

Management Plan

MANGETTI NATIONAL PARK

2013 - 2018



Ministry of Environment and Tourism
Directorate of Regional Services and Parks Management



Republic of Namibia







Republic of Namibia
Ministry of Environment and Tourism

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FOREWORD

Namibia's parks are invaluable for tourism with more than 70% of tourism activities attributed to protected areas. Approximately 17% of the surface area of Namibia is currently gazetted as protected areas. Furthermore, tourism is the fastest growing sector in Namibia contributing approximately 16% to the country's GDP and immensely important as a source of employment. The importance of protected areas, not only for tourism and revenue creation, but also for biodiversity, cannot be stressed enough. It is thus imperative that protected areas are managed effectively and efficiently. The drafting of management plans for protected areas is viewed as the guiding light for proper management.

This management and development plan sets out the vision, objectives and guidelines for the management and development of the Mangetti National Park. As such, it represents the policies and intentions of the Ministry of Environment and Tourism (MET).

All involved with the Park, including MET decision-makers and management staff, personnel of other Ministries and Parastatals, private sector companies and individuals, all contractors, partners, tourists and any entity and individual dealing in any way with the Park, must ensure that any actions and decisions relating to the Park are in strict accordance with this plan. The management plan must be viewed as a valuable and central document by all management and policy level staff involved with the Park. They should be familiar with its contents, and should make use of it to familiarize new staff with the aims, objectives and policies of the Park.

It is part of every staff member's job to help implement this management plan. Park management is a team effort. The future well-being and development of the Park depends on this team approach.



Uahekus Herunga, MP
MINISTER



PREFACE

The Management Plan for the Mangetti National Park has been designed and structured to be priority focused and action orientated, to facilitate implementation and the achievement of outputs and outcomes. The Plan is linked to an annual cycle of management and oversight, involving the preparation of annual work plans and budgets.

The Plan is “principles” based. These principles serve essentially as policy statements. Not all eventualities can be planned for, but if the basic principles are established, decisions can be readily made against these principles and thus be in line with Park policy.

The Plan is designed around a uniform structure for easy reference and use, and the language (apart from some basic technical terms used in the conservation sector) is kept simple for broad accessibility.

This Plan should be used in conjunction with Park legislation and regulations, as well as with other relevant literature on the area. It gives a brief background to the Park, including its purpose and objectives, and placing it in a regional setting, before focusing on park management aspects. Chapter 2 focuses on the management of natural resources in the Park while Chapter 3 addresses aspects of regional conservation, park neighbours and resident relations. The zonation of the Park is detailed in Chapter 4. The management of prospecting and mining, and tourism development are covered in Chapters 5 and 6, respectively. Detailed management considerations for infrastructure are included in Chapter 7, while the last chapter covers aspects of administration and management.

Acknowledgements are due to all the individuals and organisations who contributed towards the finalisation of this Management plan.

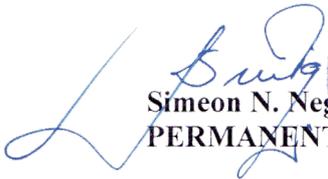

Simeon N. Negumbo
PERMANENT SECRETARY



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ABBREVIATIONS

CITES	Convention in the trade of Endangered Species of Fauna and Flora
DFS	Disease Free Status
DVS	Directorate Veterinary Services
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL's	Exclusive Prospecting Licenses
GPTF	Game Product Trust Fund
HWC	Human Wildlife Conflict
IBMS	Incident Book Monitoring System
KRC	Kavango Regional Council
MET	Ministry of Environment and Tourism
MGC	Mangetti Game Camp
MMC	Mangetti Management Committee
MNP	Mangetti National Park
MoA	Memorandum of Agreement
NGO's	Non Government Organisations
NWR	Namibian Wildlife Resorts
PON	Polytechnic of Namibia
RSC	Research Science Centre
SPAN	Strengthening the Protected Area Network
UNAM	University of Namibia
UTA	Ukwangali Traditional Authority
VCF	Veterinary Cordon Fence



CHAPTER 1

1.1 Overview of the park

The Mangetti National Park (MNP) is situated in the Eastern Kalahari Woodlands, about 100 km southwest of Rundu and covers approximately 420 km². The park straddles along the national B-8 road through the Kavango West Region with potential for tourism and other income generating activities. Declared as a National Park in September 2008, this conservation area characterised by areas with dense bush and forest, share two of the eleven vegetation types that are distinguished for the Kavango Region; Burkea-Teak woodland and Burkea woodland and shrubland. It hosts a variety of large mammal species including elephant, eland, kudu, giraffe and the rare sable antelope. Common predators in the park include leopard and hyena and, the extremely rare and endangered African wild dog (*Lycaon pitctus*).

The MNP, previously managed as a game camp (Mangetti Game Camp) for breeding rare and endangered species, is now a protected area contributing to Namibia's total surface area under some form of protection that can be used for biodiversity conservation and tourism development for the benefit of local communities and the country in general.

In March 1988 a Cabinet decision (140/88) gave effect to the joint management of the then Mangetti Game Camp (MGC). This decision was reflected and roles and responsibilities of partners elaborated in the MGC Master Plan of 1990. Partners in this joint management included Nature Conservation, the Administration for Kavango, representation from the Ukwangali Traditional Authority and an agricultural economist. The aim of the game camp was to generate income through direct game farming such as trophy hunting, live game sales, culling and to a lesser degree tourism. Funds generated from these activities would then go to the Administration for Kavango. Following the independence of Namibia, the camp was fairly dormant until its declaration as a National Park in September 2008.

Biophysical setting

The landscapes of the Kavango Region have evolved, together with the floral and faunal resources, as part of the evolution of the Kalahari Basin some 550 million years ago. The basin is a vast depression which stretches from the Northern Cape in South Africa close to the Congo River. The MNP lies in this basin toward the south of the Kavango Region where rocks lie closer to the surface area of the region as this is where mountain belts had formed when colliding continents pushed the seabed sediments highest. The area is in a vegetation transition zone as it overlaps the southern border of the Burkea woodland and shrubland and the northern border of the Burkea-Teak woodland vegetation types. It experiences extremely high rainfall, between 500 and 550 mm per year that is considerably consistent from year to year.

Average maximum temperatures exceed 30°C for most months of the year (with September and October being the warmest) except during May, June and July (the winter months in Namibia). Average minimum temperatures are experienced in June, July and August when temperatures go below 10°C, seldom approaching freezing point. Frost in the Kavango Region in general is exceptionally rare and only occurs in low-lying valleys (dune streets).

Plant and animal wildlife in the Kavango Region occur predominantly in three areas; along the Kavango River, inland and, toward the south in the woodlands that grow on sandy soils. The latter is relevant to the MNP as the terrain is marked by "rolling dunes" with dense vegetation growing in the dune streets and on the dune mounds. The woodlands are dominated by a wide variety of species, of which kиаat (*Pterocarpus angolensis*) is the best known. The distribution of kиаat is limited by rainfall and the region receives enough for the species' survival and success. Other common trees along the dune streets include the Camel-thorn (*Acacia erioloba*), Witgat (*Boscia albitrunca*), Buffalo-thorn (*Ziziphus mucronata*) and Black-thorn acacia (*Acacia mellifera*). These tree species have varying conservation status and Mangetti (formerly a Game Camp) has played an important role in conserving them. Bush species include *Dichrostachys cinerica*, a thorny fast-growing woody bush species; *Bauhinia* species, *Lonchocarpus nelsi*, *Combretum hereroense* and *Grewia* species. As mentioned before, animal wildlife species include oryx, kudu, duiker, leopard, hyena and the rare and endangered African wild dog. Birds

in the park include the Scarlet-chested sunbird, White-browed sparrow-weaver, Grey-headed sparrow, Scaly-feathered finch, Red-billed quelea, Violet-eared and Black-cheeked waxbills, the Yellow-eye and Black-throated canaries and the Golden-breasted bunting. Common grasses found in the park and appearing in the dune streets include; *Schmidtia pappohoroides*, *Anthephora pubesans*, *Digitaria polevansii* and *eriantha*, *Brachiaria nigropedata*, *Stipagrostis uruplumis* and *Eragrostis pallens*.

From the above, the landscapes, ecosystems and biological sub-systems of the park are therefore extremely important for the conservation of biodiversity. Due to the density of vegetation that makes some areas rather inaccessible to humans, much of the preserved woodlands, bush and grasses have remained relatively undisturbed by human intervention. In addition, as the park was previously declared and managed as a game camp, no access to other land uses were practiced which also adds to the high preservation status of the park and its landscapes in general. Areas adjacent to the B8 main road and surrounding villages are threatened by poaching and the proper instalment and regular maintenance of fences along with frequent patrols will serve as effective management. It is critical to plan all new developments or extensions to existing developments and this must include the use of sustainable development planning tools such as Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMP's). These tools will identify problems and in the process propose mitigation measures, should the development proceed.

There are many environmental, social and socio-economic aspects of the park that still need to be studied and better understood. The understanding of how the ecosystems function, including rates of decay and nutrient cycling and the role of vertebrates and invertebrates is not well studied. Elephants are reported to migrate in a east-west and west-east direction and this should be better understood so that management incorporate this ecological aspect. Because of these and other issues, a precautionary approach is to ensure that sufficiently large areas are conserved, especially where the existing species knowledge is poor or limited. This can be achieved through the zoning of areas for strict nature conservation and through park-and-neighbour collaborations.

1.2 Purpose

This Management Plan set out the vision, objectives and guidelines for the management and development of Mangetti National Park. As such, it represents the policies and intentions of the Ministry of Environment and Tourism (MET). The Management Plan is accepted as the ultimate authority for the Park. All involved with the Park, including MET decision-makers and management staff, personnel of other Ministries and Parastatals, private sector companies and individuals, all contractors, partners, tourists and any entity and individual dealing in any way with the Park, must ensure that any actions and decisions relating to the Park are in strict accordance with this document.

This must be viewed as the 'constitution' for the area – a broad mandate that includes values, policies and principles on which management decisions will be made. Although this will be improved over time, it is not anticipated that there will be significant or radical changes. The document must therefore be seen as being relatively constant and will only be revised every five years. These plans will require resources, which must be identified, and mechanisms needed to source them, which will be detailed in this process.

Shorter-term operational plans (or work plans) may also need to be developed. These will identify specific actions, which need to be performed to address issues in this plan. Not all items in the plan necessarily need constant attention – many issues may 'manage themselves' – however, for most some management intervention may be appropriate. These will be addressed by means of short-term operational plans, which will also identify and allocate resources to achieve them.

The Management Plan must be viewed as a valuable and central document by all management and policy level staff involved with the Park. They should be familiar with its contents, and should make use of it to familiarise new staff with the aims, objectives and policies of the park.

1.3 Objectives

- 1.3.1 To establish appropriate management and sustainable use of the park's biodiversity, ecosystems, and features of archaeological and cultural importance.
- 1.3.2 To develop environmentally sustainable tourism in the Park to contribute to the social and economic development of the communities and the country at large.
- 1.3.3 To engage with immediate park neighbours, through appropriate institutions and policies, with the aim of managing the area in order to enhance biological processes, conservation management and socio-economic development in the region as a whole.
- 1.3.4 To enhance scientific and indigenous knowledge of the landscapes and biodiversity of the area.
- 1.3.5 To build the capacity of stakeholders and tourists, through awareness generation and education, and access to information, to better understand the value of the park and its resources.
- 1.3.6 To secure sustainable financing and human, technical and other required resources for efficient and effective management of the park

CHAPTER 2

Management of natural resources

2.1 Habitats and special sites

Biodiversity conservation

The MNP contains many plant and animal species that are endemic to the area and some are endangered and vulnerable. Their future survival, although threatened by theft/ poaching and potential climate change impacts, is largely secured through the declaration of Mangetti as a National Park. Management will need to deal with the threat of poaching and though climate change adaptation to ensure continued survival of plants and animals. The park and broader region preserve the biota that characterises this biome and this must be maintained and improved under this Plan. Any further increase in access must consider the implications that this may have on species. It is recognised that there may be opportunities to translocate and/ or breed valuable/ threatened species to increase their survivability; in these situations, where there is knowledge to inform the process, this will be actively pursued.

Specific objective

To protect and conserve the diversity of flora, fauna, habitats, ecosystems and landscapes and, to ensure the sustainable use of these resources.

Strategies and principles

- Proposed development activities within the Park which may result in the population of a species declining by more than 10% will not be permitted.
- Management will identify, monitor and where necessary implement special support actions to ensure the continued conservation of species.
- Monitoring should be institutionalised as part of the adaptive management process and focused on effectively managing anthropogenic and climate change threats to species.
- Special support measures must be implemented if any species' long-term survival is threatened. This could include rezoning of land uses, or direct management intervention such as disease control, water provision, including artificial propagation to improve species abundance and status, etc.
- The vastness of the area must be considered in relation to the impact (spatial and temporal scale), i.e. a relatively high impact on a very small area must be considered in relation to its overall net economic benefit and its contribution to providing resources for conservation measures in the remaining area.
- There will be a 'zero tolerance' approach to illegal harvesting, use or poaching of any natural resources in the Park.
- Research should aim to complete species inventories and develop knowledge regarding anthropogenic and other threats to species. These must include surveys of species, which may only be visible during parts of the year/ day.
- Many species have fragmented or very specific habitat requirements. There is thus a critical need to identify critical areas, which must be conserved, and delineate these and ensure they are specifically zoned for appropriate use and management.
- A detailed assessment of the impact on species by any proposed development must be an integral part of all EIAs.
- Management will have to constantly adapt its approach in response to changing threats, allocation of resources, technologies and information.

Activities

- a) Key habitats, special sites and invasive alien species should be clearly identified and mapped, and management guidelines developed in year two.
- b) The status and threats to habitats and special sites must be reviewed every five years and new management strategies developed to counter any significant threats.
- c) Threats posed by aliens must continually be assessed and addressed.

2.2 Fire

Controlled burning in the MNP is important to control the distribution of vegetation, especially encroacher and invasive species such as *B. petersiana*, *T. sericea*, *D. cinerea* and *Acacia* spp. During 1980 to 1988 the area was mismanaged with no controlled burning except for 1986. Due to the absence of fires during this time, the interdune valleys (dune streets) with the most important grasslands have become severely encroached. All these species can be controlled with fire.

Specific objective

To control the vegetation of the Park using controlled seasonal burning and prevent unplanned fires.

Strategies and principles

- Divide the Park into 3 burning blocks.
- Controlled burning to take place as follows:
 - Burn only one block per year;
 - Criteria used to determine which block will be burnt: rainfall in that block, when the block was last burnt and, the amount of burning material available;
 - Determine the average rainfall for each block first and then burn the block with the highest rainfall in the first year;
 - In the following year, the block with the highest average rainfall (for two consecutive years) and the longest time since last burning is considered priority;
 - If it is not found desirable to burn any block in a given year then no block must be burnt;
 - Burning should be conducted during the last two weeks of September every year.
- Firebreaks must be maintained regularly at 9m width and roads at 6m width (as they also act as firebreaks);
- Between burning cycles, encroaching vegetation must be controlled mechanically if necessary.
- Adaptive fire management will also be used, as well as remote sensing through the Bwabwata Ecological Institute.

Activities

- a) Burn one block in a year during the last two weeks of September.
- b) Establish a burning 'team' to evaluate past burns and future possible burning areas in year two.
- c) Continually improve the knowledge and understanding of fire in these ecosystems.
- d) Establish a fire monitoring programme, based on a burn register and making use of remote sensing data provided by the National Remote Sensing Centre, Directorate of Forestry, Ministry of Agriculture, Water and Forestry, as well as field surveys to detect fire effects in year two.
- e) Establish fire emergency procedures in year two.
- f) Establish forums with local communities and other agencies to manage burning in year two.

2.3 Rehabilitation

Natural landscapes and biodiversity are, as far as possible and practical, re-established to their pristine condition or in line with agreed future land use.

Specific objective

To remove all unnecessary evidence of human occupation from the Park, except agreed infrastructure and impacts in designated sites, which will serve as historic museums, and to rehabilitate landscapes and biodiversity, using best available practices, with emphasis on those areas of greatest ecological and aesthetic importance.

Strategies and principles

- Commission a rehabilitation plan based on an inventory and criteria (log of areas, prioritization, costs and timelines) for the whole MNP.
- Identify responsibilities for rehabilitation.
- MET and other relevant parties to systematically implement rehabilitation in areas and on aspects of respective responsibilities, to agreed standards and levels, starting with the affordable priorities.
- Establish a forum for regular reporting and exchange between MET and other relevant parties.

Activities

- a) Identify and map areas where ecosystem functions or processes are compromised by human activities every year.

2.4 Wildlife population management and introductions

There are a number of specially adapted animals, which have evolved in this environment. These species, and especially the invertebrates have not been extensively studied and their status is poorly understood.

Game population numbers should be controlled in the park not to exceed the carrying capacity and not to promote inter-species competition for limited resources. As the park is relative small in comparison to other protected areas, it is important to adequately assess, with the use of appropriate tools, the potential for introductions, especially the re-introduction of species to their original range and habitat. Population control activities should consider donating wildlife to surrounding communities or translocation to nearby parks and/ or conservancies. Any planned introductions should consider the availability and long-term sustainable use of water in the park. The development of new/ additional water points should be based on feasibly securing water for game with limited impact on the natural environment.

Specific objective

- To encourage the increase of animal wildlife populations in the park and to ensure that population numbers per species and total wildlife are appropriate for the carrying capacities of different ecosystems and landscapes at appropriate times of year, accounting for rainfall and range condition variation.
- To reinstate, as far as practically possible under prevailing conditions, the historic diversity of wildlife and their full suite of interactions.

Strategies and principles

- As appropriate, every effort must be made to restore seasonal and opportunistic migratory movements of game as this is critical for their long-term survival.
- Only species which were historically present in the area may be considered for re-introduction and then only compatible sub-species and taking into account the habitat changes that have occurred in the past century.

Strategies and principles

- Wildlife populations will be permitted to fluctuate within climatic conditions subject to the following:
 - Where there is strong evidence to suggest that anthropogenic factors (such as fences and other structures or causes) are negatively impacting on a species survival, then specific management intervention may be implemented to mitigate this impact, but with due regard to other potential impacts;
 - 'Artificial' water may only be supplied under the following conditions:
 - 1) to encourage movement of game into areas previously unavailable to them;
 - 2) this must not significantly increase the chance of poaching;
 - 3) water conservation is considered in water point design; and
 - 4) the impact on the floral component must be closely monitored and any negative impacts, especially on species must be mitigated by appropriate action, including closing the water facility.
- Staff and visitors may not bring into or keep any domestic animals or pets in the Park without a permit.
- Monitoring will be required to, especially ensure that species are being appropriately conserved and that the objectives of other interventions, such as introductions and re-establishing migration routes, sustainable use etc, are being successful. The frequency of this monitoring will be dictated by the specific requirement and the scale of the threat or impact.
- Assess the viability of introducing game to the park, especially re-introduction to historic ranges. Introduce game in sufficient numbers to have viable populations, rather than having small token introductions.
- Acquire game from similar habitats for genetic integrity and optimal chances of success.
- No species exotic to the MNP will be introduced.
- No subspecies or components of populations from elsewhere will be introduced if there is any risk of genetic pollution to the indigenous populations' genetic integrity, and where suitable animals can be acquired from within the required gene pool.
- Efforts will be made to re-introduce or supplement species which may have become locally depleted or extinct in recent times subject to the following: (1) The introduction must be practical and cost effective; and (2) In the case of introductions that have a potential impact on neighbours, full consultations will take place with stakeholders prior to any introductions. (3) If any introduced species are likely to pose a threat to local communities, then approval must be sought from them and agreement reached if necessary on mitigating the impact/s on peoples' lives.
- Use appropriate tools and approaches to determine the social, economic and environmental viability of proposed introductions.

Activities

- a) Implement and maintain the Incident Book Monitoring System (IBMS) to monitor populations of key species every year.
- b) Investigate, and if necessary develop strategies to meet population performance targets for important species which are threatened or rare in year two.
- c) Implement existing species management plans and update when necessary and collaboration with the directorate responsible for wildlife research and monitoring.
- d) Develop effective anti-poaching programmes to eliminate or reduce the impact of poaching, as a major potential threat to the economic value of the Park and surrounding areas in year one and two.

- e) Take the following steps before species are re-introduced or populations bolstered through introductions:
- explore what management actions may be taken to create conditions for the species to increase or re-populate the areas;
 - undertake appropriate research to understand why populations are low or locally extinct, and to determine whether causal factors can be eliminated;
 - develop re-introduction plans to ensure that pre-release and post-release management strategies and resources are in place.

2.5 Artificial water points and management

Water is an extremely scarce and limited resource in Namibia in general and its use should be controlled and well managed. There is ample ground water in the Kavango Regions as a whole with varying quality. Water in the Park is sourced from boreholes and during the rainy season, pans and dams supply additional water to game. There are no notable streams or rivers in the park. The water-related environmental impacts must be considered adequately when new developments are considered to ensure that water availability in the park is secure and used sustainably.

Specific objective

To ensure sustainable and equitable use of the limited available water in the Park and to protect water resources at all times from contamination and pollutions.

Strategies and principles

- Tourism developments must obtain an effluent discharge permit from the Department of Water Affairs, Ministry of Agriculture, Water and Forestry. All sewerage discharge must conform with the Water Management Act and to be monitored by MET at the cost of those who generate the waste.
- Use of water within the Park must only be considered if its use is efficient and sustainable in the medium- to long- term.
- All new boreholes for Park and tourism use must be subjected to a detailed EIA and if approved then an associated EMP must be compiled and implemented.
- All water use must include water conservation management strategies and must be monitored and controlled by MET at the users cost. Recycling must always be investigated and where feasible implemented.
- A monitoring system and adaptive decision making approaches need to be established by the management of the park.

Activities

- a) Conduct risk analyses for all artificial water points in year three.
- b) Establish a baseline monitoring system to assess negative impacts on vegetation and key animal species; particular attention must be paid to roan, sable and other priority species in year three.
- c) Maintain a register of all artificial water points; this must include the purpose of each point and its associated monitoring data every year.

2.6 Domestic animal management

No domestic animals are allowed in the MNP and no facilities (e.g. kennels) are available for tourist pets.

Specific objective

To remove all domestic animals should these occur at any time within the MNP as domestic animals potentially affect the genetic diversity (e.g. domestic/feral cats) and threaten indigenous wildlife directly either through hunting (e.g. dogs, domestic/feral cats), competition (e.g. ungulates) and/or disease (e.g. all domestic animals).

Strategies and principles

- Destroy any dog, donkey, horse or any other riding or pack-animal or with the consent of the Minister, kill any live-stock or domestic animal found in MNP, other than any such live-stock or domestic animal which is in the lawful possession or under the lawful charge of an officer or which is being conveyed through such game park or nature as determined in the Nature Conservation Ordinance 4 of 1975.
- Identify responsibilities for destroying domestic stock located within MNP.
- Identify responsibilities and facilities of impoundment of live-stock located within MNP.
- Identify ownership of livestock (i.e. brands, ear tags) and liaise with neighbouring farmers regarding the removal thereof from the park.
- Determine the need for confinement facilities (i.e. kennels) for tourists with pets.
- Establish a forum for regular reporting and exchange between MET and other relevant parties on domestic livestock issues.

Activities

- a) In collaboration with affected stakeholders, develop and enforce a livestock management strategy aimed at reducing human-wildlife conflict, preventing the spread of disease, and maintaining habitats for conservation and livestock grazing in year three.
- b) Implement the National Policy on Human Wildlife Conflict Management and ensure that neighbouring communities are aware of the requirements of the Policy.
- c) In collaboration with neighbouring communities, develop and enforce a livestock removal strategy for the Park in year two.

2.7 Fencing

MNP is close to the B-8 main road and surrounded by the Ukwangali subsistence and private commercial farmers. It is essential that park fences are maintained at all times and that there is flexibility to remove fencing for the migration of species. At this stage, the removal of park fences for migration of species is not envisaged, hence the flexibility therefore in this plan. A potential land use option for the northern part of the park is to develop a high value game breeding camp. For this land use, proper game fences will be required and this needs to be carefully planned (for e.g. EIA) to ensure minimal impact on the environment and limited disturbance to animal wildlife in the park.

Specific objective

To secure adequate open space for animal wildlife with no or limited fencing inside the park.

Strategies and principles

- Maintain the park boundary fencing at all times.
- Generally fences will be kept to a minimum and designed to achieve their specific task.
- Fencing may be required to protect park assets (incl. animals and plants) and control access, in these situations the cost-benefit analysis of the fence and its implications must be considered. If fencing is required, appropriate fencing must be erected.
- Where the park borders on farming areas, MET must take the initiative to upgrade these to avoid human wildlife conflict and illegal entry to the park.

Activities

- a) Patrol and maintain fences as appropriate.
- b) Upgrade the eastern boundary fence in year four.

2.8 Human wildlife conflict management

The MNP western border straddles the B-8 main road and the area between the Park and the main road is occupied by local communities who live on communal land as subsistence livestock and crop farmers. MET's north-eastern park division have received complaints from local people living around the park about conflicts with wild animals. Such animals include elephants and predators that destroy crop fields, kill livestock, damage infrastructure and endangering the lives of local people. Local communities living around the Park are stakeholders and are represented by the KRC and the UTA. In order to ensure their support and cooperation with Park management and development, it is important that HWC issues are addressed from the onset as a priority and, when relevant, involve local people in the mitigation/ prevention of HWC.

Specific objective

To reduce human wildlife conflict among immediate park neighbours, provide incentives for people to live with wildlife, promote collaborative management of HWC between the local communities, MET park staff and other stakeholders and promote a better understanding of the behaviour of species that cause problems in order to guide management activities.

Strategies and principles

- Establish, in consultation with the communities, park staff and the MMC, a HWC Management Plan for MNP which includes/ addresses:
 - Developing, testing and mainstreaming methods to reduce and/ or minimise/ mitigate the impacts of HWC. This could include the improvement of kraals and pens, reinforcing the protection of water infrastructure, ensure reliable available water for animal wildlife, etc.
 - Investigating the feasibility and practicality of an insurance scheme to offset losses and damages.
 - As far practicable, develop and implement HWC management strategies and activities between the communities, park staff and other stakeholders. The "community game guard" approach in conservancies should be investigated and tested as relevant/ possible to monitor and report HWC incidences and to respond to such incidences.
 - Collaborative research and monitoring (with assistance from "community game guards") to generate pertinent information and data to improve the understanding of the behaviour of problem causing species, the nature of the problems and the effectiveness of the actions taken to address these problems.
 - Establishing a decision making process for the declaration of a problem animal.

- Ensure that the park fence is maintained and repaired in a timely manner to prevent the escape of animals from the park. Regular patrols must be carried out to inspect the condition of the fence and to repair damages immediately.
- Generate awareness and educate park staff and local communities about the dangers and risks posed by animal wildlife. This includes making pictures of such animals available and knowing how to report sightings of wild animals occurring outside the park.
- Training park staff in HWC; i.e. how to respond to, what to do and how to secure people and their assets if the animal(s) is (are) still present.
- Establish an inventory of common HWC animals in the park and damages associated with them and establish regular monitoring of such animals to have pertinent data in the event that HWC is reported.

Activities

- a) Develop and refine HWC management plans and procedures in collaboration with local communities, and ensure these are widely communicated to community members and relevant staff within MET.

2.9 Diseases and parasites

The MNP's southern border runs along the Veterinary Cordon Fence (VCF) and the park thus falls within an area that does not enjoy disease free status (DFS). The VCF was established in the early 1960s and runs from east to west along the southern border of the Northern Communal Areas (NCAs) of Namibia. The fence serves to control the spread of diseases from northern "endemic" areas to the southern Foot and Mouth disease (FMD) free areas. In the event of any disease outbreak, it is important for MNP to be prepared to proactively respond by effectively and efficiently preventing the spreading of diseases (e.g. FMD and CBPP - Contagious Bovine Pleuropneumonia, commonly referred to as lung sickness). According to the Directorate of Veterinary Services in Rundu, the best preventative measures include i) ensuring that park fences are in good condition and in compliance with height, construction and alignment specifications provided by DVS and, ii) avoiding contact between cloven hoofed livestock (cattle, goats and sheep) and animal wildlife (especially blue wildebeest). DVS reported that the FMD outbreak in Mukwe constituency in 2008 did not spread further south and Mangetti was thus not at risk. The EWERAP supported fencing of the western boundary (30 km long) of MNP must ensure that specifications as mentioned above are implemented.

Specific objective

To safe guard the animal wildlife of the MNP against disease outbreaks in the NCAs and preventing the spreading of any diseases into the park.

Strategies and Principles

- Ensure that park fences are maintained at all times to serve as a 'quarantine facility' against the spreading of diseases.
- Provide training to communities living adjacent to the park in fence repairs and maintenance so that they can participate in park management and generate income through provision of such services;
- Avoid contact between livestock and especially blue wildebeest at all times.
- Develop a working relationship with DVS in Rundu for effective and efficient response to animal disease issues in and around the park.

Activities

Work with other government agencies and local institutions to find environmentally acceptable solutions to the control of human, livestock and wildlife diseases and ensure that appropriate technologies and methods are applied.

2.10 Alien species

No feral populations of alien plants and animals will be permitted within the MNP. Alien and domestic species will only be permitted where these are restricted, intensively managed and an integral part of the operation of the tourism activities in the park. Existing alien plants must be removed and prevented from re-colonising. This will assist with overall conservation efforts in the Park.

Specific objective

To eradicate all invasive alien plants and animals, and non-invasive alien species are confined to, or based at, tourism and infrastructure development areas and are clearly justifiable with there being no viable indigenous alternative.

Strategies and Principles

- Eradicate/ control feral populations of alien plants and animals in the MNP, with priority placed on the most invasive species and species likely to pollute genetic integrity of wild populations and valuable woody species.
- Develop guidelines on domestic pets for park staff.
- Assess all alien species to be brought into the MNP for possible impact prior to import. The default position should be “no aliens”.
- All alien species should be removed from the Park subject to the following considerations, (except for those species for which a separate provision has been made):
 - It must be practical and cost effective to do so and within budget constraints;
 - Priority must be focussed on those species that pose the greatest threat;
 - For flora, the most practical method must be used and where possible biological (subject to appropriate screening and legislation) or mechanical control (if disturbance is minimal) is preferable to chemical control;
 - Pets and other domestic species must be regulated by specific procedures;
 - Income/ livelihood generating potential for surrounding communities through removal of alien and invasive species must be assessed and, if allowed, controlled and managed appropriately by park staff – e.g. using wood from alien trees for energy, income generation, building material, etc.

Activities

- a) Clearly identify and map key habitats, special sites and invasive alien species, and develop management guidelines in year two.
- b) Manage and where practical eradicate invasive alien species throughout Mangetti National Park.
- c) Continually assess and address threats posed by all alien species.

2.11 Law enforcement and wildlife crime prevention

The illegal use of natural resources generally is done in unsustainable ways and undermines the ability of the environment to support growing human populations and plant and animal life. Poaching of plants and animals, cutting down of trees and unsustainable land uses are a few examples. Reduction in plant life (including trees) impact on the diversity of animal species and heavy impact of this nature can at times wipe out small pockets of animal species, be it mammals, birds, insects or invertebrates. In addition to these illegal activities, people may also enter the park to intimidate, harm and rob tourists.

To ensure that the Park can develop to offer a product of high quality to tourists, it is important to undertake law enforcement at the appropriate scale to clamp down on the illegal use of resources and inappropriate use of the park in general.

Specific objective

To control and limit, through a zero tolerance approach, the illegal use of wildlife and other natural resources within MNP and, through all efforts possible, to ensure the safety and security of tourists.

Strategies and principles

- Park staff will be adequately trained in law enforcement to ensure that they operate within relevant policies and laws. Park staff will also wear appropriate clothing so that they can be identified easily.
- Anti-poaching law-enforcement patrols will be planned and conducted by MET MNP officials as part of park management at regular but unpredictable intervals, in a highly visible manner.
- Close working relations will be established with neighbours to the MNP and the local/ regional police.
- Rangers and other relevant management staff will continually be trained to preserve and collect evidence so that arrests result in convictions.

Activities

- a) Develop (with relevant partners) a practical plan for implementing law enforcement in the context of this management plan and relevant legislation in year one.
- b) Disseminate information on law enforcement approaches.
- c) Carry out regular patrols to ensure a high level of presence and visibility.

2.12 Environmental Impact Assessment and management

All development activities impact on the receiving environment – i.e. biophysical (e.g. fauna, flora & archaeology), social and cultural – and consequently require assessment, management and monitoring to ensure the least impact and guarantee sustainability.

Specific objective

To prevent negative effects and enhance positive effects by conducting an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP).

Strategies and principles

- EIA's are to follow the policy guidelines as provided by the Environmental Management Act of 2007.
- The following is a list of activities that may not be undertaken without an Environmental Clearance Certificate:
 - Energy generation, transmission & storage
 - Waste management, treatment, handling & disposal
 - Mining & quarrying activities
 - Forestry activities
 - Land use & development
 - Tourism development activities
 - Agriculture & aquaculture activities
 - Water resource developments
 - Hazardous substance treatment, handling & storage
 - Infrastructure
 - Other: Military demonstration & testing sites and construction of cemeteries, camping, leisure & recreational sites
- Other activities that may impact on the Park, although do not require formal EIA's, would include all activities that affect the general habitat or species (e.g. artificial water installations, burning programmes, re-introduction of mega-herbivores, etc.) and should be assessed – i.e. apply precautionary principle;
- EIA's should always include the evaluation of potential impacts and ways to prevent, avoid or mitigate these impacts.
- EMP's and monitoring plans should be implemented.
- Development should be aligned to the Park management and zonation plans.
- Adaptive management strategies should be adhered to at all times.

Activities

- a) Ensure that zonation plans and guidelines are followed in the planning and implementation of all activities and developments.

2.13 Consumptive resource utilisation

The primary objective of the MoA provides for benefit sharing and development of the Park. During consultations facilitated for the development of this plan, it became apparent that the Ukwangali people living adjacent to the park are enthusiastic to participate in park development and management. They would like to explore ways to benefit from the park as well and the MoA makes provision for the development of an Income Distribution Plan (under Article 10) which will provide guidance on the determination of amounts to be invested and shared on an equitable basis.

Specific objective

To ensure that communities and the country at large benefit from consumptive and non-consumptive use of wildlife from the park.

Strategies and principles

- Clearly define, as far as possible, the consumptive and non-consumptive wildlife use benefits that can accrue to MNP stakeholders at large and especially the communities people living adjacent to the park.
- Consumptive use will be based on annual trophy hunting and own use quotas.
- The sharing of consumable and non-consumable wildlife goods must be in compliance with the existing national and international legal frameworks and conventions especially pertaining to species listed by CITES.
- Communities should be engaged in activities related to the harvesting of wildlife through provision of assistance to professional hunters and cooperating with park staff when dealing with problem animals.
- Ensure that communities living around the park benefit directly from trophy hunting – income, meat for own use, etc.

Activities

- a) Before any hunting or harvesting is undertaken, assess the resource to ensure that ecological objectives are not violated.
- b) Implement Park zonation for hunting activities to prevent impacts on other users.
- c) Establish procedures and protocols for how, where and when the harvesting will be conducted and managed in year two.

2.14 Research

Area specific information and data for MNP is relatively unavailable and this could affect the decision making especially for adaptive management. Part 6 of this plan elaborates topics for which information and data should be generated on an ongoing basis or through dedicated research activities. This provides good guidance of broad and specific areas and this list is not exhaustive.

Specific objective

To gather information and data about the Park and its resources for adaptive management and to base decisions and actions on pertinent available information and data. Research will be focused on priority areas first and should be carried out as resources allow.

Strategies and principles

- A coordinated approach to research will be created between Park staff and other research agents such as the National Botanical Research Institute (NBRI) and the Directorate responsible for research and monitoring in the MET.
- A supportive environment will be created for visiting scientists.
- Visiting scientists should present their findings to park management.
- Two levels of research are recognized:
 - research in support of priority information and management needs, and
 - interest research on species, sub-species, habitats, ecosystems and landscapes (both biophysical and socio-economic) identified by outside researchers.
- A prioritised and open-ended list of key research topics will be developed for the MNP and disseminated to appropriate research institutions in consultation with DSS.
- An appropriate support mechanism will be developed for visiting scientists, with emphasis on those addressing priority research topics relevant to the MNP.
- Where relevant, links will be established between research activities carried out in other institutions in Namibia and within broader ecosystems overlapping the park boundaries.
- Copies of all research output – i.e. publications and reports – as conducted in the park should be made available as hard and electronic copies and be filed accordingly.

Activities

- a) Identify gaps in knowledge relating to management and where appropriate, through collaboration, find solutions to improve the understanding of the natural system and the socio-economic benefits from the Park in year two.
- b) Develop an open-ended list of priority research topics based on information needs for the management of Mangetti National Park in year one.
- c) Ensure research outputs and findings are made available to park staff and integrated with monitoring data to inform park management decisions on all levels.

2.15 Monitoring

Regular monitoring of wildlife and plant resources will be conducted to determine change in populations and distributions. The information produced from the monitoring systems will feed into adaptive management and decision-making. Variables such as rainfall, harvesting (if any), invasive alien species, introductions, water distribution, poaching activity, rare species sighted and other key information for management will also be recorded to keep track of those factors that may impact on animal and plant resources. Modern methods such as the Incident Book Monitoring System (IBMS) will be used to collect data on the variables to be monitored. The IBMS will allow for comparison between parks, obviously accounting for bio-geographic, climate and environmental differences.

Specific objective

To monitor a limited number of carefully selected indicators to allow for timely and judicious adaptive management.

Strategies and principles

- Monitoring will focus on key indicator processes and species, with an emphasis on ensuring regular data collection at appropriate intervals, cost efficiency and sustainability.
- Monitoring data will have both spatial and temporal components.
- Monitoring systems will be adapted and expanded from existing systems being used in Namibia with a view to achieve efficiency in development and ultimately regional and national integration and access of data.
- Plant resource monitoring will focus on regular estimates of rangeland condition, including veld biomass to serve as an early warning of forage restrictions, but long-term vegetation trends will also be monitored (e.g. 360° fixed point photography).
- Annual game counts will be undertaken in a systematic, efficient and repeatable manner.
- Monitoring systems will be balanced to ensure that priority/ critical information needs is covered.

Activities

- a) Develop an appropriate monitoring framework to include the monitoring requirements of Mangetti National Park, and incorporate ongoing monitoring initiatives and where appropriate, adapt other national systems such as the IBMS with appropriate training for staff and other implementing partners in year two.
- b) Make time-series data and analysed information available for adaptive management and for distribution to interested stakeholders, decision-makers and the general public in year two.



CHAPTER 3

Regional conservation, park neighbour and resident relations

3.1 Transfrontier conservation

The Kavango Zambezi Transfrontier Conservation Area was formally established on the 18th August 2011 when the Heads of States of the Republics of Angola, Botswana, Namibia, Zambia and Zimbabwe signed the KAZA TFCA Treaty at the SADC Summit in Luanda, Angola. The signing of the Treaty established, undoubtedly, the world's largest and critical conservation landscape spanning over 444,000km². The area is poised to become a premier tourist destination as it is endowed with multiple natural resources, viewed as a global tourist attraction and rich cultural heritage.

The goal of the KAZA TFCA is "To sustainably manage the Kavango Zambezi ecosystem, its heritage and cultural resources based on best conservation and tourism models for the socio-economic wellbeing of the communities and other stakeholders in and around the eco-region through harmonization of policies, strategies and practices."

The Mangetti National Park is too small to conserve all ecological processes and services adequately. However, as part of the KAZA TFCA, benefits accrued due to this holistic conservation management system is to everyone's advantage – i.e. internationally, locally and private sector.

Specific objective

To ensure that the Mangetti National contribute to, and is managed within the context of a regionally integrated conservation area – i.e. KAZA TFCA.

Strategies and principles

- Management should integrate with approaches used for conservation areas in neighbouring regions and countries.
- Collaboration, dialogue, information and knowledge exchange is encouraged and would use the existing TFCA institutions.
- The integrity of Mangetti's natural resources would not be compromised by activities or requirements of neighbouring countries.

Activities

- a) Collaborate at the appropriate level with and through KAZA TFCA structures and other inter-governmental cross-border structures to ensure that the objectives of this plan are aligned with the plans and objectives of other conservation areas in Namibia and in neighbouring countries.
- b) Encourage and support knowledge and information exchange programmes between conservation managers in Namibia and neighbouring countries.
- c) Develop and conduct joint management activities with neighbouring countries.

3.2 Regional land use planning and landscape level management

The MNP includes part of the Burkea-Teak woodland and part of the Burkea woodland and shrubland. The majority of the land mass in the park is covered by woodlands, bushes and grasses appearing in varying densities across the Park. The area between the park's western boundary and B-8 main road is occupied by local communities engaged in subsistence crop cultivation and livestock farming. This poses a threat of poaching and emphasis should be placed on cultivating a cooperative relationship with surrounding indigenous communities to promote collaborative management. Encouraging environmentally friendly (low impact) tourism as a livelihood activity that can benefit the communities would significantly enhance the conservation and socio-economic value of the Park and, secure the conservation of woodlands and associated fauna species. Private and communal landowners around the park have important floral species on their land and collaborative management should focus on integrated ecosystem management (IEM) instead of being confined to man made boundaries. MET through engagement with the MMC and other stakeholders must propose a plan that incorporates an IEM approach to land and resource management.

Specific objective

To secure the management of woodland and other resources in the Kavango Regions available to animal wildlife and biodiversity through partnerships with neighbouring landowners/ users.

Strategies and principles

- No areas in the park of high biological value should be cleared for any purpose other than to enhance the conservation and management of biodiversity.
- No new tracks must be developed unless they will enhance the tourism value of the park or necessary for fire management.
- Indigenous communities surrounding the park and private land owners should be consulted to be made aware of the "natural asset value" of the land in the area for the conservation of woodlands in Namibia.
- Game movement through "historic animal corridors". MET must identify these corridors and facilitate agreements with land owners to increase the surface area under management. This will promote wider economic benefit with no loss of ecological and economic value to the Park.

Activities

- a) Ensure that the key elements of this management plan are accommodated in all regional planning.
- b) Ensure that regional authorities are fully aware of the economic impacts of the Park, and of the negative impacts that inappropriate planning will have on conservation and its ability to contribute to the regional economy.
- c) Pro-actively embark on planning at the local and regional level to mitigate conflicts and maximise synergies between land uses.

3.3 Park neighbours and resident communities

The National Policy on Protected Areas, Neighbours and Resident Communities is in existence. The objectives of this Policy are to improve conservation of Namibia's protected areas, achieve greater equity in the distribution of benefits from protected areas, and to stimulate local and regional economies through creating business opportunities linked to protected areas.

Furthermore, the Policy on Tourism and Wildlife Concessions on State Land that enables the Ministry to act in a standardised and transparent manner when dealing with concessions and concessionaires. The Policy focuses on concessions on any State land and in proclaimed protected areas concerning the use of, and beneficiation from natural resources under the jurisdiction of the Minister. Concessions addressed in the Policy include tourism, hunting, concessions for the harvesting of indigenous plants or any other concession for the commercial use of State-owned fauna and flora. The key objective of this Policy is to provide a transparent and objective framework for awarding and managing concessions and to obtain support from other line ministries/ offices/ departments, etc. The Policy provides general objectives for concessions which should be consulted when park-neighbour collaboration is explored.

Specific objective

To establish working relations with all park neighbours to strive together for improved conservation, game management and derivation of socio-economic benefits from the sustainable use of natural resources.

Strategies and principles

- The MMC must ensure, at all times, that the communities living around the park are consulted adequately about any proposed development. Although the Ukwangali people are represented by the Traditional Authority based in Nkurenkuru, it is important to consult and keep informed the people living close to the park.
- MET should proactively promote collaboration with the Ukwangali community and other relevant stakeholders to the park.
- All collaboration must only be with parties who share, understand and are willing to contribute to the achievement of the Vision, Mission, Goals and Policies of this Plan.
- The Kavango Regional Council as a member of the MMC must be actively involved in the planning and decision making of any collaboration.
- MET to actively facilitate compatible economic development opportunities with regional authorities in collaboration with other Ministries and agencies, and assist in removing obstacles to economic development
- Tourism opportunities are likely to arise in the Park, and these must be communicated by Park staff to the appropriate local public institutions through guidance by the relevant Policies.
- Any collaboration with the private sector must be aimed at achieving specific outcomes which include adding value to the product, including biodiversity, reducing the risk to government of some activities and investments, bringing investment and skills development, increasing jobs and other economic benefits to reduce poverty, increasing empowerment in the sector, and delivering in a timely and satisfactory manner on the above.
- The MNP is situated in a region characterised by farming, tourism, retail, freshwater fishing and public administration (government). Park neighbours, i.e. Ukwangali communities, must benefit from the park to contribute local and regional socio-economic development. This will entail infrastructure and human capital developments which can significantly enhance local livelihoods and security. Such assets and skills would contribute to the long-term economic development of the area and region at large.

Activities

- a) Identify areas that are critically important for biodiversity, engage with the relevant communities and explore opportunities for leveraging benefits to communities for the protection of these areas.
- b) Establish and maintain collaborative management forums with communities adjacent to the Park.

3.4 Private partnerships

Specific objective

To ensure that conservation of populations that range further than the park borders, as well as monitoring and research, will require collaboration and the formation of partnerships with relevant stakeholders.

Strategies and principles

- MET has the responsibility to strengthen ties with relevant stakeholders in an approved forum.
- MET should encourage visiting researchers to conduct research at the Park on a wide variety of topics.
- Formal agreements on procedures and responsibilities should be set between the MET and collaborating partners.
- Agreements should be consistent with the management plan of the Park.
- All collaborative projects must be recorded and reports must be made available to the MET.

3.5 Environmental education

The role of environmental awareness and education cannot be overstated in fostering an understanding of the value of conservation of biodiversity, natural and cultural resources. Long-term benefits can be gained by investing in awareness generation and education, which focuses on natural resources, culture and history. There is a strong synergy between environmental education and the tourism product. Research must therefore focus on unlocking this knowledge for use by local communities, tourists, MET staff and the MMC. The north-eastern corner of the park is currently zoned for the development of an Environmental Education and Research facility. Should this materialise, it could serve as the hub for the generation and collection of information and data that can be published in diverse products and media for different audiences. The facility could offer regular environmental awareness and education excursions to schools in the region, especially areas close to the park, and can be used by the MMC to obtain relevant information and data for decision making. In addition, the facility could cater for visiting scientists and even develop a volunteering and/ or exchange programme with universities and other research institutions. For example students from the Faculty of Agriculture and Natural Resources at UNAM have to engage in a 3-month research project as a requirement in their programme. MET and the MMC can make use of this opportunity to source students who can attend to priority research needs/ areas. It is of utmost importance that environmental awareness and education activities first target the key stakeholders of the Park and Park Management staff.

Strategies and principles

- Awareness and education about species, habitats, ecosystems and landscapes in the Park must be maintained.
- An opportunity to experience the Park and its animals, plants and landscapes must be created and, participation in environmental awareness generation and education programmes must be available.
- Schools and community leaders must be targeted for environmental education and awareness programmes.
- MET will, where funding allows, make facilities available for environmental education in the Park.

Activities

- a) Develop and implement a strategy for promoting environmental education in the Park in year two.

CHAPTER 4

Zonation

The Park is not zoned for different proposed land uses (Figure 1). However, it is proposed that developments should be concentrated around areas with existing infrastructure, good access and reliable water, and away from inaccessible 'wilderness' areas to promote conservation and sustainable wildlife utilisation. Future land use zoning should consider the availability of data and information for informed decision making and should not promote the 'opening' of new areas for development. The existing rudimentary infrastructure (such as cement slabs in cleared areas and water infrastructure) provides a good and logical starting point for the development of tourism and other uses of the Park. New proposed developments will be able to use the existing infrastructure to add value without significant human impact. This approach should also be seen as a potential cost-saving mechanism.

The proposed tourism sites will allow for improved conservation of the area and its resources while enhancing the economic value of the assets. As a principle conflicting land uses should be avoided. The size and character of the area (e.g. density of vegetation and access routes) limits the type of uses and the environmental and economic viability of each proposed land use need to be carefully assessed.

It is proposed that densely vegetated areas where animal wildlife mainly occur (the northern areas) should be used for wildlife conservation with limited infrastructure development, for e.g. an Environmental Education facility. Any tourism use in this area should be limited to low impact activities and must make use of existing tracks. There should thus be a declining level of development away from areas with existing rudimentary infrastructure and water to the more isolated and densely vegetated areas of the park.

However, the final use of an area will still be defined by the ability of the natural resources to absorb any impacts or threats imposed by any use or development of the area, the ability to mitigate these impacts and the net economic benefit from the use or development.

Strategies and principles

Future proposed zones within the Park should be based on the following hierarchy of decisions:

- Any zoning of potential land use in the Park will be driven primarily by the potential/ ability of the natural environment (including the geology, plants and animals, species, landscapes and cultural, archaeological and historical assets), to absorb impacts.
- The net economic benefit which any development would realise, should outweigh the cost when accounting for ALL the costs and benefits.
- The type of product being offered. Through careful assessment some products are more suited to some conditions than others.
- The ability of MET to manage and control such use.
- All developments should ideally be peripheral, especially service infrastructure.
- Existing infrastructure at the current Park headquarter, should stay and could be used as service and maintenance infrastructure.
- Suitable access to the site or area is available and access to water, and
- The tourist's or users' likely demand for the products.

Activities and application in MNP

The following activities are to be conducted in the park and should be subjected to EIAs with associated EMPs which must assess all the issues addressed in this Plan and consider all potential alternatives:

Area	Activities	Specific application in Mangetti
Northern Half of the Park	<ul style="list-style-type: none"> High value woodland conservation/ biodiversity area Set aside for animal wildlife development and conservation Mechanised access restricted to existing tracks and firebreaks Environmental education and game introductions/ translocations 	<ul style="list-style-type: none"> The northern area of the Park from the centre track/ firebreak to the northern boundary of the Park, excluding the existing headquarters infrastructure. The latter can be used for support during game introductions and translocations. The area includes the water point at "Olifants krip"
Central Area including Middle Pan, Zebra Drink and the Old Boma	<ul style="list-style-type: none"> Conserved woodlands Low to medium impact tourism usage Mechanised access restricted to existing tracks and firebreaks Permanent structures limited to areas where existing rudimentary infrastructure occurs 	<ul style="list-style-type: none"> The area in the centre of the Park near existing rudimentary infrastructure and water points. Areas include Middle Pan, Zebra Drink and the Old Boma.
South-eastern Area, south of the Old Boma and east of Zebra drink	<ul style="list-style-type: none"> Conserved woodlands Low impact usage – e.g. guided nature walks No infrastructure development Mechanised access restricted to existing tracks and firebreaks and for maintenance and emergency purposes only 	<ul style="list-style-type: none"> The area extending southward from the southern-most horizontal track to the southern boundary of the Park The western border will be the vertical track/ firebreak to the west of the Park
South-western Area	<ul style="list-style-type: none"> Conserved woodlands Low to medium impact usage – e.g. environmental awareness and education activities Mechanised access restricted to existing tracks and firebreaks and for maintenance and emergency purposes only 	<ul style="list-style-type: none"> The area in the south-western corner of the Park, extending southward from the new Park entrance.

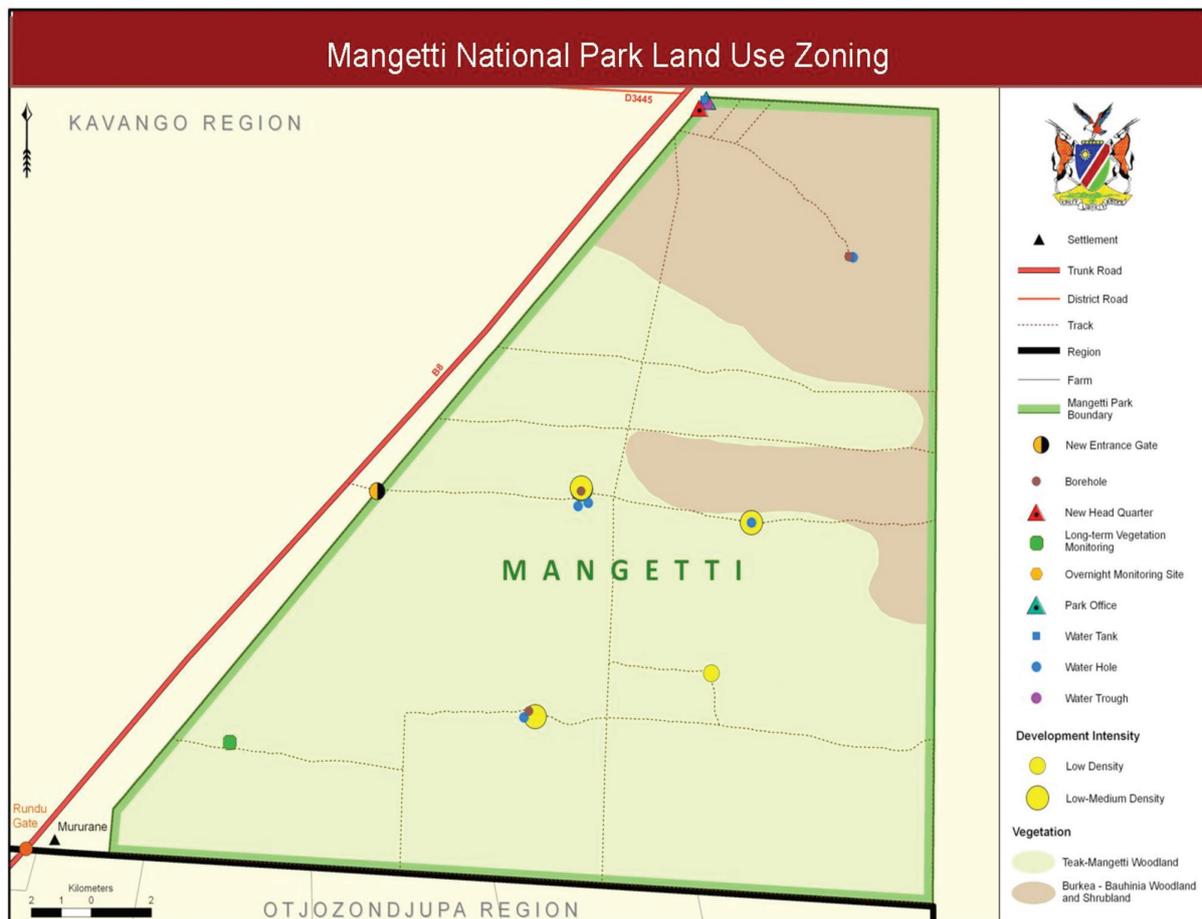


Figure 1: Mangetti National Park Land Use Zoning.

Activities

- a) Implement the zoning system prescribed in this document during park level operational planning each year.
- b) Continually assess zones and sites allocated for economic purposes to ensure that socio-economic goals are optimised. This should be done in collaboration with interested and affected parties.
- c) Continually update and refine the habitat zones as new information is obtained.



CHAPTER 5

Prospecting and mining

Despite its scientifically interesting geology, the commercial value of the MNP for mining is low and the Park does not have a history of large commercial mining activities. The relatively small size of the park makes it environmentally sensitive to mining activities.

Specific objective

To ensure that any future mining activities are controlled and that rehabilitation and restoration will take place. In addition, to attempt to not permit any future mining in very sensitive areas but rather to move such land use to the appropriate zone.

Strategies and principles

Mining activities in the park should be avoided. Mining operations are only to be conducted if it can be ensured that:

- The economic contribution is weighed against the contribution of tourism and impact on the environment.
- The impact in the park is minimized and controlled.
- Any environmental or management conditions which have been imposed through the licence, or EIA and EMP, are monitored and enforced including the restoration of habitats after termination of the licence.
- The costs of any reclamation, restoration and/ or decommissioning must be included in any feasibility (cost benefit) studies and in any agreement, concession, mining licence or exclusive prospecting license (EPL).
- Bio-prospecting, if it is to occur and other use must take place within a formal agreement. This may require an EIA and EMP to determine the impact and rehabilitation needs.
- Mining areas should be rehabilitated and/ or landscapes restored when resources are available. Priority areas should be identified with MET and an approach put in place for rehabilitation/ restoration.

Activities

- a) Develop and implement a monitoring schedule if mining and prospecting is conducted in the park.

CHAPTER 6

Tourism development and management

A "Tourism Options Study for the Mangetti Game Camp" was conducted in April 2006 to assess the tourism potential and make recommendations for tourism development. The study considered the following as part of the situation analysis of the area: i) core attraction of heritage value – both natural and/ or cultural; ii) potential for conducting organised and/ or self-guided activities; iii) land availability in terms of size and tenure that is attractive for investment; iv) absence of competing land uses such as farming or mining; v) vistas of scenic landscapes, mountains or wildlife; vi) buffering from negative intrusions such as power lines, fences, street lights, roads, human settlements, vii) physical accessibility; viii) sense of place or on-site ambience; ix) situation in relation to established tourist routes; and x) environmental sensitivity to impact by tourists or new development. The outcome and recommendations of this study is integrated into, and attached as an annex to this plan.

Given the MNP is relatively undisturbed the tourism potential is unexploited to date. The north-north-eastern and southern parts of the Park attract larger numbers of wildlife with secure and accessible water points. The southern part has sparser vegetation which makes it easier to view game in this area while it is also further away from human disturbances such as light and noise. It is therefore recommended that any tourism development, such as accommodation and self-guided walks, be concentrated in the central and southern parts of the Park. Limited tourism activities, such as guided tours for game viewing, could be conducted to the northern part which is zoned as a habitat/ species management area.

Given the need for access to, and availability of water and general physical access from the main road and the new Park entrance, it is suggested that tourism development is considered at Middle dam, Middle pan, Zebra drink and/ or Boma drink. Middle dam and Boma drink are considered the most attractive sites in the Park. The former area has the advantage of being close to the new park entrance (1km from the B8 road) and with the closest established water point (6.5km from the new entrance). This road should be upgraded for access by 2x4 traffic from the entrance to Middle dam. Although the concrete slabs are unsightly in the well preserved area, they could be used either for the establishment of medium to high density tourism development or for the development of staff quarters. If the latter option is explored, the tourism facility could be moved closer to the natural dam where low to medium density development can be considered.

Middle pan, occurring 5.5km east of Middle dam, has a very scenic pan with dense woodland about 100m south of the pan. This area could be reserved as an alternative game water point or developed into a low impact "tree-house like" campsite with a hide (suitable for sleeping) near the waterhole. Access to this site will only be with 4x4 vehicles.

Boma drink is in pristine condition and this makes it a very attractive area for low impact nature-based tourism. This site is further away from the new entrance than Middle dam (12km from the new entrance) and the distance could be reduced to 8km with track realignment. However, any track realignment should be in line with approved road infrastructure works for the Park. The main attraction at Boma drink is the more secluded and isolated bush feel, larger and more trees around the waterholes, two larger and more picturesque dams and better game viewing. One drawback is that mud in the area becomes very thick and sticky after the rainy season and game tend to get stuck. This needs to be remedied if tourism development is planned for the area. Appropriate developments include for e.g. a low density and impact tented lodge or possibly an exclusive campsite. Such a development could rely on service staff and infrastructure based at Middle dam to minimise impact while providing required services.

Zebra drink, although further from the new entrance than Boma drink (16km), offers attractions similar to that of Boma and could thus attract the same level of development. This site could be considered for low to medium density development with no permanent structures and designs that blend in with the natural surroundings.

Specific objective

To create a world class big game destination that contributes toward the economic development of the Kavango Region while also supporting biodiversity and habitat conservation.

Strategies and principles

- Outdoor nature-based use of the landscape through personal/ self and guided interpretation is the primary tourism product.
- To limit and manage environmental impacts and access, tourism products will be focussed on areas where water is available and access is possible. Areas requiring large and high impact infrastructure, such as roads will not be promoted in the inaccessible regions of the park.
- Tourism will be limited by MET in areas to a defined number of users, this may be via concession agreements (or direct regulation) preferably with one party who will then be responsible for the maintenance of the support infrastructure in these areas, for controlling access, maintaining environmental integrity and for training and managing guides.
- Guided tours by qualified guides will be the preferred use of most landscapes, where personal experience based on interpreting the environment is critical.
- Low environmental impact developments are essential which must blend in with the landscapes and natural environment.
- Interpretive material will be used in the 'self-walk' areas especially, to highlight responsible use of the area and how to explore the environment.
- MET will determine the products and the capacity within different areas as defined in the zonation.
- The different products will be priced, allocated and regulated broadly using the following criteria:
 - Differential pricing may be applied between seasons and user groups,
 - The more exclusive the use the higher the fee levied by MET for the use of an area or product,
 - The higher the demand for the product the higher the user fee,
 - Areas will be zoned to accommodate different users, subject to suitable activities,
 - The costs to mitigate tourism impacts or undertake, control and maintain tourism products and support infrastructure and management must at least be offset by the income earned from tourism by MMC (user pays).
- Should any party other than MET operate, manage or develop any of the tourism rights or opportunities within the Park, it will be done through a defined procedure and regulated through a formal agreement and in accordance with the Concession Policy.
- The safety of all users of the area is extremely important and MET must indemnify itself against any potential actions from users of the area.

Activities

- a) Implement the Park's tourism scoping study.
- b) Identify priorities for visitor management such as maps, interpretative materials, visitor facilities, etc. from this management plan and other associated plans, and start implementation.
- c) Address accessibility within the Park by evaluating and realigning the track network in year one.

CHAPTER 7

Infrastructure

7.1 Access and roads

Specific objective

To provide for a practical, ecologically and aesthetically appropriate road network through the MNP, for management, law-enforcement, tourism and other approved purposes.

Strategies and principles

- Only one entry point must exist and it must be sign posted with a control point to improve control and tourists' opportunities to acquire permits.
- The southern boundary road that passes through the Park is used by a private farmer to the east of the Park. There is a need to establish a legitimate arrangement with the farmer and to agree on entry and exit not to interfere with park management and/ or tourism activities.
- MET to ensure that the main entrance gate complies with the following:
 - Opening and closing times as stipulated by the park regulations,
 - A register of all people and vehicles entering and leaving the park is maintained,
 - An operating protocol is agreed and enforced,
 - Speed limits set for the area and signposted,
 - All permits or entry fees are collected and paid in as per treasury regulations.
- Park roads will be kept to a minimum and subject to the following:
 - Will be designed to be cost effective,
 - Low maintenance roads for high clearance or 4x4 vehicles and for low speed will be the preferred design but demand, cost and benefit will help inform this,
 - Minimum disturbance of soil and use of local material will be preferred in road construction, ensuring minimal environmental and visual impact.
- Ensure appropriate interpretive materials such as signboards and maps are available to Park users.

7.2 Buildings

Specific objective

To ensure that infrastructure is kept to a minimum, properly built and maintained, and contribute to the overall vision of the MNP. In addition to the existing buildings for staff and tourists any new buildings should adhere to the principles below.

Strategies and principles

- New buildings and architectural upgrades should be designed and constructed to blend in with the environment and cause little disturbance to the natural landscapes.
- Cost-effective sustainable construction techniques should be applied in order to minimise the carbon footprint.
- Where possible, buildings should be located as close to existing service infrastructure and major access routes as the product will allow.
- Any new buildings or improvements must take into account the long-term management costs and responsibilities.
- Conservation staff must be concentrated near areas where management and control demands are highest. Ideally they should be located near services, and where practical in towns or villages where support infrastructure and services are available for staff and operations.

- All staff residing within the Park must be accommodated in facilities that meet acceptable standards, especially as regards their safety when residing in the area and commuting to work.
- The waste disposal of tourism facilities and staff quarters must comply with the Environmental Management Act, 2007.
- Structures containing fuel, gas and oil must comply with the Environmental Management Act 2007, and containment structures must be erected to minimise the effects of leakage and spillages.

7.3 Tourism infrastructure

Tourism infrastructure can assist the economic potential of a park, however should be planned, designed, located and developed adequately prior to construction so as not to impact negatively on the biophysical environment and overall “sense of place”. Ongoing maintenance is imperative for the proper functioning of such infrastructure and should be budgeted for and conducted by skilled contractors using material of good quality.

Specific objective

To ensure that infrastructure is limited, properly constructed, adequately maintained and contribute to the “sense of place” and vision of MNP.

Strategies and principles

- An environmental clearance certificate would be required prior to the creation of new infrastructure in the Park.
- Infrastructure should be located close to existing services and major access routes.
- Infrastructure should blend into the overall landscape and not detract from the “sense of place”.
- Good quality material and workmanship is critical.
- Green building designs – e.g. solar heating, natural ventilation, etc. – should be encouraged.
- Development should follow the Park Zonation Plan.

7.4 Airstrips and aircraft

Specific objective

To determine if there should be airstrip(s) in MNP.

Strategies and principles

- Should an airstrip be required in future, preference should be given to suitable areas outside the Park.
- Helicopters should use airstrips outside parks and helipads will only be permitted if there is no impact on other Park users.
- An environmental clearance certificate would be required prior to the creation of new airstrips in the vicinity of the Park.
- The ‘no flying’ below 1,000m restriction should still generally apply over the Park although there may be designated corridors for approved landings.
- All flying below 1,000m should be approved by the Director responsible for park management in the MET.
- No low level aerial safaris will be permitted.
- Noise pollution to other Park users must be avoided in any flying operations.

7.5 Waste management

All wastes, solid, liquid and toxic, are currently dumped into a landfill near the existing park headquarters created by park staff. Park staff collects their domestic waste in plastic bags that are collected and dumped at the site. Other waste in the park is collected randomly and dumped, including liquid fuels and oils. This is an extremely unsustainable and environmentally detrimental practice. No site suitability assessment was carried out which would have considered topography, underground water, solid and superficial geology, vegetation and types of waste to mention a few. To date it is thus not known what the direct and indirect environmental impacts are especially concerning underground water resources. The volume of leachate is a function of water that comes into contact with uncovered waste. Given liquid fuels and oils and other toxic wastes are dumped, this could have serious detrimental effects since MNP receives above average rainfall by Namibian standards. It is important for MMC to address this matter as a priority as waste generation in the park will increase once a tourism operation is established.

Specific objective

To ensure that the park remains free of any waste and pollution by implementing cost effective and environmentally friendly waste management practices.

Strategies and principles

- Establish clear guidelines and procedures for waste collection, sorting and dumping.
- Provide signage at the park entrance, office, staff accommodation and future tourism facilities to promote zero tolerance for littering and pollution in the park.
- Enforce the “polluter pays principle” under the Environmental Management Act, 2007.
- Assess the feasibility of i) creating an environmentally friendly and long-term sustainable landfill site or ii) developing a mechanism whereby wastes and pollutants are collected regularly, transported and dumped at a designated site in Rundu.
- Provide international standards and best practices for the treatment and handling of toxic wastes, emphasising the protection of humans, flora and fauna.
- In the absence of a landfill site, implement an interim waste management policy that ensures the provision of waste collection bins at the park entrance, office, staff accommodation and future tourism facilities.
- Generate awareness and enhance the capacities of park staff to manage waste and pollutants.

Activities

- a) Park management must assess existing sites and if necessary initiate a monitoring programme to ensure they comply with national legislation, policy and standards.
- b) Disposal sites/temporary storage sites that are found to be inadequate, especially where water is being polluted, or at risk, must receive urgent attention to resolve any problems, if necessary closing the existing sites and relocating them.
- c) Park management must develop an appropriate waste management procedure and enforce compliance by all staff, tourism providers and other agencies.
- d) Park management must assess the existing sites and if necessary initiate a monitoring programme to ensure that they comply with national legislation, policy and standards.
- e) Those found to be inadequate, especially where water is at risk of or is being polluted, are to receive urgent attention and a strategy implemented to resolve any problems.

7.6 Human safety

Wildlife may pose a threat to tourists and staff within the Park. Management needs to monitor those instances and areas where this is likely to happen. The following guidelines should be implemented:

Strategies and principles

- Protective barriers should be erected where the threat is likely to be high (e.g. camping and picnic sites and waterholes). Barriers should be monitored to assess their effectiveness.
- Notices and warning signs must be displayed in appropriate places.
- Access to the Park is conditional on a waiver of liability for visitors and families of staff.
- All Park users should be made aware of actions which will increase the likelihood of injury or death; animal feeding should be prohibited.
- Facilities should be designed and developed with a view to preventing or minimising the risk to life or property, but not impacting negatively on the level of visitor experience.

Activities

- a) All protective and precautionary measures, such as barriers, firebreaks, notices, and signs should be regularly maintained and assessed for their functionality and effectiveness.
- b) New threats or human safety incidents need to be monitored and acted upon immediately by park management and staff.

7.7 Fencing

Due to the high value species (e.g. Eland & Rhino) in the MNP, it is imperative that the borders are effectively fenced. The fences should conform to the Nature Conservation Ordinance, 1975 (4 of 1975).

Specific objective

To safe guard the high value species against breakouts and preventing the spreading of any diseases from/into the Park.

Strategies and principles

- Fences are imperative on boundaries so as to avoid conflict situations with communities and livestock farmers.
- The fences should conform to the Nature Conservation Ordinance 4 of 1975 as described by Regulation 147.

Activities

- a) All existing fences should be properly maintained.

CHAPTER 8

Administration and management

Managers must be results and solution orientated and to do this requires some devolution of power to regional offices by MET head office. Ideally there must be a stronger link between income and expenditure and other/ additional sources of revenue must be available for operations and development. Management must proactively guide the process and pre-empt problems, therefore systems must be in place and operational so that this reaction can be quick, efficient and effective. The ability to understand the management system and know what approach should be adopted is critical. A strong and determined persistence to solve problems will be a definite requirement. The large geographic area and lack of general infrastructure also poses a huge challenge. Deploying people over this large area and supporting them is a logistical exercise, but the need for a presence 'on the ground' cannot be overstated.

Strategies and principles

- All MET assets are accounted for and if necessary protected and maintained in working order and applied to contribute towards this Plan's Vision and Objectives.
- Close control of maintenance is required to ensure assets do not deteriorate.
- Ensure all relevant MET policies are complied with, where there are obstacles, recommendations must be made and solutions sought to improve the system.
- Establish a system of monitoring and recording all aspects of the Park so that control can be exercised and management improved, especially of the following:
 - The socio-economic impact of the Park,
 - That tourism products are developed and operated responsibly,
 - All collaboration agreements are complied with,
 - Financial records are kept and budgets are adhered to.
- Identify gaps in knowledge relating to management and where appropriate, through collaboration, find solutions to improve the understanding of the natural system.
- To develop a respectful and efficient working relationship with staff and other groups and ensure MET policies are complied with in this regard.
- Ensure all areas of the Park are adequately managed and controlled.
- To make recommendations and follow-up on any reviews or changes to this Plan, relevant legislation, development requirements, funding, research and other management related issues.
- Monitor any changes in legislation and advise on their impact on the Park and associated operations.
- Research needs are attended to and where possible/ necessary/ feasible, done in collaboration with scientists, students, research/ academic institutions and other appropriate partners.







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