate human capital management policies and guidelines.

6.5 Information and records management objective: To achieve best practice in the field of information and records management by complying to the Records Management Legislative Framework and policies and thereby ensuring care of all vital records in SANParks.

6.6 Infrastructure objective: To maintain, upgrade and develop new park infrastructure through proper planning and efficient management.

6.7 Safety and security objective: To provide a safe and secure environment for both visitors and employees and to ensure the protection and integrity of natural, cultural and physical assets and resources, by implementing a Park Safety and Security Plan.

6.8 Safety, health, environment and quality objective: To continuously reduce the disabling injury frequency rate through the implementation of an efficient and effective Occupational Health and Safety management system.

6.9 Communication objective: To build, maintain and constantly improve relations of the park by engaging and sharing information with internal and external stakeholders.

6.10 Disaster management objective: To ensure that all disaster situations that may occur in the park are addressed and managed through pre-determined contingency plans and pre-planned actions.

6.11 Climate change objective: To adapt and mitigate negative impacts of climate change through monitoring, research and implementing the SANParks climate change preparedness strategy.

6.12 Outcomes objective: To evaluate outcomes of management interventions related to protected area management through regular assessment.

Figure 17. Effective park management high-level objective and supporting objectives.

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Section 6: Zoning

6.1 Introduction

The primary objective of a park zonation 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 potential conflict resulting from 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 park 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 the park objectives. This was undertaken in an iterative and consultative process. This section – which is guided by the 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 5 and summarised in Table 2 below.

6.2 Synopsis of updates to the 2013 zonation

The overall pattern of use zones in the 2013 Management Plan has been retained. However, some changes have been made:

- The remote zone has been expanded based on additional and updated sensitivity information used in the 2022 analysis. To the west of the park the remote zone in the Daberas region was extended and expanded to the full extent along the Orange River;
- The remote zone was extended from Twin Falls region beyond Main Falls, and along the river toward the park boundary; and
- The Low Intensity Leisure zone (LIL) has decreased around the Main Falls area and the Daberas region, to accommodate additional remote zonation. Additional LIL was added around the Melkbosrand area, where there was lower sensitivity to accommodate future activities if needed.

The buffer zone of the park has been significantly updated:

- The buffer zone has been aligned with the significantly changed park expansion footprint;
- Buffer zone categories have been aligned with provincial biodiversity plan (Holness & Oosthuysen, 2016). Buffer zone categories have also been aligned with those of the provincial plan;
- The buffer zone has been aligned with additional freshwater spatial data, particularly National Freshwater Ecosystems Priority Areas project (Nel *et al.*, 2011a, 2011b);
- The zone has been adjusted to align with the Lower Gariep expansion project, as well as the Renewable Energy Development Zones (Government Gazette no 41445, 2018); and
- The buffer zone has been adjusted to align with several existing designated Protected Areas (Northern Cape Department of Land Reform, Agriculture and Nature Conservation and Environmental Affairs) nature reserves, private nature reserves and local reserves) in the area.

6.3 Guiding principles underpinning the zonation

The principles underpinning the park zonation, as listed below, were informed by the SANParks CDF planning manual (SANParks, 2005b), the Guidelines for Strategic Environmental Assessment in South Africa, Integrated Environmental Management (DEAT, 2004) and the NEM: PAA. Accordingly, the zoning is based on the following:

- It is the foundation of all planning and development within a park, with the aim of ensuring its long-term sustainability;
- It accommodates strategic, flexible and iterative planning procedures;
- It provides a “framework for planning”, and not a “plan for implementation” (i.e. implementation is dealt with through lower-level plans and programmes);
- It is risk-averse and promotes a cautious approach, which considers the limits of current knowledge about the consequences of decisions and actions;
- Zoning recognises that the mandate of SANParks is to conserve biodiversity and heritage resources of national and international significance, in terms of both the NEM: PAA and the National Heritage Resources Act;
- It ensures the integrity of the park’s scenic quality by limiting human intrusions into the landscape;
- Zoning accommodates a wide range of unique opportunities for experiences of solitude and nature-based recreation, limiting conflict with the desired social and environmental states;
- It confines development within the park to areas that are robust enough to tolerate transformation, without detracting from the “sense of place”;
- It rationalises and channels access into the park and internal movement through it;
- It sets limits of acceptable change to minimise the loss of biodiversity and to reduce conflict between different park uses;
- Zoning recognises that park boundaries are not static in time and that there are factors beyond the current or future boundaries that can positively or negatively influence the park; and
- It recognises that the park cannot exist in isolation and that planning needs to ensure that the park is integrated with the surrounding landscapes, as well as the 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, could potentially contradict and compromise this primary function. Use zoning is the primary tool to ensure that visitors could have a wide range of quality experiences without comprising the integrity of the environment.

Furthermore, the expectations and recreational objectives of individuals that visit the park may differ. Some individuals visit the park purely to see the wildlife and natural landscapes. Other individuals wish to experience the intangible attributes such as solitude, remoteness, wildness and serenity (which can be grouped as wilderness qualities), whilst some visitors wish 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 basic 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 and objectives (especially the conservation of the protected area’s natural systems and its biodiversity) can continue in appropriate areas. Use zones serve to ensure that high intensity facilities and activities are placed in areas that are robust enough to tolerate intensive use, as well as to protect more sensitive areas of the park from over-utilisation

6.5 The zoning system

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

- Use zones covering the entire park;
- Special management overlays covering portions of the park (where needed); 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 its biophysical, heritage and scenic resources. This analysis examined the park's biophysical characteristics which include habitat value (in particular the contribution to national conservation objectives) and vegetation vulnerability to physical disturbance; hydrological sensitivity (areas vulnerable to disruption of hydrological processes such as floodplains and wetlands); topographic sensitivity (steep slopes); sensitive plant and animal species habitat, and soil sensitivity (soils that are vulnerable to erosion). In addition, the heritage value and sensitivity of the sites were examined (in terms of archaeological and cultural aspects). The visual sensitivity of the landscape was also surveyed to identify sites where infrastructure development could have a strong aesthetic impact. This analysis was used to inform users of the appropriate use of the different areas of the park, and assisted in defining 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's objectives and undertaken in an iterative and consultative process.

Table 2. Use zones and use zone characteristics for the park.

	Remote	Primitive
General characteristics	Retains an intrinsically wild appearance and character, or capable of being restored to such	Generally, retains wilderness qualities, but with basic self-catering facilities (concession facilities may be more sophisticated). Access is controlled. Provides access to the remote zone and can serve as a buffer
Experiential qualities	Solitude and awe-inspiring natural characteristics	Experience wilderness qualities
Interaction between user groups	None to very low	Low
Types of access	For visitors, only access on foot	Foot; 4x4 vehicles
Types of activities	Hiking in small groups	Hiking; 4x4 drives; wildlife viewing
Types of facilities	Established footpaths where erosion may be a problem. Essentially underdeveloped and roadless	Small, basic, self-catering; or limited concessions with limited numbers (concession facilities may be more sophisticated); 4x4 trails; hiking trails
Limits of acceptable change: Biophysical	The zone should be kept as close to natural state as possible with no impact on biodiversity pattern or processes. Existing impacts on biodiversity either from historical use or originating from outside the zone should be reduced or minimised.	The zone should be kept in an almost completely natural state, and deviation from a natural/pristine state should be small and limited to restricted impact footprints. 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
Limits of acceptable change: Aesthetics and recreational	The area should be kept in a natural state, and 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 not be allowed	The area should be kept in a natural state, and 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
Guidelines for management infrastructure	Ideally, there should be no management infrastructure in this zone	Permanent management infrastructure is permissible in this zone, but should be relatively small and isolated. Park operations staff may need to service tourist facilities in this zone



	Low intensity leisure	High intensity leisure
General characteristics	The underlying characteristic of this zone is motorised self-drive access with basic facilities. The numbers of visitors are higher than in the remote and primitive zones	The main characteristic is that of a high-density tourist development node, with modern amenities, where more concentrated human activities are allowed
Experiential qualities	Comfortable facilities in a relatively natural environment	Comfortable and sophisticated facilities while retaining a natural ambiance
Interaction between user groups	Moderate to high	High
Types of access	Motorised self-drive access	Accessible by motorised transport (car/bus) on high volume transport routes, including delivery vehicles
Types of activities	Motorised self-drive wildlife viewing, picnicking, walking, cycling; rock climbing; hiking; adventure activities	As with LIL. Additional Sophisticated infrastructure. Larger, organised adventure activities (orienteering, fun runs). Dining at restaurants
Types of facilities	Facilities limited to basic picnic sites, ablution facilities, information/education centres, parking areas. Small to medium rest camps with basic facilities (including camping). Low specification access roads to provide a reasonably wild experience	High density tourist camps with modern amenities. Footpaths, transport systems, accommodation, restaurants, curio and refreshment stalls, education centres. High volume roads.
Limits of acceptable change: Biophysical	The zone should be kept in a largely natural state. 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	The zone must retain a level of ecological integrity consistent with a protected area. 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 no activities or infrastructure should be allowed which compromise the overall objectives and purpose for proclamation of the park
Limits of acceptable change: Aesthetics and recreational	The zone should be maintained in a largely natural state from an aesthetics point of view. 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	The area should be managed to provide a relatively natural outdoor experience. 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), the aesthetics of the zone still need to be maintained in a sufficiently natural state to ensure that the overall objectives and purpose for proclamation of the park are not compromised
Guidelines for management infrastructure	Where HIL already exists, attempts must 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. Where it may be preferable to include non-industrial components of management infrastructure on the periphery of the park, these can be accommodated in LIL	As HIL is, by definition, a high use area, and must be in an area of low sensitivity, the development of management and operations infrastructure in this zone is preferable.

The sensitivity map (Appendix 5, Map 6) shows the relationship between the use zoning and the summary of the biodiversity and landscape sensitivity-value analysis. This indicates that in general it was possible to include most of the environmentally sensitive and valuable areas into zones that are strongly orientated towards conservation rather than intensive tourist use. In addition, in numerous cases the boundaries between zones are based on changes in environmental sensitivity. Table 3 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 within each zone. This indicates that 85.4% of the park is covered by zones that are strongly conservation orientated in terms of their objectives (i.e. remote and primitive). The table demonstrates a good correlation between the spatial distribution of environmentally sensitive areas and conservation-orientated zones, with 90.2% of highly sensitive areas in the conservation orientated zones. Conversely, the tourism-orientated zones cover 14.6% of the park while containing 9.8% of sensitive areas.

Table 3. Park percentage area summary covered by each zone, as well as the percentages of the highly environmentally sensitive and valuable areas (defined as areas with values in the top quartile of the sensitivity value-analysis) that are within each zone.

Zone emphasis	Use zone	Zone as a % of park area	% of highly sensitive areas that are in a zone
Conservation orientated	Remote Primitive	16.3 69.1	61.0 29.2
Tourism orientated	Low intensity leisure High intensity leisure	14.3 0.3	4.3 5.5

6.6 Overview of the use zones

6.6.1 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 and which is essentially undeveloped and roadless. There are no permanent improvements or any form of human habitation. The remote zone provides outstanding opportunities for solitude with awe-inspiring natural characteristics. 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 be either accompanied by a guide or unaccompanied. Several groups may be in an area at the same time, but, if necessary, densities and routes must 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 such as an adventure race 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 and where unavoidable, existing impacts must 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.) is not allowed.



Facilities

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

Sophistication of facilities: Except for self-carried portable tents, no other facilities are permitted. Guidelines for washing, ablution and cooking must be defined according to the “Pack it in Pack it out” principles. Camping is allowed only at designated sites.

Audible equipment and communication structures: None.

Access and roads: Public access is non-motorised. Vehicular access and parking are provided in the adjoining zones. Established footpaths may be provided where erosion risks occur. Limited low specification management tracks (i.e. not built-up roads) are acceptable within this zone, though these tracks should be rationalised, and eventually removed.

Location in park

Remote areas occur in four distinct regions of the park, the first and largest stretches from close to the main entrance, toward Main Falls and Twin Falls, along the footprint of the Orange River. Remote areas occur also in the eastern part of the park, in the higher elevation areas to the right of Melkbosrand. There are also remote areas in the central region of the park, where the Gamkaip River feeds into the Orange River and then a remote stretch in the western section of the park along the Orange River.

Guidelines on management infrastructure and utilisation

Ideally, there should be no management infrastructure, and natural processes must be allowed to continue without management intervention. However, in reality, most parks are too small to allow ecological processes (fire, fecundity – particularly of large predators) to continue without management intervention, which would eventually impact biodiversity negatively. Furthermore, in young or expanding parks, farm management infrastructure might still be apparent. For this reason, concessions are made on management infrastructure in this zone, principally to prevent loss of biodiversity or restoration. Infrastructure might include footpaths where erosion might be a problem or identified (barely) traversable management 4x4 routes for fire management or ensuring 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, provided this exercised circumspectly.

6.6.2 Primitive zone

Objective

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 by reducing tourism pressure through controlled 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 group sizes. 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 acts as a buffer between conservation-orientated and tourist-orientated zones, e.g. remote (or wilderness areas) and LIL 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 group sizes. Activities include hiking, 4x4 drives and game viewing. In the park, access control is mostly passive, with 4x4 trails marked as restricted to 4x4 vehicles only, thus limiting visitor numbers on these routes. 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 hiking trail or 4x4 route in more sensitive areas. Several groups may be in the 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 to minimise these interactions.

Limits of acceptable change

Biophysical environment: Deviation from a natural / pristine state must be small and limited to restricted impact footprints. Existing impacts must 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 must 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.) must be restricted and impacts must be limited to the site of the facility. Ideally, visitors must only be aware of the facility or infrastructure that they are utilising, and this infrastructure / facility must be designed to fit in with the environment within which it is located to avoid aesthetic impacts.

Facilities

Type and size: Facilities are small, often basic and are distributed to avoid contact between users. To achieve this, camp development must 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: 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 accesses to facilities are mostly limited to low-spec roads, often 4x4 only. Tourist and game viewing roads are usually suitable for 4x4 vehicles only. Established footpaths are provided to avoid erosion and braiding.

Location in park

Primitive areas were designated to buffer remote areas and to protect most of the remaining sensitive areas from high levels of tourist activity. These areas are located throughout the park.

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 non-improved management tracks, permanent bomas for wildlife, ranger camps and outposts, and possibly even permanent helipads. The responsibility is on park management to co-ordinate the tourist road network usage in such a way that tourists do not encounter management infrastructure in this zone, such as by using of no entry signs. Low volume access gates or entrances to access 4x4 routes could be accommodated in this zone.



6.6.3 Low intensity leisure zone

Objective

The objective of the tourist-orientated zone is to provide infrastructure for day and overnight visitors in a natural environment. While game viewing areas may be zoned LIL to allow for flexibility of the game viewing road network, in reality, development footprints must be localised, with some areas having more of a primitive or even remote zone “feel.” Impacts must 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 can be accommodated, however, these facilities must be small and aligned to the general ambiance of the zone. Numbers of visitors are higher in the low intensity leisure zone as compared to 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 tarred. Facilities along roads are limited to basic self-catering picnic sites with toilet facilities. Large busses and open safari vehicles may be permitted subject to certain conditions.

Visitor activities and experience

Activities: Self-drive motorised game viewing, guided game drives, picnicking, walking, cycling, rock climbing, hiking and adventure activities.

Interaction with other users: Moderate to high.

Limits of acceptable change

Biophysical environment: Deviation from a natural / pristine state must 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 the activities and facilities will impact on wild appearance and reduce wilderness characteristics of the area (solitude, remoteness, wildness, etc.), these activities and facilities must 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 camps (including camping and caravanning) of low to medium density (up to 50 beds). Additional facilities can include swimming pools. Trails for 4x4 vehicles can also be provided. Small or seasonal commercial facilities can be provided, such as kiosks, small tourist convenience stores, or tea gardens (facilities are only open as required or during peak season). However, these facilities must still fall within the general ambiance of the zone and as such may make use of converted or restored farmhouses. Larger commercial facilities and larger concessional operators (e.g. Cattle Barons and Mug & Bean), must 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. Camp sites mostly include ablution and kitchen facilities. Tourist facilities may include modern commercial facilities such as shops, kiosks, tea gardens and small tourist convenience stores, provided 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 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 areas were designated to ribbons along current and planned access routes including viewpoints. In AFNP, the LIL stretches, in a narrow band, from just outside Main Falls, all the way to “Af en Toe” picnic site.

Guidelines on management infrastructure and utilisation

The placement of permanent management infrastructure is encouraged in this zone, particularly when it is the highest-level use zone within the park. Where HIL already exists, attempts must 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. Where it may be preferable to include non-industrial components of management infrastructure on the periphery of the park, these can be accommodated in LIL. Examples may include moderate to high volume access or main entrance gates, park reception, or park management / administration offices (which should be close to park reception facilities). This will allow management and operations to make use of high-volume access routes, which will be built to accommodate high traffic volume, and if positioned close to the boundary of the park, will involve shorter commuting distances, limiting disturbance to both wildlife and tourists, and limiting wear and tear to roads.

6.6.4 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 within 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 must be placed in areas that have low sensitivity values and are sufficiently robust to tolerate development, and ideally be close to the periphery of the park. Staff not directly associated with tourism facilities should be accommodated outside of the park where possible. When inside a park, all industrial type facilities such as laundries, abattoirs, maintenance depots and workshops, must be ideally located nearby to the park boundary or, if and where possible, outside of the park but 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 LIL areas.

Visitor activities and experience

Activities: Traditional game viewing routes associated with more sophisticated infrastructure, sightseeing at tourist destinations, picnicking, walking, cycling, rock climbing, hiking and 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 retains a level of ecological integrity consistent with a protected area.

Aesthetics and recreational environment: Although it is inevitable that high visitor numbers, activities and facilities will impact on wild appearance and reduce wilderness characteristics of the area (solitude, remoteness, wildness, etc.), these must 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, such as restaurants, shops, education / information centres, view sights, ablution facilities, parking areas and botanical gardens. 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 must be made to concentrate these sites close to the periphery of the park. Staff villages and administrative centres must be restricted to core staff. Non-essential staff housing, administration and industrial infrastructure must, where possible, be positioned outside of or close to the periphery of the park.

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

High intensity leisure area stretches from the Twin Falls, through to Main Falls and continues to the entrance of the park.

Guidelines on management infrastructure and utilisation

Management guidelines that apply to LIL apply to HIL zone 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 must be in an area of low sensitivity, the development of management and operations infrastructure in this zone must be favoured. In the park, most operations and administration infrastructure are situated in existing and well-established HIL tourist nodes at the rest camps.

6.7 Overview of the special management overlays

Special management overlays which designate specific areas of a park that require special management interventions. One special conservation overlay was identified as being important for

additional management intervention, namely the *Ziziphus mucronata* woodland overlay, indicated in Appendix 5, map 4.

6.8 The park buffer zone

The buffer zone shows areas outside the park within which land-use changes can affect the park. The buffer zone in combination with guidelines will serve as a basis for: (i) identifying focus areas in which park management and scientists must respond to Environmental Impacts Assessments (EIAs), (ii) helping to identify types of impacts that will be important at a particular site, and most importantly (iii) integrating long-term protection of the park into the SDFs of municipalities and other local authorities. Park management will interact with all spheres of government, whether local, provincial, or national, as required, to achieve a positive conservation outcome in the buffer zone. In terms of EIA responses, the buffer zone serves largely to raise red flags and does not remove the need for carefully considering the exact impact of a proposed development. It does not address activities with broad regional aesthetic or biodiversity impacts e.g. renewable energy development projects. The buffer zones are aligned with the most applicable fine-scale systematic conservation plans in the area. In the park's case, these are the Critical Biodiversity Areas (CBAs) from the Northern Cape (Holness & Oosthuysen, 2016). From an aquatic perspective, the buffer zone is aligned with freshwater priority catchments, rivers and wetlands from the National Freshwater Ecosystem Priority Areas project (Nel *et al.*, 2011a, 2011b).

There are three main categories within the park buffer zone, namely priority natural areas (consisting of other protected areas, critical biodiversity areas and ecological support areas), water resource protection areas, and view shed protection areas (Appendix 5, Map 7).

6.8.1 Priority natural areas

This zone 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 park's survival in a living landscape.

Priority natural areas 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.

The priority natural areas are designed to align with the best available fine-scale systematic conservation plan(s) for the area. For the park this is the CBA map for the Northern Cape (Holness & Oosthuysen, 2016). This plan identifies areas which must be kept intact (critical biodiversity areas) and areas which need to be kept at least functional (ecological support areas). The principal objective of critical biodiversity areas and ecological support areas is to guide decision-making about the best location for development, informing land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity.

Priority natural areas consist of three categories:

- *Other protected areas.* Protected Areas managed by other agencies (e.g. the Northern Cape Department: Agriculture, Environmental Affairs, Rural Development and Land Reform) or by private landowners are included in this category. These areas contribute to meeting biodiversity targets for ecosystems, species and ecological processes, and for the purposes of buffer interventions should be treated as CBAs. Although these areas should be controlled by their own NEM: PAA management plans, developments may impact on the park and park management should subsequently work with the respective managers of these areas to ensure alignment;
- *Critical biodiversity areas* from the Northern Cape CBA map (Holness & Oosthuysen, 2016). Critical biodiversity areas are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan. Within the buffer zone, these areas are additionally important for park expansion or for supporting biodiversity within the park and park landscape; and
- *Ecological support areas* from the Northern Cape CBA map (Holness & Oosthuysen, 2016). Ecological support areas play a key role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services. Within the buffer zone, these areas



are additionally important for park expansion and for supporting biodiversity within the park and park 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, intensification of land-use through golf estates, etc.) must be opposed within this area. Developments with site-specific impacts (e.g. a lodge on a game farm) must be favourably viewed if they contribute to ensuring conservation friendly land-use within a broader area. Additional specific water-use guidelines applicable for the water resource protection areas will also apply to these areas.

Response to development should be aligned with the guidelines for the spatial category in the appropriate conservation plan i.e. Northern Cape CBA map (Holness & Oosthuysen, 2016). Park management should ideally coordinate responses to development in consultation with the appropriate provincial authorities to ensure consistency in response to developments from different agencies.

Biodiversity offsets: These areas should be considered as offset receiving areas where possible, especially in identified park expansion areas.

6.8.2 Water resource protection areas

These are areas important for maintaining key hydrological processes (surface and groundwater) within and around the park.

These areas consist of:

- Freshwater priority catchments, rivers and wetlands from the National Freshwater Ecosystem Priority Areas project (Nel *et al.*, 2011a, 2011b) are largely located in the park and around the Orange River and its tributaries as well as in the Bushmanland Inselberg section of the expansion footprint;
- Strategic water source areas are the priority areas for freshwater provision in the country (LeMaitre *et al.*, 2018). SWSAs in the proximity of the park are included;
- Other areas of the designated SMA; and
- Other areas adjacent to the park where impacts on hydrological processes and water quality could impact on the park.

Development guidelines: Within these areas, inappropriate development types such as dam construction, loss of riparian vegetation and excessive aquifer exploitation must be opposed. In addition, the control of alien vegetation, control of soil erosion, and appropriate land care (e.g. appropriate stocking rates) must be promoted.

6.8.3 View shed protection

These are areas where developments can impact on the aesthetic quality of a visitor's experience in a park. This zone is particularly concerned with visual impacts (both day and night) but can also include sound pollution.

Development guidelines: Within these areas, any development proposals must be carefully screened to ensure that they do not impact excessively on the aesthetics of the park. The areas identified are only broadly indicative of sensitive areas, as at a fine scale, many areas within this zone will be perfectly suited for development. Further, invasive developments outside this zone will also have to be considered.

6.9 Future improvements

6.9.1 General

Special management overlays which designate specific areas of a park that require special management interventions (e.g. areas requiring rehabilitation) may need to be identified.



Section 7: Access and facilities

7.1 Public access and control

Visitors driving from Upington or Springbok can travel via the N14, then follow the R359 to the park. The Upington airport is the nearest airport to the park that accommodates scheduled flights and has car-hiring facilities.

There is only one public access point to the park, which operates from 05:00 to 22:00. Visitors need to present their entrance permits at reception after arrival and require an exit permit to leave the park.

Temporary entry permits valid only for 30 minutes will be issued to persons wanting to visit the fuel station or shop.

Anybody wishing to make use of the restaurant after hours is allowed free entry from 18:00. They need to book in advance.

Park management may from time-to-time close roads leading into the game viewing area for certain types of vehicles, depending on road conditions. Motorbikes are allowed on the entrance road only.

7.2 Areas with restricted access

The management tracks within the park are for management purposes only and access from outside the park is restricted by locked gates.

The following areas are restricted:

- Access to the Klipspringer Hiking Trail and overnight huts by regular visitors is prohibited to safeguard the quality of experience of hikers who booked the trail;
- Tourist roads that require maintenance may be closed temporarily to sedan and non 4x4 vehicles.

The road, OP124, and the road previously known as AP3275 in the western section of the park will be temporarily made available to the Blouputs farming community during times of flooding of the Orange River to ensure that the farmers have access to, among others, the town of Augrabies.

7.3 Airfields and flight corridors

There is an unregistered paved helipad (S28°35.707' E 020°20.392') close to the technical workshops for use by SANParks aircraft only. No need has been identified to establish flight corridors through the park's airspace as allowed for in section 47 of NEM: PAA.

7.4 Administration and other facilities

The facilities listed in Table 4 below are utilised for operational purposes enabling the park to fulfil its legal mandate. Map 8 in Appendix 5 shows all the infrastructure in the park.

Table 4. Current administrative infrastructure in the park.

Infrastructure	Current status	Zone
Administrative office building	Operational	HIL
Boundary fence of ±214 km		Various

Infrastructure	Current status	Zone
Domestic waste treatment area	Operational	HIL
Entrance gate		HIL
Management road network of ±200 km		Various
Masakhane hall complex		HIL
Reed bed sewage treatment plant		HIL
Staff housing at Augrabies rest camp		HIL
Staff housing at Blouputs		Primitive
Storeroom		HIL
Water purification plant		HIL
Workshop		HIL

7.5 Visitor facilities

Visitor facilities, including all non-commercial facilities and points of interest available to visitors, are set out in Table 5 below.

Table 5. Visitor facilities and points of interest in the park.

Infrastructure / visitor sites	Current status	Zone
Boardwalks giving access to viewing decks at the waterfall	Operational	HIL
Conference centre for up to 70 participants		HIL
Dassie trail 7 km		Various
Fuel station		HIL
Klipspringer trail 40 km (three days and two nights)		Various
Laundry facility		HIL
Picnic site in the rest camp, with a swimming pool, braai and ablution facilities		HIL
Remote picnic site with braai and ablution facilities in the game area		LIL
Restaurant		HIL
Retail facility		HIL
Tourism road network of ±90 km		Various
View sites at Ararat, Echo corner, Moonrock, Oranjekom and Swartrante		LIL

7.6 Commercial activities

For the purposes of this management plan, commercial activities include all income-generating facilities, products and services offered.

7.6.1 Accommodation

Accommodation facilities in the park are currently limited. Existing facilities include those listed in Table 6, below.

Table 6. Accommodation facilities available in the park.

Infrastructure	No of units	Current status	Zone
Chalet	50	Self-catering - serviced - economy accommodation	HIL
Cottage	9	Self-catering - serviced - economy accommodation	HIL
Gorge cottage	1	Self-catering - serviced - economy accommodation	LIL
Camping	50	Self-catering - budget accommodation	HIL



7.6.2 Public private partnerships

The Augrabies Falls Shop & Restaurant is currently (2024) the only public private partnership (PPP) in the park.

7.6.3 Retail and other facilities

There is currently (2024) a retail facility located next to the reception area.

7.6.4 Activities

There are various income and non-income generating activities available in the park, and these are listed below:

Income generating activities:

- Catch & release fishing - unguided;
- Kalahari Augrabies Extreme Marathon – annually in October / November;
- Klipspringer challenge – annually in April / May;
- Klipspringer hiking trail (3 days) ±42 km April - October;
- Trans Augrabies MTB stage race – annually in June.

Non-income generating activities:

- Augrabies 4x4 trail 30 km – unguided;
- Dassie Trail – 5 km – unguided;
- Gorge Trail – 2 km – unguided;
- Mountain bike cycle routes on existing tourist roads – unguided; and
- Self-drive game viewing in own vehicle.

7.7 Cultural heritage sites

Currently (2024) there are no cultural heritage sites accessible to visitors.

7.8 Community use

Community members access the park to experience their natural and cultural heritage and to gain more knowledge regarding the park ecology and the broader environment.

7.9 Mining

No commercial mining takes place in the park. No mining rights / permits have been issued on park property.

7.10 Servitudes

Servitudes allow landowners or representatives of organisations access to the park to perform certain duties. Table 7 provides a list of servitudes that have been registered against properties.

Table 7. Servitudes in the park.

Property description	Servitude diagram number	Type
Remaining extent of the Farm Rooipad No 15	F2314C/1936	Aqueduct
	3968/1995	Area
Remaining extent of the Farm Blouputs No 10	F9569/1996	Electric power line
	11705/1965	Roads
Portion 2 of the Farm Zeekoe-Steek No 9	1256/1991	Area
Remaining extent of Portion 2 of Farm Nelshoop No 12	1337/2001	Electric power line
Portion 1 of the Farm Rooipad No 15	11705/1965	Road
Portion 23, a portion of Portion 9, of the Farm Rooipad No 15	290/2003	Road
Portion 2 of the Farm Daberas No 8	8196/1949	Well
Remaining extent of the Farm Daberas No 8	8196/1949	Well



Section 8: Expansion / Consolidation

The expansion and consolidation of the park remains a strategic priority for SANParks, given its recognised biodiversity, landscape interface and regional socio-economic importance. In general, expansion and consolidation strengthen the ecological integrity, incorporate a more representative and resilient suite of areas that support biodiversity conservation (especially threatened species and ecosystems) that can contribute to national biodiversity targets and the protection of fresh water and marine environments (particularly Strategic Water Source Areas - SWSA), as well as support resilience to the effect of climate change.

Park expansion plans address objective SO1.1 of South Africa's National Biodiversity Strategy and Action Plan 2015 – 2025. This outcome seeks to secure a representative sample of ecosystems and species (biodiversity assets) in a network of protected areas and conservation areas that may be managed by government, private or communal landowners (Appendix 5, Map 4). Expansion also plays a key part in South Africa's contribution to meeting the "30x30" Target 3 of the of the United Nations Convention on Biological Diversity Kunming-Montreal Global Biodiversity Framework adopted in December 2022. This ambitious target calls for 30% of the earth's land and sea to be conserved by 2030 through the establishment of protected areas and other effective area-based conservation measures. The target aims to secure a representative 30 % of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services and ensure that these are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures that are integrated into wider landscapes.

The objective is to create a park that represents under-protected ecosystems, climate change linkage priorities and important catchments and wetlands of the Lower Orange River system. Expansion of the park to its 952,631 ha desired state, from the existing 52,954 ha, would see an addition of eight under-protected vegetation types that are not currently represented in the park. The expansion will also improve diversity at a biome level, with Succulent Karoo and desert areas being included. Twelve of the 13 ecosystem types in the expansion footprint are under-represented in the current protected area network, with nine in the category Not Protected and three in the Poorly Protected category. Additionally, expansion would secure nationally identified Freshwater Ecosystem Priority Area rivers, wetlands and catchments, associated with the Lower Orange River system (Nel *et al.*, 2011a), especially in the western expansion. A consolidated park would be better able to adapt to expected climate change impacts. As such, the expansion of the park remains important for SANParks in its attempt to consolidate a mosaic of Nama-Karoo, desert, alluvial vegetation and Succulent Karoo vegetation types that fall within the Gariep Centre of Endemism.

The desired state for the park would include the consolidation of priority biodiversity areas in the buffer zone. It is envisaged to:

- Conserve a representative sample of the large-scale ecological patterns and processes (river/land interface, perennial and ephemeral river processes, granite expanses, herbivory and others) associated with the Lower Orange River and its adjacent hinterland;
- Diversifying the tourism experience beyond the iconic Augrabies Falls, as an integral part of a broader ecological, geological and cultural landscape;
- Establish an economically sustainable park, with diverse, year-round ecotourism attractions;
- Use a diversity of inclusion methods (particularly contractual inclusions, donations and willing-buyer-willing-seller) to expand the park while diversifying opportunities for economic development of the park's ecological assets; and
- Develop a park that is socially sustainable.

The park is located in the eastern fringe of the Gariep Centre of Endemism, a region with the richest variety of succulents on earth (Van Wyk & Smith, 2001). The park is important for achieving protected area expansion targets and the conservation of under-represented ecosystems that characterise the area. Importantly, the revised park expansion footprint is a priority focus area identified in the National Protected Area Expansion Strategy (Department of Environmental Affairs, 2016). It includes all or part of three Key Biodiversity Areas (KBAs), and will contribute to the conservation of the globally recognised Gariep Centre of Endemism. It is particularly important in terms of rare and threatened plants of the Succulent Karoo. The significantly extended Protected Area expansion mosaic totals 952,631 ha, which includes the current park and the Gamsberg Nature Reserve (21,824 ha). The expansion footprint strongly focusses on the opportunities for securing CBAs adjacent to the park, in the new Bushmanland Inselberg Node and adjoining areas, thus linking with the park. The expansion area is focussed on, and consists almost entirely of CBAs. There are additional ecological support areas which are crucial for maintaining CBAs. The expansion into the Bushmanland Inselbergs region fundamentally changes the biodiversity value of the park and ensures that it will persist despite climate change. It is situated in the Northern Cape where it supports a complex of four biomes, including Nama-Karoo, desert, alluvial vegetation and Succulent Karoo. Although the National Biodiversity Assessment (2018) showed that the ecosystem types in the area are not threatened, all but one are under-protected (Skowno *et al.*, 2019). In addition to the importance of improving ecosystem protection levels in this region, priority freshwater ecosystems and associated catchments of the Lower Orange River system are also captured in the expansion area. The landscape includes relatively unfragmented CBAs and supports many threatened and range-restricted endemic species, particularly plants of the Succulent Karoo Biome. This has resulted in the area incorporating all or part of three newly designated KBAs and being a recognised priority for the conservation of the Succulent Karoo.

Climate change is a critical issue for park expansion. The key issues that need to be addressed are corridors / linkages and their importance for allowing species, ecosystems and ecological processes to operate at sufficiently large scales under different climate change scenarios. The current expansion footprint was examined in the context of critical climate change linkages between the core park and the surrounding landscape. Supporting resilience to climate change, and its increasing threat to biodiversity, is a key criterion that has been incorporated through larger scale regional landscape linkages, which will ensure that the park is large enough to function ecologically in this extensive arid landscape. The expansion includes more extensive landscapes to the west to encompass priority areas identified in the Spatial Planning for Protected Areas in Response to Climate Change Conservation Biodiversity project (Roehrdanz *et al.*, 2019; SPARC, 2019a).

The expansion programme is in full congruence with SANParks accepted biodiversity values (SANParks, 2006) and follows the SANParks Land Inclusion Policy (2017a). The ecological aspects of the park's vision see the park as an integral part of a wider functional land-use mosaic which delivers sustainable ecosystem services (emphasis on water), to maintain the natural and cultural heritage of the park for the benefit of all, especially local communities. Important heritage sites have been identified and integrated to ensure the conservation of this region's cultural resources.

The expansion of the park is anticipated to be almost entirely through contractual inclusion mechanisms, though limited land purchases (focused on consolidation areas) may take place. Land purchase capital costs are therefore not included. However, if funding can be secured, significant land purchases could be made to support range expansion for threatened species. Whether or not land purchase funds are made available, stewardship is nevertheless likely to be a key mechanism for expansion in the western areas. The programme is likely to be undertaken primarily in partnership with NGOs and willing landowners.

The approach that the park will follow can be found in section 10.2.1 on page 67.



Section 9: Concept development plan

9.1 Long term development plan

The current development plan focuses on ways to attract additional visitors to the park. Currently the park attracts visitors mainly to the waterfall. Usually, tourism numbers increase exponentially when the Orange River flow increases. However, the park has much more to offer. The unique landscape and geology, large open spaces, clear and dark skies, striking sunsets, safe environment and arid climate are major attributes to increase visitor numbers.

Development is not considered lightly and is only embarked on to fulfil a real operational need or tourism opportunity. The park is potentially financially sustainable, and has the potential to improve its occupancy and to offer additional tourism enhancement products to visitors in future.

From a RT perspective, green building methods, energy efficiency technology and water savings measures will be implemented over time and monitored in both existing and new infrastructure.

Caution will be exercised when considering any development. All development must be conducted in a responsible and sustainable manner, be aligned to the zonation plan of the park and is dependent on the availability of funds.

9.2 Development nodes

The rest camp / administration complex area is the only development node at this stage.

9.3 Communication routes

Certain communication networks such as data, mobile networks and free Wi-Fi need to be improved.

9.4 Service supply routes

The main service route to the park is via the N14 national tar road and R359 regional tar road.

9.5 Infrastructure development proposals

All infrastructure development proposals, including activity development, are presented in Tables 8 - 12 below.

9.5.1 Administration and other facilities

No new administration facilities are required.

9.5.2 Visitor facilities

Visitor facilities include all non-commercial and semi-commercial facilities and points of interest available to visitors are set out in Table 8 below.

Table 8. Proposed visitor facility development in the park

Infrastructure	Status	Zone	Priority	Probability
Conversion of BMW conference centre into an interpretation centre	Existing	HIL	High	High
Suspension bridge over the gorge	New	HIL	High	High

9.5.3 Commercial facilities and activities

There are a number of commercial activities and/or products that could be developed in the park to improve the tourism experience. All proposed opportunities will be individually investigated, and the priority determined based on feasibility and income potential. There may be opportunities for 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 present an opportunity, products may be considered based on the agreed terms and locations, as per the park product development framework (Appendix 3).

9.5.3.1 Accommodation

The new accommodation infrastructure that is envisaged for the park is set out in Table 9 below.

Table 9. Proposed accommodation development in the park.

Infrastructure	Status	Zone	Priority	Probability
Upgrading of 28 chalets	Existing	HIL	High	High

9.5.3.2 Public private partnerships

There is currently one PPP in operation in the park. A contract has been awarded for the operation of the restaurant and retail facility.

9.5.3.3 Retail and other facilities

The AFNP restaurant and shop is currently the only retail and restaurant facility in operation in the park.

9.5.3.4 Activities

Leisure activities provide 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 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, to ensure that 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. Additional activities have been identified in Table 10 below for possible development.

Table 10. Proposed activity development in the park.

Activities	Status	Zone	Priority	Probability
Ecotourism adventures (i.e. zip line, abseiling, via ferrata)	New	Various	Medium	Medium

9.5.4 Cultural heritage sites

There is a need to enhance the interpretation of the cultural heritage sites in the park. Additional sites have been identified in Table 11 below for possible interpretation.

Table 11 Proposed cultural heritage product development in the park.

Sites	Status	Zone	Priority	Probability
Cultural heritage display outside reception	New	HIL	High	Medium



Section 10: Strategic plan

10.1 Introduction

Sections 3, 4 and 5 of this document outline the policy framework, the consultation process and vision, mission and high-level objectives for the park. In this section the high-level objectives of the park are unpacked into objectives and sub-objectives and finally into operational actions. In this way, decision-making, even at the operational level, can be linked back with 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 NEM: BA, SANParks policy and ratified international conventions.

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

- Regional integration;
- Biodiversity;
- Responsible Tourism;
- Cultural heritage;
- Engagement, access and benefits; 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 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;
 - **Portfolio of evidence (PoE):** Proof whereby the achievement of the objective can be evaluated. Where applicable, the PoE documents will be on official letterheads, dated and properly referenced. Documents will also be approved by the responsible staff member/s;
 - **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 (LLPs) or other documents.

In certain instances, a detailed LLP supports the individual programmes. These LLPs could be reviewed on a frequent basis depending on the changing circumstances and requirements.

The commitments outlined in the various programmes under section 10 are aligned with the performance management system of the operational staff. Progress and impact will be tracked, and the work plan will be reviewed annually to prioritise implementation activities, to be responsive to emerging matters and to inform the risk response strategy.

10.2 Regional integration

Regional integration promotes resilient regional outcomes across boundaries, through enabling institutional arrangements and co-operative support to bioregional programmes, growing a conservation domain through contractual and co-operative landscape planning and management, for sustainable benefits, socio-economic upliftment of communities and peace and stability in the region. This approach requires a systemic method for the integration of national parks into the broader economic and social landscapes through appropriate strategies, mechanisms and incentives and through encouraging complementary economic activity. It promotes and improves conservation and ecosystem services, allows for sustainable natural resource use, whilst unlocking direct commercial benefits to communities, and developing the necessary skills and capacity.

10.2.1 Park expansion programme

The purpose of this programme is to achieve the SANParks goal of conserving ecological patterns and processes typical of the region by acquiring land suitable for conservation. The rationale for this programme can be found in section 8 on page 62.

Expansion is constrained by changes in overall landcover and landscape fragmentation. In line with the accepted expansion plan over the next ten years, SANParks will remain flexible to opportunities and as such, remain open to approaches from neighbouring landowners and state entities. This will mainly be achieved through contractual inclusion or purchase or by other means in line with the SANParks land acquisition framework.

The proposed short- and medium-term extensions of the expansion footprint include:

- Northern consolidation: Securing the conservation status of the community owned Melkbosrand property (4,168 ha) on the northern banks of the Orange River is a key short-term priority. Inclusion of the area will help with community development, secure the current tourism value of the park, and will improve boundary alignment and management efficiency. The entire area has been identified as a Critical Biodiversity Area, which includes three under-protected ecosystems, nine threatened and five range-restricted species;
- Western consolidation: The 2,764 ha area needed for consolidating the core area remains a key short-term priority. These two areas are Critical Biodiversity Areas that integrate three under-protected ecosystem types and four threatened and four range-restricted species. The consolidation will also significantly contribute to enhancing management efficiency through improved boundary alignment; and
- Southwest Bushmanland Inselberg Node expansion: Covering a vast area of 443,906 ha. The area focusses on the recently identified Aggeneys - Pella – Pofadder KBA. Almost the entire area consists of CBAs and ESAs. It is a priority focus area identified in the National Protected Area Expansion Strategy 2018 (Department of Environmental Affairs, 2018). The area is exceptionally biodiverse, including two additional biomes and seven new, under-protected vegetation types, among them the most extensive areas of the unprotected Easter Gariep Rocky and Plains Desert vegetation types. Forty-one additional species of conservation concern are found, of which 17 species are threatened. This section would be the only expansion to feature the endemic Namaqua Stream Frog (*Strongylopus springbokensis*) and the endangered *Lithops dorotheae*. It integrates a number of Succulent Karoo conservation priority areas, comprising of the priority Bushmanland Inselbergs (Maanhaarkop, Aggeneys Mountain, Gamsberg, Achab-Namies, De Rust, Haramoep, Naroep and Rosynebos) and the Orange River Mountains (Pella Mountains and Dabenoris). This node is also a freshwater conservation priority, encompassing extensive areas of priority FEPA catchments and wetlands, and also encompassing significant reaches of the Orange River and its tributaries, among them, Hartbees River.

Once the above priority areas have been secured, additional long-term options exist to expand the park:

- Bushmanland Eastern Inselbergs expansion: This is an additional section east of the Bushmanland Inselbergs Node, which is overall a higher priority. The area covers 82,788 ha of mostly CBA, as well as ESA. The 'Aggeneys-Pella-Pofadder' KBA extends into this area, along with identified Succulent Karoo priorities (Houmoed and Pofadder Mountains). It also integrates substantial portions of FEPA catchment relative to its size, linked with the Kaboep River. The area is very different to the existing AFNP, and would contribute two additional biomes and seven



of its eight under-protected ecosystems. Seven threatened biota and four range-restricted plants would be integrated into the park;

- Eastern consolidation: These consolidation areas total 5 437ha. Although they are of significant biodiversity value (consisting largely of CBA, with three of their four ecosystems being classified as under-protected, and including habitat for ten threatened and six range-restricted species). The primary benefit of their inclusion will be to promote management efficiency through improved boundary alignment;
- Upper Koa River expansion: Another long-term expansion priority which expands on the Bushmanland Inselberg Node, is the Upper Koa River, which lies in the southern portion of the expansion footprint. It covers 150,029 ha and includes, for the most part, CBA 2 and ESA. Critical Biodiversity Area 1 stretches along two river systems associated with the upper Koa River catchment. At least a third of the area is FEPA catchment. Five threatened and five range-restricted species would be secured. Combined with this are seven under-protected ecosystems, of which six would be new to the park. The area includes the far northern portions of the large Red Lark Landscape KBA; and
- Western expansion: The western expansion is the second largest area, measuring 188,759 ha. It incorporates extensive areas of CBA 2, and some CBA 1. It is a priority focus area identified in the National Protected Area Expansion Strategy 2016 (Department of Environmental Affairs, 2016). The same under-protected ecosystems as other sections are incorporated, although it does contribute the most in terms of Lower Gariep Broken Veld. The important *Aloe dichotoma* forest to the south of Onseepkans and the unprotected Easter Gariep Rocky and Plains Desert vegetation types are included. It also integrates FEPA rivers, catchments and wetlands associated with the Lower Orange River and its tributaries, among them, Kaboep River. The area encompasses seven threatened species and four range restricted endemics. The vulnerable plant, *Caesalpinia bracteata* (Gariep Plume-Flower) is restricted to this section, which would be a new addition to the park. However, the most important contribution of this addition is the linkage of this current isolated park with Bushmanland (including Gamsberg Nature Reserve) and beyond to Goegap Nature Reserve and even Namaqua National Park. Hence, it forms a key long-term regional climate change linkage priority (SPARC, 2019b).

A detailed LLP outlining the rationale and operational approach supports this programme. This programme links with high-level objective 1 and objective 1.1 on page 42. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

PARK EXPANSION PROGRAMME					
High-level objective: To promote ecological linkages and minimise potential impacts that arise from incompatible land-uses through targeted park expansion and engagement					
Objective: To consolidate and expand the park by incorporating and supporting conservation-worthy and strategically important properties					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To acquire strategically identified properties that are of conservation importance to consolidate the park	Engage with local communities regarding the voluntary inclusion of some of their land in the park	Park Manager (PM), SET Officer, Park Planning & Development (PPD)	Documentation	As required	
	Motivate and prioritise contractual inclusions / acquisitions	PPD, PM	Land Inclusion Plan	Year 2	Expansion LLP

PARK EXPANSION PROGRAMME					
High-level objective: To promote ecological linkages and minimise potential impacts that arise from incompatible land-uses through targeted park expansion and engagement					
Objective: To consolidate and expand the park by incorporating and supporting conservation-worthy and strategically important properties					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To acquire strategically identified properties that are conservational important to consolidate the park	Target the incorporation of 10,000 ha over 10 years	PPD, PM	Contractual inclusions / purchase agreements	Ongoing	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, Section Ranger (SR), PPD	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.2.2 Landscape integration programme

The purpose of the bioregional programme is to integrate biodiversity into local and other planning frameworks and respond to land-use development proposals through active engagement with governmental and non-governmental partners.

The regional integration programme is implemented to enhance park management through adopting a sound management ethic and actively promoting healthy community custodianship of the park. It further aims to collaborate with relevant international, national, provincial and local government structures, (NGOs) and landowners or groupings to work towards a shared vision across the local and regional landscape and thereby promoting and supporting regional ecological and social landscape linkages. Interaction with various stakeholders takes place continuously, including with public-private partnerships, governmental and non-governmental agencies, as well as the local and broader community.

The current extent of the park is included in a conservation-focused category in the Spatial Development Frameworks of the local and district municipalities in which the park is located. The bio-regional value of ecosystem services in the park, its buffer zone and the wider region, remains a key component in the Integrated Development Plans and SDFs of local and district authorities. This will ultimately ensure that biodiversity is a key aspect in land-use planning and decision-making. Through continued collaboration and integration at a local and district level, biodiversity issues, threats, pressures and opportunities related to the park, such as preventing non-compatible land-use practices in the buffer zone, managing invasive alien plant clearing inside and outside the park and the protection of important ecological processes and ecosystem services, can effectively be addressed. The park will engage as an interested and affected party and submit comments where necessary with regards to threats and unfavourable development in the buffer zone.

The park is an integral contributor to the region's tourism, employment and conservation efforts and can positively influence processes in its buffer zone by strengthening integration of activities and enhancement of natural processes and critical biodiversity areas, by partnering with stakeholders on aspects such as sustainable tourism, development, education, innovation, economical farming and the sustainable use of natural resources.

Various organisations, forums and agencies such as the Park Forum, Kakamas Water-users Association, South African Nama Development Agency and the Kai! Garib Environmental Forum, are operating within the landscape. The park is either part of, or actively engaging these organisations, in information sharing, supporting cultural initiatives, capacitating and improving effectiveness of waste and sanitation management in the local municipal area, whilst also serving on municipal and district level structures. This allows the park to collaborate with and support efforts of the various governmental and non-governmental partners in the region to achieve integrated implementation of activities and responses to the various impacts on a regional scale. This recognition underscores the importance of the park's continued active engagement of and collaboration with authorities and other stakeholders and partners of the park to ensure that important bio-regional aspects are addressed and potential negative impacts on the park are mitigated. Furthermore, park management might be required to become more involved in future conservation initiatives in the landscape.



This programme links with high-level objective 1 and objective 1.2 on page 42. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

LANDSCAPE INTEGRATION PROGRAMME					
High level objective: To promote ecological linkages and minimise potential impacts that arise from incompatible land-uses through engagement and targeted park expansion					
Objective: To integrate biodiversity into local and other planning frameworks and respond to land-use development proposals through active engagement with governmental and non-governmental partners					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To minimise potential conflicts that arise from different objectives from non-aligned land-users through responsible engagement	Identify possible external threats from activities including developments, land-use changes etc.	PM, SR, PPD	List of threats	Ongoing	
	Participate in the activities of a network of relevant authorities at all levels including Integrated Development Plan (IDP) and SDF processes	PM, SET, PPD	Minutes of meetings, documents	Ongoing	
	Engage and submit comments to relevant forums and participate in EIAs, scoping etc.	PM, SR, PPD	Scoping, EIA reports, Records of Decision	Ongoing	
	Monitor compliance with environmental authorisations where appropriate	PM, SR	Reports, RODs	Ongoing	
To support regional ecological and social landscape linkages through appropriate land partnerships and land purchase	Negotiate with willing landowners for inclusion of their land for contractual sections of the park	PPD, Regional General Manager (RGM), PM	Contracts	Ongoing	
	Identify governmental and non-governmental structures, organisations and entities operating in the region with a possible impact and influence on the biodiversity of the park	PM, SET Officer, SR, PPD	List	Year 1, ongoing	
	Collaborate with relevant structures and participate in the actions and activities at all levels of activities	PM, SR, SET Officer	Minutes of meetings	Ongoing	
	Comment on land-use change and development applications within the buffer zone and adjacent areas	PM, SR, PPD	Reports	Ongoing	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SR, PPD	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.3 Biodiversity conservation

South Africa is a signatory to the United Nations Convention on Biological Diversity (CBD) and therefore subscribes to the strategic plan for biodiversity (2011 - 2020) which includes the development and implementation of a National Biodiversity Strategy and Action Plan (NBSAP). Many of the SANParks and park's biodiversity conservation actions are therefore nested within South Africa's NBSAP. SANParks subscribe to the broad definition of biodiversity *sensu* Noss (1990) which includes structural, functional and compositional diversity at all scales. In managing the heterogeneity and diversity in the park it is emphasised that ecological systems function across a full hierarchy of physical and biological components, processes, and scales in a dynamic space-time mosaic (Pickett *et al.*, 1997). A challenge faced by park management is how to manage such a complex system, environmental challenges and climatic variables with limited management tools available. Park management therefore attempts to identify key agents, drivers and controllers of change that can be manipulated if the need to influence the nature and direction of heterogeneity change arises as Biggs & Rogers (2003) suggests. Experience has shown that allowing ecosystem processes and drivers to function as naturally as possible (or simulating such where need be), has better conservation outcomes than to only manage at a species level. As such, several biodiversity management programmes have been developed to effectively manage the diversity and patterns, as well as processes of the characteristic elements of a typical arid landscape.

10.3.1 Degradation and rehabilitation programme

The purpose of this programme is to identify degraded land and guide the implementation of ecological rehabilitation measures to restore the functionality of the degraded natural systems.

Desertification has been defined by the United Nations Convention to Combat Desertification (UNCCD) as "land degradation in arid, semi-arid and dry sub-humid areas through natural processes as well as human activities". The natural factors are largely associated with climate variability, especially droughts, while some human activities in the drylands are the major cause, particularly in Africa. The national policy on the conservation and sustainable use of South Africa's biodiversity, produced by the DFFE calls for the identification of key sites for rehabilitation based upon biological and socio-economic criteria, and the development and implementation of rehabilitation plans for identified sites. Similarly, the Convention on Biological Diversity lists rehabilitation as an important tool for promoting the conservation of biodiversity.

Typically, the bio-physical processes identified for assessment and monitoring of desertification are wind erosion, water erosion, waterlogging and other forms of chemical degradation of the land leading to degradation of soil quality, soil physical condition, natural vegetation, and desiccation of the land and other factors (Brown & Nickling, 2003). The acceleration of these processes beyond certain long-term threshold values can lead to excessive loss of soil cover and soil fertility, changes in vegetation ecology, and a host of other changes that result in a decline in land production and productivity (Brown & Nickling, 2003). These types of degradation are not only dealt with in the degradation and rehabilitation programme, but interlinked to other programmes such as habitat change, invasive alien plants, climate change, and freshwater ecosystems.

Arid ecosystems and species have developed unique strategies to cope with low and sporadic rainfall. They are highly resilient and recover quickly from prevailing disturbances such as herbivore pressure and drought. These attributes have great significance for the global system, especially in the context of climate change (Lean, 1995). A major driving force of biological diversification in dryland environments is relative aridity. Within each aridity zone, significant variations between sites are influenced by topography and geology, and by variations in the most limiting factors such as water and soil nutrients. Types and intensities of these environmental drivers combine to determine the main selection pressures in arid ecosystems. These include low and highly variable rainfall in time and space; recurrent but unpredictable droughts that may persist for several consecutive years; high temperatures; inherently low soil fertility; high incidence of salinity; prevailing herbivore pressure; and fires. These stresses have been selected for a large diversity of adaptive traits.

Climate change, including local climate variabilities, has been identified as a serious risk to the Southern African region (Zietsman, 2011). Local climate variabilities are still tolerable, but extreme climatic events and pro-longed climate change would prove to be serious in terms of the impact on natural biomes and ecosystems, and good governance structures and policies are needed to deal with these issues. Arid environments are defined by the dominant role of water in limiting the activities of life. Not only are water supply rates low, but they are also highly variable in time and space, reflecting local and regional precipitation patterns. Single rainfall events usually cause brief pulses of soil moisture with limited infiltration depth. However, precipitation events are never evenly spaced in time, and the probability that they will be clustered increases during rainy seasons or floods (Loik *et al.*, 2004). Erodible soils may also be prone to degradation, especially during flash floods.



Under semi-arid climatic conditions, even a few degrees increase in temperature and a few millimetres decrease in rainfall could cause a decline in the biodiversity of plants and animals (Guo *et al.*, 2016a, b). In South Africa, for instance, about 10 million hectares, i.e. 8% of the land surface area of the country, are infested by invasive alien plants which use about 7% more water than native vegetation. It can be assumed that losses of species richness, the declining functionality of ecosystems, the invasion of new species, as well as changes to biomass production will continue and might accelerate in the future.

Unlike other arid parks, there are no prioritised areas for rehabilitation of areas affected by soil degradation (gullies, rills, sheet erosion). Degradation monitoring in the park will focus on the impact of bioclimatic variables influencing the distribution of alien invasive plants over time. Vegetation communities will also be monitored for degradation, including soil degradation, due to factors such as grazing pressure. Digitised natural history collection occurrence data from the Global Biodiversity Information Facility will be used to map the historical distribution and predict future distribution of the alien invasive species in the park as influenced by climate change (interlinked to Alien Invasive Species & Climate Change programmes). The Alien Invasive Species Programme will focus on implementing the rehabilitation measures through Biodiversity Social Project (Working for Water) whereas Scientific Services will be responsible for monitoring and research.

A detailed LLP outlining the rationale and operational approach is available. This programme links with high level objective 2 and objective 2.1 on page 42. 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 protect the unique arid zone biodiversity through research, learning and restoring ecological processes					
Objective: To restore functionality of natural systems by identifying, prioritising, monitoring and effective rehabilitation of degraded areas					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To determine the spatial distribution of selected alien invasive species in the arid zone by predicting future suitable habitats using bioclimatic data	To map the occurrence of alien invasive species in the park, predict their future habitat suitability, and monitor emerging species	Scientific Services (SS), Biodiversity Social Projects (BSP)	Habitat suitability map of selected alien invasive species	Ongoing	Alien Invasive Species Programme, National Land Degradation Neutrality Targets, Desertification, Land Degradation and Drought (DLDD)
	Sourcing world climatic data for current and future climatic variables	SS	Bioclimatic data	Year 3, 6, 9	Climate Change programme
To monitor areas affected by soil erosion (sheet, gully, rills) by assessing vegetation degradation in key areas experiencing grazing pressure	Use vegetation condition index to detect vegetation change over time	SS	Vegetation condition index maps	Year 3, 6, 9	Habitat Change programme
	Map soil degradation and prioritise areas severely affected areas for rehabilitation measures	SS, BSP	Soil degradation maps	Year 3, 6, 9	
	Compile and update a Degradation and Rehabilitation Plan.	SS, BSP	Degradation and Rehabilitation Plan, Annual Plan of Operations	Year 5, 10	

DEGRADATION AND REHABILITATION PROGRAMME					
High-level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes					
Objective: To restore functionality of natural systems by identifying, prioritising, monitoring and effective rehabilitation of degraded areas					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SR, BSP, SS	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.3.2 Invasive and alien species programme

The purpose of this programme is to reduce impacts and mitigate threats invasive and alien species pose on the park and the immediate buffer area. Further objectives include preventing re-infestation of invasive and alien species (IAS) into the park as well as protecting the park from new and emerging invasive species. Due to the lack of resources, Working for Water (WfW) funding is being allocated to the management of invasive plant species, the low threat of invasive animals as well as the free movement of the listed invasive animal species, no formal management of non plant invasive species is undertaken in the park.

South Africa, as a signatory to the Convention on Biodiversity as well as other international conventions, is required to manage IAS within its borders. In South Africa, the management of IAS is mandatory under the NEM: BA. There are sixteen legislative statutes (national acts, provincial ordinances and municipal by-laws) that govern the management of IAS. Of these, the most relevant are the NEM: BA and the Conservation of Agricultural Resources Act (Act No. 43 of 1983) [CARA] and regulations emanating from these acts. The CARA provides additional guidance for the management of IAS plants. The NEM: BA Alien and Invasive Species Regulations (2016) are of direct relevance. Further, the NEM: PAA requires that all protected areas have plans for the management of IAS. The SANParks Policy for the Management of IAS (2018c) provides the context within which all management of IAS is implemented. Within SANParks, the context for the management of IAS is set out in the Alien and Invasive Species Regulations (2018) and a framework for the management of invasive and alien plants (IAP) provided in the Standard Operating Procedure (SOP) for the Implementation of Invasive Alien Plant Management Projects (2017b). The SANParks Alien and Invasive Species Regulations (2018) provides an integrated approach to alien and invasive species management. The framework includes five components, which have been incorporated into this plan, namely (i) assessment and risk analysis, (ii) priority setting, (iii) early detection and rapid response, (iv) control and (v) restoration.

Protected areas are increasingly becoming islands in transformed landscapes where changes in land-use across the wider landscape impact directly on the primary objectives of protected areas (Foxcroft *et al.*, 2019). Invasive and alien species, specifically plants, impact on biodiversity by altering natural patterns and processes, competing for resources, altering nutrient cycles as well as change fire intensity and frequency resulting in native species population declines and extinctions (Lukács & Valkó, 2021; Foxcroft *et al.*, 2013; Foxcroft *et al.*, 2017). These impacts are often more cryptic in arid areas (Milton & Dean, 2010). Further, invasive and alien species negatively impact on ecosystem services (e.g. water quality and quantity) which potentially impacts directly on human well-being (Orimoloye *et al.*, 2021). The impact of invasive and alien species on protected areas is not limited to ecological or human well-being; the financial cost of invasions on protected areas can be calculated through the cost of control and eradication programmes, as well as financial loss due to negative effects on revenue earning activities (e.g. tourism, cultural heritage sites) and physical infrastructure (Gallardo *et al.* 2019; Courtois *et al.*, 2018; Lukács & Valkó, 2021; Milton & Dean, 2010).

Effective management of IAP requires sound planning and implementation, which is dependent on well-grounded ecological knowledge, an understanding of risks and effective collaboration between interconnected and effected parties (Tu & Robison, 2013). The effectiveness of implementing management plans and the successful outcome thereof is dependent on sound management structures, adequate resources, structured monitoring, and reporting, with strategic adaptive management through feedback and communication loops (Foxcroft & McGeoch, 2011). The implementation of an effective rapid response mechanism is also important to mitigate the introduction of new species and thus its potential threats and impacts adjacent to and within the broader buffer of the park (Tu & Robison, 2013).



List of invasive species occurring in the park

A total of 59 invasive and alien species are listed for the park; two mammals, 54 plants and three birds. Of these 31 are listed under NEM: BA (Category 1b = 25, Category 2 = 3 and Category 3 = 3) (Foxcroft *et al.*, 2017). Eighteen of the listed species are considered as potential transformer species (Foxcroft *et al.*, 2019) with 10 species having registered biocontrol agents.

A process of prioritisation has been developed so focusing management efforts on species that potentially have a greater impact on the park's objectives. Three levels of priority have been identified, category (A) are species of national concern, (B) those species that must be controlled as part of normal contract work and (C) high priority species not yet in the park, or in the process of being eradicated or where populations are small and receiving intense efforts to be reduced. Species may be added, removed or reprioritised within the list as knowledge on threat status and population dynamics informs change or when funding availability allows (see Table 12). All species reported on the 'watch list' that are detected within the park and where populations are limited enough in distribution and infestation rates are low (rare) these species should be considered as category C. Species may be moved to a higher category, if necessary, with new species added to category C if identified.

Table 12: Invasive alien plant species identified for priority control

Category A	Category B	Category C
<i>Nicotiana glauca</i> (Brazilian tree tobacco)	<i>Datura innoxia</i> (downy thorn apple)	None identified
<i>Prosopis glandulosa</i> (honey mesquite)	<i>Ricinus communis</i> (castor-oil plant)	
	<i>Argemone mexicana</i> (yellow-flowered Mexican poppy)	
	<i>Cenchrus setaceus</i> (fountain grass)	

Category B species must occur in the same delineated work area (Nbal) as Category A species, Category A species are the priority species driving the selection of areas for invasive alien plant management by the BSP.

Description of land infested and the extent of invasion of IAP

In arid regions, drainage-lines, seeps and depressions are considered to have higher resource availability (e.g. moisture) than upland areas (Milton & Dean, 2010). Resources such as moisture and nutrient availability are drivers for invasions by non-native species. Areas with higher resource availability are also likely to have a higher rate of anthropogenic and wild animal activity resulting in a greater disturbance as well as increased propagule pressure. These regions of the park form the priority areas for monitoring and management interventions.

The riparian areas of the Orange River as well as the lower sections of the main tributaries that flow into the Orange River (Molopo, Brabees, Bul, Kraalputs se Loop rivers) are seen as areas where the establishment of invasive alien plants is more probable due to potentially higher soil moisture than reaches further away from the Orange River). The interface between the park and private land, especially along the Orange River and where lands are irrigated are potential risk areas that require monitoring.

Status report on the efficacy of past control measures

The WfW programme, implemented by the BSP, first started managing invasive plants within the park in 2004 and has continued to do so. In total R17.8 million has been invested into the park which has resulted in an accumulative total of 14,006 ha being 'worked', providing a total of 13,955 person-days, equating to an average of 15 'jobs' (full time equivalent) per annum.

The focus of the WfW programme has been to manage invasive alien plants within the Orange River riparian areas as well as its tributaries that rise within or flow through the park. The focal widespread species have been and continue to be *Prosopis glandulosa*, *Arundo donax* giant reed and *Nicotiana glauca* wild tobacco, with *Nicotiana glauca* and *Prosopis glandulosa* predominantly in the riparian areas and river reaches.

A total of 17 invasive plant species (including four listings at genus level) have been treated. Most species abundance, density of species in landscape, have been recorded as being rare (<2% density) across their distribution in the park.

Current measures to monitor, control and eradicate invasive and alien species

There is currently active invasive alien plant management implemented within the park through the BSP WfW project. Funding is received through the EPWP programme and funding allocation is based on the needs as assessed through the annual plan of operation (APO) and funding received.

The framework set out in SANParks IAS management policy as well as the SOP for the Implementation of IAP management projects ensure that SANParks complies with legislation, including the identification and prioritisation of activities which include:

- a. Awareness of invasive and alien species threats;
- b. Assessment of current and potential threats and pathways;
- c. Prevention practices and procedures;
- d. Early detection and rapid response;
- e. Management control and restoration; and
- f. Secured and maintained funding.

Monitoring is key for the management of IAS, specifically IAP dispersal into and within the park, and needs to be focussed on the potential pathways identified within the parks landscape. Foxcroft *et.al* (2019) identified a total of eight different potential pathways that IAS may follow to enter and/or disperse within a park, and the three primary pathways are (i) rivers and (ii) roads etc. and (iii) contaminated construction material, equipment and soils specifically in the surfacing of existing provincial roads transecting the park. In addition, (iv) agricultural areas adjacent to the park, as well as (v) movement of wildlife and possibly domestic animals between these areas and the park need to be monitored. (Foxcroft *et al.*, 2019). Non-ecological asset areas that need to be protected from the threats of IAP and other associated threats, include the park tourism and management facilities. Monitoring is done through the BSP baseline data on invasive alien plants that is reviewed annually. Changes in the dynamics of species triggers management action. There is currently no scientific monitoring of impact mitigation or effectiveness of invasive species management. Long-term trends show that invasive alien plants are relatively low density and control along the streams leading into the Orange River is effective if there is diligent follow-up. Eradication is not expected in the long term but extirpation in the dry river courses is feasible, especially in areas where streams originate within the park.

Control methods, or an integrated combination thereof, are designed to suit the target species and environment in which they occur. The following methods may be used within the park, cadastral and broad alien plant footprint boundaries but will depend on the circumstances:

1. Initial treatment.

- Chainsaw – fell, debranch and stack;
- Foliar spray – application of herbicide; and
- Biocontrol release - collection of clean cladodes, propagation of biocontrol and deployment of biocontrol agents.

2. Follow-up treatment.

- Loppers and hand saws;
- Foliar spray – application of herbicide; and
- Biocontrol release - collection of clean cladodes, propagation of biocontrol and deployment of biocontrol agents.



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

The long anthropogenic history of the region brings with it a long history of introductions of non-native species, especially plants providing fodder and other resources for early settlers, resulting in the establishment of, though sparse, potentially invasive plants (Milton & Dean, 2010).

Pressures from burgeoning regional tourism, marginalised agriculture, and land-use changes, especially along the Orange River above the park as well as areas of private land nested in the park, potentially lead to increasing risks of invasive alien plant invasions. In addition, the maintenance of roads transecting the park as well as the parks road networks compounds the risk of introduction of invasive and alien species, specifically plants. As a result, the monitoring and management of IAS, specifically plants, will remain an ongoing required management action.

The management of IAP across the park and to a lesser degree in areas adjacent to the park, has been well implemented with follow-ups completed effectively. To sustain the gains made in the management of IAP, it is essential that funding is secured over the long term to allow management to retain a focus on priority species and areas across the park and to monitor and respond to external threats identified through a proactive management approach.

A detailed LLP outlining the rationale and operational approach supports this programme. This programme links with high-level objective 2 and objective 2.2 on page 42. To achieve the purpose of this programme, the required actions are listed in the table below.

INVASIVE AND ALIEN SPECIES PROGRAMME					
High-level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes					
Objective: To restore functionality of natural systems by identifying, prioritizing, monitoring and effective rehabilitation of degraded areas					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To maintain a spatial layer of invaded and/or potentially invadable areas as well as pathways with linked invasive alien plant database.	Assess all known areas invadable by alien plant species as well as potential pathways	BSP	WIMS spatial layers with linked baseline data	Year 1, 4, 7, 10	
	Maintain a dedicated parks IAP baseline database linked to the spatial layer	BSP	Baseline database	Ongoing	
To implement IAP management programme	Review of the parks NEM: BA Control Plan	BSP	Revised Control Plan	Year 1	NEM: BA
	Implement actions identified in the NEM: BA Control Plan	BSP, PM	WIMS monthly reports	Ongoing	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SR, BSP	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.3.2 Freshwater ecosystem programme

The purpose of this programme is to promote sustainable water-use practices through collaborative participation, research, monitoring and effective management to ensure the persistence of freshwater systems and associated biota. This programme deals mainly with surface water (i.e. rivers), groundwater and wetlands due to the sensitive linkages and interconnectivity between

these various entities. Aquatic ecosystems are complex systems with many interrelated components. Understanding these systems in a systemic way requires input from various disciplines, for example groundwater science, environmental chemistry, geomorphology, hydrology, entomology, ichthyology and increasingly also social sciences.

South Africa is a signatory to several international conventions, agreements and protocols governing water resources. Therefore, SANParks' strategic plan, management plans and conservation policies are informed by the CBD Programme of Action on Protected Areas. The CBD's post-2020 Global Biodiversity Framework's goals and targets, for the 2021-2030 decade, were finalised in December 2022. The newly adopted "Kunming-Montreal Global Biodiversity Framework" includes four goals and 23 targets for achievement by 2030. One of the overarching global goals is for the integrity, connectivity and resilience of all ecosystems to be maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050. **Target 3** of the new framework is particularly relevant for protected areas: "Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed ...". **Target 2** is similarly important: "Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity."

South Africa as a member of the Southern African Development Community is committed to support the ORASECOM that was established in November 2000 to deal with water matters of common interest. The 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 Protocol lays down principles for the co-ordinated, co-operative and equitable use of water by the riparian countries.

South Africa was pro-active in adopting a freshwater conservation target. This target emerged from a series of participative workshops involving several government departments and national agencies (SANParks, the Council for Scientific and Industrial Research -CSIR- and the South African National Biodiversity Institute), during which it was stated that at least 20% of each inland water ecosystem type should be conserved (Roux *et al.*, 2006). The endorsement of a quantitative target was followed by a national planning exercise to identify strategic spatial priority areas for satisfying the 20% target. The resulting conservation priorities, known as Freshwater Ecosystem Priority Areas FEPAs, comprise 22% of South Africa's river lengths and 38% of wetland areas (Nel *et al.*, 2011a).

The Department of Water and Sanitation (DWS) lists SANParks as an implementation partner of its National Water Resource Strategy. Relevant actions include: (a) investment in strategic water source areas, (b) strategic investment in the maintenance and rehabilitation of freshwater ecosystems, (c) maintenance of FEPAs in good condition, protected riparian and wetland buffers and critical groundwater recharge areas, (d) monitoring ecological health to inform management, and (e) establishing commitment to sustainable water resource management through e.g. stakeholder awareness programmes.

Freshwater ecosystems are highly connected systems and can be summarised as such:

- Longitudinal connectivity (along the length of a river): Rivers form ecological corridors from source areas all the way to the sea, with several environmental gradients along their lengths (e.g. in nutrient concentrations, temperature, flow dynamics, salinity and habitat structure) which is critical to their overall functioning and health;
- Lateral connectivity (from terrestrial to aquatic): The health of rivers and wetlands are susceptible to changes in runoff, as well as sediments and contaminants from upstream and upland runoff. Rivers and wetlands cannot be conserved without taking care of their surrounding environments. Of importance is to maintain buffers or riparian zones of natural vegetation around these ecosystems; and
- Vertical connectivity (between groundwater and surface water): Groundwater sustains river flows ("base flows") and supports refuge pools in the dry season. Refuge pools are critical in seasonal rivers, as they support water-dependent biota that would otherwise not survive when the rivers dry up. Groundwater further supports a wide variety of groundwater dependent ecosystems such as wetlands. Reductions in groundwater stores as a result of abstraction, particularly from riverbeds, close to streams, and from shallow alluvial aquifers, will have a direct influence on river flow and on groundwater dependent ecosystems.

The park is located in the Lower Orange River Water Management Area and often inherits water quality and resource over-allocation issues created in the upper and middle catchments. This is largely due to increasing and changing upstream demands, including agricultural abstraction which is by far the largest water-user, and



the construction of dams. A key issue for the park over the last decade has been the progressive decline in water quantity, quality and associated fauna and flora due to flow and water quality modifications. Additionally, a wider view recognises that South Africa and the park lie upstream of international neighbour (Namibia) with whom water must be shared and managed. Park management aims to initiate and implement measures to safeguard and enhance water quantity and quality, and basic ecosystem health monitoring to evaluate compliance with the ecological reserve and prescribed resource quality objectives (RQO) prescribed for the Lower Orange River (EWR3) to leverage influence with strategic water resources management authorities and users to improve the water quantity and quality entering the park to ensure that the riverine and aquatic biodiversity is protected and that the water resource is able to deliver on national and international obligations.

The most effective way that SANParks can conserve freshwater systems within the park is through strategic relationships with catchment management agencies, other water management fora and stakeholder groups. Strategic relationships serve to facilitate co-operation, knowledge-sharing and resource mobilisation to advance effective conservation of aquatic ecosystems. Prominent activities would include, lobbying for and active participation in determination and implementation of ecological reserves; facilitating assessment of ecosystem and river health; providing information and insight obtained through research; monitoring to facilitate informed decision-making; and the successful implementation of catchment-scale adaptive management systems.

A detailed LLP outlining the rationale and operational approach supports this programme. This programme links with high-level objective 2 and objective 2.3 on page 42. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

FRESHWATER ECOSYSTEM PROGRAMME					
High-level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes					
Objective: To promote sustainable water-use practices through collaborative participation, research, monitoring and effective management					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To assess compliance with the ecological reserve flow determined for flows entering the park by evaluating compliance against prescribed ecological reserve	Monitor the flows at DWS gauging station D7H014 along the Orange River (download hydrology data from DWS website) to evaluate compliance with the Ecological Reserve requirements (RQOs) set at EWR3	SS, SR	River flow hydrographs	Annually	
To assess the water quality entering the park through evaluating compliance against prescribed RQOs	Monitor the in-situ watery quality (pH, EC, turbidity and TDS)	SS, SR	Water quality report	Annually	
	Retrieve WQ data from the DWS WMS website	SS, SR	Data	Annually	
To assess the ecological health of the river through evaluating compliance against prescribed RQOs	Implement basic visual assessments of river health-stream habitat through walk assessment	SR	Documented changes and/or events such as droughts, low flow, flooding, pollution incidence, algal blooms, fish kills etc.	As required	

FRESHWATER ECOSYSTEM PROGRAMME					
High-level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes					
Objective: To promote sustainable water-use practices through collaborative participation, research, monitoring and effective management					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To observe groundwater level behaviour over time by regularly measuring borehole water levels	Monitor groundwater levels at priority boreholes	SS, SR	Groundwater level data	Annually	Hydro- census reports
Participate in meaningful stakeholder engagements to leverage support and influence	Participate in river management forums aim to participate in high-level inter-governmental and transboundary forums	SR, PM, SET Officer, SS	Attendance register	As required	
To raise river awareness through education and outreach	Incorporate river awareness into education and outreach programmes and activities	SET Officer	Programmes	As required	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SR, SS	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.3.4 Habitat management programme

The purpose of this programme is to provide guidance on managing factors and drivers that will maximise the benefits of habitat management.

Habitat management is very important as it not only provides food for the animals in the park, but also provides shade and resting places (Bothma *et al.*, 2004; Van Oudtshoorn, 2015). The potential impact of grazing and browsing on the microclimate, microhabitats and soil properties, as well as the vegetation heterogeneity, has been well documented in literature. Successful veld management is thus dependent on the understanding of ecological principles that govern the ecosystem e.g. vegetation and soil (Van Oudtshoorn, 2015). Conducting proper vegetation assessments annually is therefore essential for maintaining optimal browse and grazing conditions for the animals in a park, as well as for the protection of the biodiversity of the soil (e.g. degradation), vegetation (e.g. rare and endangered plant species) and associated faunal components (McGeoch *et al.*, 2011; Van Oudtshoorn, 2015).

Habitats, with regards to vegetation, are impacted and influenced by other plants through competition and facilitation, as well as by herbivore pressure through grazing and browsing (Bothma *et al.*, 2004; Van Oudtshoorn, 2015; Al-Namazi, 2019). A thorough understanding of the vegetation and the life cycle of the plant species is important. Certain grass species are not always good nutrient-rich food for the grazers, while some wildlife simply prefer certain grass species to others. With regards to interactions between plants, generally woody species have the tendency to limit and inhibit the growth of the herbaceous layer, however, woody plants such as the *Senegalia mellifera* have been found to enrich the surrounding soils and consequently improve the nutrient quality of the associated herbaceous layer (Hagos & Smit, 2005). Soil therefore also plays a key role in habitat management, particularly in arid environments with sandy soil. Although erosion has not been identified as a key concern for the park, understanding the dynamics and integrated relationship is essential. Soil type could also play a role in making some grass species more palatable than others. The phenology of the plant species (i.e. whether tree species are deciduous or evergreen, or when they carry pods and flowers that offer valuable nutrition) should therefore also be considered.

One of the main reasons for habitat management is to mitigate the impact of grazing and browsing by animals on the productivity of vegetation, for example, the increase in perennial, palatable forbs and grass species versus decrease in annual, unpalatable forbs and grass species, as well as the vegetation canopy and basal cover, which keeps the soil profile intact. Habitat management should be in accordance with sustainable ecological principles (Van Oudtshoorn, 2015). Small bodied herbivorous species select high quality forage, while herbivores become less selective as body mass increases. Optimal foraging makes an animal consider competition with other species and individuals of its own species, as well as evaluate danger, to make trade-offs for the best gain in food versus the best gain for other resources (e.g. safety, comfort). Consumption of plants thus varies



between different plant parts, species and places depending on who is eating. Individuals choose where to go in a landscape based on where resources are located. An essential resource, like water for many large vertebrates, is the first determinant. The second is where individuals perceive safety from predators including man. Individuals then choose places based on where replaceable resources are (e.g. one grass type versus another grass type). The intensity of herbivory will thus be a consequence of the spatial distribution and variability of resources. The spatial gradient of herbivory disturbances reduces or increases, even if factors in the landscape result in a more balanced distribution of resources through the landscape.

Herbivores act as disturbance agents. Disturbance predicts maximised biodiversity at intermediate levels of disturbance. Keystone species have disproportionately high impacts on ecosystem function, including that of plants, given their biomass (e.g. termites). Non-selective mega-herbivores (e.g. hippo *Hippopotamus amphibius*, buffalo *Syncerus caffer*, giraffe *Giraffa camelopardalis*, and elephants *Loxodonta africana*) can serve as ecosystem engineers through structural changes they can induce. However, of these mega-herbivores, only giraffe occur in the park. Ecosystems recover from disturbances such as herbivory, through successional processes which help create diversity. In other words, the removal of herbivores leads to less diversity in the herbaceous layer.

Habitat management essentially aims to sustain or improve the existing habitat for the benefit of herbivores and enhances biological viability. Habitat management is inclusive of the vegetation as well as the impacts of the herbivores that utilise the vegetative resource. For the purpose of this LLP, herbivory will include both vertebrate and invertebrate herbivores but unless otherwise specified, the focus will be on vertebrate herbivores. Managing herbivores requires an understanding of their impacts on vegetation and habitat, as well as population dynamics. In addition to herbivore numbers, an evaluation of the veld condition assists with the decision-making process. SANParks assesses veld condition using qualitative and quantitative methods. The inclusion of remote sensing provides added perspective from a different spatial and temporal scale.

The mammals occurring in the park include 49 species of which several are considered large herbivores that interact and impact vegetation and consequently habitat management. These large mammals occur in low densities and include giraffe, eland *Tragelaphus oryx*, red hartebeest *Alcelaphus buselaphus*, kudu *Tragelaphus strepsiceros*, Hartmann's zebra *Equus zebra hartmannae*, gemsbok *Oryx gazelle*, springbok *Antidorcas marsupialis*, klipspringer *Oreotragus oreotragus* and steenbok *Raphicerus campestris*. The general classification of feeding behaviour of the large herbivores in the park includes giraffe, kudu, klipspringer and steenbok which are browsers. The gemsbok and red hartebeest are selective grazers. The aerial survey conducted in 2022 after the drought and based on direct observations, suggests that the population of red hartebeest was severely impacted. Although not a mammal, the ostrich *Struthio camelus* contributes towards herbivory and along with the Hartmann's zebra, is considered a low selective grazer. The eland and springbok are considered mixed feeders and alternate between browsing and grazing. The potential impact of grazing and browsing on the microclimate and soil properties, as well as the vegetation heterogeneity requires habitat management and is dependent on the understanding of ecological principles that govern the ecosystem.

Veld condition assessments are conducted at regular intervals and annually since 2020 to monitor change (i.e. composition, structure and biomass), impacts from herbivory and influence of rainfall (precipitation). The use of remote sensing in the form of Enhanced Vegetation Index and Normalized Difference Vegetation Index enhances the assessment of the veld condition. The above are common indicators for determining vegetation change associated with drought and overgrazing. The necessity for an ecological landscape unit classification, which describes and maps a conservation area, has been established. A sound understanding of the ecology of the park summarised in a landscape classification map, contributes considerably to the compilation of an effective wildlife management programme and conservation policy. As a natural protected area, it also serves as a permanent reference site for wider landscape vegetation reconnaissance

surveys in the Northern Cape region. Such a description and map can be used to aid in the selection of sites for vegetation monitoring and serves as a basis to determine wildlife-habitat relationships (Ferreira *et al.*, 2013).

This programme links with high-level objective 2 and objective 2.4 on page 42. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

HABITAT MANAGEMENT PROGRAMME					
High level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes.					
Objective: To maintain functionality and diversity of vegetation and habitats through research, monitoring and timeous intervention.					
Sub-objective	Actions	Responsibility	POE	Timeframe	Reference
To evaluate the distributions of key resources, i.e. veld condition	Develop land cover and veld condition maps	SS	Map, report	Annually	
To evaluate the numbers, distributions and intensity of use of all herbivores and associate these with key resources	Compile a census report	SS	Report	Year 5, 10	
To execute herbivore take-offs or introductions when necessary, using integrated approach to compute numbers and monitor veld condition	Compile the VCA report and census report	SS	Report	Annually	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SR, SS	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.3.5 Species and habitats of special concern programme

The purpose of this programme is to guide the monitoring of species of special concern (SSC) (for the purpose of this programme, SSC is inclusive of species and habitats), and to support effective management and successful conservation of these SSC.

SANParks' biodiversity values stipulate that, except in crucial instances for the survival of globally critically endangered species, management for system integrity and biodiversity must take precedence over species management. However, within national parks, SANParks will strive to prevent the extinction of species on the International Union for the Conservation of Nature (IUCN) global critically endangered or endangered lists and will work with other conservation initiatives to secure and strengthen the future of such species over their historic distribution ranges (IUCN, 2022).

Global environmental change drivers, such as habitat change or encroachment, excessive resource use, climate change, pollution, disease and invasive species, play key roles impacting on species becoming threatened and then listed as SSC including habitats. Species and habitats of special concern are defined as being threatened or endangered due to a combination of threats or require special attention. This applies to species, sub-species, populations and habitats that are threatened by biological or anthropogenic induced biological threats and consequently require protection. Important factors that can threaten the persistence of species are (1) limited availability of suitable habitat, (2) invasive and alien species and (3) variable climatic conditions.

Arid environments are generally resilient and can shift from one state to another because of disturbance (Yair *et al.*, 2013). Aridity plays a role in species distribution, as well as in ecological and evolutionary diversity. The aridity of the area makes the terrestrial species occurring in the area vulnerable to limitations of population growth and dispersion (Gedir *et al.*, 2015). The faunal species are either adapted behaviourally or physiologically to the environment or can migrate during times of unfavourable conditions such as low rainfall or high daytime temperatures. The presence of the Orange River however enables the persistence of species



that otherwise would not occur in an arid environment (Merritt & Bateman, 2012). The emergence of illegal resource-use has recently become a key element (Egan, 2014; Frantz *et al.*, 2022). Emerging diseases (Holmgren *et al.*, 2006) may also pose new challenges. Although invasive species, alien plants and pollution are threats, climate change impacts result mostly from unpredictable weather patterns and it consequently becomes challenging to predict and mitigate the impact. Drought and other climatic events within an arid environment are still considered a disturbance (Holmgren *et al.*, 2006). Degradation and desertification can lead to a range of detrimental consequences (UNCCD, 2014). Inside protected areas, habitat change is primarily driven by tourism development and ecological management that could impact on how resources that species use is distributed. Several species that are not rare, play key roles in maintaining ecological resilience (keystone species) (Winfree *et al.*, 2015). Ensuring the role of these species is thus a key requirement.

In the park the ecosystem represents iconic arid environment species and landscapes, as well as the Orange River, and the influence the water and falls has on the park forms an important component of the ecological integrity of the park. To address the risk of species losses, there is a need for updated information on species of special concern in the park starting with inventorisation and baseline information to understand the diversity of species. This has been done for plants, and to a limited extent for other species, however data on reptiles and amphibians is still lacking. Iconic species, as well as rare, endangered and endemic species, have been identified to be of high importance to the park. The main management concerns include the effects of small, isolated populations (stochastic effect), meso-predator dynamics and predation, the effects of the loss of pollinators and climate change.

The inventory list of reptiles, amphibians and fish found in Augrabies is currently incomplete. Lesser studied species of special concern include the Augrabies flat lizard *Platysaurus broadleyi*, the Namaqua barb *Barbus hospes* and the marbled rubber frog, *Phrynomantis annectens*. All of these are endemic to the lower Orange River region. Ideally these species and other amphibians, ichthyofauna and reptile species require more detailed studies with regards to baseline studies. A study on the role of flowering plant species in the survival of black flies (Diptera: Simuliidae) along the Orange River was done by Myburgh *et al.* (2001).

Restricted-range and biome-restricted bird species tend to show greater sensitivity to climate change. Large, and mainly resident birds that are slow breeding, such as the Verreaux's eagle and martial eagle, are vulnerable to fluctuations in climatic conditions (BirdLife International, 2022). Although the bird species diversity is relatively low in Augrabies, the park is an important birding area because of the assemblage of birdlife (BirdLife International, 2022). The landscape supports a variety of birds including waterfowl and ground nesting birds (BirdLife International, 2022).

A study on the distribution and population trends in mammal species with limited occurrence information was undertaken in the park between 2019 and 2020. A large mammal aerial survey is undertaken at four-year intervals with the most recent count taking place in 2022. Camera trap grids were distributed throughout the park and a host of medium to large sized mammals were documented. This research assisted with the identification of resident and nomadic leopard *Panthera pardus* inside the park and the surrounding area. The project ended given the low density of resident leopard inside the park, however, during the aerial survey conducted in 2022, leopards were indeed seen. Other mammalian SSC occurring in the park that were observed on the camera traps and during the aerial survey, include the Hartmann's zebra *Equus zebra hartmannae* which currently occur in low densities within the park. Although the southwestern black rhino *Diceros bicornis bicornis* does not currently occur in the park, they were present historically. Assessments of the habitat and environmental suitability were conducted in 2016. Actions are currently being undertaken to reintroduce the southwestern black rhino back into the park, and the success of establishment will need to be monitored.

Specific monitoring and research have been undertaken for the quiver tree *Aloidendron dichotomum* because it is impacted by browsers, particularly porcupine *Hystrix africaeaustralis*, giraffe *Giraffa camelopardalis*, eland *Taurotragus oryx* and kudu *Tragelaphus strepsiceros*. The establishment of an enclosure was implemented to reduce the impacts of herbivory from large mammals. Monitoring results suggest that this was marginally successful as other species such as baboon still had access to the quiver trees, albeit infrequently and continued to impact the population (Bezuidenhout *et al.*, 2016). Other concerns that are being addressed are the pollinators of the quiver tree which influence the reproduction and consequently the recruitment. In addition, the quiver tree has been shown to be sensitive to climate change. Large trees such as camel thorn *Vachellia erioloba* and quiver trees provide nesting opportunities for sociable weavers. A plant species list was published by Zietsman and Bezuidenhout (1999). Along the Orange River there are small pockets of riparian vegetation remaining (Bezuidenhout & Jardine, 2001). These habitats are generally resilient but are prone to fire. Riparian habitats are important for supporting birdlife as well as micro habitats for fish, amphibians and stages of the macroinvertebrate lifecycle (Dickens & Graham, 2002). The riparian vegetation type was identified as an especially threatened habitat that needs to be monitored (Bezuidenhout & Jardine, 2001; Hoffman & Rhode, 2011). The Red Data List of species with distribution ranges in the park is listed in Table 13 below.

Table 13. List of Red Data species occurring in the park.

Taxonomic group	Scientific name	Common name	IUCN category – regional	IUCN category – global
Amphibians	<i>Phrynomantis annectens</i>	Marbled rubber frog	TH	LC
Birds	<i>Aquila verreauxii</i>	Verreaux's eagle	NA	VU
	<i>Ardeotis kori</i>	Kori bustard	NT	NT
	<i>Neotis ludwigii</i>	Ludwig's bustard	EN	EN
	<i>Eupodotis vigorsii</i>	Karoo korhaan	NT	LC
	<i>Ciconia nigra</i>	Black stork	VU	LC
	<i>Falco biarmicus</i>	Lanner falcon	VU	LC
	<i>Polemaetus bellicosus</i>	Martial eagle	EN	EN
	<i>Torgos tracheliotos</i>	Lappet-faced vulture	EN	VU
Fish	<i>Barbus hospes</i>	Namaqua barb	NT	LC
Mammals	<i>Diceros bicornis bicornis</i>	Black rhino	CE	CE
	<i>Equus zebra hartmannae</i>	Hartmann's zebra	VU	VU
	<i>Panthera pardus</i>	Leopard	VU	VU
	<i>Parahyaena brunnea</i>	Brown hyena	NT	NT
Plants	<i>Vachellia erioloba</i>	Camel thorn	VU	LC
	<i>Aloidendron dichotomum</i>	Quiver tree	VU	LC
	<i>Hoodia gordonii</i>	Ghaap	NT	LC
Reptiles	<i>Platysaurus broadleyi</i>	Augrabies flat lizard	DD	LC

Critically Endangered – CR, Endangered – EN, Vulnerable – VU, Near Threatened – NT, Least Concern – LC, Data Deficient – DD.

A detailed LLP outlining the rationale and operational approach is available. This programme links with high-level objective 2 and objective 2.5 on page 42.

SPECIES AND HABITATS OF SPECIAL CONCERN PROGRAMME					
High level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes					
Objective: To understand and maintain viable populations of species and habitats of special concern by research, monitoring and adaptive management					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To conserve and facilitate the persistence of species and habitats of concern	Collect, improve through research, and maintain information (including baseline) on species of special concern	SS	Database	Ongoing	
	Implement appropriate management interventions to maintain viability of identified species (e.g. quiver trees, riparian plants, succulents, large herbivores)	SR	Management guidelines, reports	Ongoing	



SPECIES AND HABITATS OF SPECIAL CONCERN PROGRAMME					
High level objective: To protect the unique arid zone biodiversity through research, learning and restoring ecological processes					
Objective: To understand and maintain viable populations of species and habitats of special concern by research, monitoring and adaptive management					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To conserve and facilitate the persistence of species and habitats of concern	Monitor the interventions	SR	Database	Ongoing	
	Conduct aerial census every five years	SS	Report	Year 5, 10	
To mitigate the loss of riparian vegetation due to fire and alien invasive species	Develop a monitoring programme for the riparian vegetation	SS	Report	Year 2	
	Conduct research and monitoring of Prosopis invasion of riparian vegetation	SS, BSP	Report, maps	Annually	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SR, SS	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.4 Responsible tourism programme

The purpose of the RT programme is to grow diverse tourism experiences towards culture, experiential and nature-based RT in the park for the promotion of conservation, greater public enjoyment, constituency building and income generation.

The National Tourism Sector Strategy (NTSS) 2016 – 2026 further entrenched the principles of RT in the development and operation of businesses in the field of tourism. The NTSS further identified specific areas with the following 15 areas relating to SANParks and influencing its tourism business operations:

- Strengthening collaboration and partnerships within the tourism industry;
- Developing domestic tourism;
- Enhancing quality assurance and universal accessibility;
- Ensuring a co-ordinated approach to product development;
- Facilitating investment, including enterprise development and development finance;
- Ensuring sound environmental management and triple bottom line reporting;
- Growing business and events tourism;
- Developing African Tourism;
- Improving general awareness of tourism among South Africans;
- Enhancing domestic airlift;
- Transforming the industry;
- Developing people;
- Ensuring service excellence;
- Improving community benefits from, as well as community participation in tourism; and
- Providing decent work in tourism.

SANParks, as a major provider of tourism accommodation and natural experiences in the country, recognises that by implementing RT principles, the organisation will not only continue to benefit from enhanced income, but also from improved tourism products, better development and

management practices, and higher levels of local involvement along with much needed sustainable benefits flowing to local communities.

To this end, SANParks continually evaluates the alignment of policies, strategies and operations with the principles of RT and strives to put measures in place that will enhance this process. Following an extensive review of existing policies, guidelines and plans as well, as information gathered through interviews with personnel and stakeholders, the 2022 Responsible Tourism Strategy and Implementation Plan was approved. SANParks has adopted the national Responsible Tourism Standard, South African National Standard (SANS) 1162:2016. The RT programme thus looks at all aspects of the current and potential tourism product and service offering 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 park's RT baseline.

The establishment of this baseline serves to identify a clear point of departure from which to work. Customer service excellence is measured through criteria such as customer feedback, tourism quality standards, and universal access (UA) standards, as well as evaluating the visitor management and interpretation aspects relating to the park. The implementation of RT promotes operational efficiency and thus creates the condition for new product development, packaging and dynamic pricing to maximise yield, though challenges such as the availability of advanced technologies do exist. In order to align the SANParks tourism operations to the 2022 Responsible Tourism Strategy, SANParks seeks to base all its planning and decision-making on the following guiding principles and values:

- Provide nature-based responsible, value for money tourism experiences, whilst promoting our biodiversity, cultural and where applicable, wilderness qualities, to our strategic advantage;
- Contribute to building a broad-based constituency for the long-term sustainability of conservation with a people-centric focus; and
- Use appropriate nature-based RT as the best possible commercial opportunity to support and supplement conservation of biodiversity. This commercial aspect should never become the focal point and erode the core conservation values of the organisation. Viewed together with other commercial sources, the overall outcome must effectively enable SANParks to fulfil its constitutional mandate.

As stated above, park management must establish a RT baseline to measure progress of the effective implementation of the RT standard. Environmental damage must be minimised to maintain the ecological integrity of the park and counteract the potentially negative societal perceptions. Responsible tourism should maintain a high level of tourist satisfaction and ensure a meaningful experience to tourists, raising their awareness about sustainability issues and promoting sound tourism practices amongst them.

Apart from the limitations of the biophysical environment and the park's desired state, park management recognises that tourist density and experiences must be managed through a strong but flexible visitor management protocol. The protocol is informed by a sound research programme, as well as the experiential expectation and perceptions of the broader market environment. Furthermore, in partnership with its key stakeholders, the park will seek to provide real and tangible benefits to communities that lie adjacent to the park, thereby facilitating effective SET and growth.

As a national park, with the presence of the well-known waterfall in a pristine landscape, any new park development must be aligned with the SANParks product development strategy and must conform to zoning prescripts. The impact of tourism must be monitored to identify potential threats that can be addressed in the management plan to avoid degradation of the pristine landscapes and unique natural assets to protect the unique arid zone biodiversity. This will ensure RT practises that balance conservation values with the need to generate income to sustain both their integrity and significance. The potential to offer additional tourism enhancement products to visitors in future will mainly focus on eco-adventures, whereby the significance of the park's attributes can be showcased.

The park can be described as "having a certain vibe" with friendly and helpful staff, large open spaces, clear skies, striking sunsets, safe environment, unique climate, remoteness and low population density that must be capitalised on to complement the tourism experience. The park hosted 72,601 visitors in 2020 / 2021 and 101,312 visitors in 2021/2022 and is one of six national parks in the Northern Cape province boasting unique arid zone biodiversity. This big fluctuation in numbers depends largely upon the fluctuating Namaqua wildflower displays and the high levels of the Orange River.

The park is easily accessible with a diverse tourism offering of products. In this regard, new developments as listed in Section 9, will be considered within the approved zonation to maintain the sense of place in the park. Although the falls are the main attraction, there is much more to experience in the park. Activities that are



offered at the park include the hiking trails that consist of the Klipspringer Trail that is 33km long and last for three days. The Dassie Hiking Trail is approximately 8.5km long that can take up to three hours to complete. The Gorge trail is about 2km long and can take up to an hour to complete. The Ebony trail is about 2.8km long and can take about 90 minutes. There is also a 4x4 trail available for visitors. A minimum of two vehicles are needed to drive on the trail. AFNP is a great area for stargazing because of the open African skies with no disturbances. The geological dome, Moon Rock is a great tourism attraction and visible from the access road into the main rest camp. Visitors to Moon Rock are cautioned against removing any rock whatsoever, as this practice can ultimately destroy a phenomenon which took millions of years to form. Tragically, some moon rock pop-ups have been destroyed by tourist removing rock and heaping them as proof of their visit

The park has one large rest camp comprised of 59 chalets and cottages that sleep a total of 120 people with, as well as 50 camp sites. The Oranjekom Gorge Cottage approximately 15 km from the main rest camp forms the 60th unit situated in one of the most pristine and attractive areas in the park. The rest camp boasts three swimming pools for the exclusive use of overnight guests, while there is also a swimming pool in the day visitor's area. A daily limit of 50 day visitors in the day visitor's or picnic area has been imposed, to ensure that day visitors have a safe and secure experience in the park. No alcohol and music are allowed in this area. The visitor management plan needs to be effectively implemented to mitigate the risk factors posed by overcrowding especially of the day visitor's or picnic area, including, among others, black flies, water pollution and inappropriate visitor behaviour.

Aging infrastructure continues to be a challenge as this needs to be continuously upgraded to cater for the increase in demand and to keep up with the defined tourism standards. The improvement of tourism infrastructure which includes the upgrading of 10 units (chalets) is critical for sustainable growth. Visitor experience and tourism infrastructure like boardwalks and walkways are particularly vulnerable due to periodic damages caused by high water levels.

The park also has one conference facility known as the BMW Conference Centre, which can host up to 30 seated participants.

The long-term plan with regards to the Portion 1 of the Farm No 498 known as Melkbosrand, situated in the northern section of the park, is to enable a co-management agreement with the Riemvasmaak community, with the objective to enhance eco-tourism in that area. The park will co-market and support the development of tourism products compatible with nature conservation, and both Conservation and SET divisions will play a prominent role in establishing tourism links.

This programme links with high-level objective 3 and objectives 3.1 – 3.7 on pages 42 and 43. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

RESPONSIBLE TOURISM PROGRAMME					
High-level objective: To strive to be a unique tourism destination of choice by enabling and growing diverse visitor experiences whilst sustainably growing revenue and protecting the sense of place.					
Responsible Tourism performance objective: To establish, maintain and continuously improve the park's responsible tourism performance, by implementing SANS1162:2016					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To develop a RT programme for the park that aligns with the SANParks Responsible Tourism Strategy	Communicate the RT programme to all park stakeholders	Regional Communications Manager (RCM), PM, Hospitality Services Manager (HSM), Duty Manager (DM)	Reports	Year 2	SANParks Responsible Tourism Framework, SANParks Responsible Tourism Strategy

RESPONSIBLE TOURISM PROGRAMME					
High-level objective: To strive to be a unique tourism destination of choice by enabling and growing diverse visitor experiences whilst sustainably growing revenue and protecting the sense of place.					
Responsible Tourism performance objective: To establish, maintain and continuously improve the park's responsible tourism performance, by implementing SANS1162:2016					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To develop a RT programme for the park that aligns with the SANParks Responsible Tourism Strategy	Motivate and educate staff in RT principles and enhance tourism capacity and skills base within staff complement	HSM, DM	Training registers	Year 2, ongoing	
To continuously improve RT performance	Conduct and establish a baseline (gap analysis) to identify current performance in relation to the Responsible Tourism Standard, SANS1162:2011	Corporate Tourism, PM, HSM, DM	Report	Year 3	SANS1162 Responsible Tourism Strategy
	Engage in RT assessment, in order to measure performance improvement in relation to set RT targets	Corporate Tourism, PM, HSM, DM	Assessments, reports	Year 3, 6, 9	SANS1162 Responsible Tourism baseline targets
	Engage in Tourism Quality Assurance assessments and grading, as appropriate	Corporate Tourism, PM, DM	Reports	Annually	Responsible Tourism strategy
	To implement sustainable energy and water saving practices where possible	HSM, DM, TO, PM	Reports	Ongoing	
	To minimise waste and recycle where possible	HSM, DM, TO, PM	Reports	Ongoing	
Visitor experiences objective: To continually enhance the authentic visitor experience within the park, through effective visitor management, interpretation and quality of facilities offered.					
To improve the visitor experience by promoting the conservation values of the park through awareness programmes and effective visitor management	Develop a park Visitor Management Plan, including priorities for implementation	General Manager: Visitor Management (GM:VM), PM, HSM, DM	Document	Year 1	
	Implement the visitor management plan actions according to the prioritised list	PM, HSM, DM	Reports	Year 3, ongoing	
	Effectively manage visitor numbers through seasonal peaks	PM, HSM, DM	Reports	Ongoing	
	Develop, print and distribute quality pamphlets and brochures	PM, HSM, DM	Pamphlets and Brochures	Ongoing	
	Support the development of an interpretation centre to improve the current signage and interpretation	PM, HSM, DM, SET Officer	Building	Ongoing	
	Conduct regular tourism awareness training with staff	HSM, DM, Supervisor	Training register	Ongoing	
To establish and/or monitor, where relevant, RT requirements for commercial and PPP partners	Engage with commercial and PPP operators regarding SANParks' commitment to RT principles and agree to targets and assessment with operator	Business Development Unit (BDU), PM, DM	Updated agreements, assessment reports	As required per contact	SANS1162, Individual PPP agreements
To enable quality visitor experience through dynamic interpretation of biodiversity, cultural and heritage attributes of the park	Develop a park interpretation plan, taking existing interpretation into account, and including priorities for implementation	GM:VM, PM	Interpretation Plan	Year 1	



RESPONSIBLE TOURISM PROGRAMME					
High-level objective: To strive to be a unique tourism destination of choice by enabling and growing diverse visitor experiences whilst sustainably growing revenue and protecting the sense of place.					
Visitor experiences objective: To continually enhance the authentic visitor experience within the park, through effective visitor management, interpretation and quality of facilities offered.					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To enable quality visitor experience through dynamic interpretation of biodiversity, cultural and heritage attributes of the park	Implement the interpretation plan actions according to the prioritised list	PM, DM	Reports	Ongoing	
	Implement programmes for visitors as required, with reference to holiday programmes and activities arranged for special interest groups	PM, DM, SET Officer	Programme Documents and Reports	As required	
	Develop interpretive materials to enhance environmental awareness	PM, SET Officer, DM	Up to date pamphlets and checklists, signage	Ongoing	
To ensure adequate, effective and accurate visitor communication	Update and maintain the signage manual	RCM	Signage manual	Year 1	Corporate Identity Manual
	Review of all current signage within visitor areas and consolidate signs per facility	PM	Report	Year 1, ongoing	Signage manual
	Maintained a Tourism Guide booklet	Regional Marketing Manager (RMM), PM	Document	Year 3	Interpretation plan, Sales and marketing strategy
	Ensure the availability of marketing material and accurate communication of park rules, rates and facilities on various platforms	RMM, PM	Park rules, park information on website, reservation attachments, interpretive signage	Ongoing	Visitor management policy and protocols
	Train relevant staff and tourism partners to communicate key park and tourism information to visitors	PM, DM	Training reports	Ongoing	Park rules, visitor information, Media & comms toolkit
Service excellence objective: To enable relevant customer-focused service excellence, by understanding and responding appropriately to market expectations and or preferences.					
To enhance customer service standards	Engage in regular staff training to ensure current high standards in customer service are maintained	PM, DM	Training register	Ongoing	Online feedback, park visitor book, emails
	Manage and resolve feedback received from the public	PM, DM	Customer feedback given	Ongoing	Online feedback, park visitor book, emails

RESPONSIBLE TOURISM PROGRAMME					
High-level objective: To strive to be a unique tourism destination of choice by enabling and growing diverse visitor experiences whilst sustainably growing revenue and protecting the sense of place.					
Service excellence objective: To enable relevant customer-focused service excellence, by understanding and responding appropriately to market expectations and or preferences.					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To enhance customer service standards	Regularly assess facilities to ensure operational procedures are conducted and facilities are maintained to SANParks' standards	PM, DM	Facilities inspection checklists	As required	SOPs Tourism grading standards
Grow tourism revenue objective: To sustainably grow income through tourism by providing visitors with an appropriate and a diverse range of products and services, whilst protecting the tranquillity and sense of place.					
To promote 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	PM, HSM, DM	Annual price updates	Annual	Annual tariff review
	Enable cost savings within operations by ensuring effective management and controls	PM	Financial reports	Ongoing	
To identify alternative tourism income generating opportunities	Identify all possible activities, event and facilities that may be considered for development within the park	PM, BDU	Product Development Framework	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	
	Develop identified projects	PM	Tourism Development Plan	Year 2, Ongoing	
To ensure optimal returns from commercial operations	Support commercial operators in order to maximise revenue generation	PM, BDU	Concession revenue	Ongoing	
Operational effectiveness objective: To enable cost savings within tourism operations, by ensuring effective management and controls.					
To enhance existing tourism attractions and develop new products within the park in line with the recommendations of the RT programme	Enhance Customer Service Standards, manage and resolve feedback from the public	DM	Questionnaire responses	Ongoing	Tourism grading standards, SANParks Housekeeping Standards,
	Review and analyse guest feedback to provide targets and improvement	DM	Documentation	Annually	Housekeeping Standards
To create awareness of the importance of customer care among employees	Introduce employee awareness campaigns as part of the training and service commitment of employees	DM	Registers	Ongoing	
Ensure compliance and achievement of set Customer Care Standards	Continue monitoring and review of, as well as training programmes on processes in ensuring effective service delivery and customer satisfaction	DM	Survey results	Ongoing	



RESPONSIBLE TOURISM PROGRAMME					
High-level objective: To strive to be a unique tourism destination of choice by enabling and growing diverse visitor experiences whilst sustainably growing revenue and protecting the sense of place.					
Promotion objective: To promote the unique cultural and natural landscape of the park by developing and implementing a variety of sales, marketing and communication initiatives.					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To promote the park to broader SANParks markets and park specific target markets	Identify park specific markets, and devise strategies for expanding on these markets	GM: Sales and Marketing, RMM	Sales and marketing plan	Ongoing	Sales and marketing strategy
	Find opportunities for media coverage and enhance coverage in existing editorials, magazines and social media, and maintain high media visibility	RCM, DM, HSM, PM	Documentation, articles	As required	Sales and marketing strategy
	Explore opportunities for promoting park attractions in conjunction with tourism partners	RMM, PM	Minutes of meetings	Ongoing	
	Enable packaging and selling of key attractions and facilities in the region	RMM	Sales and Marketing Plan	Ongoing	
Universal access standards objective: To ensure that persons with disabilities have equal rights of access to all tourism infrastructure, products and services, including employment opportunities and benefits that the park can provide.					
To provide the same choices for all consumers to ensure the full participation of persons with disabilities, the elderly and parents with young children by creating appropriate facilities and providing dignified service	Comply with the Corporate UA standards.	DM, Technical Officer (To)	Document	Year 2	SANParks UA Guidelines
	Engage in UA assessments.	DM, TO	Documentation	Year 3, 6, 9	UA strategy, UA protocol
	Sensitise staff to UA client expectations / requirements.	DM	Documentation	Year 2	
	Investigate ways to make trails and walkways more user-friendly and accessible	SR, Corporate Tourism	Reports	Year 1, 3, 5	
Assessment objective: To monitor and evaluate the impact of the implementation of this programme					
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HSM, DM, TO	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.5 Cultural heritage management programme

The purpose of this programme is to effectively preserve, interpret, and present the long archaeological record and living cultural heritage associated with the park.

The management of cultural heritage resources is guided by national legislation, policies and procedures within SANParks. The National Heritage Resources Act No 25 of 1999 (NHRA) provides the framework for the maintenance and conservation of heritage resources in accordance with the standards and procedures set out by the South African Heritage Resources Agency (SAHRA). SANParks policies, such as the Cultural Heritage Policy (2021a), the Heritage Objects

Collections Management Policy (2016), and Guidelines for Burials and Scattering of Ashes (2021b).

The cultural heritage of the park consists of a few heritage sites among which are those associated with the Khoe and San, a historic Anglo Boer War Fort, and multiple grave sites. A database of all tangible and intangible cultural assets associated with the park is being updated and maintained. The database includes asset and site inventories, maps and other relevant documentation.

The park however does not have sites of remarkable appeal to visitors. Because there are limited heritage resources that are open to visitors for tourism and recreational purposes the experience will be improved through interpretation and presentation for educational, traditional and tourism purposes. As more research is conducted in the park, it is possible that new sites, that may be of higher significance might be identified and potentially used for tourism purposes.

A management and monitoring programme will however be integrated into the park's heritage assessment report (2022) to ensure that the state of conservation of the few known sites is continuously monitored. The management of the park's heritage objects and collections will be improved through the development and implementation of a collections management plan. Further emphasis will be placed on the identification, documentation, preservation, conservation, protection and appropriate presentation of heritage assets whilst also raising the cultural knowledge and awareness of local communities and visitors to the park. The park will ensure that communities are allowed access to places of cultural significance. Special events and programmes will also be arranged for school groups and organised groups to enhance awareness, access and exposure to places of cultural significance.

Park management promotes access for cultural practices in collaboration with local communities and other relevant stakeholders through special events and organised excursions. Park management intends to further identify, document, and promote the practicing of living / intangible heritage for sharing with visitors and ensuring that such can be handed down to future generations through educational and awareness campaigns. The park engages in arranging activities such as the celebration of International Mother Language Day with local communities and annual cultural festivals. During International Mother Language Day, the park focuses on promoting the Nama language. Currently, the Nama language is taught in two schools in the Northern Cape, one of which is situated in the local Riemvasmaak community. The Arid Cultural event rotates between the Arid Parks and showcases the diverse cultural heritage of the Northern Cape. Intangible Cultural heritage activities are included in the national Kids in Parks programme, which is an overnight environmental awareness programme for learners in Grades 5 - 7.

This programme aims to improve and diversify the cultural heritage knowledge of the park. SANParks intends to forge quality and inclusive research partnerships with communities, universities, and researchers that will enhance the identification and promotion of park-related and cultural heritage research topics. The park will facilitate and support the research by providing access to available resources, information and documentation. Any research activities will significantly add value to our knowledge of cultural heritage within this landscape. The park shows potential to yield significant information on Late Stone Age research, but this remains a gap to be explored as limited research of that period has been conducted in the area.

This programme links with high-level objective 4 and objectives 4.1 – 4.4 on page 43. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

CULTURAL HERITAGE MANAGEMENT PROGRAMME				
High-level objective: To effectively preserve, interpret and present the long archaeological record and living cultural heritage associated with the park through research, documentation, monitoring and collaboration				
Objective: To provide access to heritage sites through facilitating sensitive and appropriate use of sites for tourism and education purposes				
Actions	Responsibility	PoE	Timeframe	Reference
Enable communities to visit cultural and heritage sites, such as graveyards, to practice rituals and pay respects	SET Officer	Reports	Ongoing	
Enable educational excursions and organised tours		Reports	Ongoing	
Objective: To identify and effectively manage cultural heritage sites by developing and implementing a cultural heritage management plan for the park				
Implement the management activities identified in the heritage assessment report	SET Officer	Report	Annually	
Update inventory of heritage sites in the park by recording newly discovered sites		Updated inventory	As required	



CULTURAL HERITAGE MANAGEMENT PROGRAMME				
High-level objective: To effectively preserve, interpret and present the long archaeological record and living cultural heritage associated with the park through research, documentation, monitoring and collaboration				
Objective: To identify and effectively manage cultural heritage sites by developing and implementing a cultural heritage management plan for the park				
Actions	Responsibility	PoE	Timeframe	Reference
Co-ordinate the design of a permanent exhibition of the selected artefacts found within the park	SET Officer	New exhibition	Year 1	
Co-ordinate the design of signage to capture and record the layout and life at Melkbosrand		New signage	Year 3	
Objective: To preserve intangible heritage through identification, documentation, presentation, knowledge management and enabling access for cultural practices				
Record and interpret the oral history and information relating to cultural heritage in collaboration with local communities and other relevant sources and stakeholders	SET Officer	Records	As required	
Manage living heritage and facilitate cultural practices within the areas managed by SANParks, in collaboration with local communities, and other relevant stakeholders		Records	As required	
Objective: To improve and diversify the cultural heritage knowledge of the park through quality and inclusive research partnerships with communities, universities and researchers				
Identify gaps in research and support research initiatives that seek to address information gaps in relation to cultural heritage in the park	Manager: Archaeology	Research report	Year 2, ongoing	
Objective: To ensure monitoring and evaluation of the implementation of the programme and its effectiveness				
Monitor and evaluate progress and impact against programme objectives and actions	PM, SET Officer	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.6 Engagement, access and benefits

The park wishes to establish and maintain meaningful and beneficial relationships with a wide range of stakeholders, that will benefit the park's values, objectives and various programmes related to the different core functions. Park management strives to maintain existing relations and identify and implement new opportunities for enhancing relationships with surrounding communities, all spheres of government and other stakeholders to ensure that local and regional initiatives and developments contribute positively to the attainment of the overall desired state and objectives of the park and the social-ecological system within which it is embedded. Park management prioritises building and broadening strong, long-lasting support for conservation for greater sustainability through promoting co-operative, collaborative and mutually beneficial engagement opportunities. The conservation of biodiversity and culture has both an intrinsic and/or moral justification, as well as being important for maintaining the flows of natural and cultural ecosystem services that arise from it. The sustainability of the park relies on the maintenance of ecological and cultural integrity, economic viability and social relevance, the latter being dependent on relationships and connectedness to the park. Benefits vary in their scale and scope, including both tangible and intangible aspects, often going hand in hand with costs. Benefits are perception-based and the subsequent "value" of various conservation related benefits (and costs) are perceived (and felt) differently by different stakeholder groups based on their own world views. Various processes linked to sharing benefits associated with employment and business

opportunities, capacity building (through training and environmental education), infrastructure support and a whole array of ecosystem services (provisioning, regulating, supporting and cultural services) that flow from the park, aim to facilitate both access to the park itself as well as access to opportunities for various stakeholders to benefit from the park and as such to grow a societal vested interest in supporting its long term sustainability.

10.6.1 Environmental interpretation and awareness programme

The purpose of this programme is to build constituencies through knowledge transfer and awareness creation amongst people in support of SANParks' conservation endeavours by playing a significant, targeted and effective role in promoting a variety of educational learning opportunities and initiatives.

SANParks has prioritised the provision of environmental education and environmental learning (SANParks, 2017c). This is further underpinned by the Constitution, in which the 'right to a healthy environment' and the need for environmental protection, are clearly stated. The need for environmental education is further strengthened by the fact that the national school curriculum includes "the environment" as an integral focus in several learning areas. An integrated approach to environmental interpretation and awareness raising has been adopted by SANParks.

On 1 October 2019, the Minister of Environment, Forestry and Fisheries, Ms Barbara Creecy, delivered the keynote address at the 10th Oppenheimer Research Conference in Midrand. The conference was held under the theme of 'Advancing Conservation Consciousness', which is important in view of the need to raise the national level of awareness about the environment. Conservation consciousness and environmental literacy are key to securing an environmental future for all people.

A broad stakeholder base is targeted and relevant programmes addressing a variety of issues are presented. The park is situated in the Z.F. Mgcawu (ZFM) Regional Education District. Currently a good relationship exists between the park and the primary and high schools in the area, as well as the officials from the ZFM Education District. The park focuses on the schools in the! Kai Garib Local Municipal area that are located in the following communities: Riemvasmaak, Cillie, Lutzburg, Kakamas, Alheit, Marchand, Augrabies, Noudonsies and Vredesvallei.

The park interacts with NGOs and other community groups to engage in environmental education, interpretation and awareness for adults. The focus areas of this programme are:

- Raise awareness about the environment, with a focus on the system of national parks that represents both natural and cultural resources;
- Promote the use of parks as educational resources, while allowing access, specifically to previously marginalised people;
- Provide interactive programmes that will assist learners to form their own values and attitudes towards the environment;
- Assist learners to contribute in solving environmental issues while participating in park activities and to use the park environment as their laboratory for environmental learning;
- Enhance the experience of visitors to SANParks facilities through environmental interpretation and education to encourage repeat visits; and
- Encourage local communities to understand, appreciate and support the conservation work of SANParks.

Interventions take the form of organised, interactive activities which are categorised into formal and informal programmes. The current beneficiaries of this programme are mainly school and youth groups and special interest groups. The approach to environmental education within SANParks generally focuses on organised and interactive activities which include:

- Formal programmes: Target the formal education sector, directed at school groups visiting the park and learners in schools adjacent to the park. The programme enhances awareness and education among learners through the development of current learning material on environmental conservation for incorporation into the school curriculum. The National Kids in Parks programme and Calendar Days are examples; and



Non-formal programmes: Implement community-oriented initiatives addressing relevant socio-ecological challenges and targeting appropriate stakeholders including farmers, traditional leaders, landowners, women and youth. This programme has the primary objective to build the capacity of communities to support the conservation mandate through raising awareness and sharing of information about conservation issues and promoting involvement.

The programme's tented camp is located within the main rest camp. The tented camp plays a central role in the rollout of the programmes and may be utilised free of charge by schools, youth groups, clubs, churches, community and environmental groups, as well as or other groups for environmental programmes. It consists of a meeting area that accommodates up to 25 people (seated) with ablutions, a kitchen, dining area and shaded area that encloses 20 tents.

A detailed LLP outlining the rationale and operational approach, supports this programme. This programme links with high-level objective 5 and objective 5.1 on page 43. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

ENVIRONMENTAL INTERPRETATION AND AWARENESS PROGRAMME					
High-level objective: To enhance opportunities for co-learning, community outreach, livelihoods and benefits through collaboration with stakeholders					
Objective: To provide interactive visitor interpretation and promote environmental awareness and co-learning amongst a diverse range of stakeholders through engagement with local schools, communities and park visitors					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To provide interactive visitor interpretation and promote environmental awareness and co-learning amongst a diverse range of stakeholders through engagement with local schools, communities and park visitors	Facilitate access to the park for environmental interpretation and awareness raising purposes e.g. Kids In Parks Programme, Augrabies Parks Programme, SA National Parks Week groups	SET Officer, Regional SET Manager	Attendance registers	Ongoing	EA programmes
	Plan and implement campaigns to enhance environmental awareness, e.g. special – and calendar days	SET Officer	Report	Ongoing	Calendar day schedule
	Support and encourage youth development programmes, e.g. skills training	SET Officer	Report	Ongoing	Corporate APO
	Strengthen co-operative relationships with other initiatives, e.g. Conservation Soccer	SET Officer	Report	Ongoing	EA programmes
	Review and update current interpretation material	SET Officer	Updated interpretation material / displays	Ongoing	Displays

ENVIRONMENTAL INTERPRETATION AND AWARENESS PROGRAMME					
High-level objective: To enhance opportunities for co-learning, community outreach, livelihoods and benefits through collaboration with stakeholders					
Objective: To provide interactive visitor interpretation and promote environmental awareness and co-learning amongst a diverse range of stakeholders through engagement with local schools, communities and park visitors					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To maintain and implement awareness activities and programmes	Facilitate and co-ordinate the publishing of articles to local newspapers, social media and internal communication news	SET Officer	Radio interviews, social media inserts, articles published, monthly reports	Ongoing	EA Programmes
	Maintain the programme centre	SET Officer; TO, PM	Monthly reports, bookings register	Ongoing	Park Maintenance Plan
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SET Officer	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.6.2 Stakeholder engagement programme

The purpose of this programme is to build positive relationships with society by facilitating effective engagement and linkages to share conservation benefits through partnerships (e.g. government departments, NGOs, local communities and local community structures, Traditional Councils, parastatals, community-based organisations).

Stakeholder engagement between SANParks and society covers a range of different objectives at various scales, ranging from local to global. The NEM: PAA promotes the participation of local communities in the management of protected areas. It further contributes towards strengthening stakeholder-park relations by empowering stakeholders and local communities to participate in decision-making processes related to management and development issues in parks. SANParks has adopted an overarching park management approach to strengthen relationships with stakeholders in pursuit of the long-term “desired state” for the park. This requires continuous engagement with a range of stakeholders and sectors through various mechanisms. Park management’s engagement with external stakeholders needs to be responsive in dealing with issues beyond internal operations, including the broader economic and integrated land-use role of the park. The commitment to the incorporation of public opinion into park management is rooted in the recognition that the park must serve a conservation-oriented subset of societal values and that it is inevitably situated within a broader landscape and context.

SANParks has a mandate to conserve biodiversity and to promote the associated conservation values. Stakeholders also have an interest in the park and how it affects the surrounding and interested community and their activities. It is acknowledged that the sustained vibrancy and legitimacy of the park depend upon stakeholder understanding, support and involvement. For this reason, the park management wishes to engage stakeholders in an ongoing way, subsequently investing in stakeholder engagement and public participation processes.

The park’s Stakeholder Engagement Strategy guides the process in engaging the stakeholders in all the aspects of park management. Park management strives to maintain existing relations and to identify and implement new opportunities for enhancing relationships with surrounding communities, all spheres of government and other stakeholders. Co-operative partnerships pertain to many levels of stakeholders, including all three levels of government, international and national agencies (including conservation and development NGOs and research institutes), business partners, local communities, land claimants, employees, tourists and the media. Stakeholder engagement and co-operative partnerships are facilitated through a range of informal and formal structures. This in turn will ensure that local and regional initiatives and developments contribute positively to the attainment of the overall desired state and objectives of the park and the social ecological system within which it is embedded. Various programmes and projects implemented in and around the park aim to address this by fostering positive stakeholder relationships and establishing co-



learning opportunities through environmental and cultural education and awareness. Restoring people's rights of access and to benefit from conservation land and/or associated businesses, remains an important focus within constituency building.

In the context of this programme, the focus is on promoting co-operative governance at a local level through the various park-community engagement structures and processes. Co-operative governance pertains to many levels of stakeholders including all three levels of government, international and national agencies (including conservation and development NGOs and research institutes), business partners, local communities, employees, tourists and the media. The park engages with neighbouring communities primarily through community forums representing relevant stakeholders. Community forums provide a platform for communication between the park and its neighbours on issues that are of mutual interest. The forums vary considerably in terms of who they represent (number of Traditional Councils, townships and villages) but in theory they represent all neighbouring communities adjacent to the park. The forums are governed by their own constitutions and a communally elected committee comprising of a chairperson, deputy chairperson and secretary. It also includes structures such as the Park Forum, the RCDT and water-user associations to name a few.

The Park Forum was established in 2004 and meetings take place quarterly. Each of the community forums, as well as other broader interest groups such as municipalities, schools, churches, local businesses, adjacent conservation areas (e.g. conservancies) and other members of the public, is represented on the Park Forum. The Park Forum provides a legitimate platform to communicate park / SANParks matters to ensure participation by all stakeholders on matters of mutual relevance affecting the park. It will also provide a platform to build constituencies in support of the natural and cultural heritage conservation goals of the park.

Park management has a close working relationship with the SANParks Honorary Rangers, especially with the newly formed Arid region. They contribute both in cash and in kind to the park programmes. Their expertise is used by the park to achieve the park's desired state. They contribute in the following ways, to name but a few:

- Support and assist in environmental education and community outreach programmes;
- Support logistical arrangements of major events;
- / Fundraising initiatives;
- Participate in park operations during weekends and holidays when requested; and
- Participate and assist with holiday programmes.

A detailed LLP outlining the rationale and operational approach supports this programme. This programme links with high-level objective 5 and objective 5.2 on page 43. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

STAKEHOLDER ENGAGEMENT PROGRAMME					
High-level objective: To enhance opportunities for co-learning, community outreach, livelihoods and benefits through collaboration with stakeholders					
Objective: To establish and maintain meaningful relationships with relevant stakeholders through collaborative engagement					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To establish and maintain meaningful relationships with relevant stakeholders through collaborative engagement	Review and update the stakeholder engagement plan, with norms and standards	SET Officer	Stakeholder engagement list	Ongoing	Stakeholder Engagement List
	Build relationships and improve communication with stakeholders in accordance with the list	SET Officer	Social media engagements	Ongoing	Stakeholder Engagement List

STAKEHOLDER ENGAGEMENT PROGRAMME					
High-level objective: To enhance opportunities for co-learning, community outreach, livelihoods and benefits through collaboration with stakeholders					
Objective: To establish and maintain meaningful relationships with relevant stakeholders through collaborative engagement					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To strengthen and activate relationships with stakeholders through the Park Forum	Review the terms of reference and stakeholder representation of the Park Forum	SET Officer	Reviewed terms of reference	Y2	
	Arrange and facilitate Park Forum meetings and engagements	SET Officer	Minutes of meetings	Quarterly	
	Engage Park Forum Members and communities in park projects, events, activities	SET Officer, PM	Reports	Ongoing	
To co-ordinate and support volunteer groups	Ensure that volunteer activities are aligned with park activities	SET Officer, PM	Reports	Ongoing	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SET Officer	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.6.3 Socio-economic opportunities programme

The purpose of this programme is to strive for equitable employment and business development by promoting fair access to a range of opportunities. This will be achieved through a significant, targeted and effective contribution to local economic development, economic empowerment and social development in communities and neighbouring areas adjacent to the park. This will furthermore be achieved by partnering with local government to form part of the IDPs, participating in government programmes such as the EPWP to contribute to local skills development by supporting learnerships, implementing needs-related training programmes and by creating business opportunities.

The government promised socio-economic transformation (SET) and stated its commitment to eradicate poverty by creating opportunities where the poor become involved in productive activities. This applies especially to those residing in rural areas. The promotion of Broad Based Black Economic Empowerment in various sectors is part of the government vision for the upliftment of previously disadvantaged individuals. The focus will be on their integration into viable sectors, which will potentially boost communities economically. Socio-economic empowerment is critical to meeting the government's development goals and will help to establish shared vision partnerships in the communities. With the right opportunities and essential business skills training, the communities will be empowered to understand mutually beneficial practises and to safeguard the sectors in which they are involved.

Park management is committed to ensure that a broad base of South Africans participate and get involved in biodiversity initiatives. All SANParks operations should also have a synergistic relationship with neighbouring or surrounding communities for the educational and socio-economic benefit of these communities, hence enabling the broader society to be connected to national parks. In line with the Annual Plan of Performance, park management commits to nation building, economic transformation and combatting the triple challenges of poverty, inequality and unemployment by aligning the SANParks socio-economic development strategy to government programmes such as the National Development Plan, the Nine Point Plan for growing the economy, the DFFE Biodiversity Economy strategy etc. by creating economic opportunities and beneficiation through various mechanisms. The aforementioned strategy outlines SANParks' role in supporting the government mandate on radical socio-economic development which can be achieved by upholding corporate governance principles and working in unison with intergovernmental programs such as the EPWP, while also contributing to local skills and enterprise development.

The need to re-define its identity and usher in new ways of managing protected areas has increasingly been recognised in the management of protected areas. It has moved out of the 'island' mentality of management, with consideration of landscapes and seascapes, and the need to focus on the political, economic, and cultural aspects, as well as on the crucial biological values. Resources that can be used to unlock opportunities with a substantial contribution to the socio-economic development of communities exist in protected areas. Local communities have had long-standing traditions of conservation and restrained resource use, they thus have a



wealth of traditional knowledge in conservation management and their involvement will provide the opportunity to restore and integrate this knowledge.

Several programmes are being implemented throughout SANParks to contribute to the development of local communities, including waste management, social legacy, the EPWP, environmental protection, infrastructure development, the wildlife economy and green and blue economy programmes. The green and blue economy programmes contribute to the development and growth of green sector industries in local communities through provision of access to and use of wildlife and marine resources in national parks. The establishment of viable ecotourism enterprises for the economic benefit of the local communities, is another key area of the programme. The sourcing of goods and services from local communities is also promoted through the identification and ring-fencing of opportunities for the benefit of these local enterprises. By partnering with neighbouring district and local municipalities and neighbouring local communities, the park has made strides towards enabling previously disadvantaged individuals and Small, Medium and Micro Enterprises (SMMEs) providing better access to park-related opportunities. Considering that AFNP have daily and seasonal business operational needs, small SMMEs are encouraged to take advantage of business opportunities in the park. Park management will utilise small local businesses for catering, cultural group dancing and cultural instrument displays, to name a few. SMMEs are critical drivers of job creation and, more broadly, economic growth in South Africa. The government has prioritised SMME development as one of the strategies for economic development and job creation. The SANParks Enterprise Development Strategy will take a long-term view and place its primary emphasis on facilitating youth access to the benefits presented by national parks. Empowering young people is a national priority and skills development will enable young people to drive the reconstruction and development of our country.

The EPWP is a nationwide programme and covers all spheres of government and state-owned enterprises. It focuses on poverty alleviation and on labour intensive projects that create temporary jobs in the short term while simultaneously achieving biodiversity objectives. This programme provides an important avenue for labour absorption and income transfer to poor households in the short to medium-term. It specifically targets the creation of employment for poor, unemployed people who are either unskilled or poorly skilled. SANParks has implemented EPWP projects in the park since 2013. Two programmes namely Working for Ecosystems (WfE) and WfW are currently active in the park. Since inception 143 WfE and 252 temporary jobs were created, and R 22,728,513 has been spent on operations and the management of these programmes.

As a developing country, South Africa exhibits typical associated challenges and there are for example, communities, particularly in rural areas, without basic services such as clinics, water and sanitation, schools without the necessary infrastructure / equipment, high unemployment and low literacy levels. Most national parks are in rural areas that experience these problems. Communities living in these areas view SANParks as a catalyst for socio-economic development. National parks can therefore not grow in isolation without taking cognisance of the needs of the people living in the neighbouring communities. The SANParks social legacy programme contributes to government's mandate, as well as to the sustainable development goals on social development, through collaboration with local municipalities, provincial and national government departments by contributing towards the provision of much-needed facilities and services in communities bordering national parks. A dedicated fund has been established by SANParks to support the establishment of social investment projects in communities. The social legacy programme is used to develop and support sustainable programmes and projects that will have a long-lasting impact in local communities. The fund is used to provide facilities which support education.

A detailed LLP outlining the rationale and operational approach supports this programme. This programme links with high-level objective 5 and objective 5.3 on page 43. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

SOCIO-ECONOMIC OPPORTUNITIES PROGRAMME					
High-level objective: To enhance opportunities for co-learning, community outreach, livelihoods and benefits through collaboration with stakeholders					
Objective: To facilitate local socio-economic opportunities through diverse initiatives					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To facilitate local socio-economic opportunities through diverse initiatives	Support the establishment of eco-tourism initiatives in the Melkbosrand section	SET Officer, Regional SET Manager, HSM, PM	Reports	Ongoing	
	Assist the Riemvasmaak community and others with in-house skills development	SET Officer, HSM	Reports	Ongoing	
	Initiate the possibility of Astro-stays in local communities	SET Officer	Reports	Ongoing	
	Support possible Astro-stays in local communities	SET Officer, HSM, RCM	Reports	Ongoing	
	Support and market the Namataradi Nama Kappie initiative	SET Officer, RCM	Reports	Ongoing	
To support and enhance EPWP programmes including other e.g. People & Parks	Support EPWP programmes and enhance knowledge through Calendar Day celebrations.	SET Officer, EPWP Manager	Reports	Ongoing	EA Programmes
	Assist with the selection of youth and women as per <i>ad hoc</i> programmes	SET Officer	Reports	Ongoing	TMs
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SET Officer	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

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, objectives 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 programme is to mitigate potential negative environmental impacts on the park caused by development and operational activities, through effective risk management and assessment, legislative compliance and the implementation of environmental management tools.

Park management is required to practice sound environmental management in accordance with required standards of environmental best practice and in compliance with legislation. Several management tools are used to develop and manage the park and form the basis of an environmental management framework.

In terms of section 24(2) of the NEMA, the Minister of the DFFE has identified activities that may not commence without authorisation from the competent authority as stipulated by the NEMA: EIA Regulations. Further to the provisions of NEMA, park management will assess risk and implement Environmental Management Plans (EMPs) to guide all construction and operational activities that are not listed under NEMA as an activity requiring an EIA process. The precautionary approach will be applied as well as NEMA Section 28 (2) Duty of Care which imposes a general duty and obligation on every person to avoid pollution and environmental degradation. The precautionary principle 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.



Further to the provisions of NEMA, park management will develop standards of best practice to guide all operational activities that may have an impact on the environment. The park will therefore be guided by all legislative requirements in ensuring best practise towards environmental management and with minimum impact on the environment.

This programme links with high-level objective 6 and objective 6.1 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

ENVIRONMENTAL MANAGEMENT PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives.					
Objective: To strive for best practise and ensure compliance with environmental legislation through improved governance and environmental risk management.					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To manage and reduce the impact of park activities in accordance with legislation to prevent pollution and environmental degradation	Make environmental legislation available to relevant staff	SR	Database, files	Ongoing	
	Ensure that EIAs and specialist studies are completed for listed activities		Documents, reports	As required	
	Implement internal environmental management programmes for non-listed activities / developments		Documents, reports	As required	
	Monitor compliance and enforce requirements as set out in the Environmental Authorisation for listed activities; and environmental management programmes for non-listed activities		Reports	As required	
To reduce the park's carbon footprint as a measure of the environmental and climate change impact of its operations and activities	Identify, develop and implement a set of SOPs to manage all significant environmental impacts	SR, Head of Departments (HODs)	SOPs	Year 2, ongoing	Ecosystem Based Adaptation Strategy and Guidelines, Draft National Adaptation Strategy, Draft Climate Change Bill, National Climate Change Response Policy
	Review the SOPs	SR, HODs	Updated SOPs	Year 3, 6 and 9	
	Investigate how to reduce energy usage using green technology	SR, PM, TO	-	Ongoing	
	Create awareness amongst staff and overnight visitors regarding energy usage and energy saving measures	SET Officer, HODs	Awareness training, information documents	Ongoing	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SR	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.2 Risk management programme

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

In line with corporate governance best practices and as per the Public Finance Management Act, (Act No. 01 of 1999) (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 assessment process, based on the thorough understanding of the environment in which the organisation operates and the strategic corporate objectives it intends to deliver upon.

The main aim of the CRMF is to instil a culture of corporate risk management awareness and risk ownership, which is 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 basis for the effective management of all risks to remain within the risk appetite of the organisation.

Acknowledging that all activities within the organisation are exposed to various types of risks, the focus of this framework is on the optimal balance between potential risks and the potential rewards that may emanate from both proactive 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 a continuing basis. The risk profile reflects among others the risks identified, as well as how each risk is addressed and/or monitored. At park level, the general managers are responsible for risk management. As the link between the operational activities and its environment on the one hand, and the corporate support and management structure on the other, the general managers are in many instances responsible for implementation of corporate initiatives, programmes, management plans and other projects that form part of the SANParks strategy to address or mitigate issues of risk. Similarly, the SANParks Strategic Plan and Annual Performance Plan must be incorporated to ensure that strategic initiatives are achieved. 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. The park may also, from time to time, experience extreme environmental / weather conditions (i.e. droughts, floods) as part of the normal cycle. An appropriate response to each of these events will be addressed in the disaster management plan.

The heads of departments need to ensure that emerging issues of risk, that can jeopardise achievement of the park's (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 staff 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 6 and objective 6.2 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

RISK MANAGEMENT PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective	Actions	Responsibility	PoE	Timeframe	Reference
To establish and maintain effective, efficient and transparent risk management systems by creating an enabling environment for the management of risk	Review and revise the Risk Response Plan on an annual basis	PM, HODs	Risk Response Plan	Annually	CRMF
	Implement the risk response initiatives, review and update this as required	PM, HODs	Risk Response Plan	As required	CRMF
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans



10.7.3 Financial management and administration programme

The purpose of this 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 PFMA, and it is listed as Schedule 3 Part A: 25 Other Public entity.

The finance division supports operations and projects of the park and ensures that these are managed in accordance with sound financial principles and effective internal controls. The finance division also ensures that the financial accounting and administration activities comply with the PFMA, Generally Recognised Accounting Practise, and Preferential Procurement Policy Framework, National Treasury Regulations and organisational policies and procedures. All tender processes and procurement opportunities to local communities are guided by the SANParks policy framework.

The Arid Region Finance Manager is based in the Kgalagadi Transfrontier Park and reports to the Kgalagadi Park Manager who further reports to the Regional General Manager while providing support to the Arid Region Parks consisting of the Kgalagadi and |Ai-|Ais/ Richtersveld Transfrontier Parks, Mokala, Au-grabies Falls, Namaqua and Meerkat National Parks.

The financial management and administration support function entails the following activities:

- Budgeting management;
- Financial accounting;
- Financial administration;
- Asset management; and
- Supply Chain Management (SCM).

The financial division manages the consolidation of the annual budget for the park, which includes both the operational and the capital expenditure budgets. Furthermore, quarterly reporting on the actual budget performance against allocated budget for the period is provided. It is also responsible to guide and provide the necessary assistance with the budget process to all cost centre managers in the park. The SANParks annual budget guideline informs a zero-based approach, which implies that every category must be critically assessed and evaluated before the budget proposal is submitted.

Financial administration entails the day-to-day processing of financial transactions such as processing and payment of invoices, account reconciliations, processing of debtors' invoices, etc.

The park has a moveable asset (non-living) base with a book value of R 140 million. It is therefore critical that all the assets of the park are correctly accounted for. It is also critical that the assets are managed effectively according to the asset management policy and procedure. All procurement for goods and services is done in accordance with the National Treasury guidelines as per the PFMA and Preferential Procurement Policy Framework.

There are certain core functions and activities performed in the park that are dependent on external funding from different donors. This includes support through the EPWP and Environmental Protection and Infrastructure Programmes for natural resource management and infrastructure development programmes. The financial sustainability of these core functions and activities therefore needs to be critically reviewed on an ongoing basis, since funding through these programmes and donations are mostly short to medium-term. This might pose a major financial risk to the park, should alternative funding sources not be secured. This requires that innovative mechanisms for financial sustainability be investigated to ensure that the core functions are maintained, including the increasing burden as a result of the much-required safety and security operations, the ability to respond to regional drivers and threats through the regional land-use

programme, and the commitment towards delivering tangible socio-economic development opportunities to communities.

The following challenges have been identified:

- The annual operational budget allocated is not sufficient to cover all operational costs;
- Whilst the budget methodology is based on zero-based budgeting, there is a limitation of available financial resources to fund additional activities, which often requires that operations are prioritised to carry out new initiatives; and
- The cost for the in-sourced fleet for the park.

This programme links with high-level objective 6 and objective 6.3 on page 44. 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 ensure 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 through proficient budget management, effective internal controls and compliance to corporate governance prescripts					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To attain effective financial management	Ensure less than 1% variance on cost of operations	PM, HODs, BSP: Cluster Manager, Regional Finance Manager	Statements with <1% variance	Annually	
	Ensure sound financial management of special projects – BSP		Budget targets achieved	Quarterly / annually	
	Participate in the independent audit of financial records		Audit report	As required	
	Address audit findings		Audit findings report	As required	
To grow revenue (Including alternative sources of revenue)	Identify possible external funding to supplement current income streams	PM, HODs	Funding proposals	Annually	
To improve the management of financial resources	Prepare accurate and realistic annual budgets in consultation with the management team that are in line with the sound management plan objectives	Regional Finance Manager, PM, HODs	Annual budgets	Annually	
	Provide timely financial reports		Reports	Quarterly	
	Review the insurance schedule and submit to corporate		Documents	Annually	
	Submit insurance claims as and when required		Claims	As required	
To ensure proper asset and SCM	Verify and manage asset registers	Regional Finance Manager, PM, HODs, SCM Practitioner	Asset register	Bi-annually	To ensure proper asset and SCM
	Assist with the procurement of goods and services	HODs, Human Resource and Administration Officer (HR/Admin Officer)	Documentation	As required	
	Provide input when contracts are sourced	PM, HODs, HR/Admin Officer	Documentation	As required	
	Ensure sound management of vehicle fleet (i.e. logbooks, services, licencing, fuel management)	HODs	Logbooks, service records, fuel card statements	Monthly	



FINANCIAL MANAGEMENT AND ADMINISTRATION PROGRAMME					
High-level objective: To ensure 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 through proficient budget management, effective internal controls and compliance to corporate governance prescripts					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.4 Human Capital Management programme

The purpose of this programme is to ensure that the park has an adequate human capital function to render effective conservation, visitor and supporting services, whilst also ensuring that it provides human capital development support to surrounding communities as per the SANParks policy framework.

SANParks has developed corporate human capital policies, guidelines and procedures to guide park management and its workforce in an effectively organised structure while delivering the outputs of the management plan. The park views itself as an equal opportunity employer. This is achieved through non-discriminatory practices in the work environment, availability of equal opportunities for employees and prospective employees, respect for diversity and gender differences and the commitment to uphold and implement the Employment Equity Act (Act No. 55 of 1998).

By adhering to corporate policies, guidelines and procedures the park ensures that competent staff are appointed, and that current staff are managed in an effective manner to keep them positive, proactive and committed to their tasks and responsibilities. This also ensures that human capital management complies with the relevant national legislation. Park human resource capacity is not only defined by the 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, and making staff wellness programmes available to employees and their families. This assists staff in dealing with the negative effects of lifestyle diseases and other lifestyle challenges (such as financial planning). The Human Capital and Administration / Finance Officer must report on new appointments, resignations, attendance registers, overtime claims, leave etc. This informs a salary instruction which is prepared for processing of monthly salaries. Park management reviews training needs on an annual basis and submits the training need analysis and requirements for approval to Head Office. Compilation of training needs starts off with the individual development plans for each staff member, 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 (2023) has 41 permanent employees. In addition, there are also three Environmental Monitors (EMs) and seven Tourism Monitors (TMs).

This programme links with high-level objective 6 and objective 6.4 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

HUMAN CAPITAL MANAGEMENT PROGRAMME					
High-level objective: To ensure 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 legislation, corporate human resource policies and guidelines					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To ensure the park attracts and retains the most suitable human capital	Preparation and processing of monthly salaries and employee benefits and leave management	HR/Admin Officer	Salary instructions	Monthly	
	Ensure implementation of the prescribed disciplinary code and procedures		Documentation	As required	
	Conduct regular employment equity and skills development forum meetings		Minutes of meeting	Quarterly	
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	HR/Admin Officer, PM, RGM, HODs	Registers	Annually	
	Fill vacancies with suitably skilled and experienced candidates within agreed timelines as per employment equity targets.	HR/Admin Officer	Statistics	As required	
	Ensure all posts are evaluated and graded		Job descriptions	As required	
	Develop human capital in the fields of tourism, conservation and administration through the internship, and other programmes e.g. EPWP employment opportunities (EMs & TMs)		Contracts	Annually	
To implement plans and skills development strategies to meet the strategic goals of the organisation	Implement training programme for internal employees	HR/Admin Officer, PM, HODs	Training register	As required	
	Assist employees with applications for study bursaries, staff accommodation bookings, changes in medical status, banking changes and assist with queries to medical aid regarding unpaid medical accounts		Documents	As required	
	Assist with workshops and team meetings for staff		Minutes of meetings	As required	SANParks Policies
	Participate in the internal and independent audit of human capital documentation		Audit report	As required	
	Address audit findings		Audit report	As required	
To implement workplace wellness programmes	Participate in wellness awareness workshops	HR/Admin Officer, HODs	Documents	Annually	Wellness Policy
	Provide facilities within the park to enable employees' access to the wellness programme		Facility	As required	
	Refer employees that require assistance through the employee wellness programme		Number of referrals	As required	
	Participate in occupational health and safety (OHS) awareness and health related workshops		Registers	Ongoing	OHS Act
	Commemorate events related to wellness (e.g. AIDS day, world blood donor day, days of activism on non-violence against women)		Registers	Annually	Wellness policy



HUMAN CAPITAL MANAGEMENT PROGRAMME					
High-level objective: To ensure 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 legislation, corporate human resource policies and guidelines					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To implement workplace wellness programmes	Administer injury on duty cases	HR/Admin Officer, HODs	Report	As required	OHS Act, Housing policy, Wellness policy
	Administer staff housing contracts		Document	As required	
	Administer staff housing contracts		Document	As required	
	Provide access to clinics, school, and emergency medical services		Reports, registers, documents	As required	
To manage labour relations matters and provide sound employee relations	Handling of grievances, disputes, disciplinary matters and Commission for Conciliation, Mediation and Arbitration cases	HR/Admin Officer	Reports	As required	Disciplinary and Grievance Policies and Procedures; and LRA
To create and maintain a sound working environment through fair and equal treatment of all employees and stakeholders to deliver SANParks strategic objectives	Implement and manage the Management and Shop Stewards committee meetings	HR/Admin Officer, PM, HODs	Minutes of meetings	Monthly	Organisational Rights Agreements
	Participate in labour relations related training interventions	HR/Admin Officer, PM	Registers	Annually	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.5 Information and records management programme

The purpose of this programme is to preserve the institutional memory of SANParks, by establishing a database of park information. Information and records management is applied to promote accountability, transparency and good corporate governance.

Management of parks requires that appropriate information is collected, preserved and made accessible to a range of internal and external stakeholders for the smooth running of operations at SANParks. The programme also aims to manage knowledge generated so that it benefits the organisation.

Information is not only essential to formulate effective long-term management objectives, plans, programmes and systems, but also to educate and inform residents, associations, user groups, local authorities, provincial and national decision- and policymakers, international organisations and aid / donor agencies. SANParks however, shall always hold the intellectual property right of all such information that is generated by any of its employees in their official capacities.

This programme links with high-level objective 6 and objective 6.5 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

INFORMATION AND RECORDS MANAGEMENT PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To achieve best practice in the field of information and records management by complying to the Records Management Legislative framework and policies and thereby ensuring care of all vital records in SANParks					
Sub-objectives	Actions	Responsibility	PoE	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 plan of the park and implement a single file plan	HODs, PM, HR/Admin Officer	File plan	Year 2	National Archives and Records Services Act
	Implement the records management and file plan		Records and documents filed	Year 3, ongoing	Corporate file plan, Records Management Policy
	Ensure appropriate access to park files and records in accordance with corporate records management policy and guidelines		Access procedures	Ongoing	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.6 Infrastructure programme

The purpose of this programme is to direct 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) are well maintained and continually improved to provide safe, reliable, increasingly environmentally friendly and affordable products to its clients and visitors. The technical department's key responsibility is the delivery and implementation of departmental programmes and the realisation of set goals regarding the above.

Infrastructure in the park entails facilities in support of conservation (such as management roads and tracks, office facilities, staff housing, fences, bulk services, workshops and stores) and tourism (i.e. tourist roads and tracks, viewing points, boardwalks, bird hide, 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 highest possible standard.

Management policies and procedures ensure that infrastructure is maintained, renovated, upgraded and replaced at the required intervals and according to specific design norms and standards, including national construction regulations, "green building" and "touch the earth lightly" principles, as well as measures to save water and electricity and to minimise waste.

The annual maintenance plan addresses issues related to securing funding for upgrading, renovation / maintenance and replacement. Technical services continue to periodically review and assess performance to align activities and allocate resources. The total estimated replacement value of the park's infrastructure is R 225,009,472. There is a major shortfall in addressing the maintenance backlog, annual maintenance, upgrading and new capital development. The required infrastructure maintenance budget for 2024 / 2025 is R 3,799,987 however, only R 1,689,457 has been allocated.

SANParks acknowledges the global concerns around climate change impacts and the need for local action. In addition, South Africa committed to cut emissions by 34% from business as usual by 2020 and by 42% by 2025 under the Copenhagen Accord, thus committing to transform to a low carbon energy economy. In support of this, SANParks has also set out to contribute to national targets by reducing 2% of fossil-fuel-generated energy consumption year-on-year towards achieving carbon neutral operations for the organisation (Phophe & Masubelele, 2020). This will be achieved through the implementation of the SANParks Green Energy Strategy (2022b) to reduce the reliance on fossil-fuel based power generation and its associated adverse economic and



environmental consequences. There are three focus areas. Firstly, energy efficiency measures will be implemented, including technological and social / behavioural interventions. Secondly, investment into and promotion of renewable energy technologies will directly address and reduce the organisational carbon footprint. This will contribute to reduction in air, soil and water pollution, biodiversity loss and thus mitigation of climate change. Thirdly, the increased use of renewable energy sources will contribute to a more sustainable and efficient mix and use of energy and to the reduction of energy costs in the long-term.

Detailed LLPs outline the rationale and technical aspects to this programme. This programme links with high-level objective 6 and objective 6.6 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

INFRASTRUCTURE PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To maintain, upgrade and develop park infrastructure through proper planning and efficient management					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To plan and design all projects to comply with legislation, standards and client requirements	Identify project needs, design specifications and the scope of compliance projects	TO	Documents	Ongoing	IDP programme, capital expenditure (CAPEX), operational expenditure (OPEX)
	Ensure all building projects are designed according to the National Building Regulations and Building Standards Act (Act No. 103 of 1977)		Documents	Annually	Technical services approval procedure
To ensure sound contract and project management to enhance good governance	Appoint suitable staff and contractors who will implement projects in accordance with approved Contracts Management SOP	TO	Documents	As required	Supply chain and recruitment policy
To continue with the application of the sustainable Green Building Principles for all design works	Apply specifications that comply with the Green Building Principles on all designs and planning of infrastructure works	TO	Guidelines	Annually	Sustainable Design Guiding Principles document
To ensure that all infrastructure in the park is maintained and upgraded to a desired state	Compile an inventory of all infrastructures in the park and determine the extent of maintenance required	TO	Inventory	Year 1	
	Implement the annual work plan		Documents	Annually	
To ensure the implementation of the ten-year roads and fence maintenance plan	Reprioritise the Road Maintenance Plan at the beginning of every financial year according to the budget allocation	TO	Documents	Annually	Roads Maintenance Plan
	Implement rehabilitation and routine maintenance on roads	TO, SR, HSM	Reports	Ongoing	
	Identify sections of the fences to be upgraded or removed	SR, BSP	Reports	Annually	
	Upgrade, remove and maintain fences		Documents	Ongoing	

INFRASTRUCTURE PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To maintain, upgrade and develop park infrastructure through proper planning and efficient management					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To ensure that electrical and mechanical equipment and two-way radio communication equipment are serviced and maintained to acceptable standards	Compile an inventory of all mechanical and electrical equipment in the park, determine replacement programme	TO	Inventory	Year 1	
	Develop and implement annual maintenance schedule and service intervals for all equipment	TO	Schedule	Annually	
	Continuously improve skills, and knowledge of maintenance staff	TO, HR/Admin Officer	Register	Annually	
	Ensure that legal inspections / scheduled services are conducted accordingly	TO	Report	As required	
To ensure that all vehicles in the park vehicle fleet comply with applicable legislation and comply with prescribed service intervals and are replaced accordingly	Service all vehicles according to service / maintenance plan at prescribed intervals	TO, HODs	Records	Quarterly	
	Compile necessary documentation to keep record of among others km utilisation, inspection records and annual vehicle replacement schedule budget		Reports	Annually	Approved Replacement Cycle
	Ensure all accidents / incidents are reported, evaluated and repaired as per prescribed documentation	TO, HODs	Reports	Monthly	Fleet Management Procedure
To ensure that all water purification plant infrastructure in the park is maintained to a desired state	Document the scope of maintenance needs in accordance with relevant specifications to guide contractors	TO	Documents	Annually	
To reduce water-use in the park.	Determine and implement a baseline for each water usage group.	TO, HR/Admin Officer, SS	Reports	Monthly, annually	
	Monitor surface and underground water abstractions.		Reports	Monthly, annually	National Water Act
To ensure that all solid waste site infrastructure in the park is maintained and upgraded to a desired state	Compile an inventory of all infrastructures in the park and determine the extent of maintenance required	TO	Inventory	Year 1	
	Implement the annual maintenance plan	TO	Documents	Annually	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.7 Safety and security programme

The purpose of this programme is to provide a safe and secure environment for visitors and SANParks employees and to ensure area integrity and environmental asset protection.

This programme is aligned to the overarching SANParks Safety and Security Strategy. It outlines the safety and security principles applicable to SANParks' environmental assets, staff, contractors, visitors, infrastructure and facilities including entrance gates and the area within the park.

Crime generally constitutes significant risk, and as such poses a major threat to an organisation such as SANParks to deliver on its mandate. This includes the successful protection of all assets (natural, cultural and



physical) under its custodianship as well as the products and services delivered to its customers. Any perception that it is unsafe to visit the park will affect the mandate of SANParks.

To ensure a safe environment and experience for visitors, SANParks must execute the safety and security programme with due consideration of the perceived intrusive nature of mitigating interventions to address the risks associated with a safety and security programme. In this regard, the South African Police Services (SAPS) may be observed in the park whilst performing regular patrols as part of their normal operating procedures to ensure area integrity.

SANParks implements and enforces the requirements contained in legislation and organisational policies. The primary legislation and organisational policies include:

- National Environmental Management: Biodiversity Act;
- NEM: PAA and its Regulations;
- Safety and Security Strategy and Procedures;
- Criminal Procedures Act (Act No. 51 of 1977);
- Control of Access to Public Premises and Vehicles Act (Act No. 53 of 1985); and
- Firearms Control Act (Act No. 60 of 2000).

The Safety and Security Plan comprehensively addresses both the strategic and operational aspects of visitor and staff safety, as well as environmental / and cultural heritage asset protection and area integrity. An 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 actions. Proactive consideration is given to issues such as working hours, law and order, high-risk areas, personnel, infrastructure, resources, equipment, staff training, reporting, data capturing, record keeping, monitoring, information and intelligence.

Park management has a good working relationship with the SAPS as mentioned above. In co-operation with SANParks, joint operations relating to safety and security interventions in the park are planned and implemented.

In addition to this several reactive measures have been developed, including immediate action drills, emergency procedures and evacuation plans. Information regarding these emergency procedures is available in the various tourism accommodation facilities. All staff must be familiar with the above procedures and will receive regular training in this regard.

The overall poaching risk is not very high, except for occasional illegal activities in the more remote western section of the park. Poaching activity involves the use of dogs and snares, which target indiscriminately, and poses a risk to wildlife. Proactive patrolling and operational plans are implemented to protect the biodiversity assets. Unregulated mining in this area can further contribute towards ecosystem degradation.

A detailed LLP supports this programme. This programme links with high-level objective 6 and objective 6.7 on page 44. 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 ensure 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 as well as to ensure the protection and integrity of natural, cultural and physical assets and resources, by implementing a Park Safety and Security Plan					
Sub-objectives	Actions	Responsibility	PoE	Timeframe	Reference
To provide environmental asset protection for natural and cultural resources and infrastructure, whilst improving capacity	Implement the SANParks Safety and Security Strategy	PM, SR	Report	Annually	Safety and Security Strategy
	Conduct regular proactive and reactive interventions i.e. patrols and surveillance operations to ensure that area integrity is maintained	SR	Document	Ongoing	
	Ensure that all SANParks personnel involved with law enforcement operations receive the appropriate advanced / specialised training in operational tactics, investigations & crime scene management	SR	Training records, reports	Ongoing	
	Align the safety and security plan with existing park specific level implementation strategies and plans	SR	Documentation	Quarterly	Relevant Strategies & Plans
	Provide law enforcement officers with an all-inclusive legal support service	Legal services	Reports	Ongoing	
	Ensure appointment and appropriate designation of Environmental Management Inspectors status for law enforcement officers	SR	Documentation	As required	EMI status reports
	Ensure boundary and facility fence-line integrity and maintenance	PM, SR	Documentation	As required	Infrastructure LLP
	Report environmental concerns in the adjacent areas	PM, SR	Reports	Monthly	
To provide a safe and secure environment with due regard for the safety and security of people	Implement an effective permit system and control over private visitors to regulate after-hours movements	SR	Documentation	Ongoing	
	Ensure regular visible patrolling	SR	Reports	Ongoing	
To develop a proactive relationship with safety and security authorities and alliance partners to ensure quick and deliberate safety and security response actions	Improve overall park safety and security through regular interactions with relevant stakeholders	SR	Documentation	Ongoing	
	Engage in joint operations to curb criminal activities	SR	Reports	Ongoing	Joint Operations Plan
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.8 Safety, health, environment and quality programme

The purpose of the Occupational Health and Safety programme is to prevent, minimise and manage occupational accidents and occupational illnesses and diseases.

This programme is required by the Occupational Health and Safety Act (Act No. 85 of 1993), to ensure that workplace hazards are always managed and controlled to guarantee a safe working environment, including



contractor activities on site. The OHS programme is guided by the SANParks Safety, Health, Environment and Quality (SHEQ) policy and framework and includes the elements required by the occupational health and safety legislation as a minimum but is also based on the ISO 45001 Occupational Health and Safety management system standard.

SANParks' commitment to the health, safety and the well-being of all its employees and the environment is an integral element of SANParks' business model. SANParks aims to continually improve its performance with the efficient use of natural resources with no harm to people and the environment, and in this regard, safety, health and environmental risks are identified, assessed and managed to mitigate the impact on employees, visitors and the environment with suitable control measures. SANParks has adopted the internationally recognised and best practice ISO 45001 standard. Under this standard, the park is expected to align with and implement best practice processes and norms. The environment and quality components of the SHEQ programme will be developed over the next five to eight years.

The ISO 45001 standard consists of six elements:

- Identification of hazards and risks;
- Identification of legal and other requirements;
- Determination and development of objectives and programmes;
- Operational control;
- Emergency preparedness and response; and
- Internal audit.

The ISO 45001 will be phased in with the first phase (2024/25 – 2028/29) focussing on the first three bullets listed above. Phase two (2029/30 – 2032/33), will focus on the last three bullets listed above.

This programme links with high-level objective 6 and objective 6.8 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

SAFETY, HEALTH, ENVIRONMENT AND QUALITY PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To continuously reduce the disabling injury frequency rate through the implementation of an efficient and effective Occupational Health and Safety management system					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To implement the ISO 45001 standard	Identify hazards and risks	TO, OHS Chairperson and reps	Register	Year 2, ongoing	
	Identify legal and other requirements		Register	Year 2, ongoing	
	Establish, implement and maintain programmes to mitigate identified hazards and risks		Documents	Year 2, ongoing	
	Develop and implement standard operating procedures to manage identified hazards and risks		Documents	Year 4, ongoing	
	Develop and implement emergency preparedness and response plans		Documents	Year 5, ongoing	

SAFETY, HEALTH, ENVIRONMENT AND QUALITY PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To continuously reduce the disabling injury frequency rate through the implementation of an efficient and effective Occupational Health and Safety management system					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To implement the ISO 45001 standard	Conduct regular self-audits	TO, OHS Chairperson and reps, TO, OHS Chairperson and reps	Reports	Annually	
	Support internal audits			As required	
	Support external audits			As required	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.9 Communication programme

The purpose of this programme is to build and maintain good relationships and a positive park image. It aims to provide key stakeholders, descendent communities, the general public and staff with relevant and accurate information pertaining to the park's operations through media relations and event initiatives. This will be achieved through:

- External communications**
Media relations will ensure that the park is adequately and well presented in the media (both electronic and print). This will be achieved by managing media coverage of contentious issues, educating the public about the park, its cultural heritage values and emerging conservation issues, as well as ensuring that conservation debates receive prominent media coverage.
- Internal communications**
Internal communication is important to facilitate an effective two-way communication process within an organisation. Employees, as the internal stakeholders of the park, have a right to information and therefore the internal communications section exists to ensure that staff members, management and businesses operating within the park, are always well informed about the business activities, processes and new developments in the park.

The programme is intended to ensure transparency and ongoing stakeholder relationship building. A future focus will be to build increased capacity to engage on a more meaningful basis with social media.

This programme links with high-level objective 6 and objective 6.9 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

COMMUNICATION PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To build, maintain and constantly improve relations of the park by engaging and sharing information with internal and external stakeholders					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To strengthen collaborative multi-stakeholder partnership	Develop a Communication Plan based on the Stakeholder Engagement LLP	RCM, all departments	Document	Year 1	Stakeholder Engagement LLP
	Review and adapt the Communication Plan		Revised document	Year 4, 7, 10	Stakeholder engagement LLP
	Disseminate a range of media products based on the respective internal and external stakeholder groups and programmes		Media products	Annually	Communication Plan, Stakeholder Engagement LLP



COMMUNICATION PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To build, maintain and constantly improve relations of the park by engaging and sharing information with internal and external stakeholders					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To strengthen collaborative multi-stakeholder partnership	Disseminate a range of media products based on the respective internal and external stakeholder groups and programmes	RCM	Media products	Annually	Communication Plan, Stakeholder Engagement LLP
	Identify interested and affected stakeholders and develop a joint communication strategy and programmes on themes of joint interest		Document	Year 1	
	Implement the Communication Strategy		Media products	Annually	
To inform the public through mass media about major developments or activities that take place in the park	Issue relevant media releases and alerts and ensure timeous response to media queries	RCM, SET Officer, PM	Media statements and alerts issued	As required	SANParks Strategic Plan, Annual Performance Plan, Annual Communications and Marketing Plan, Filming and Photography Protocol
	Write feature articles / opinion pieces on topical issues		Articles published		
	Build and maintain relations with media houses across various platforms		Updated media database		
	Engage on social media platforms		Online interactions		
	Administer and maintain photography and filming permits		Number of permits issued		
	Ensure up-to-date online content on the SANParks platforms		Number of updates posted		
To facilitate a speedy flow of information between park management and staff using bulletins and internal newsletters, as well as to respond to general customer queries	Develop an annual Communication Plan	RCM	Document	Annually	Communication Plan
	Timeously issue internal bulletins and information broadcasts		Number of internal bulletins and information broadcasts issued	As required	SANParks Strategic Plan, Annual Performance Plan, Annual Communications and Marketing Plan
	Ensure all staff members have access to information through communication forums and newsletters		Newsletters published	Annually	

COMMUNICATION PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives					
Objective: To build, maintain and constantly improve relations of the park by engaging and sharing information with internal and external stakeholders					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To facilitate a speedy flow of information between park management and staff using bulletins and internal newsletters, as well as to respond to general customer queries	Encourage line management to share and clarify fresh information	RCM	Reports	As required	SANParks Strategic Plan, Annual Performance Plan, Annual Communications and Marketing Plan
	Respond timely and accurately to queries, both internally and externally		Reports		
To improve the park's image amongst its stakeholders through the provision of well-planned, managed and co-ordinated events	Promote environmental calendar days, corporate and brand awareness events	RCM	Number of events executed	Annually	SANParks Strategic Plan and APP, Annual Communications and Marketing Plan
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs, RCM	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.10 Disaster management programme

The purpose of this programme is to identify potential disaster risks, and to develop a disaster management plan that provides risk mitigation plans, risk response plans and risk recovery plans.

The programme provides for an integrated and co-ordinated disaster management approach that focuses on preventing and reducing the risk of disasters, mitigating the severity of disasters, and focuses on emergency preparedness, rapid and effective response to disasters and post-disaster recovery as required by the Disaster Management Act (Act No. 57 of 2002). The programme also addresses the training of staff and provides emergency procedures to manage disaster events i.e. droughts, flooding, infrastructure fires.

This programme links with high-level objective 6 and objective 6.10 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

DISASTER MANAGEMENT PROGRAMME					
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives.					
Objective: To ensure that all disaster situations that may occur in the park are addressed and managed through pre-determined contingency plans					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To ensure appropriate preparedness	Develop a disaster management plan	PM	Documents	Year 1	
	Hold annual disaster meetings and drills	PM, HODs	Minutes of meetings	Monthly, quarterly, annually	
	Plan and liaise with provincial structures	PM, HODs	Minutes of meetings	As required	
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans



10.7.11 Climate change programme

The purpose of this programme is to apply best practice to identify, adapt to and mitigate against the impacts of climate change through monitoring and research and by implementing the SANParks Climate Change Preparedness Strategy and aligning with relevant national mitigation and adaptation strategies.

For the purpose of this programme, climate change refers to a significant and long-lasting shift in normal weather conditions that affect average conditions, as well as the occurrence of extremes. Current climate change is thought to be to the result of increased earth surface temperatures, often referred to as global warming, which are accelerated by human-induced or anthropogenic activities releasing greenhouse gases. Climate change can be mitigated by either reducing the use of, and/or reliance on, fossil fuel and energy-intensive processes and through the restoration of natural processes that lead to carbon storage in terrestrial and aquatic systems. Climate change adaptation refers to anticipating the negative effects of climate change and taking appropriate actions to prevent or minimise the damage they can cause or optimising opportunities that may arise to reduce vulnerability. This programme focusses on both aspects of climate change response.

Trends indicate that both annual average minimum and maximum temperatures have increased by almost 1 degree and over 2 degrees respectively over just the last 20 years. Very hot days (>35°C) have increased at an alarming average rate of two days per year. The number of nights that stay warm (where the temperature does not drop below 20°C) also increased at Pofadder (van Wilgen *et al.*, 2016; van Wilgen & Herbst, 2017). While this has not yet been observed at the park, the duration of warm spells has also increased. Future increases in mean annual temperature of up to 3.5°C are predicted by 2050 (detailed in the CSIR Green Book; Le Roux *et al.*, 2019). These changes would have a dramatic effect on the number of extremely hot days experienced in the park, with models predicting increases as high as an additional 72 days above 35°C annually.

No changes in annual rainfall totals were detected in the historical rainfall record at Pofadder for the past 65 years (van Wilgen *et al.*, 2016). Rainfall patterns however appeared to be changing with more rain days, but less rainfall on days when it did rain and a decrease in the length of the longest spell without rain. Smaller rainfall events are biologically significant as they may evaporate faster. The more recent Green Book models include a range of predictions from drying of up to 48mm per year, to an increase of over 90mm annually (Le Roux *et al.*, 2019). General climate change predictions indicate more erratic rainfall (high in some years, low in others, or more infrequent but heavier rainfall downpours in place of smaller steadier rain events). Under the hottest and driest scenario, the entire park area would be outside of its current biome envelope, i.e. there would no longer be Nama-Karoo in the area, but rather desert (Driver *et al.*, 2012; DEA, 2013; Holness & Bradshaw, pers. comm.).

All the settlements in the Kai! Garib Local Municipality have an element of vulnerability, though Lennetsville has very high socio-economic, economic and environmental vulnerabilities, as well as low service delivery access. Kenhart and Lutzburg also have several areas of high vulnerability. The groundwater potential in the region is expected to decline. Overall water supply is only expected to be depleted if runoff drops below the tenth percentile. The key agricultural sectors are also vulnerable to climate change: initially sheep farming may be assisted by increased water availability, though later in the century, the opposite will be true. Increased heat will also lead to reduced pasture as well as lower reproduction due to heat stress; deciduous fruit (table grapes) may have increased production costs for irrigation, while reduced winter cold snap and increased summer heat stress can also affect quality.

SANParks recognises that climate change is likely to influence the distribution of species, with implications for diversity of particular groups. While new species are expected to arrive for more

mobile taxa, the fate of those that do not disperse easily is less certain and may require active management. SANParks thus recognises that managing climate change means managing for change and dealing with uncertainty. Climate change will also affect infrastructure and staff and visitor safety through extreme events such as heat waves, drought, floods and storm surges. The actions to be implemented seek to mitigate against identified threats in such a way that future biodiversity potential is maximised, and negative social and financial implications are minimised. At the same time, we seek to increase awareness of climate change and response strategies among staff and visitors. To do this, SANParks undertakes to expand the park to include appropriate features (e.g. wetlands, water sources and elevational gradients) and corridors, to reduce the park's carbon footprint, facilitate species movement, restore ecosystem processes through for example soil and wetland restoration, and have appropriate disaster risk reduction strategies and communication plans in place.

The following was inter alia achieved:

- The park's carbon footprint was quantified in 2020. Results placed the park as the ninth highest contributing park to SANParks' overall annual greenhouse gas emissions, with total emissions at 1,128 tCO₂e per annum. This however equates to only 1.5% of SANParks' total carbon footprint. This is roughly equivalent to 14.9 tanker trucks of petrol or 2,612 barrels of oil, or the amount of carbon sequestered by about 18 652 tree seedlings grown for 10 years (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>). The largest contribution to the park's carbon footprint comes from electricity, accounting for 1,005 tCO₂e (89% of the total park emissions). Use of a generator during persistent load-shedding in 2022, may however change these statistics. The focus of the park should be on improving energy efficiency in SANParks infrastructure including offices and tourism facilities. Awareness and education of staff should help whittle this energy profile, while it may be cost effective to implement a full renewable energy alternative. This requires a comprehensive cost benefit analysis. For improved waste management, a lifecycle assessment of the waste profile of the park should help to determine recycling and reuse options. Management of the vehicle fleet in such a massive park is challenging, and requires optimisation of resources.;
- A climate change vulnerability assessment is currently being conducted for the park and will be complete by March 2023; and
- The implementation of Working For programmes have contributed towards Ecosystem Based Adaptation.

This programme links with high-level objective 6 and objective 6.11 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

CLIMATE CHANGE PROGRAMME					
High level objective: To strive for effective management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To adapt and mitigate negative impacts of climate change through monitoring, research and implementing the SANParks climate change strategy.					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To monitor changing climate in the park	Collect climate data, error check and archive with meta-data	SS, SRs	Data records, database update	Ongoing	SANParks biodiversity monitoring system
	Assess trends in temperature, rainfall and extreme events	SS, SRs	Documents, reports	Ongoing	
To monitor and understand how climate change impacts on the park	Document impacts of climate change and/or extreme weather events on biodiversity, partner stakeholders, opportunities, park infrastructure and cultural heritage	SRs, TS, SS	Reports, research publications	As required	South African National Climate Change Response White Paper (2011) SANParks Climate change Preparedness Strategy
To identify climate change vulnerabilities	Complete a park-level vulnerability assessment	SS, PM	Assessment	Year 3	SANParks Climate change Preparedness Strategy



CLIMATE CHANGE PROGRAMME					
High level objective: To strive for effective management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To adapt and mitigate negative impacts of climate change through monitoring, research and implementing the SANParks climate change strategy.					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To develop and implement an Adaptation Response Plan by assessing appropriate actions to alleviate vulnerabilities	Develop (as appropriate based on vulnerability assessment and links to the national adaptation strategy), implement and review park adaptation response plan	SS, PM	Report	Year 3 - 10	Regional planning South African National Climate Change Response White Paper (2011) SANParks Climate change Preparedness Strategy DFFE Vulnerability Assessment & Adaptation Strategy (2021)
	Encourage implementation of measures for adaptation and mitigation with communities surrounding parks, including sharing, supporting and facilitating, if possible, relevant climate change related information, projects and programmes of relevance, with communities	SET, PM	Meetings, facilitation	Year 3 - 10	
To reduce the park's carbon footprint as a measure of the environmental and climate change impact of its operations and activities.	Update assessments of the park carbon footprint	SS, HODs, PM	Estimate of annual carbon output Carbon footprint reduction	Year 1, ongoing	SANParks Climate change Preparedness Strategy SANParks Green Energy Strategy Regional planning South African National Climate Change Response White Paper (2011), Climate change bill, Carbon tax
	Implement the SANParks Green Energy Strategy and monitor carbon savings		Green Building Principles; Green power and energy plans	Ongoing	

CLIMATE CHANGE PROGRAMME					
High level objective: To strive for effective management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective: To adapt and mitigate negative impacts of climate change through monitoring, research and implementing the SANParks climate change strategy.					
Sub-objective	Actions	Responsibility	PoE	Timeframe	Reference
To reduce the park's carbon footprint as a measure of the environmental and climate change impact of its operations and activities.	Develop and implement a set of SOPs to manage all significant environmental impacts	HODs, SS	SOPs	Year 2, ongoing	Ecosystem Based Adaptation Strategy and Guidelines, Draft National Adaptation Strategy, Draft Climate Change Bill, National Climate Change Response Policy
	Review the SOPs	HODs, SS	Revised SOPs	Year 3, 6 and 9	
	Adopting sustainable procurement principles by purchasing eco-friendly, biodegradable, energy efficient products	HODs	Documents	Year 2, ongoing	
	Investigate how to reduce energy usage using green technology	TS	Documents	Ongoing	
	Create awareness amongst staff and overnight visitors regarding energy usage and energy saving measures	SED, HODs	Information material	Ongoing	
Assess contributions of the park to climate change adaptation and mitigation	Conduct a snapshot assessment of carbon storage within the park	SS, BSP, SRs	Carbon Storage Reports	Year 3 onwards	SANParks Climate change Preparedness Strategy
	Evaluate Ecosystem Based Adaptation potential of 'Working for'-programmes	SS, BSP, SRs	Reports	Year 3 onwards	SANParks Climate change Preparedness Strategy
To ensure monitoring and evaluation of the implementation of the programme and its effectiveness	Monitor and evaluate progress and impact against programme objectives and actions	PM, SS, HODs	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

10.7.12 Outcomes programme

The purpose of this programme is to evaluate outcomes of management interventions related to protected area management.

Protected areas are under increasing threats from a range of external and internal pressures. Monitoring is an essential component of measuring the outcomes of management interventions. Various tools and processes have been adopted to track progress.

The Management Effectiveness and Tracking Tool (METT) provides an overarching framework for assessing the management effectiveness of protected areas worldwide. The assessment provides guidance for protected area managers and tracks progress towards the effective management of protected areas. Assessment is conducted biennially to measure strategic achievements. An agreement was reached with the Department of Forestry Fisheries and the Environment regarding the assessment intervals. Parks that score below 67% will perform annual assessments while those that score above 67% will perform biennial assessments. Following the assessment undertaken, all parks must identify several corrective actions. This is undertaken in the first quarter of the financial year as it will also follow on from the assessment undertaken. At quarterly intervals, parks report progress achieved against the corrective actions.



The State of Area Integrity Management (SoAIM) assessment evaluates the operational ability of a park to perform its required function effectively and efficiently with strong focus on safety, security and biodiversity issues related to law enforcement and compliance. This assessment ensures that people, systems, processes, and resources are in place and in use to ensure integrity to achieve the desired ecological and security status of a park. This is conducted on a biennial basis to allow for parks to address shortcomings.

All the programmes in the management plan are expected to be implemented to achieve the park's desired state. It is therefore vital that park management tracks progress towards achieving these outcomes. Aligned with the SOP for the Assessment of Implementation of Management Plans (2021), SANParks has designed a Management Plan implementation assessment tool, adopted from the METT scoring model. The total score of 67% and above is used as a guideline to determine sound management. Lessons learnt should be fed back into the adaptive management planning cycle (see Section 10.8). These evaluation criteria are also complemented by engagements at science-management forums where progress on implementation of biodiversity programmes is continuously assessed and adaptive management is applied to achieve the expected outcomes.

This programme links with high-level objective 6 and objective 6.12 on page 44. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

OUTCOMES PROGRAMME				
High-level objective: To ensure effective and efficient management and administrative support services through good corporate governance, enabling the park to achieve its objectives.				
Objective: To evaluate outcomes of management interventions related to protected area management.				
Actions	Responsibility	PoE	Timeframe	Reference
Participate in the METT assessment	PM, HODs, SS	Report	As required	
Participate in the SoAIM assessment	SR	Report	Biennially	
Evaluate the implementation of the Park Management Plan	PM, HODs, SS	Assessment tool	Annually	SOP for the assessment of the implementation of Management Plans

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 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 predominant underlying cause of failure of strategic adaptive management, and hence failure to realise the desired outcomes of the park. Evaluation should furthermore test the appropriateness of an intervention and monitor the predictive capacity, societal acceptability and accomplishment of broad goals (Kingsford & Biggs, 2012; Figure 18).

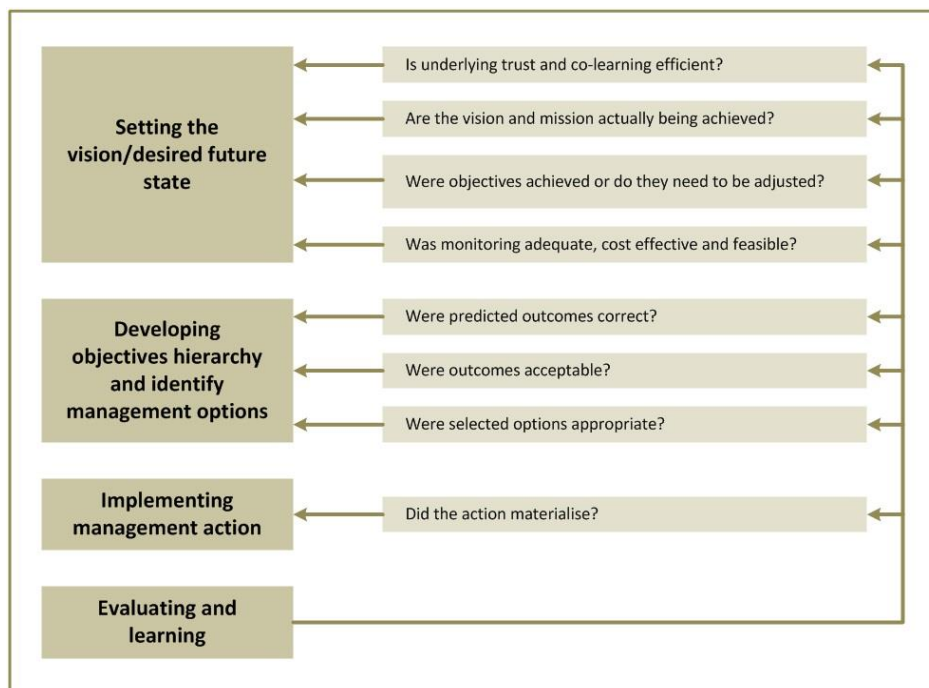


Figure 18. Feedback questions essential for adaptive learning (from Kingsford and Biggs, 2012).

10.8.2 Operationalisation

Given the desired state, and the programmes outlined in Section 10, specific action and annual operational plans need to inform the Key Performance Areas of staff members (applicable personnel working in the Parks, Conservation Services 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 is 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, actions, and other associated external programmes. This involves assessment of the outcome of management interventions, but also frequent evaluation of early warning signals (referred to by SANParks as 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 emerge. Continuous evaluation and learning are facilitated by making time for reflecting on the following questions (Roux & 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 are incorporated into decision-making and TPCs are flagged and considered timely. 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.



Section 11: Costing

11.1 Introduction

In line with the legal requirement, 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 that solid financial management supports the achievement of the objectives in this plan;
- Comply with the Public Finance Management Act as well as SANParks' financial policy and procedures.

A funding estimate of the activities in this management plan was derived, using the zero-based budgeting approach. 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.).

The programmes and actions in this Management Plan are dependent upon the allocation of funds, both in terms of operational and capital requirements. It must be stressed that the costing (see below), is an indication of the resources required to implement this Management Plan. The budget that is annually allocated to the park might not be adequate to fully implement the identified programmes and actions. The budget, current and future, is reliant on the Medium-Term Expenditure Framework allocations, any adjustments to this allocation and overall SANParks tourism income and could ultimately impact the implementation of this Management Plan. This costing and future budget allocations does not take into account any emergency or disaster which could also impact the implementation of this Management Plan.

11.2 Income

SANParks manages a number of national parks as part of the national park system, currently 22 in total. Not all these parks are financially viable, and 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 profit. SANParks receives an annual grant from the DFFE 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. that are not allocated to individual parks and must be funded by the revenue generated in financially viable parks.

The income is categorised as follows; accommodation, conservation fees, concession fees, activities, other tourism income and wildlife sales. Total income for the park for 2024 / 2025 is budgeted at -R 11,438,737 increasing to an estimated -R 14,441,142 in 2028 / 2029. A summary is presented in Table 14.

Table 14. A summary of the total estimated income budgeted for the park management plan over the next five years.

	2024 / 2025	2025 / 2026	2026 / 2027	2027 / 2028	2028 / 2029
Total income	-R 11,438,737	-R 12,125,061	-R 12,852,565	-R 13,623,719	-R 14,441,142

11.3 Expenditure

11.3.1 Once-off costs

In addition to the above there is a further once-off cost estimated at R 20,846,374 over the period 2024 / 2025 – 2028 / 2029 as can be seen in Table 15 below.

Table 15. The estimated once-off cost of the various programmes.

Programme	Estimated budget
Infrastructure	R 20,566,374
Environmental education and awareness raising	R 200,000
Cultural heritage	R 80,000
Total	R 20,846,374

11.3.2 Recurring costs

The annual directly allocated cost (including staff salaries, travel, supplies and tools) is estimated at R 21,789,645 for 2024 / 2025. These ongoing costs are split according to the programmes listed in Table 16 below.

Table 16. The estimated annual operational costs for the park for 2024 / 2025.

Programme	Amount	Percentage of total
Responsible tourism	R 6,524,776	29.94%
Infrastructure	R 4,381,300	20.11%
Species of special concern	R 2,300,570	10.56%
Invasive and alien species	R 2,090,379	9.59%
Safety and security	R 1,360,341	6.24%
Financial management and administration	R 1,309,270	6.01%
Environmental education and awareness raising	R 744,468	3.42%
Human capital development	R 661,867	3.04%
Park expansion	R 593,303	2.72%
Stakeholder engagement	R 377,625	1.73%
Habitat management	R 244,645	1.12%
Degradation and rehabilitation	R 216,140	0.99%
Information management	R 160,410	0.74%
Communication	R 144,298	0.66%
SHEQ	R 114,487	0.53%
Fresh water	R 114,269	0.52%
Regional integration	R 95,804	0.44%
Risk management	R 81,916	0.38%
Climate change	R 79,097	0.36%
Cultural heritage	R 61,490	0.28%
Environmental management	R 57,072	0.26%
Outcomes	R 29,848	0.14%
Socio-economic opportunities	R 28,381	0.13%
Disaster management	R 17,889	0.08%
Total	R 21,789,645	100%



11.3.3 Unallocated fixed costs

The unallocated fixed costs applicable but not allocated in Table 16 above for 2024 / 2025 amounts to R 1,131,954.

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 2024 / 2025 is provided in Table 17. The projected maintenance for existing infrastructure is estimated at R 3,848,876 in 2024 / 2025. If the new planned infrastructure is developed, it will add a further R 296,156 (at 2024 / 2025 rates) to this annual maintenance budget, increasing it to R 4,145,032. The maintenance requirement was calculated as a percentage of the replacement value.

Table 17. 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 in the park.

Estimated replacement value				Estimated maintenance		
	Existing (R)	New (R)	Total (R)	Existing (R)	New (R)	Total (R)
Buildings	162,642,918	20,566,374	183,209,292	2,342,058	296,156	2,638,214
Electricity	1,320,687	0	1,320,687	25,327	0	25,327
Fencing	8,976,234	0	8,976,234	179,525	0	179,525
Roads and tracks	64,326,100	0	64,326,100	1,277,084	0	1,277,084
Sewerage	23,091	0	23,091	462	0	462
Trails	438,204	0	438,204	8,764	0	8,764
Water system	782,806	0	782,806	15,656	0	15,656
Total	238,510,041	20,566,374	259,076,415	3,848,876	296,156	4,145,032

11.3.5 Replacement of minor assets

While many of the vehicles are leased along with the computers, it 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 is based on their original purchase price and the estimated budget required annually making provision for their replacement. Management should thus make provision for about R 2,236,968 in 2024 / 2025, and this figure is presented in Table 18.

Table 18. The total value of various categories of minor assets and replacement thereof (based on the original purchase price).

Asset type	Asset value	Provision for replacement
Air conditioners	R 996,089	R 169,480
Computer equipment	R 654,170	R 155,825
Firearms	R 32,137	R 3,828
Furniture	R 2,144,366	R 364,854
Mechanical equipment	R 2,552,589	R 434,311
Office equipment	R 152,481	R 25,944
Vehicles, trailers and watercraft	R 3,875,324	R 923,115
White goods (appliances)	R 938,094	R 159,612
Total	R 11,345,254	R 2,236,968

11.4 Summary

It is estimated that the park will require an annual operating budget of R 29,007,444 for 2024 / 2025, increasing to R 35,930,263 in 2028 / 2029. In addition to this amount, the park will also require R 20,846,374 over the next five-year period for once-off costs. A summary is presented in Table 19.

Table 19. A summary of the annual and once-off costs that are required to fully implement the activities in the management plan over the next five years.

	2024 / 2025	2025 / 2026	2026 / 2027	2027 / 2028	2028 / 2029
Once-off costs over five years	R 20,846,374				
Annual cost	R 29,007,444	R 30,167,742	R 31,977,806	R 33,896,474	R 35,930,263
SANParks expenditure budget	R 22,753,216	R 23,857,365	R 25,085,085	R 26,376,282	R 27,734,256
Shortfall	R 6,254,228	Subject to budget allocation			

The shortfall can be broken down as follows:

- An additional amount of R 2,116,730 is required to cover operational expenses;
- An additional amount of R 2,110,530 is required for the maintenance of infrastructure; and
- An additional amount of R 2,026,968 is required for the replacement of assets.

11.5 Implications

Should the park be unsuccessful in securing the shortfall amount of R 6,254,228 then the following programmes will be affected:

- Operational expenses: Various programmes to a lesser degree but mainly the species of special concern programme will be negatively affected. This funding is required mainly for additional personnel, vehicle and operational expenses;
- Infrastructure programme: The park will be unable to maintain the current infrastructure to a high standard; and
- Assets: The park will be unable to replace assets that have reached the end of their life span, operations could be adversely affected and thereby increasing the risk profile.



11.6 Future

There are various ways in which the shortfall could be covered, options include:

- To request additional funding from Head Office;
- To approach donors; or
- To except the shortfall and rationalise the programmes.

Depending on the priority and urgency of the various requirements, management will take a decision regarding the most appropriate action to take.

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Appendix 1: Declarations

1. Land declared

Government Notice 216 / Government Gazette 1506 of 05 August 1966 defined the extent of the land that formed the Augrabies Falls National Park in terms of the National Parks Act, 1962.

Government Notice 231 / Government Gazette 3650 of 15 September 1972 declared the following land to be part of the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976)

1. Remaining extent of Portion 1 of the Farm Rooipad 15, Kenhardt Registration Division, measuring 2,261.7244 ha in extent and held by Title Deed No T7206/1973.

Government Notice 44 / Government Gazette 8125 of 26 March 1982 declared the following land to be part of the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976)

1. An area situated in the Administrative District of Gordonia, in extent 4,270 hectares, as represented and described in SG diagram 208/76. Now known as Portion 1 of the Farm No 498.

Government Notice 2856 / Government Gazette 11084 of 31 December 1987 declared the following land to be part of the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976)

1. Portion 31 of the Farm Blouputs No 10, Kenhardt Registration Division, measuring 18.2688 ha in extent and held by Title Deed No T43614/1987;
2. Portion 10, a portion of Portion 9, of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 173.3459 ha in extent and held by Title Deed No T31341/1987;
3. Portion 30 of the farm Blouputs 10, Kenhardt Registration Division, measuring 0.1191 ha in extent and held by Title Deed No T43614/1987;
4. Portion 11, a portion of Portion 9, of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 4.0826 ha in extent and held by Title Deed No T31341/1987; and
5. Portion 12, a portion of Portion 9, of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 18.2496 ha in extent and held by Title Deed No T31341/1987.

Government Notice 1520 / Government Gazette 12597 of 06 July 1990 declared the following land to be part of the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976):

1. Bokvasmaak Native Reserve No 498, Gordonia Registration Division, measuring approximately 4,677 ha in extent (later amended to 73.700 ha see below); and
2. Lot 495, Gordonia Registration Division, measuring approximately 750 ha in extent (later amended to 791 ha see below).

Government Notice 1211 / Government Gazette 13273 of 30 May 1991 made the following amendments to Government Notice 1520 / Government Gazette 12597 of 6 July 1990:

1. "73.700 ha" to be substituted for the expression "approximately 4,677 ha", and the substitution of "791 ha" for the expression "approximately 750 ha".

Government Notice 2202 / Government Gazette 15262 of 19 November 1993 declared the following land to be part of the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976):

1. Unsurveyed portion of the Farm No 498, Gordonia Registration Division, measuring 70.9280 ha in extent.

Government Notice 1350 / Government Gazette 15892 of 05 August 1994 declared the following land to be part of the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976):

1. Portion 1 of the Farm Waterval No 497, Gordonia Registration Division, in extent 5,803.3145 ha, held by Title Deed No T104/1993.

Government Notice 907 / Government Gazette 26615 of 30 July 2004 declared the following land as part of the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976):

1. Portion 2 of the Farm Deberas No 8, Kenhardt Registration Division, measuring 2,121.3428 ha in extent and held by Title Deed T2456/2004.

Government Notice 28 / Government Gazette 27167 of 21 January 2005 amended Notice 657 published in Government Gazette No. 26374 of 28 May 2004 by:

1. Deleting reference to the Remainder of Farm No. 498 in the Schedule, and replace it with Portion 1 of the Farm Riemvasmaak No. 498.

Government Notice 1054 / Government Gazette 31461 of 03 October 2008 declared the following land to be part of the Augrabies Falls National Park under the National Environmental Management: Protected Areas Act (Act No 57 of 2003):

1. Portion 56, a portion of Portion 48, of the Farm Zeekoe-Steek No 9, Kenhardt Registration Division, measuring 1.1991 ha in extent and held by Title Deed No. T32392/2006;
2. Portion 13 of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 1.8979 ha in extent and held by Title Deed No. T79267/2005;
3. Portion 14 of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 25. 5022 ha in extent and held by Title Deed No. T79267/2005;
4. Portion 5 of the Farm Omdraai No 492, Kenhardt Registration Division, measuring 3,001.6988 ha in extent and held by Title Deed No T3027/1995; and
5. Portion 2 of the Farm Nelshoop No 12, Kenhardt Registration Division, measuring 1,775.0263 ha in extent and held by Title Deed No. T89880/2002.

Government Notice 1054 / Government Gazette 31461 of 30 March 2023 declared the following land to be part of the Augrabies Falls National Park under the National Environmental Management: Protected Areas Act (Act No 57 of 2003):

1. Portion 1 of the Farm Stofbakkies No 417, Kenhardt Registration Division, measuring 355.6400 ha in extent and held by Title Deed No T39422/2004; and
2. Portion 1 of the Farm Saamwerk No 376, Kenhardt Registration Division, measuring 967.7123 ha in extent and held by Title Deed No T89012/2002.

2. Excluded

Government Notice 231 / Government Gazette 3650 of 15 September 1972 excluded the following land from the Augrabies Falls National Park in terms of the National Parks Act (Act 57 of 1976)

Portion 6 of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 1,287.6539 ha in extent.

Government Notice 2856 / Government Gazette 11084 of 31 December 1987 excluded the following land from the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976)

1. Portion 13, a portion of Portion 1, of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 1.8979 ha in extent;
2. Portion 14, a portion of Portion 1, of the Farm Blouputs 10, Kenhardt Registration Division, measuring 25.5022 ha in extent;
3. Portion 15, a portion of Portion 1, of the Farm Rooipad No 15, Kenhardt Registration Division,



- measuring 40.5703 ha in extent; and
4. Portion 16 of the Farm Rooipad No 15, Kenhardt Registration Division, measuring 35.4444 ha in extent.

Government Notice 2202 / Government Gazette 15262 of 19 November 1993 excluded the following land from the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976):

1. The land described as Bokvasmaak Native Reserve No 498, Gordonia Registration Division, measuring 73.700 ha in extent; and
2. Lot 495, Gordonia Registration Division, measuring 791 ha in extent.

Government Notice 599 / Government Gazette 17093 of 12 April 1996 excluded the following land from the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976):

1. The land described as Bokvasmaak No 498, Gordonia Registration Division, measuring 70.9280 ha in extent.

Government Notice 657 / Government Gazette 26374 of 28 May of 2004 excluded the following land from the Augrabies Falls National Park in terms of the National Parks Act (Act No 57 of 1976):

1. Remaining extent of the Farm No 498 (Melkbosrand), Gordonia Registration Division, measuring 4,137 ha in extent.



Appendix 2: Stakeholder participation report

STAKEHOLDER EVENTS AND ACTIVITIES

Stakeholder consultation

This table reflects the various organisations that were identified to participate in the revision process of the Park Management Plan. The intention is to show that, in terms of the spirit of co-operative governance SANParks has approached these parties.

Local Government	Z.F. Mgcawu District Municipality, Kai! Garib Local Municipality
Provincial Government – Northern Cape	Departments of Basic Education, Agriculture, Environmental Affairs, Rural Development and Land Reform, Economic Development and Tourism, Social Development, Health
National Government	Department of Forestry, Fisheries and the Environment
International	BMW
Park Forum	Yes
Visitors to Park	Yes
Local resident / neighbours	Kobus van Copenhagen, Frits Oosthuisen, Izak Nel, Chris Steenkamp
Land claimants	Riemvasmaak Community Development Trust
Community organisations	Rooipad, Augrabies, Blouputs and Riemvasmaak Farmers Unions, Kakamas waters users' association
Local Business	TR Plant, Augrabies Falls Lodge and Camp, Kaap Agri, Kakamas Skryfbehoeftes
Business Associations	Kakamas Business Trust
Media	Gemsbok, Radio Riverside, Kalahari Bulletin, Media24
Research	South African Environmental Observation Network
Education	Academy for Environmental Leadership
Conservation Organisations	Z.F. Mgcawu Environmental Forum
Tourist Associations	Quiver Tree Food and Wine Route, Green Kalahari Forum, Northern Cape Tourism Association, ZFM Women in Tourism
Tour operator	Kalahari Outventures, Daberas Adventures, Khamkirri
Honourary Rangers	Boland, Aubrabies, West Rand

Desired state workshop

A range of key stakeholders and SANParks specialists participated in the revision of the desired state which entails identifying 1) the key management focus areas and 2) the vital attributed, determinants and risks, all of which forms the basis of the management plan.

Activities	Description
Invitations	Park management, certain SANParks specialists, key stakeholders and the general public were invited.
Desired State workshops	Workshop was held on 24 May 2022 in Kakamas
Attendance	31 Participants partook in the workshop representing the following constituencies to name a few: • Academy for Environmental Leadership; • Department of Forestry, Fisheries and the Environment; • Neighbours; • Kai! Garib Local Municipality; • Kakamas Water Users Association;

Activities	Description
Attendance	- Northern Cape Department of Basic Education; - Riemvasmaak Trust; - Riemvasmaak Guest House; - SANParks - South African National Parks Honorary Rangers;

Media platforms used to invite stakeholders to participate

A variety of media platforms were used to engage stakeholders to inform them of the revision of the Park Management Plan and invite stakeholders to participate.

Media	Description
Direct e-mail	Key stakeholders were sent personal invites to attend any of the public information sessions
Print media advertisements	Advertisements to inform interested and affected parties of the public information sessions were placed in the following national newspapers: - Sunday Times (05 February 2023); - Rapport (05 February 2023); and - Gemsbok (17 February 2023)
Radio	A broadcast was made on Radio Riverside on 08 February at 09:20
Internet	Stakeholders were able to access the SANParks website from 01 April 2022 to gain information regarding the revision process.
Attendance at meetings	Participants who attended the desired state workshop held on 24 May 2022 in Kakamas were invited
Public information boards	Official notices were placed at 13 public venues in the region, namely: - Riemvasmaak Municipal Office; - Riemvasmaak Clinic; - Cillie Clinic; - Lutzborg Clinic; - Kakamas Tourism Centre; - Kakamas Library; - Kakamas KaapAgri; - Alheit Clinic; - Marchand Municipal Office; - Marchand Clinic; - Augrabies Thusong Centre; - Vredesvallei Municipal Office; and - AFNP notice board

Public days to allow comment on the draft Park Management Plan

Two public day meetings and one virtual session were held.

Venue	Meeting type	Date	Number of stakeholders that attended
Thusong Community Hall, Tin singel 199, Augrabies	In-person only	01 March 2023 at 09:00	4
Kalahari Gateway Hotel, Voortrekker St 19, Kakamas	In-person only	01 March 2023 at 16:00	0
-	Virtual	02 March 2023 at 09:00	0



Dissemination of documentation and feedback to stakeholders

Item	Action	Date
Draft document for comment placed in public venues	- Public library, Voortrekker St 28, Kakamas - Thusong Community Hall, Tin Singel 199, Augrabies - Reception, Augrabies Falls National Park	07 February 2023
Draft document for comment placed on SANParks Website.	https://www.sanparks.org/conservation/park_man/	07 February 2023
Revised draft document and comments and response report available to stakeholders.	The documents will be available on the SANParks Website once approved by SANParks ExCo. They will be made available to registered stakeholders by email and internet link.	N/A
Dissemination of finalised document and comments and responses document.	The documents will be available on the SANParks Website once approved by the Minister. They will be made available to registered stakeholders by email and internet link.	N/A

Appendix 3: Tourism product development framework

The PDF 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 (adjoining buffer zone, with land-use activities determined by the municipal land-use management scheme (LUMS)). For any development to be supported within the delineated buffer zone, the permissible LUMS as per the Spatial Planning and Land-use Management Act (Act No. 16 of 2013), and relevant development application processes must be adhered to.

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	Wilderness conforms to the legal definition. Pristine natural environment, essentially undeveloped and roadless. Controlled non-motorised access - usually on foot.
2	Primitive	Almost completely natural state to be maintained. Development footprints absolute minimum. Controlled access - 4x4s, 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. Infrastructure 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 / adjoining	Land in the delineated buffer zone or adjacent to national parks. Products indicated are those with which SANParks is comfortable to be associated with as long as it does not conflict with the LUMS.

For the purposes of this management plan, the focus of the framework listed in Table 20 is to indicate which products already exist, which new products may be allowed, and in which visitor use zones these may occur.

Table 20: Tourism product development framework for the park.

PRODUCT CATEGORY		PRODUCT OR SERVICE	Is Product currently AVAILABLE or under development?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
							Within boundaries of national- / contractual park					Buffer / adjoining
							1	2	3	4	5	6
Over-nigh facilities	Self-catering - limited service (serviced prior to arrival and 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) (power / no power)		✓	✓					✓	✓	✓

PRODUCT CATEGORY		PRODUCT OR SERVICE	Is Product currently AVAILABLE or under development?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
			YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining
							1	2	3	4	5	6
Over-nigh facilities	Camping	Camping bush rustic (protected) (budget facilities)		✓	✓			✓		✓	✓	✓
		Camping bush rustic (protected) (premium facilities / self-sufficient)		✓	✓			✓		✓	✓	✓
		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 and 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 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 (treetop / 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		✓		✓						✓

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under development?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
		YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining
						1	2	3	4	5	6
Leisure / recreational	Fishing (catch and release)	✓		✓			✓		✓	✓	✓
	Funicular		✓		✓						✓
	Game drives - night drive		✓	✓			✓		✓	✓	✓
	Game drives - night drive (Night Vision aided)		✓		✓						✓
	Game drives - premium		✓	✓			✓		✓	✓	✓
	Game drives - standard		✓	✓			✓		✓	✓	✓
	Game drives - UA		✓	✓			✓		✓	✓	✓
	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 trails (varying facilities)		✓	✓			✓	✓	✓	✓	✓
	Mountain biking	✓		✓		✓	✓	✓	✓	✓	✓
	Mountain biking - unicycling		✓		✓						✓
	Mountaineering		✓		✓						✓
	Paddle boards		✓		✓						✓
	Paddle boats		✓		✓						✓
	Paddle skiing		✓		✓						✓
	Paragliding		✓		✓						✓
	Parasailing		✓		✓						✓
	Park and ride		✓	✓			✓		✓	✓	✓
	Photography	✓		✓			✓	✓	✓	✓	✓
	Picnicking (basic facilities)	✓		✓			✓		✓	✓	✓
	Picnicking (full facilities)		✓	✓			✓		✓	✓	✓

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						Within boundaries of national-/ contractual park					Buffer / adjoining
		YES	NO	YES	NO	1	2	3	4	5	6
Leisure / recreational	Picnicking (no facilities)	✓		✓			✓		✓	✓	✓
	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 (nighttime)		✓		✓						✓
	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		✓	✓		✓	✓	✓	✓	✓	✓

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		YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining
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Interpretive	Tours - specialist (fauna and flora)		✓	✓		✓	✓	✓	✓	✓	✓
	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		✓	✓		✓	✓	✓	✓	✓	✓

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		YES	NO	YES	NO	1	2	3	4	5	6
Developmental	Wilderness search and rescue		√		√						√
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 (KampKwena, "summer" camps)	√		√					√	√	√
Business tourism and events	Events - any	√		√			√		√	√	√
	Events - adventure	√		√			√		√	√	√
	Festivals		√	√			√		√	√	√
	Fundraising events e.g. WWF Swim for Nature		√	√			√		√	√	√
	Lapas / bomas (to rent)		√	√					√	√	√
	MICE (Meetings, Incentives, Conventions and Exhibitions)	√		√					√	√	√
	Musical concerts		√	√			√		√	√	√
	Photographic shoots and 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		√	√					√	√	√

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		YES	NO	YES	NO	1	2	3	4	5	6
Retail / services	Laundromats and laundry service	√		√					√	√	√
	Pharmacies		√		√						√
	Photo booth		√	√					√	√	√
	Pop-up retail		√	√					√	√	√
	Postal services		√		√						√
	Proshop		√		√						√
	Road emergency services		√		√						√
	Shuttle services		√	√					√	√	√
	Vending machines		√	√					√	√	√
	Vendors		√	√					√	√	√
	Wi-Fi facilities (free service)		√	√					√	√	√
Food and beverage	Bars	√		√					√	√	√
	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

The following internal rules are applicable to all visitors in terms of Section 52 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).

1. Gate operating hours

- Gates open at 07:00 and close at 22:00; and
- Game drive area time is from 06:00 to 19:30 (subject to seasonal change).

2. Reception operating hours

- 07:00 to 18:30 (Mondays – Saturdays) (subject to seasonal change); and
- 07:00 to 17:00 (Sundays & Public Holidays).

3. Park tourist accommodation

- **Check-in times:**
Chalets from 14:00; and
Camping from 12:00.
- **Check-out times:**
Chalets: 10:00; and
Camping: 11:00.
- No tents are allowed on lawns;
- No ball games are to be played around the caravans, tents or in Park roads;
- Prior to your arrival, your chalet is cleaned and furnished with fresh linens and towels. Daily housekeeping is included except for washing of dishes. Linen will be changed every two to three days, towels will be changed every second day or on demand. Management reserves the right to inspect the accommodation before departure and charges may be levied if the unit is left in an unclean and untidy condition;
- Please check that the inventory is complete and report any damages and breakages to reception. All damages or breakages of fittings, utensils, crockery or cutlery will be for your own expense. By occupying the accommodation, you accept responsibility for the unit and its equipment throughout the period of occupation. All equipment is strictly for use within the unit and may not at any time be removed from the unit or changed between units;
- Guest must obtain an exit pass from reception on the day of departure to exit. Guest wishing to depart early must obtain an exit pass on the day prior to departure. A temporary exit pass can be obtained from reception for visitors wishing to leave the park temporarily. For guests wishing to depart outside reception hours we request that you settle your account the night before. Please note: No guest will be permitted to exit the park without a valid exit pass;
- Lost and damaged keys will be charged for. Keys must be returned to reception on check out.

4. Visitor sites

- Picnic area or day visitors' area is limited to a maximum of 50 people per day.
- No loud music is allowed in the park (including in picnic area).

- Alcohol is neither allowed in public areas, nor in the picnic or day visitors area.

5. Swimming pool – day visitors

One swimming pool has been reserved exclusively for day visitors. The following swimming pool rules apply:

- Children under 12 years of age must be supervised by a parent or competent person at least 18 years of age;
- Only children six years of age or younger will be permitted in the wading pool;
- Admission to the pool may be denied for any of the following reasons:
 - a) When an individual is obviously unable to care for him/herself;
 - b) Intoxication;
 - c) Evidence of contagious disease or open sores or wounds;
 - d) Excessively brief or revealing swimsuits. Blue jeans or any other makeshift swimsuits will not be permitted in the water except for a clean T-shirt; and
 - e) Any condition as determined by management that will jeopardise the health and safety of others.
- Abusive or profane language will not be permitted;
- There must be no running, jumping, or rough play inside pool or pool area;
- Glass containers will not be allowed inside the pool area;
- Mistreatment or abuse of SANParks property will not be permitted;
- No alcoholic beverages of any kind are permitted in the pool area;
- All rubbish must be disposed of in the containers provided;
- Swimming is prohibited during lightning storms;
- Except in an emergency nobody is allowed to use any lifesaving apparatus that is available;
- Anyone who wilfully or negligently causes damage to any building or equipment will be responsible for the cost of remedial repairs;
- Goggles are permitted provided they are properly used;
- Smoking is not permitted inside the pool area; and
- Guests must use own towels.

6. Swimming pool – overnight visitors

Three swimming pools have been reserved exclusively for overnight visitors including camping guests. The same rules listed in point 6 above applies.

7. General

- The Park Management reserves the right to alter arrangements, facilities or amenities when circumstances demand, without prior notice;
- All guests to the park should conduct themselves in an orderly and courteous manner. Anyone who wilfully or negligently causes damage to any building or equipment will be responsible for the cost of remedial repairs;
- All day visitors must report to reception upon arrival;
- No day visitors are allowed in the day visitors / picnic area without a special day visitor's pass.
- No alcohol usage is allowed in the day visitors / picnic area.
- No alcohol usage is allowed in any public area in the rest camp;
- No day visitors are allowed after 17:00 into the park;
- The number of day visitors per day entering the park and/or the day visitors / picnic area can be limited at Park Management's discretion;
- Day visitors are not allowed to walk along the road in the game drive area (walks are only allowed in demarcated walking trail areas);
- Day visitors must leave the park by 18:00;
- Guests including day visitors, visiting the restaurant must pre-book (054-451 5031);
- It is not allowed for visitors to leave their cars in the game drive area, except at viewpoints;
- The use of sedan vehicles is not recommended in the western section of the park;



- The maximum distance of 94 km can be completed in six hours;
- Busses are not allowed to go past Oranje-kom;
- SANParks will not be liable for the loss or damage to personal property belonging to guests occupying the accommodation. Vehicles, their accessories and content are your own responsibility. Handling charges, postage & packaging will be charge for belongings left behind; and
- Any person who contravenes or fails to comply with any provisions of the Regulations is guilty of an offence and liable on conviction to imprisonment for a period not exceeding five years or to a fine or to both such fine and such imprisonment and may be evicted from the park.

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Appendix 5: Maps

Map 1: Regional context

Map 2: Physical features

Map 3: Land tenure

Map 4: Park expansion

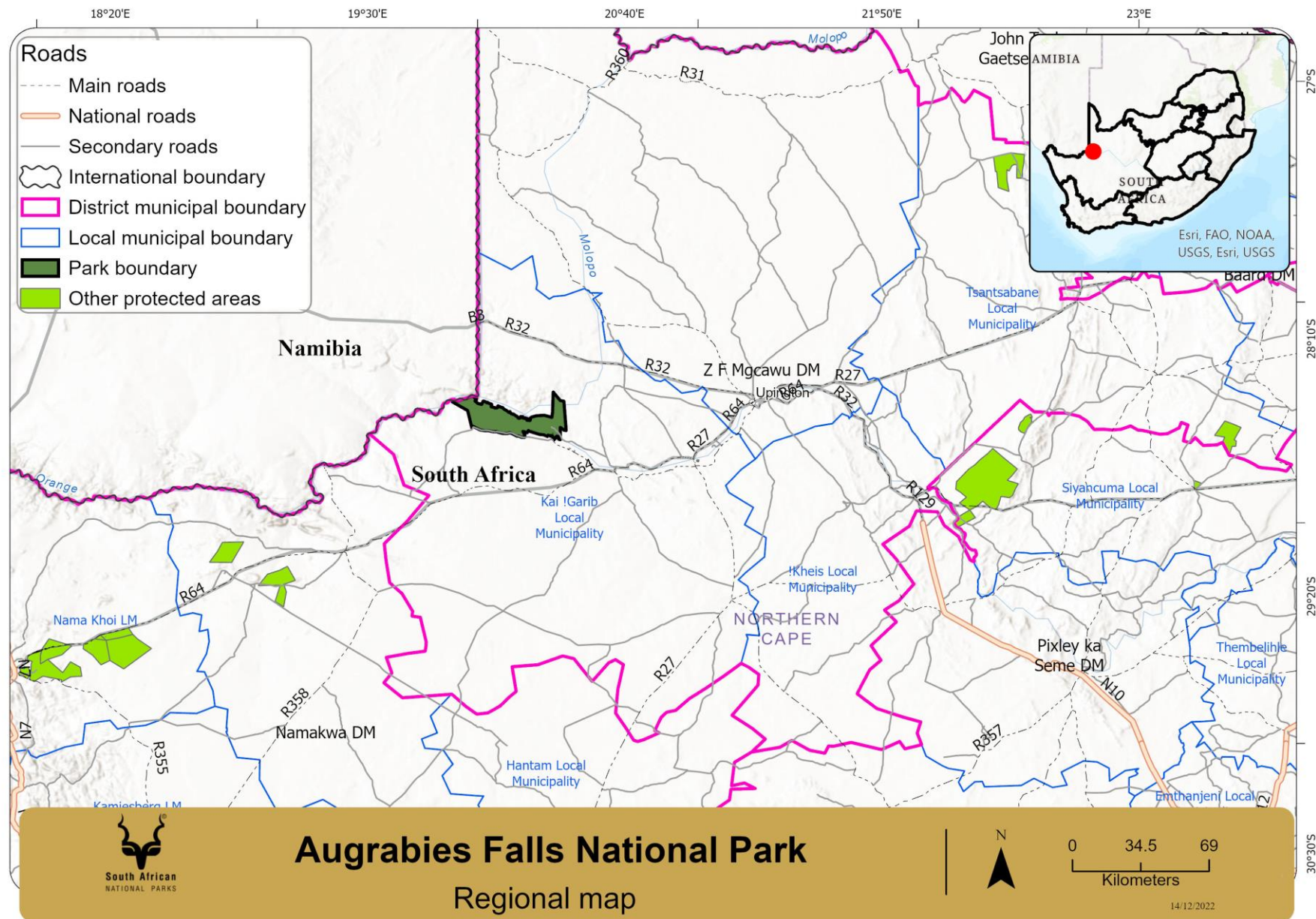
Map 5: Zoning

Map 6: Zoning with sensitivity value

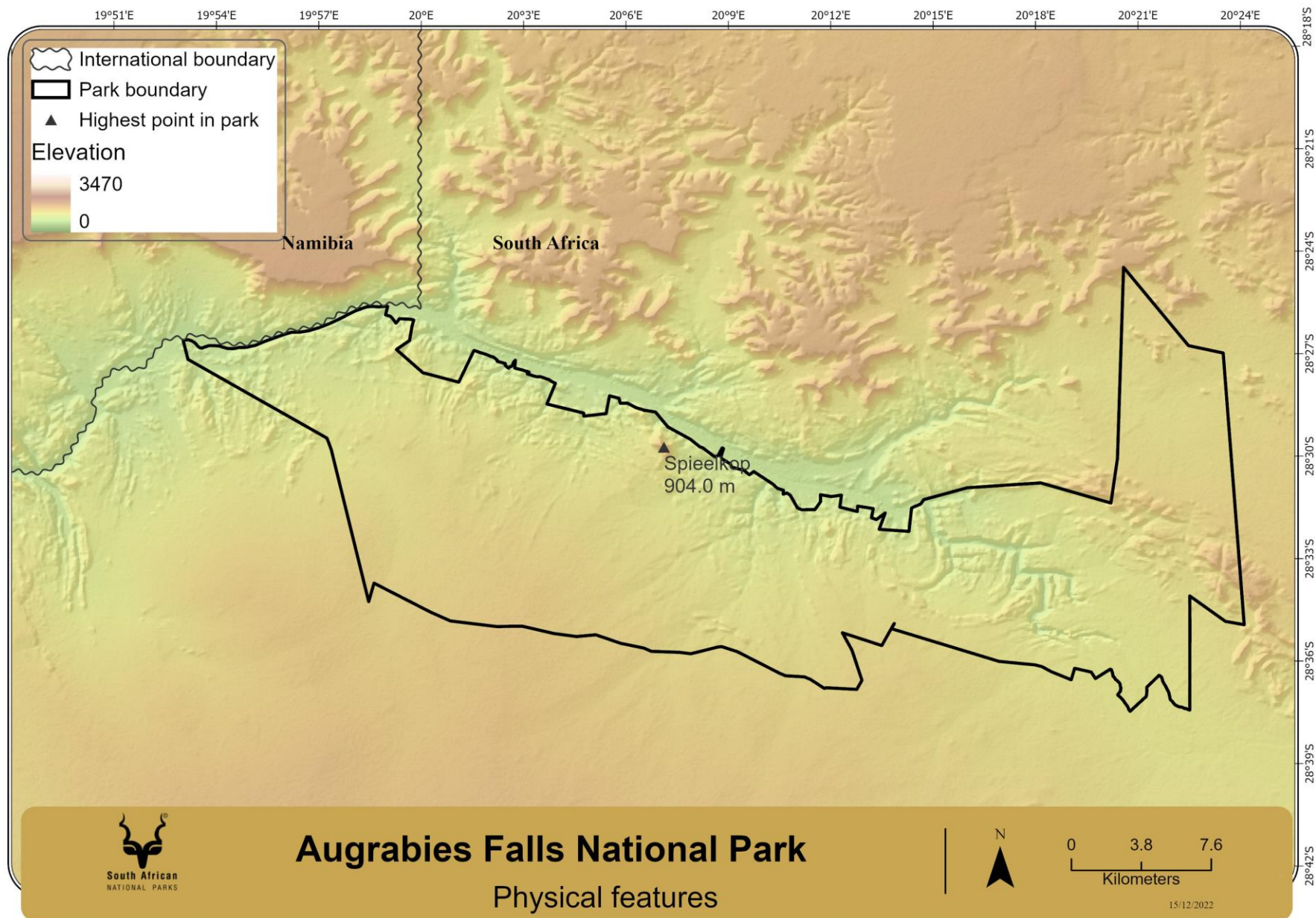
Map 7: Buffer areas

Map 8: Infrastructure

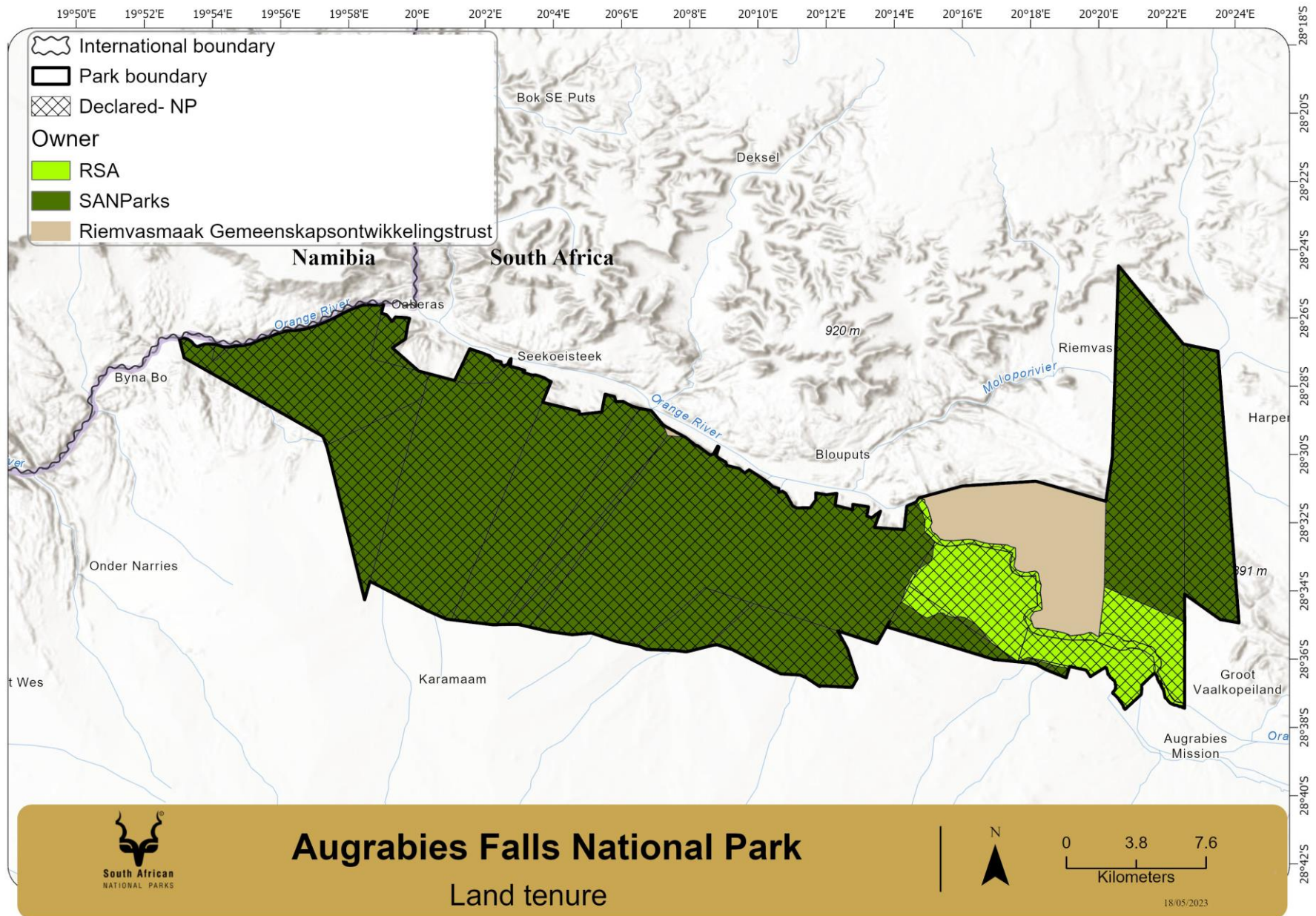
Map 9: Vegetation



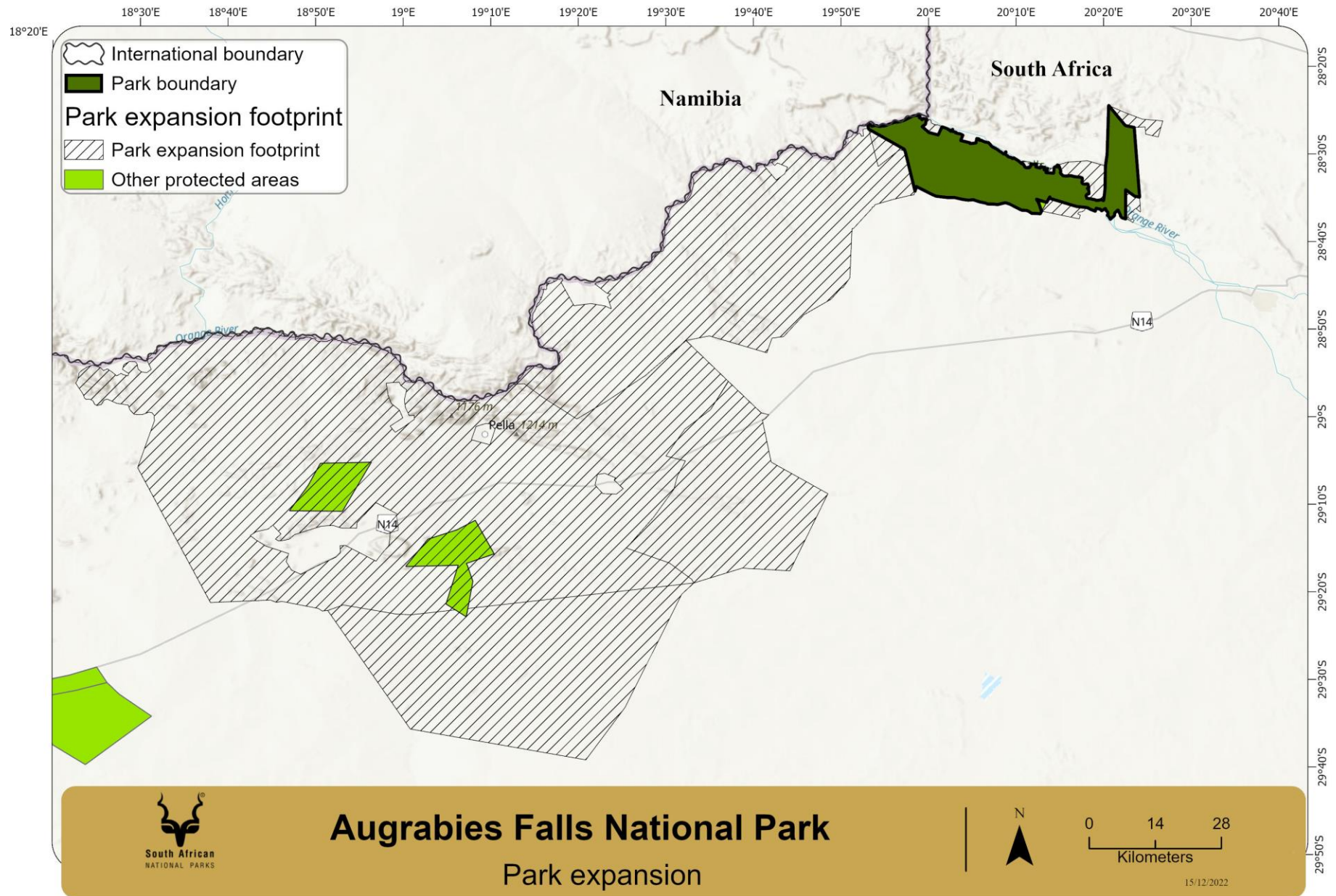
Map 1: Regional context



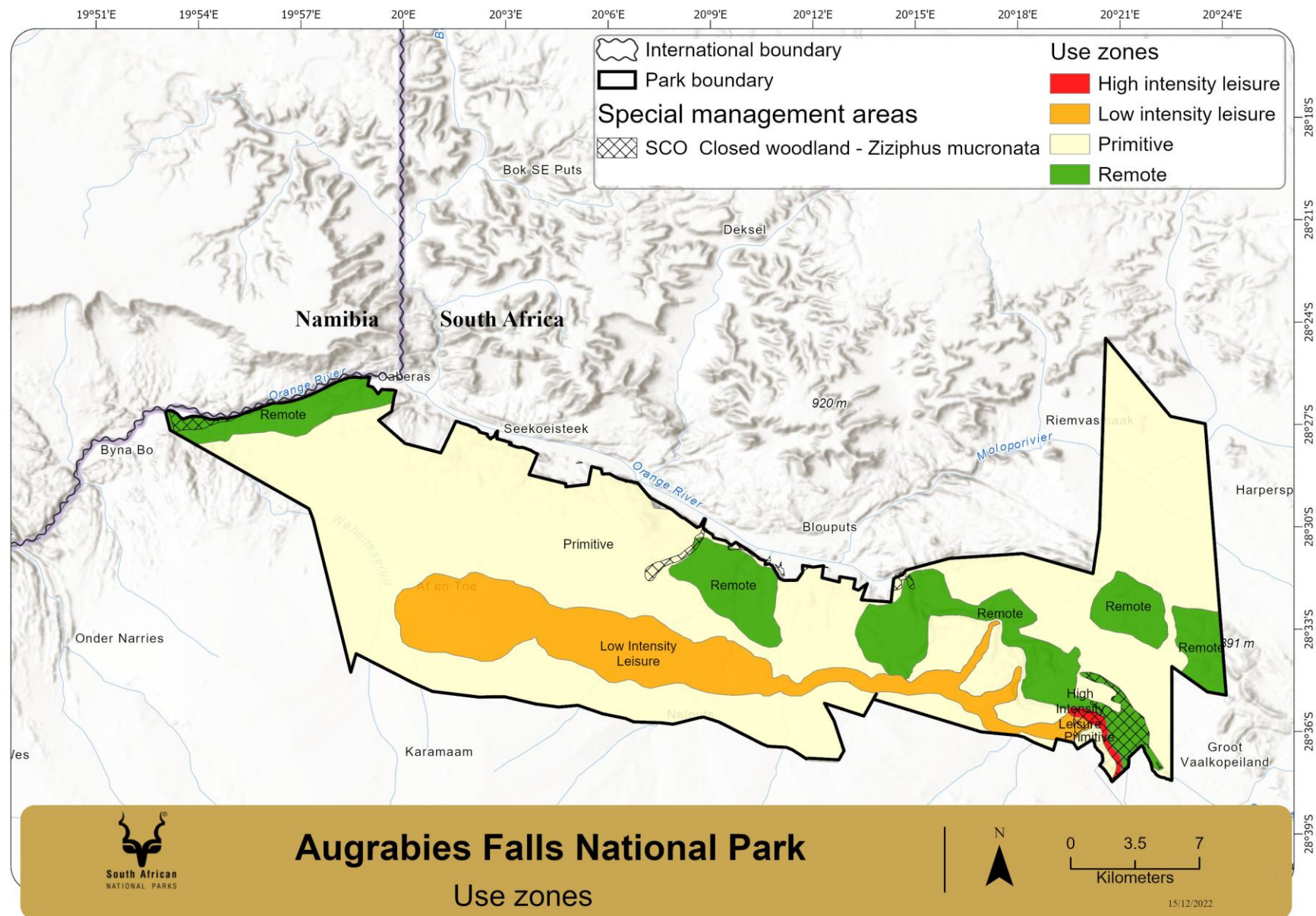
Map 2: Physical features



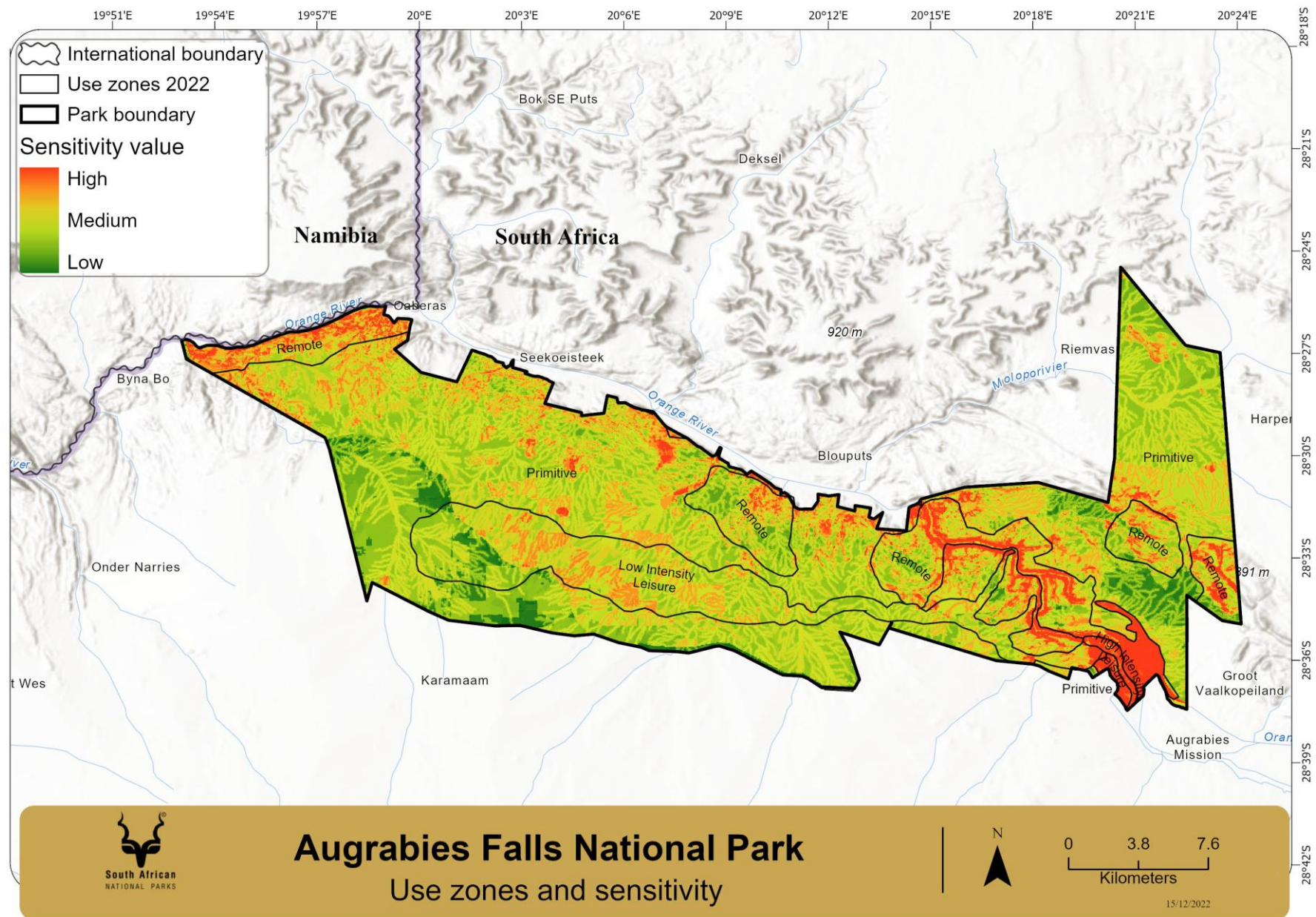
Map 3: Land tenure



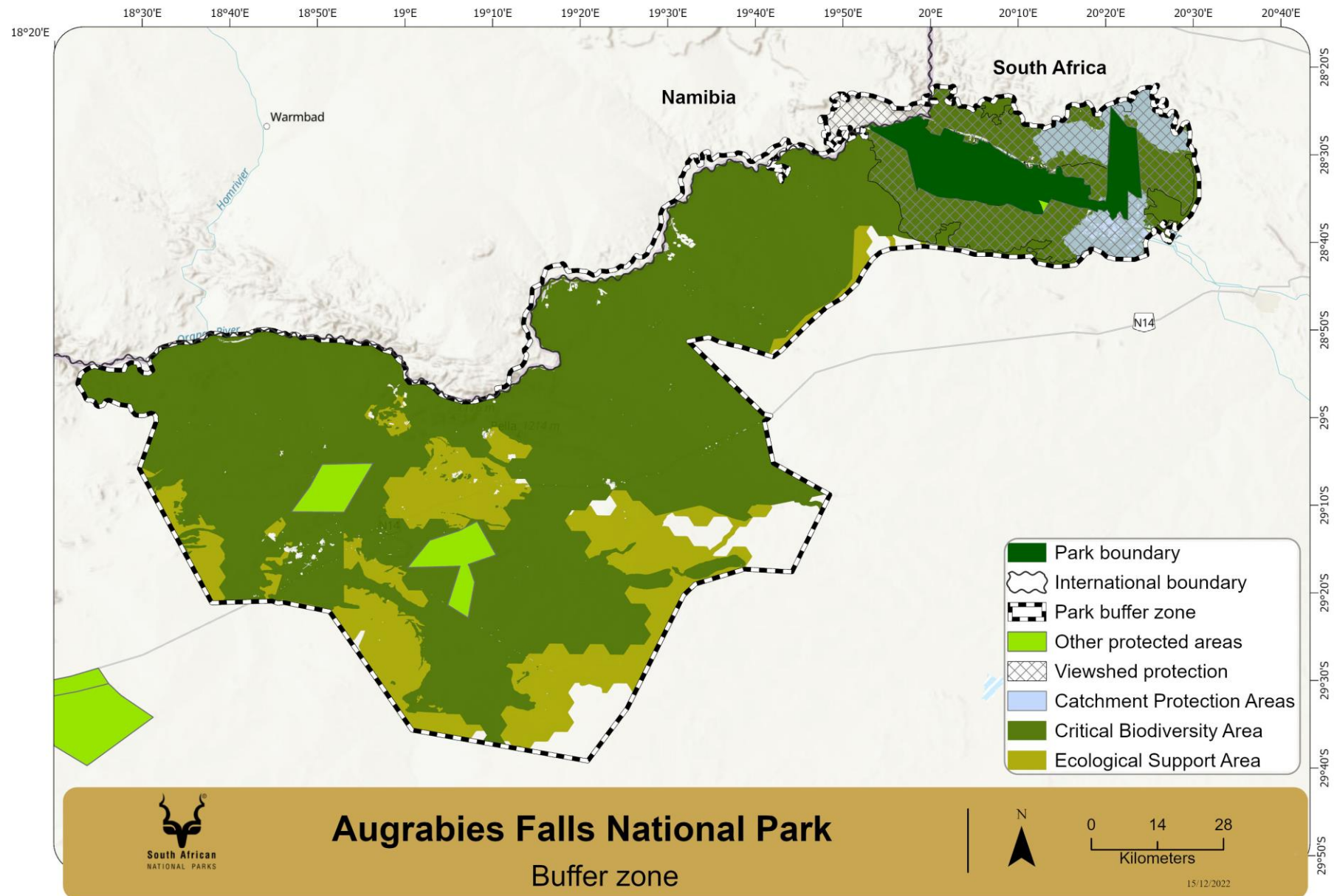
Map 4: Park expansion



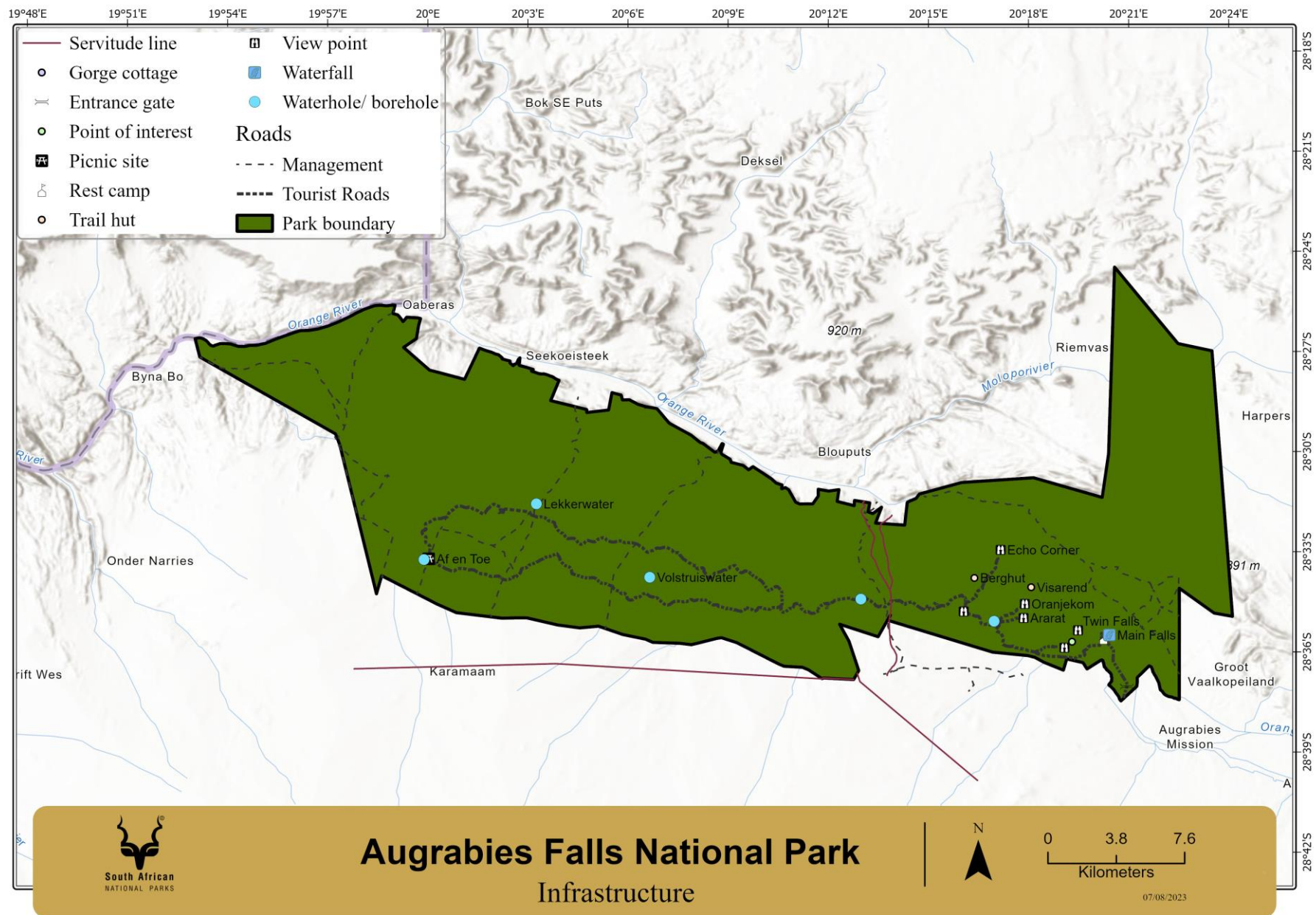
Map 5: Zoning



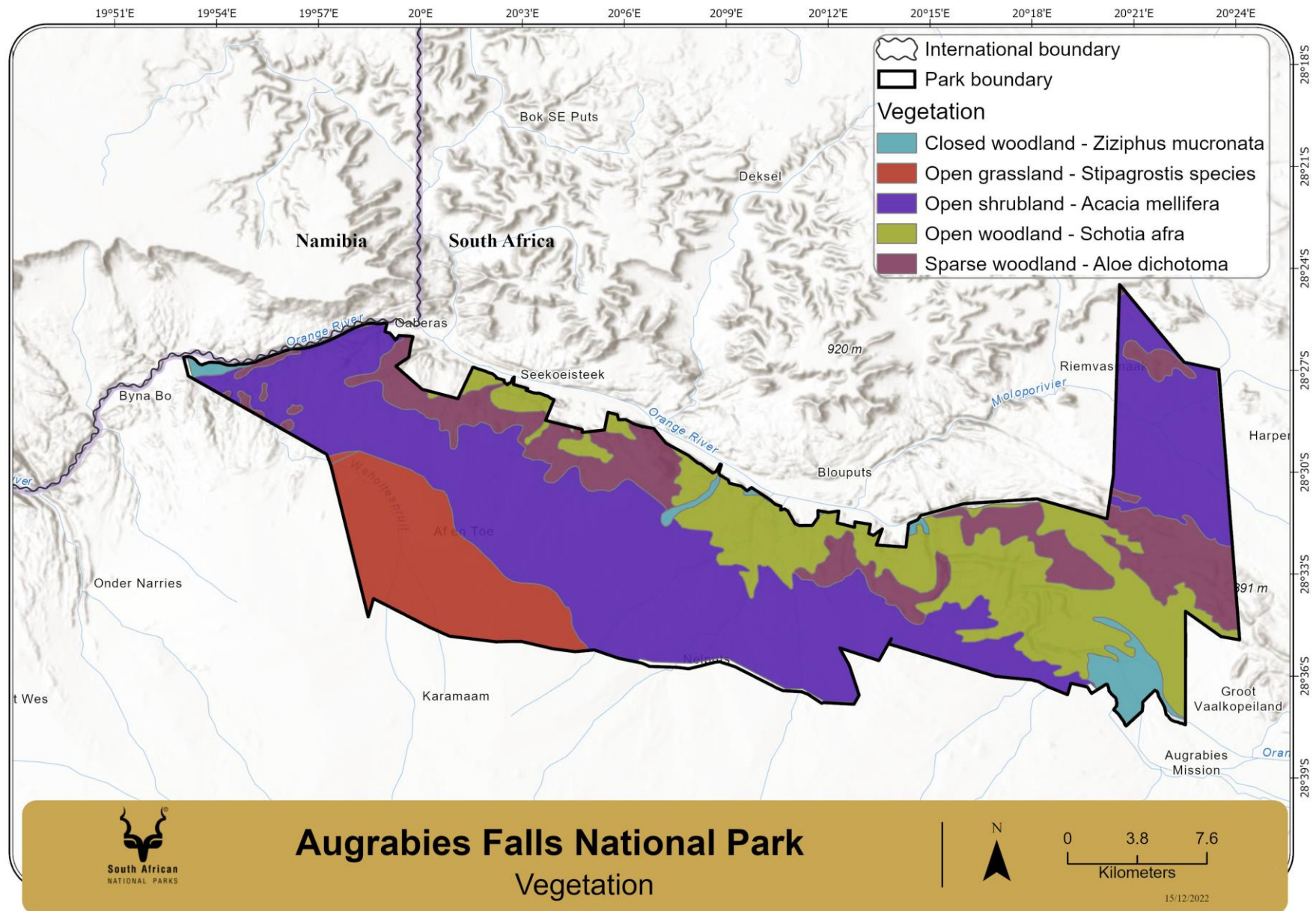
Map 6: Zoning and sensitivity



Map 7: Buffer zone



Map 8: Infrastructure



Map 9: Vegetation

