HWANGE
National Park

General Management Plan

2016 – 2026

This General Management Plan has been developed through a participatory process, involving a cross section of stakeholders for the Hwange National Park.

The planning process was conducted under the coordination of a Core Planning Team comprising representatives from the Zimbabwe Parks and Wildlife Management Authority and the African Wildlife Foundation.

Funding for the planning process was provided by Zimbabwe Parks and Wildlife Management Authority and the African Wildlife Foundation.

Implementation of the objectives and targets outlined in this document will be the primary responsibility of the Zimbabwe Parks and Wildlife Management Authority. Where necessary, there will be appropriate collaboration with other agencies to ensure implementation.

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Foreword

This General Management Plan for Hwange National Park is a product of the review of the previous management plan. The park has a long history that dates back to 1928 when it was first established as a game reserve and it currently is almost 15 000 km^2 in size. This General Management Plan addresses the issues and threats facing the park through four interlinked programmes.

These four programmes comprise Biodiversity and Natural Resources Management, Sustainable Tourism, Park Operations, Administration, Infrastructure and Collaborative Management and together they facilitate a holistic approach to the management of the park. The planning process was carried out in 2014 and 2015 and entailed a consultative process with stakeholders. All four programmes were formulated using working groups comprising of different experts. The plan has working life of ten years and it is supported by 3-year action plans that can be rolled forward with new activities being added as required.

Hwange is Zimbabwe's flagship park and contains one of the largest populations of elephants in Africa, which becomes especially concentrated during the dry season. This population is part of a shared population which is linked to Botswana, Zambia, Namibia and Angola though a network of conservation areas that comprise the Kavango-Zambezi TFCA (KAZA). Managing this herd is key to the future of Hwange and care needs to be taken to ensure that the biodiversity of the park is maintained through into the future.

Through its objectives, targets, actions and monitoring programmes the management plan pays particular attention to the proper management of the Exceptional Resource Values for Hwange which include the heterogeneity and natural diversity, the carnivores, the elephants. Large mammals and birds as well as catchment protection and cultural and archaeological sites. We envisage that the application of this management plan will enhance the conservation and management of Hwange so as to sustain the desired state of the wilderness qualities and the exceptional resource values for the benefit of present and future generations.

Edson Chidziya
Director General, Zimbabwe Parks and Wildlife Management Authority

Executive Summary

Introduction

Hwange National Park is the largest national park in Zimbabwe and was established as a conservation area in 1928, with its proclamation as a national park being formalised in 1959. The park is situated in North-West Matabeleland and it occupies a total area[1] of 14 651 km^2.

This General Management Plan for Hwange outlines a strategy for the park over the next 10 years based on a park purpose, and comprehensive zoning scheme. All activities are separated into four programmes, each with its own purpose which is supported by a set of objectives and targets.

This management plan was developed using, a participatory process, baseline information from previous park plans, and information from relevant literature and outcomes from consultations with stakeholders. In addition, technical working groups comprising the key stakeholders and park management developed the four management programmes after an analysis of the current opportunities and problems facing the park. The programmes attempt to address and provide solutions to the problems while considering the existing opportunities. A core planning team coordinated the planning process and facilitated the technical working group sessions.

The logical framework approach was adopted for the planning process. The objectives and targets were set to provide a long-term strategy for the park management plan. Each programme has a 3-year action plan which provides detail on the actions, activities, input requirements, assigns responsibility and presents a timeframe. The action plan is designed to be regularly rolled forward every 3 years through an adaptive management cycle that is based on the application of a monitoring and evaluation tool. The logical framework approach has enabled the production of a management plan which is dynamic, flexible and adaptive to changing needs, socio-economic and political environments.

Exceptional Resources

The exceptional resource values of Hwange were classified into four categories namely natural, scenic, social and cultural. The *natural* values include the significant heterogeneity and natural diversity of the area, its carnivores, elephants, large mammals, birds and the fact that it is a large protected area (PA) embedded into broader natural system. The exceptional *scenic* values that were identified comprise the diverse vegetation types, the pumped pans, the natural water sources and the scenic views of the northern watershed area. The *social* aspect encompasses catchment protection and the regional value of the park as it is part of the KAZA TFCA and the Hwange-Sanyati Biological Corridor (HSBC) conservation projects. The *cultural* aspects are related to the numerous archaeological and cultural sites scattered throughout the park

[1] *Area from the legal description. The GIS indicates a slightly larger area of 14,710 km^2*

Park Purpose and Significance

Hwange Park Purpose

Hwange National Park, as the flagship protected area in Zimbabwe, will protect and conserve the biodiversity, ecological processes and wilderness values of the area, along with its wild and scenic landscapes.

It is recognised that this large park is a vital component of a much wider natural area and it has an important role in the Kavango Zambezi Transfrontier Park, contributing towards the economic development and well-being of communities in the surrounding areas.

Hwange will maintain its commitment to Zimbabwean citizens by promoting educational visits and affordable access for the general public.

The park will also maintain its role as an important research centre for biodiversity and the human/wildlife interface, both inside and outside its boundaries.

The significance of Hwange is varied and spans local, national, regional and international levels. In 2011, Hwange became part of the Kavango-Zambezi Transfrontier Park (KAZA TFCA) which includes protected areas in Zambia, Botswana, Namibia, Angola and Zimbabwe.

Zoning Scheme

The Hwange zone plan (see section A3 for a map) was developed to provide a framework in which to balance the aims of conservation of the park's exceptional resource values and developing the park as a tourism destination. The conservation of biodiversity, ecosystem processes and the park's wilderness character is one of the primary management objectives throughout the park. Two main zone types are defined with associated prescriptions on infrastructure and types of activities permitted have been designated – Wilderness and Wild. In most cases zone boundaries have been demarcated by roads and physical features.

Wilderness zones are areas where wilderness recreation opportunities are subject to a minimum of influence from facility development and intensive visitor activity. The two wilderness areas are the Southern Wilderness Zone and the Dzivanini Wilderness Zone. They are adjacent to each other but separated because of their underlying geology.

Most of the north and east of the park is designated as Wild Zone. These are areas where visitor activity in natural surroundings is encouraged.

Two other limited zone areas have been established. These are the Development Zones where permanent infrastructure is permitted (Main Camp, Sinamatella Camp, Robins Camp, Makona Station, Umtshibi Management Station and the tourism facilities located at Deka, Nantwich/Isilwane and Bumboosi). The Special Protection Zones are defined as all archaeological sites, all springs and seeps and special vegetation areas such as the Mbiza palm savannah.

Management Programmes

Four management programmes, addressing logically grouped issues were developed:

1. Biodiversity and Natural Resource Management Programme
2. Sustainable Tourism Programme
3. Park Operations, Administration and Infrastructure Programme
4. Collaborative Management Programme

They are briefly summarised below followed by a summary of the purpose, guiding principles and objectives of each programme.

Biodiversity and Natural Resource Management Programme

The Biodiversity Programme deals with the conservation of the Hwange ecosystem components with a focus towards the park's exceptional resource values and identified conservation targets. A key component of the programme is monitoring and research to ensure that the success of the conservation activities can be measured and modified during the life of the plan. The Biodiversity Programme works strongly in conjunction with the Park Operations, Administration and Infrastructure Programme, especially on "cross-cutting" issues such as fire, vegetation and water management.

Sustainable Tourism Programme

The Sustainable Tourism Programme strives to ensure that tourism provides income for the park, but without compromising its biodiversity and wilderness values. The tourism plan is based on improved product leading to improved visitation and therefore income. Although some concessions are on offer they are not seen as the sustainable way forward for income generation in the long-term. The park also needs to take advantage of its wilderness qualities and ensure that it is branded effectively to take advantage of this growing segment of the market.

Park Operations, Administration and Infrastructure Programme

This programme provides the backbone and support structure on which all park management activities are based. It provides a solid foundation to the operations of the other management programmes by developing and maintaining an effective and efficient human resource base and establishing a successful resource protection programme. This programme is also responsible for the implementation of activities such as fire, vegetation and water management which are researched, guided and monitored by the Biodiversity programme. Hwange management will employ financial and resource management strategies with accountability, and endeavour to develop and maintain the necessary and appropriate infrastructure that underpins both management and tourism activities.

Collaborative Management Programme

The Collaborative Management Programme deals with issues beyond the boundaries of the park. A primary focus of the programme will be to foster good relations with the surrounding communities and this will be achieved by providing conservation services and education and information to the affected groups. Safari hunting is an important mechanism to provide community benefits and other ways of allowing communities to benefit form the park are also suggested. Collaborative management of Hwange as part of the greater system is another important focal area for the programme and maintenance of habitat connectivity is vital to ensure the survival of the park. Hwange is an important part of the Kavango-Zambezi Trans Frontier Conservation Area (KAZA TFCA and a key component of the Hwange-Sanyati Biological Corridor (HSBC). The programme sees joint activity plans as the way to a fuller integration into these conservation initiatives and also with the neighbouring Botswanan authorities.

Purpose, Guiding Principles and Objectives Summary

The table below summarises the Purpose and Guiding Principles for all four programmes. Perhaps an over-riding guiding principle, common to all programmes is that of adaptive management. An overly prescriptive management plan cast in stone is probably a sure way to ensure that it is not implemented. Plans need to take changing circumstances into account and adapt accordingly – in all programmes.

Purpose and guiding principles for Hwange management programmes		
Programme	**Purpose**	**Guiding Principles**
Biodiversity Conservation & Natural Resource Management	To conserve biodiversity, ecological processes, wilderness qualities and values through monitoring, applied research and targeted management interventions.	1. Change is an integral part of the environment 2. Management will be based on available scientific information 3. Commercial consumptive use is not compatible with Park goals 4. Conservation principles will also apply and be promoted outside the park 5. Interventions will be kept to a minimum 6. Management of artificial water will be based on the resource and not on the users
Sustainable Tourism	To provide a diverse and sustainable, high quality wildlife viewing, wilderness and cultural experience to both local and international visitors that maximises income whilst ensuring that the biodiversity and environmental values of the park are not eroded.	1. Wilderness character of Hwange will be promoted 2. Walking safaris will be an integral part of the Hwange experience 3. The cultural and archaeological heritage of the park will be promoted and protected 4. Communities should benefit from tourism 5. Public tourism infrastructure will be expanded and improved, initially concentrating on existing facilities 6. Tourism will be diversified 7. Communications with stakeholders will be open and transparent 8. Developments will be phased 9. Educational and citizen access will be facilitated
Park Operations, Administration and Infrastructure	Transparent, accountable and efficient administration and management of human, financial and physical resources to support the Hwange National Park's purpose	1. Trained and motivated staff are the most important asset for park management 2. Management and financial resources are finite 3. Park infrastructure and activities designed to cause minimal environmental impact 4. Good access and communications are vital for effective management 5. Quality and transparency needed in all spheres of operation

Purpose and guiding principles for Hwange management programmes		
Programme	**Purpose**	**Guiding Principles**
Collaborative Management	To promote an inclusive partnership between Hwange NP, local communities and regional and international stakeholders which fosters participation and custodianship	1. Communications with stakeholders need to be open and transparent 2. Community involvement and participation will be encouraged 3. Cultural and archaeological sites will be documented, protected and access permitted 4. The educational aspect of the park will be promoted 5. The park is part of a regional ecological and sociological framework and must not be viewed in isolation 6. Citizen and educational access will be facilitated

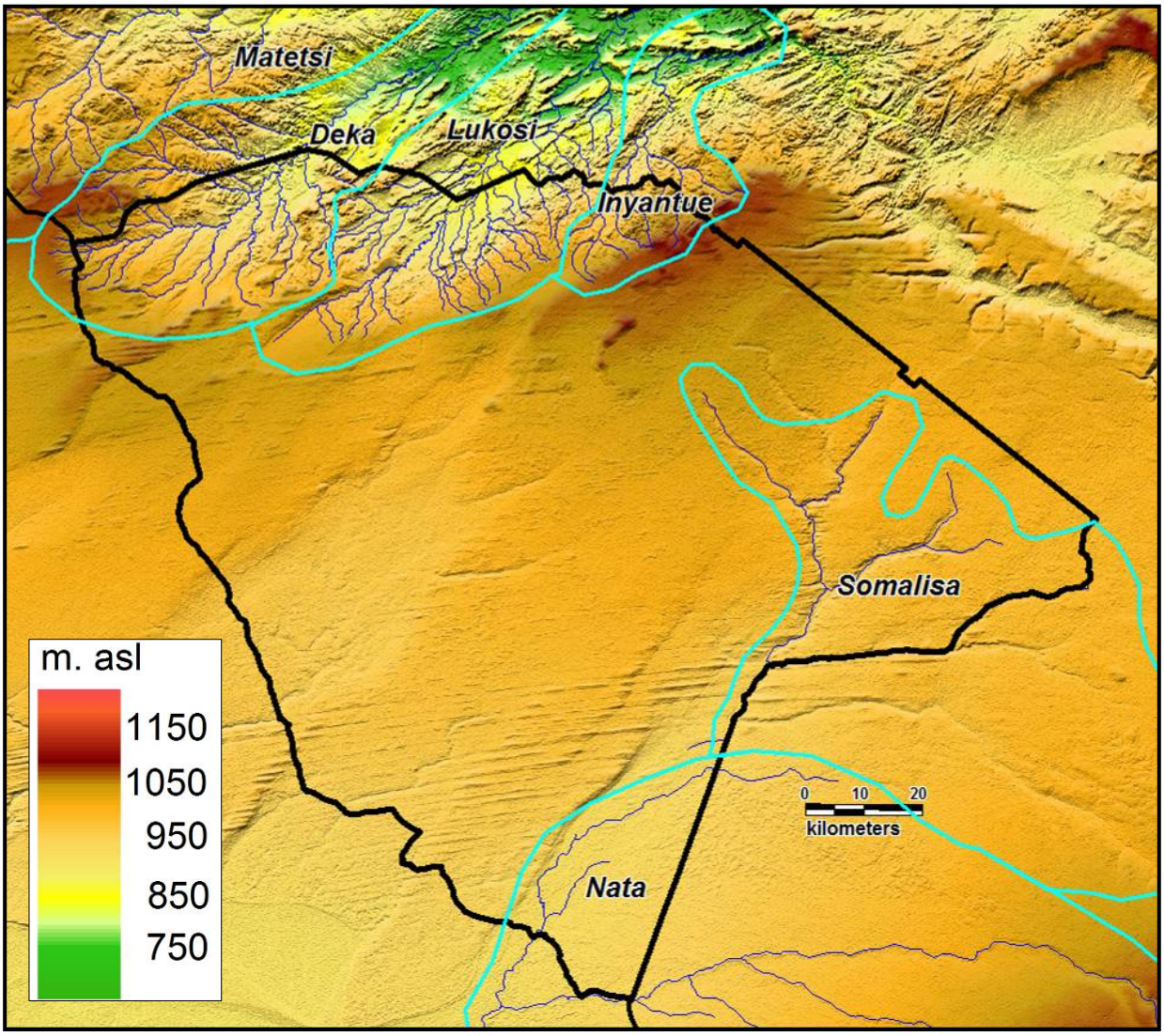
The Objectives for all four programmes are summarised below.

Objectives summary	
Programme	**Objectives**
Biodiversity Conservation & Natural Resource Management	1. Research and monitoring effectively addresses management needs 2. Wildlife populations, ecological biodiversity and key habitats are protected, maintained and enhanced 3. Land use issues in the greater Hwange area are addressed
Sustainable Tourism	1. Tourism product improved, expanded and diversified 2. Management and administration of tourism improved 3. Educational facilities and activities developed, improved, promoted and interpreted effectively 4. Branding and marketing focussed and coordinated
Park Operations, Administration and Infrastructure	1. Effective and efficient human resource base available 2. Appropriate infrastructure improved 3. Adequate equipment acquired 4. Resource protection optimised 5. Improved financial management accountability 6. Sustainable management of water provision for biodiversity
Collaborative Management	1. Human-wildlife coexistence improved 2. Communities and other relevant stakeholders benefit from Hwange 3. Stakeholder awareness of Hwange and the environment raised significantly 4. Collaborative management of Hwange sociological system improved and facilitated

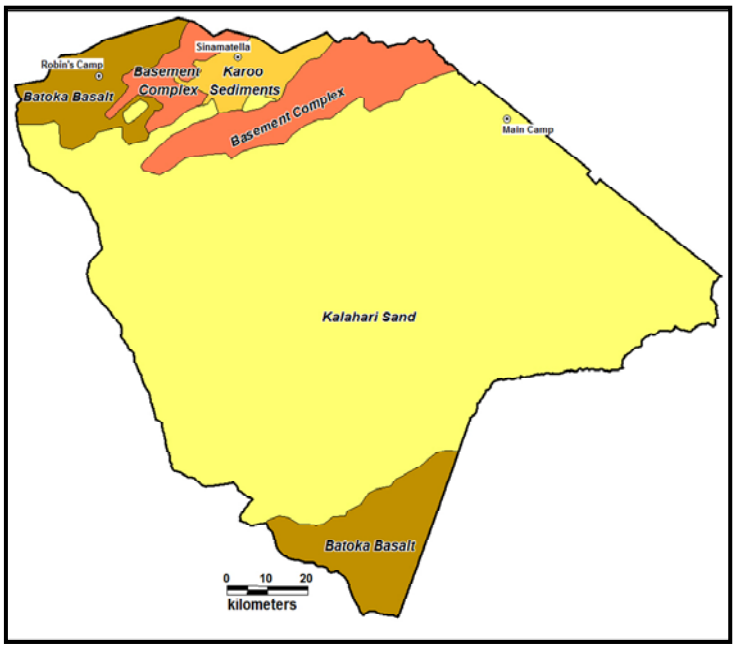
Maps

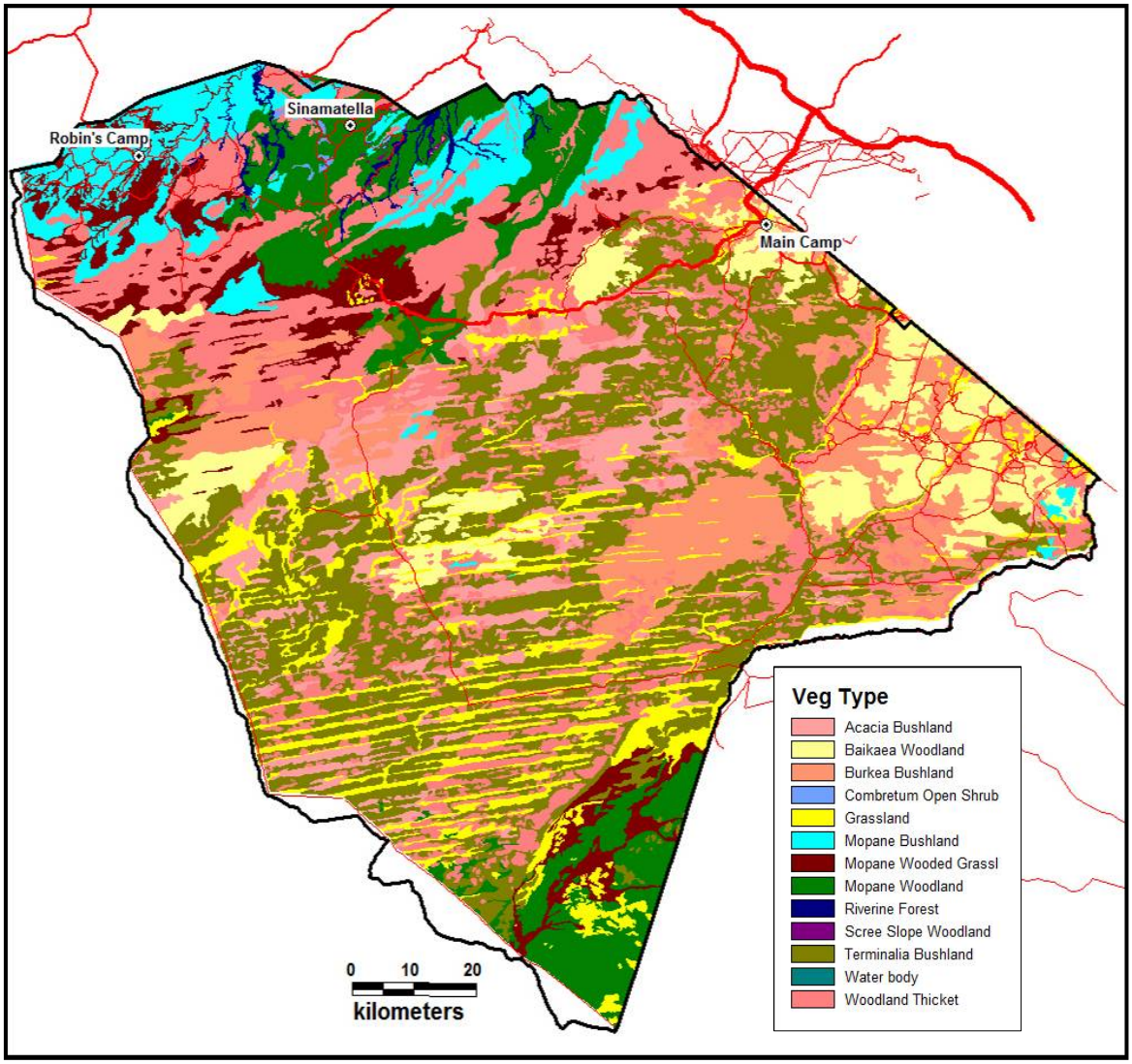
In order to “set the stage” for the descriptive text in the body of the plan some key maps are presented as part of this Executive Summary. More maps and detail can be found in Part 2 of the management plan (Background).

1 Relief and Drainage

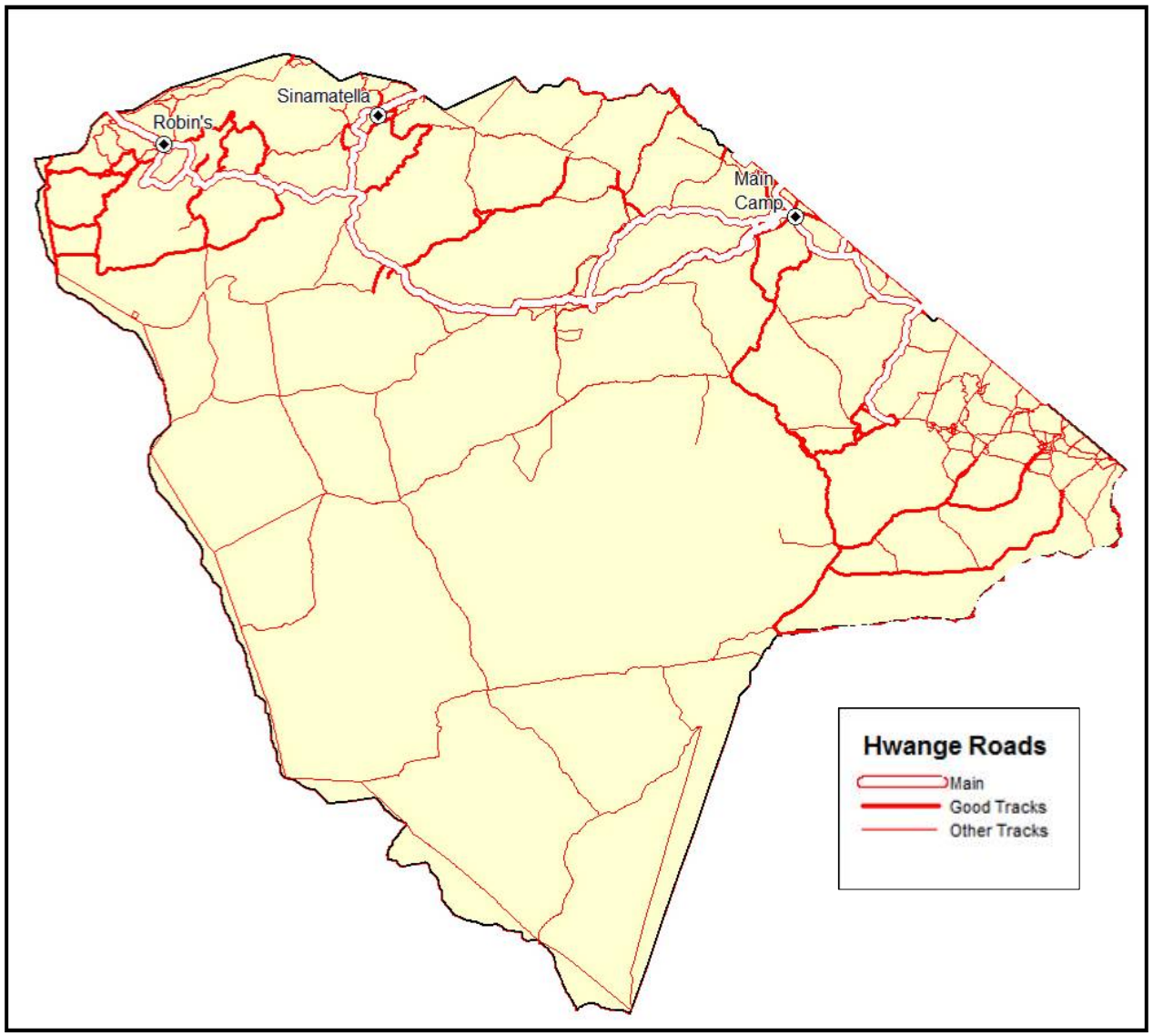


2 Geology and Vegetation

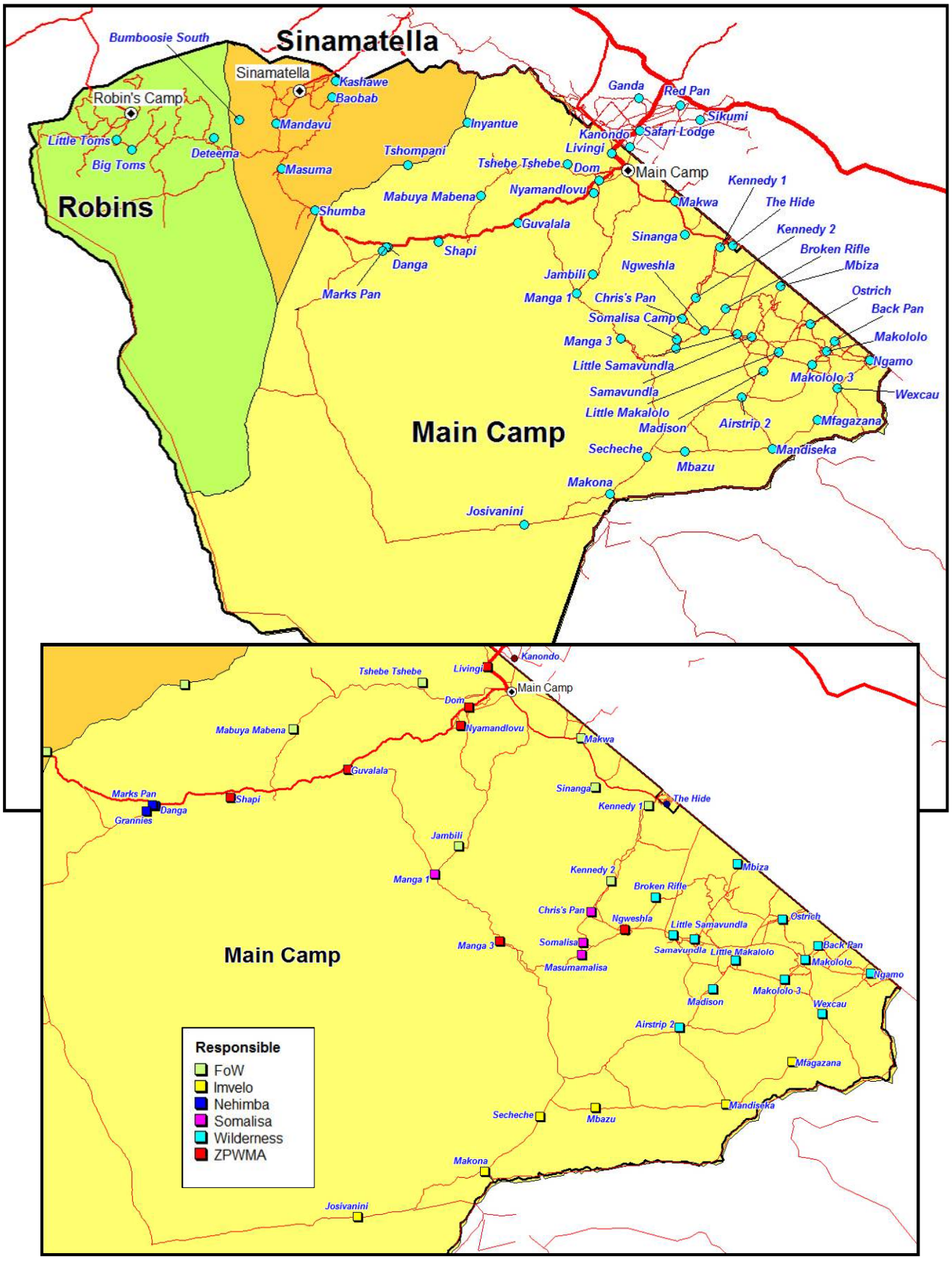




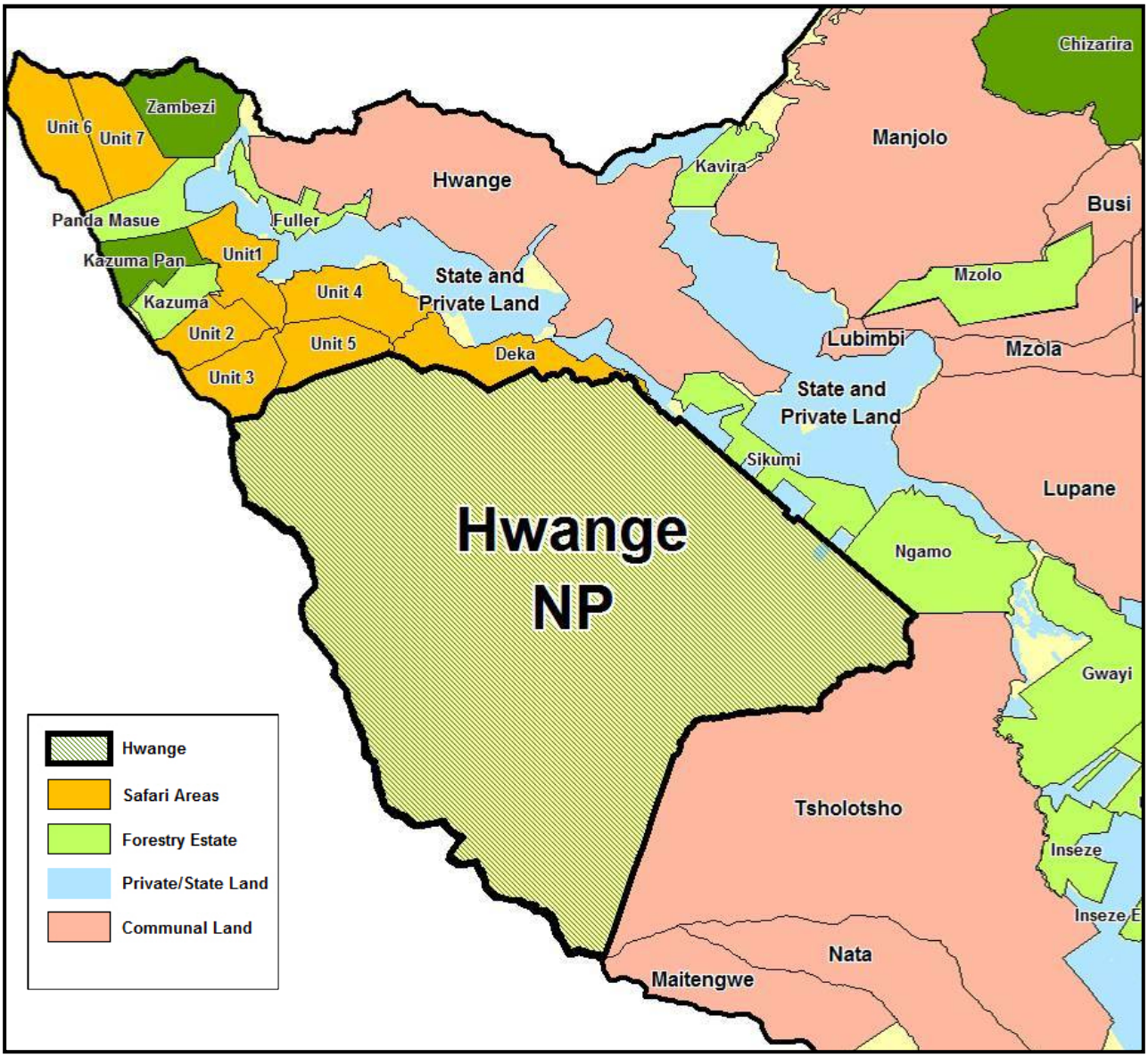
3 Roads and Infrastructure



4 Supplemented Pans



5 Regional Context



Acknowledgments

The Director-General of Zimbabwe Parks and Wildlife Management Authority, Board of the Zimbabwe Parks and Wildlife Management Authority and Hwange National Park Core Planning Team are grateful to many individuals and organisations that contributed to this General Management Plan. In particular we acknowledge the African Wildlife Foundation, the stakeholders in the Hwange area and beyond who gave freely of their time, and to the reviewers that provided information and assistance or submitted comments that contributed to the development of this General Management Plan.

Acronyms and Abbreviations

AWF	African Wildlife Foundation
CBD	Convention on Biological Diversity
CBNRM	Community-Based Natural Resource Management
CBO	Community-Based Organisation
CITES	Convention on International Trade in Endangered Species of Wild Fauna & Flora
CPT	Core Planning Team
DNPWLM	Department of National Parks and Wildlife Management
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
ERV	Exceptional Resource Value
GIS	Geographic Information System
GMP	General Management Plan
GPS	Global Positioning System
HWC	Human-wildlife Conflict
IPZ	Intensive Protection Zone
IUCN	World Conservation Union
KEA	Key Ecological Attribute
LE	Law Enforcement
LFA	Logical Framework Approach
METT	Management Effectiveness Tracking Tool
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
PA	Protected Area
PAC	Problem Animal Control
POAI	Park Operations, Administration and Infrastructure
PPCP	Public Private Community Partnerships
PPF	Peace Parks Foundation
RBM	Ranger-based Monitoring
RMG	Resource Management Group
SADC	Southern African Development Community
TBNRM	Transboundary Natural Resource Management
TFCA	Transfrontier Conservation Area
TPC	Thresholds of Potential Concern
TPM	Tourism Provision and Management
VHF	Very High Frequency
WCPA	World Commission on Protected Areas
WHS	World Heritage Site
WWF	Worldwide Fund for Nature
ZESA	Zimbabwe Electricity Supply Authority
ZINWA	Zimbabwe National Water Authority
ZPWMA	Zimbabwe Parks and Wildlife Management Authority

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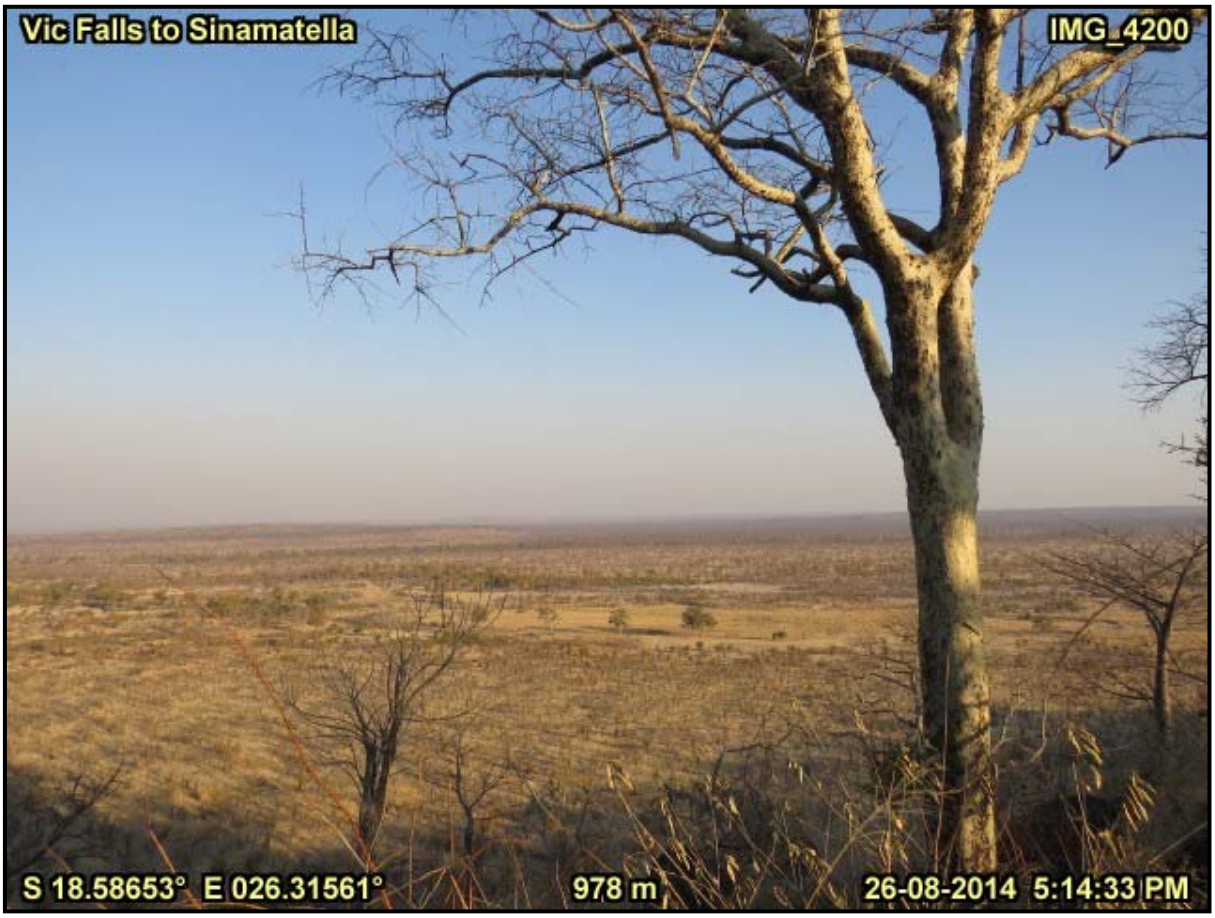
A PLAN FOUNDATIONS



A PLAN FOUNDATIONS

A.1 INTRODUCTION

A.1.1 Planning Area

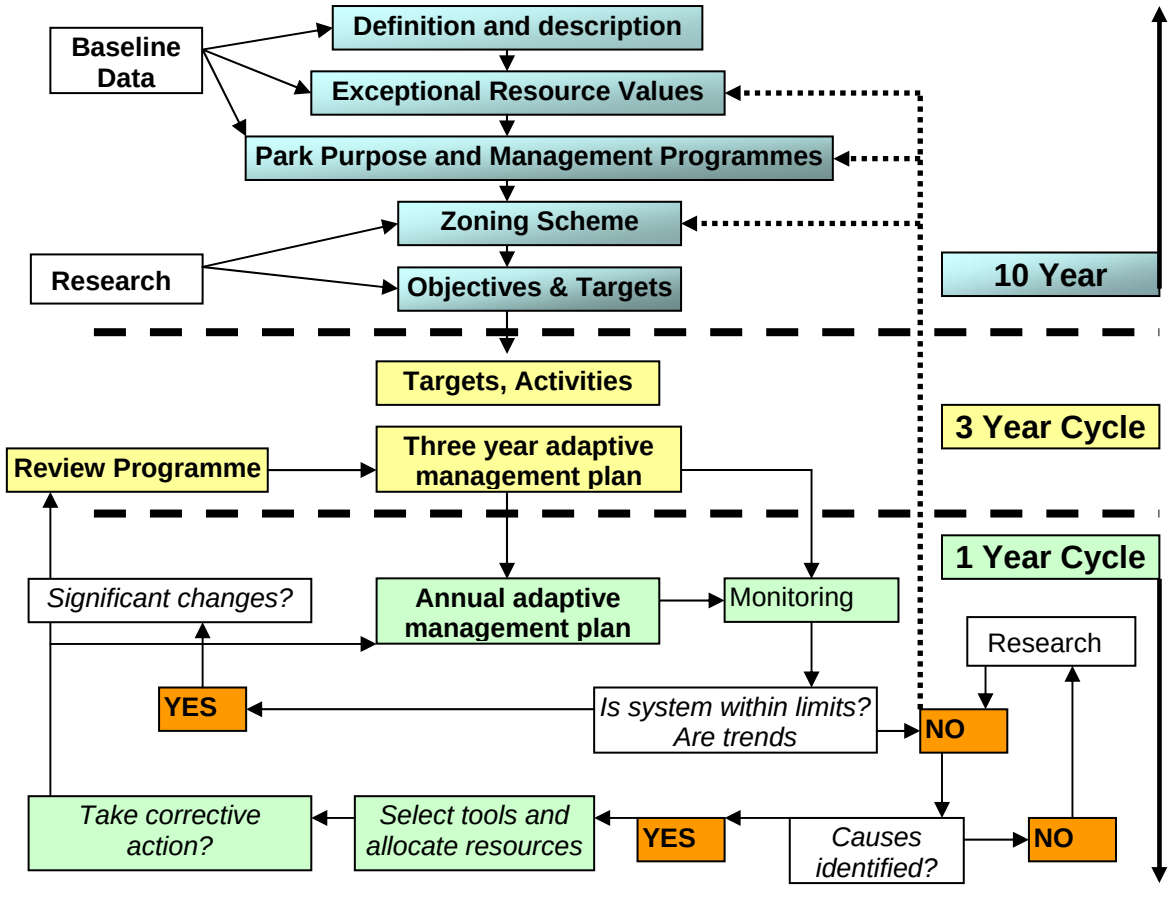
This plan is for the Hwange National Park. However, as in any planning process, cognisance needs to be taken of adjacent areas. The park is the centrepiece of a network of land with a conservation focus in north-west Matabeleland. In addition it is an important part of the KAZA TFCA and borders onto conservation and community areas in Botswana.

A.1.2 Function and Structure of the General Management Plan

The ZPWMA has adopted a three-tiered management plan. At the highest level the plan has a life-span of 10 years. This level defines the exceptional resources, the management programmes and their purposes, the objectives and the targets for each of these objectives.

In the mid-term the plan adopts a three year cycle and defines an adaptive action and activity plan, usually written as a table which links to the targets and objectives. The management plan stops at this level. However, area managers will be compiling annual works plans and budgets which will be based on the three year planning cycle. Feedback mechanisms will allow changes to be monitored and adaptive changes to the plan made. The planning cycles have some leeway as the three year cycles add up to less than 10 years (Figure A.1).

Figure A.1: Tiered planning structure for Hwange National Park



The document is split into three parts which are briefly described below (Table A.1). The set of documents is designed to be stored and accessed as a complete package.

Table A.1: Document Structure

Document	Brief Description
The Management Plan	This document contains the management plan narrative and the initial three year action and activity plans for Hwange National Park. The plan consists of four programmes, each of which is designed to be "stand-alone". However, it is recommended that the document is read as a cohesive work. In addition to this document the three year action/activity plan plus some essential other maps and text will be presented on a series of A0 sheets. These should be displayed in the relevant offices to ensure a wide circulation of the plan. The Management Plan document is designed to be as brief as possible to ensure that readers are not put off by the sheer size of the document. However, the supporting documents – the Resource Inventory and its Appendices provide the detail behind the direction and objectives outlined in the Management Plan.
Resource Inventory	The Resource Inventory provides a synthesis of the background information available for the Hwange National Park. It contains far more detail on a number of topics than the Management Plan document and is backed up with tables and maps.
Appendices	The Appendices provided detailed backup for the Resource Inventory document. Here one will find species and equipment lists plus other relevant information.

Each of the management programme chapters is designed to read as a stand alone document, as far as possible. In order to achieve this, the three-year activity plans and monitoring plans are included in the relevant chapters rather than being included at the back of the document.

A.1.3 Previous Planning

The first policy document for the park was drafted in November 1971 and a plan for the implementation of that policy was completed in 1974/75. A revised policy document and outline plan which was approved by the Minister was completed in September 1977.

In 1989, a comprehensive Hwange National Park Management Plan was produced by the Senior Ecologist and colleagues at Hwange Main Camp (Jones, et. al.). With some revisions and amendments, the plan was approved in 1992. As a complement, a sector plan for tourism development was drafted in May, 1992.

The previous park plan was produced for the period 1998 to 2003. As a first step in the preparations for the present 5-year Plan, so called "crude plans" were made in 1996/97 for all involved management units. An inventory of Hwange NP assets in the form of office and visitors facilities, infrastructure and equipment was made in 1997.

The 2003 plan has been the plan in force for Hwange since 1998 and this current planning process is the first update since that time. The plan included a set of scenarios for the main issues and usually recommended a mix of these scenarios for resolution of the problems and issues. Implementation of the plan was not carried out effectively and it was actually difficult to find a copy at the start of the current planning process. The wilderness areas largely remained intact although some semi-permanent camp leases where given out along the periphery of these areas.

A.1.4 Current Planning

The ZPWMA has adopted a participatory planning approach which is a modified version of the logical framework approach. The logical framework approach was initially developed by donor agencies to ensure that the project goals, methods and outcomes were clearly defined and measurable. The method essentially defines a logical connection between identified issues and concerns and the activities, which are linked by objectives and targets.

The planning framework is also designed to allow stakeholders an opportunity to be involved in the design of a realistic and appropriate management plan. Stakeholders are encouraged to take ownership of the planning process, and contribute ideas and information to the plan.

Participation in the process is multi-layered, with the objective of providing an opportunity for as many stakeholders as possible to contribute to the planning. There are four principal mechanisms for this (Table A.2).

Table A.2: Mechanisms for stakeholder participation in the Hwange planning process

Core Planning Team	The core planning team was defined very early in the process and consisted of four people from ZPWMA HQ.
Stakeholder Workshops	Stakeholders, including representatives from researchers, conservationists, tourism industry, communities adjacent to the parks, senior ZPWMA staff/ managers, and members of the core planning team, were invited to these. The workshops provided the broad outlines needed for the planning process and allowed a public platform for stakeholders to have an input into the management plan.
Working Groups	Four programmes were identified for the planning process: 1. Biodiversity and Natural Resource Management, 2. Sustainable Tourism, 3. Park Operations, Administration and Infrastructure and 4. Collaborative Management. Working groups provided the detail for the plan in each of the programmes. Input from working group members is also taken on individual or during smaller informal meetings.
Individual Consultation	Individual consultations are held with stakeholders throughout the process, as not all stakeholders can attend the meetings.
Document review	The penultimate draft was sent out for review to selected people and had a four month review period within the ZPWMA. Comments received were incorporated into the final draft.

A.1.5 Background Information Summary

This section is a brief overview of the park and its utilisation. More details and maps are found in Part 2 of the plan (Background) and in the individual programme introductions, the threats, issues, concerns sections and the objectives, targets and activities sections.

Resource Inventory

A overview of the natural resources of the park is provided below. Given the size and complexity of the area, and the burgeoning state of knowledge on many aspects of the park it is greatly simplified. As mentioned above, more detail can be found in Part 2 of the Plan and in the individual programmes.

Relief and Drainage

The park varies in altitude between 1,153 m. asl. and 835 m. asl. The highest point is Bumbusi Hill overlooking the Deka drainage. The lowest point is the where the Deka river exits from the park. In the northern areas there are a number of significant escarpments and hills some of which rise over 100 m above the surrounding valleys and plains.

The watershed between the Zambezi and Nata river systems runs through the northern part of Hwange. The Nata is an inland drainage system ending up in the Magadigadi Pan in Botswana. With respect to the Zambezi system there are three main drainage systems, all of which have their sources in the park – the Deka, Lukosi and Inyantue. Much of the central park has a poorly defined drainage system on the Kalahari sands.

The park has some extensive fossil drainage areas which are remnants of wetter periods in the past. The most important of these are the Triga and Dandari vleis in the north and west and the Kennedy and Masumamalisa vlei drainage lines in the south.

Pans, Springs and Seeps

A vast number of pans are found throughout the park. All of these are seasonal and will dry up prior to the rains. However, in order to maintain the game populations a significant number of these pans are artificially supplemented. Seeps and springs – where water comes to the surface are an important part of Hwange's ecology. Springs emit higher volumes of water than seeps. In Hwange seeps are often exposed by elephants digging for the water. Natural springs are found at Dolilo, Salt Springs and Tshabika. In addition, there are hot springs at Chatawo (Deka Safari Area).

A key feature of the park are the supplemented pans – at least 60 of them in 2014. These maintain the wildlife, and specifically the elephants, during the late dry season (September to November). There are many issues surrounding this strategy and they are discussed in more detail in the relevant sections of the management programmes.

Geology and Soils

There are four main geological types that underlie the park. These are

- Kalahari Sand
- Batoka Basalts
- Karoo Sediments
- Basement Complex

The underlying geology is an important determinant of the character of the park, with nearly 60% being covered by the waterless Kalahari Sands. Soils essentially reflect the underlying geology.

Climate

Rainfall follows a monomodal pattern with 70% of the rainfall occurring between December and February. The southern parts of the park receive less rainfall, typically below 500 mm per annum while the northern and Main Camp areas receive more than 600 mm per annum. There is a significant variation from the mean and it is one of the features of the climate is its unpredictability and variability. There have been years where there was a 700 mm difference in rainfall from one year to the next and Main Camp (for example) has seen a peak of nearly 1,200 mm and a low of below 400 mm. Another, very important, facet of the rains is the timing of the onset of the first rains. If these rains are delayed it can have dire consequences for the wildlife.

Climate studies indicate that droughts worsened in Hwange during the 20th century. Increasing drought decreases both forage and surface water availability and it is likely that more water will need to be pumped to compensate. At the same time the effect of the elephants on the now stressed vegetation is likely increase and this will have a knock on negative effect on other herbivores. In summary climate change is expected to threaten the conservation status of Hwange.

The mean monthly temperatures recorded at Main Camp range from 24^{0}C in June to 33^{0}C in October. There is considerable variation in daily temperature with mean fluctuations of about 20^{0}C in winter and 13^{0}C in summer. Frost can occur in the park between May and August when temperatures drop to a ground minimum of less than -5^{0}C. Black frosts occur at lower temperatures (less than -7^{0}C and these are thought to happen on average every five years. The number of frost days (when the minimum ground temperature drops to below 0^{0}C or less is about 32 per annum. The lowest ground temperature recorded was -14^{0}C.

Vegetation

The park's vegetation was extensively surveyed in 1993 and this survey classified the vegetation into 30 woody vegetation types in eleven groups. These were split into those on non-Kalahari sands (16 types in five groups) and those on Kalahari Sands (14 types in six groups – see vegetation map at the front of this document).

The 1993 map was an exceptional piece of research and a valuable asset for the park. However, we are now over 20 years on and much of the mapping was carried out prior to the doubling of the elephant population after culling stopped. There have been significant changes since the early 1990s and the most obvious is that of the opening up of the habitat. There will also be other changes with regard to species composition but these are less obvious and would need to be researched.

There are some special plant communities in the park that deserve particular mention. These are the acacia groves and the palm savannas.

Fires are an important modifier of vegetation and uncontrolled burns have the potential to have a major deleterious effect in Hwange. Satellite based fire data was collected for 2008 to 2013 and shows that, in most years fires have been prevented from entering many parts of the park.

Wildlife

The park is famous for its elephant population which, during the late dry season, is arguably the densest concentration in Africa. Estimates of the actual numbers vary but the latest aerial survey in 2014 indicated around 45,000 animals.

The park is well endowed with other large mammals and, being in the interface between the drier Kalahari and wetter miombo environments has an interesting mix of species. The park is also well known for its easily visible large and medium sized carnivore populations.

Research and Monitoring

Hwange is fortunate in that is has a series of long-running research programmes delving into many aspects of the ecology and biodiversity of the park. These programmes, some being facilitated by local and foreign universities and research institutions, are vital for our continued understanding of the area.

Management and Use

Management

The park is split into three management units – Main Camp (10,765 km^2), Sinamatella (1,328 km^2) and Robins (2,679 km^2). Each area has its own HQ and is responsible for its own management and tourism activities. A station is being developed at Makona in the south and this may eventually end up as a fourth management unit.

There are 3,250 km of roads and tracks in Hwange national Park (including boundary roads and firebreaks). The condition of many of these is not up to a standard conducive to a quality tourism experience or for management. In the 1960s a 50 km stretch from Main Camp to Shumba was tarred to allow easier access for tourists. Unfortunately this road has not been maintained and now has deteriorated along most of its length. Approximately 800 km of road are annually maintained with some concession holders taking responsibility for maintenance of certain sections.

The three main management centres – Main Camp, Sinamatella and Robins - have well developed staff housing and office facilities. In addition, there are a number of gate stations and patrol bases. In general it should be said that much of the housing needs to be renovated. There is also a need for additional housing and amenities, especially if staff numbers are increased.

There are currently 228 staff assigned to the park (Main Camp 53%; Sinamatella 32%; Robins 15%) with 137 staff (60%) being available for patrol duties. A preliminary estimate indicates that a further 200 staff are required for optimal management of the park.

Important activities include enforcement (daily patrols, extended patrols, border patrols, joint/ combined patrols), water management, fire management (proactive and reactive), interaction with neighbours and infrastructure maintenance (roads, river crossings etc).

Utilisation

Tourism started in Hwange in the early 1930s when the first boreholes were drilled and dams constructed to attract game. By 1949 there were 2,771 visitors and this had grown to over 25,000 by 1965. Tourism peaked in 1997 with probably as many as 140,000 entries. At that time, apart from Makololo and Linkwasha, there were no private sector camps inside the national park. Most visitors were accommodated outside the park in a plethora of camps on different land categories – safari areas, forestry estate and private land. Many of them used these areas for their activities along with visits to the park.

Since 2010 tourist entries have been increasing at about 20% per annum, after reaching a very low point in 2008. There are nine tourism concessions inside the park, one of them being a leased ZPWMA facility. All others are owner built and occupied. Most of the park, especially in the south is not used by tourists with all activities occurring in the north and east. Main Camp is the hub of the tourism industry receiving around 80% of visitors, followed by Sinamatella with around 15% and Robins with around 5%. More details on tourism are found in the Sustainable Tourism Programme.

The park is the centre of a safari hunting industry and is surrounded in Zimbabwe by areas that use this as an income generating conservation activity. These include safari areas (under ZPWMA control), forestry areas, communal land and land held by the private sector. Safari hunting is considered to be an important income generating activity in the communal lands adjacent to the park.

A.2 EXCEPTIONAL RESOURCES AND PURPOSE

A.2.1 Exceptional Resources

The exceptional resource values (ERVs) consists of the natural, scenic, social and cultural characteristics and attributes of Hwange which are considered critical for the continued existence of the park (Table A.3). The exceptional resource values were used to help identify the park purpose, the management issues and opportunities.

Table A.3. Summary of exceptional resource values for Hwange NP

Category	Exceptional Resource	Category	Exceptional Resource
Natural	• Heterogeneity/ Natural Diversity • Carnivores • Elephants • Large Mammals • Birds • Large PA embedded into broader natural system	**Scenic**	• Scenic vegetation Types • Pumped Pans • Natural Water Sources • Elevated views north watershed
Social	• Catchment protection • Regional Value	**Cultural**	• Archaeological and Cultural Sites

Table A.4. Exceptional resource values for Hwange NP

	Exceptional Resources	Description
Natural	Heterogeneity/ Natural Diversity	Hwange exhibits a diverse range of habitats based on four very different geological types. The most extensive of these are the Kalahari Sand beds and this is an extension of the Kalahari desert into Zimbabwe. The diversity of habitats, from dense *Baikiaea* forests to bare exposed mudflats, supports a correspondingly wide variety of animal life. In addition, the park is host to some rare and endangered species, both in a Zimbabwean and regional context.
	Carnivores	Hwange is an exceptional habitat for carnivores of all sizes. Numbers of lions are high and leopards are known to be common. Cheetah and painted dog are also relatively easy to see but there are concerns regarding the status of these smaller carnivores.
	Elephants	The Hwange elephant population is perhaps its most famous asset with an estimated number of between 30 and 40 thousand animals. These high numbers are maintained in an essentially waterless wilderness by artificially pumping water during the dry season. In the wet season the population spreads throughout the park and into Botswana, where it becomes contiguous with Africa's largest elephant herd.
	Large Mammals	The large mammal diversity of Hwange is exceptional. In addition, the density and visibility of some species is also remarkable.
	Birds	Over 400 species of birds have been recorded from the Hwange ecosystem. The area is a listed Important Bird Area and is well known for its visible raptor population. The ecotone between the Kalahari Sands and the basaltic/granitic soils also increases the species diversity.

Table A.4. Exceptional resource values for Hwange NP		
	Exceptional Resources	**Description**
	Large PA embedded into broader natural system	At almost 15,000 km2, Hwange is Zimbabwe's largest protected area. Significantly. it is embedded into a larger natural system that includes conservation areas on three sides. Its "square" shape means that the central parts are far from the borders of the park which could allow self-sustaining populations of certain species.
Scenic	Scenic vegetation Types	The park has a very diverse range of vegetation but certain sub-types stand out as being exceptional. These are the dense stands of *Baikiaea* woodland on parts of the Kalahari sands, the pure stands of mature mopane woodland in the northern regions, the old growth Acacia and *Acacia/Baikiaea* stands near the Kennedy Vlei and in other areas and the palm savannah found in the east of the park (Mbiza, Back Pan).
	Pumped Pans	In 2014 there were nearly 60 sources of artificial water in the park to sustain the wildlife through the dry season. These pans provide the spectacular dry season game viewing that has attracted visitors to the park for the last 60 years. Although not a natural feature, they are listed here as being one of the exceptional resources of the park. It must be stated that they are also subject to political and economic pressures as they need to be artificially maintained.
	Natural Water Sources	Apart from the pumped pans there are many water sources that will hold water well into the dry season. These include the rivers in the north of the park and a number of natural pans. In addition, there are a number of springs and seeps that are vital to the wildlife. Finally there are expansive mudflats on the basalt soils in the Robins and Dzivanini areas which flood extensively during the wet season.
	Elevated views north watershed	Although much of the park is flat and featureless, the elevated views found in the northern watersheds are exceptional. The most easily accessible and well-known of these is Sinamatella, but there are a number of other ridges and high-points that have equally spectacular vistas.
Social	Catchment protection	The park contains most of the headwaters of the Inyantue and Lukosi river systems and a significant part of the Deka river system. These rivers flow through the Hwange Communal Land and a significant number of people rely on them. The park represents an important component of their hydrological health.
	Regional Value	Hwange is the second largest national park in the KAZA TFCA and is a key component of this protected area system. Apart its value as a game-viewing destination it is also the source that supports the trophy hunting industry in the surrounding areas.. In addition, communities are allowed to cut grass in selected areas. These operations will help to ensure that the park is viewed favourably by its neighbours.
Cultural	Archaeological and Cultural Sites	Hwange park is a veritable storehouse of archaeological information with at least 100 sites of the stone age, iron age and historical eras having been identified. Unfortunately, the documentation is sparse and it is likely that many sites have already been lost. There are two main stone walling sites at Mtoa and Bumbusi. Some of these sites are also ceremonial sites and have a significant cultural value to the communities. However, more work on the identification and formalisation of these sites needs to be carried out in conjunction with the communities.

A.2.2 Park Purpose

The park purpose statement provides the present-day rationale as to why Hwange is considered important enough to merit national park status. Within the context of designing the general management plan, the reaffirmation or refinement of the park purpose statement provided a solid foundation for focusing the entire planning effort, as well as for the ongoing management of Hwange..

Hwange Park Purpose

Hwange National Park, as the flagship protected area in Zimbabwe, will protect and conserve the biodiversity, ecological processes and wilderness values of the area, along with its wild and scenic landscapes.

It is recognised that this large park is a vital component of a much wider natural area and it has an important role in the Kavango Zambezi Transfrontier Park, contributing towards the economic development and well-being of communities in the surrounding areas.

Hwange will maintain its commitment to Zimbabwean citizens by promoting educational visits and affordable access for the general public.

The park will also maintain its role as an important research centre for biodiversity and the human/wildlife interface, both inside and outside its boundaries.

A.3 MANAGEMENT ZONES

A.3.1 Background

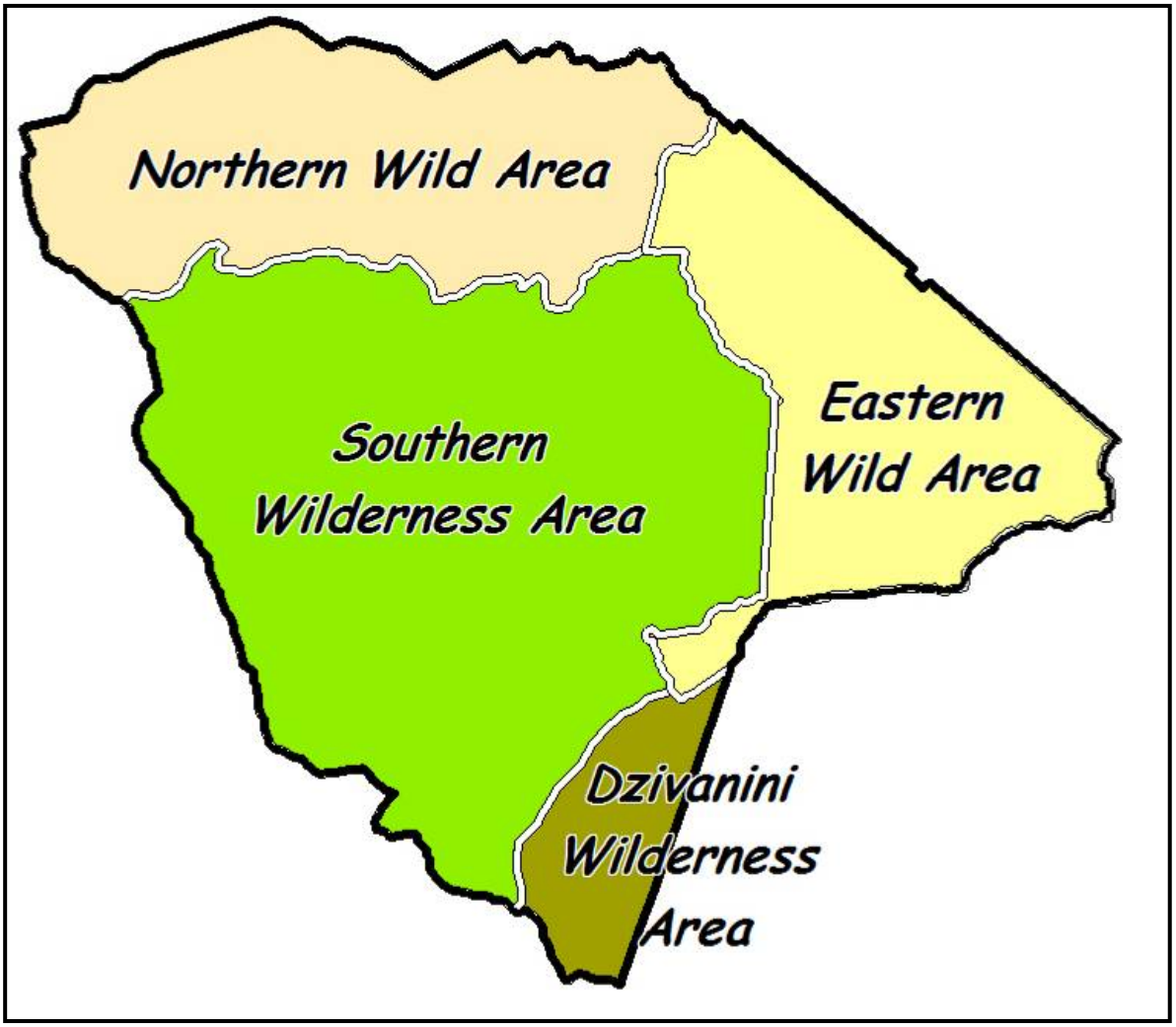
The basic zone plan fro Hwange is based on the underlying geology. In the past, the park was subdivided into management compartments based on the geology. The tourism zone plan essentially followed the units outlined in the management compartment plan. This was initiated in 1989 with the first park plan and continued through into the 1998 to 2003 plan.

During this planning process the broad zonation was deemed to be effective and only minor changes were made.

A.3.2 Main Zones

Most of the park is covered by the two main types of zonation – Wilderness and Wild Zones. Small areas are set aside as Development Zones while areas of critical ecological or sociological importance are set aside as Special Conservation Zones. The Development Zones and Special Conservation Zones are effectively sub-zones within the broader zoning scheme.

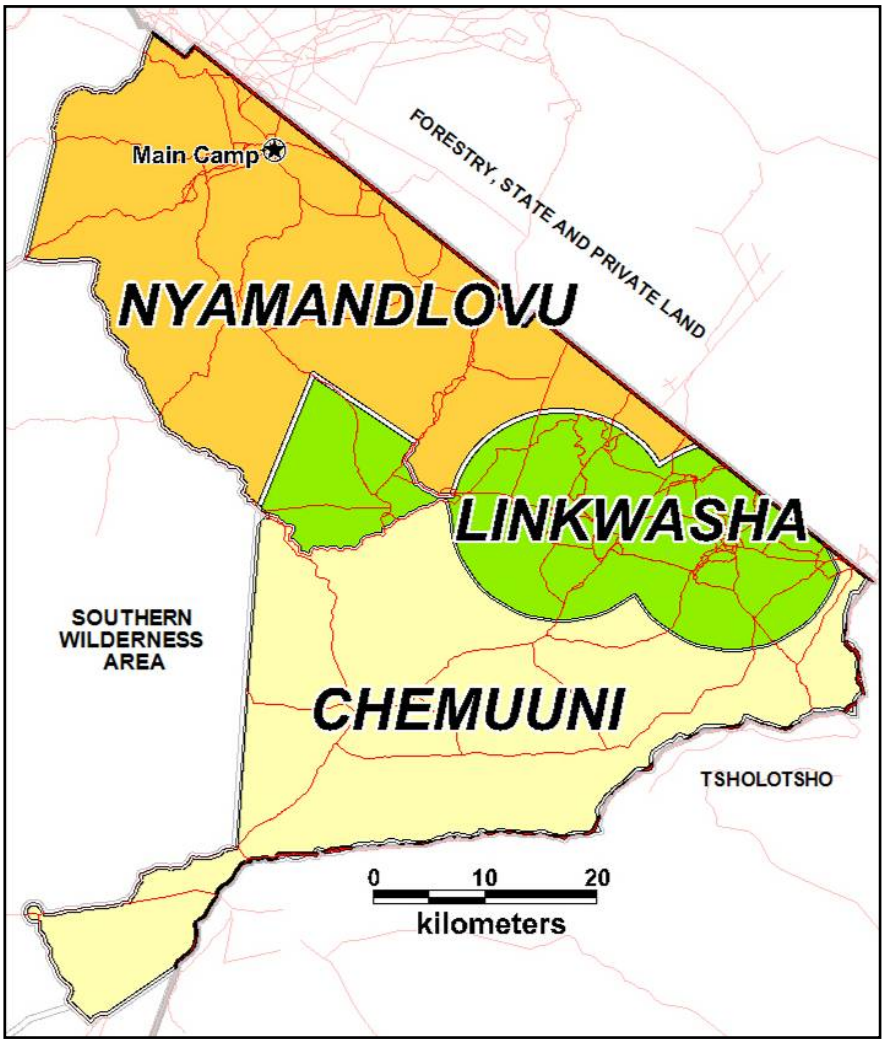
Table A.5: Hwange Zone Types	
Type	**Comments**
Wilderness	To preserve the natural wilderness qualities of the area in as a pristine state as possible.
Wild	To provide large tracts of relatively undisturbed but accessible land for non-consumptive visitor use..
Special Protection	To protect sites that have unique, unusual or otherwise important biotic or abiotic features. Defined areas include springs and seeps, archaeological sites and special vegetation types.
Development	To provide for staff accommodation, offices, workshops and tourist complexes. The three management stations – Main Camp, Sinamatella and Robins (now to include Makona) and the management camp at Umtshibi. Then Nantwich, Bumboosi and Deka as tourism sites under ZPWMA.

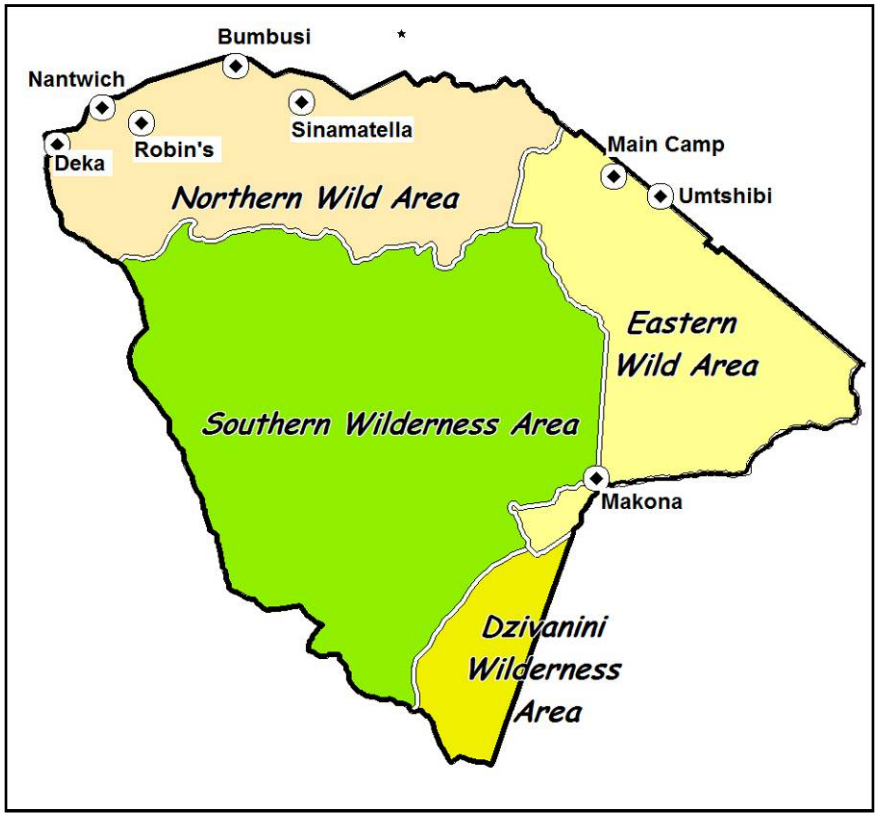


A.3.3 Sub-Zones

The Eastern Wild Area has been subdivided into three sub-zones based on their current usage. These are outlined below

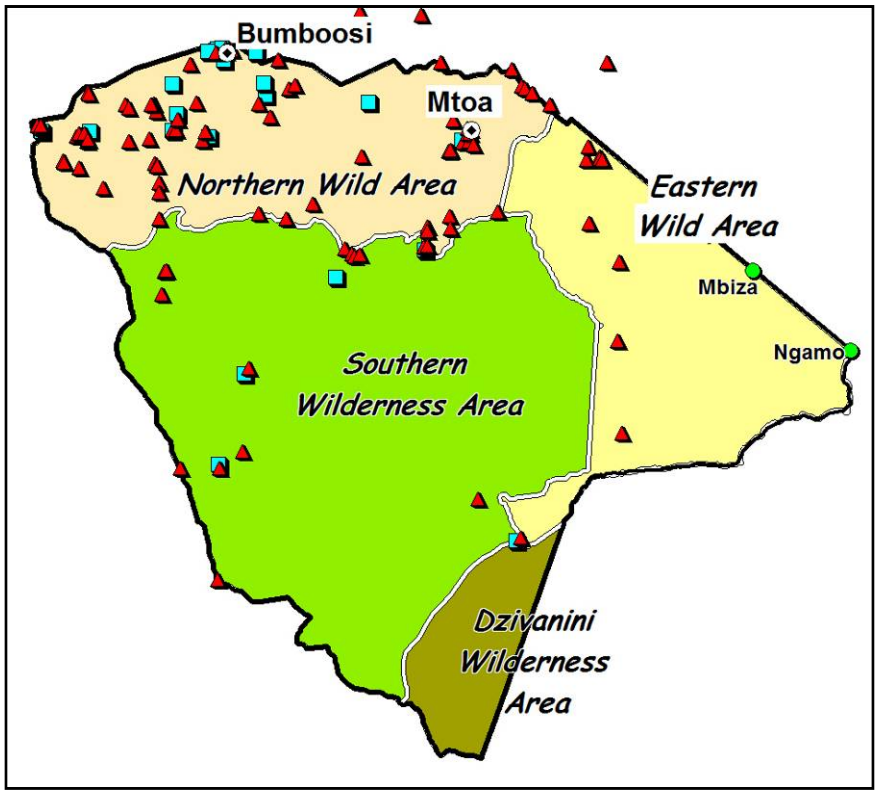
Table A.6: Hwange sub-zones	
Sub-Zone	**Brief Description**
Nyamandlovu	14 pumped pans. Currently where most tourism is concentrated with many accessing the park from camps located on the park boundary. Tourism in this sub-zone should be expanded (roads, stopping points, picnic sites). There are no camps in the Hwange Communal Land and community benefits from tourism in this area are limited. This aspect needs attention. 1,183 km^2
Linkwasha	14 pumped pans. Exclusive use tourism concession area. The current status to be maintained as these areas are under existing leases. 692 km^2
Chemuumi	10 pumped pans. Currently little tourism apart from the south-east corner which is accessed from camps in the Tsholotsho Communal Land and Ngamo Forest Area. This zone should focus on linking into to tourism from the Tsholotsho Communal Land 1,305 km^2





DEVELOPMENT ZONES

To provide for staff accommodation, offices, workshops and tourist complexes. The three management stations – Main Camp, Sinamatella and Robins (now to include Makona) and the management camp at Umtshibi. Then Nantwich, Bumboosi and Deka as tourism sites under ZPWMA.



SPECIAL CONSERVATION ZONES

To protect sites that have unique, unusual or otherwise important biotic or abiotic features. Defined areas include springs and seeps, archaeological sites and special vegetation types.

Springs and Seeps
Special Vegetation Site
Archaeological Site
Main Archaeological Site

A.4 MANAGEMENT PROGRAMMES

A.4.1 Background

Current planning procedure involves the use of a log-frame type of analysis which links problems, objectives, targets and activities more directly. This format ensures that all problems and issues are addressed by the natural resources management plan on the one side and that all activities can be costed on the other hand. The text of this section takes this planning procedure into account.

Objectives are statement of desired future intent, and in this planning exercise, they are for a 10 year period. Targets are the linkage between the objectives and the actions and activities. They provide a more focused goal for sub-components that when, taken together allow the objectives and hence the purpose of the management programme to be achieved.

Using the log-frame approach for the management planning the management activities are the final outcomes of the planning process. These are the actual tasks that will be carried out and they are the core focus for field management of the area.

Each of the programmes contain a summary table which shows the objectives, strategies, activities, results (and monitoring and evaluation parameters) and the responsibility for carrying out the activities.

A.4.2 Management Programme Definition and Objectives Summary

Four management programmes were defined for Hwange National Park. These and their key components are listed below (Table A.7).

Table A.7: Summary of key components of management programmes

Programme	Key components	
Biodiversity	• Monitoring • Research • Resource Management • Water Management	
Sustainable Tourism	• Tourism Development • Tourism Management • Education/ Interpretation/ Research • ZPWMA Tourism • Marketing / PR	
Park Operations, Administration and Infrastructure	• Anti-poaching • Water Management • Access • Buildings • Transport • Staff Welfare	• Finances • Fire Management • Communications within ZPWMA • Staff capacity building • Field Communications • Boundaries
Collaborative Management	• Communities • Education/ Awareness/ Guidance • Stakeholder Communications • Management of safari hunting • Buffer areas, corridors and connectivity	• Transfrontier Park Integration • PAC/Anti-poaching coordination • Partner agencies (Donors, NGOs)

A purpose was developed for each programme as was a description of the threats, issues and concerns facing it. In addition guiding principles were defined for each programme. These were broad statements about the direction of the programme. The purpose and guiding principles for each programme are shown below (Table A.8).

Table A.8: Purpose and guiding principles for Hwange management programmes

Programme	Purpose	Guiding Principles
Biodiversity Conservation & Natural Resource Management	To conserve biodiversity, ecological processes, wilderness qualities and values through improved monitoring, applied research and targeted management interventions.	1. Change is an integral part of the environment 2. Management will be based on available scientific information 3. Commercial consumptive use is not compatible with Park goals 4. Conservation principles will also apply and be promoted outside the park 5. Interventions will be kept to a minimum 6. Management of artificial water will be based on the resource and not on the users
Sustainable Tourism	To provide a diverse and sustainable, high quality wildlife viewing, wilderness and cultural experience to both local and international visitors that maximises income whilst ensuring that the biodiversity and environmental values of the park are not eroded.	1. Wilderness character of Hwange will be promoted 2. Walking safaris will be an integral part of the Hwange experience 3. The cultural and archaeological heritage of the park will be promoted and protected 4. Communities should benefit from tourism 5. Public tourism infrastructure will be expanded and improved, initially concentrating on existing facilities 6. Tourism will be diversified 7. Communications with stakeholders will be open and transparent 8. Developments will be phased 9. Educational and citizen access will be facilitated
Park Operations, Administration and Infrastructure	Transparent, accountable and efficient administration and management of human, financial and physical resources to support the Hwange National Park's purpose	1. Trained and motivated staff are the most important asset for park management 2. Management and financial resources are finite 3. Park infrastructure and activities designed to cause minimal environmental impact 4. Good access and communications are vital for effective management 5. Quality and transparency needed in all spheres of operation
Collaborative Management	To promote an inclusive partnership between Hwange NP, local communities and regional and international stakeholders which fosters participation and custodianship	1. Communications with stakeholders need to be open and transparent 2. Community involvement and participation will be encouraged 3. Cultural and archaeological sites will be documented, protected and access permitted 4. The educational aspect of the park will be promoted 5. The park is part of a regional ecological and sociological framework and must not be viewed in isolation 6. Citizen and educational access will be facilitated

The objectives for each of the management programmes are listed below (Table A.9) and provide an overview of the structure and direction of the programmes. The following sections provide the detail for these programmes and are designed to be as stand alone sections.

Table A.9: Objectives summary

Programme	Objectives
Biodiversity Conservation & Natural Resource Management	1. Research and monitoring effectively addresses management needs 2. Wildlife populations, ecological biodiversity and key habitats are protected, maintained and enhanced 3. Land use issues in the greater Hwange area are addressed
Sustainable Tourism	1. Tourism product improved, expanded and diversified 2. Management and administration of tourism improved 3. Educational facilities and activities developed, improved, promoted and interpreted effectively 4. Branding and marketing focussed and coordinated
Park Operations, Administration and Infrastructure	1. Effective and efficient human resource base available 2. Appropriate infrastructure improved 3. Adequate equipment acquired 4. Resource protection optimised 5. Improved financial management accountability 6. Sustainable management of water provision for biodiversity
Collaborative Management	1. Human-wildlife coexistence improved 2. Communities and other relevant stakeholders benefit from Hwange 3. Stakeholder awareness of Hwange and the environment raised significantly 4. Collaborative management of Hwange sociological system improved and facilitated

A.4.3 Notes on Programme Activity Plan Tables

Each of the four programmes contains a summary and three year activity plan after the narrative section. This table outlines the Objectives, Targets, Actions and Activities in point form. It also contains extra information in the form of notes, a broad implementation schedule, an allocation of responsibility for the tasks, an indicative budget and a prioritisation to “Action” level.

The indicative budget is broad estimation of the extra costs involved in attempting to meet the target. In many cases the activities, or related activities, will already be carried out as part of normal operations (or “sunk” costs already taken up by the ZPWMA). In some cases there will be an either/or situation – an activity may only be carried out once a feasibility study is carried out and then the study should include its own costing component. Other costings are a little more difficult. For example, while carrying out road surveys one can’t assume that this is a “sunk” cost as there may not be any budget for research related travel. At best they provide a starting point for further elaboration when the action is actually under implementation.

B

BIODIVERSITY AND NATURAL RESOURCES MANAGEMENT PROGRAMME

B BIODIVERSITY AND NATURAL RESOURCES MANAGEMENT PROGRAMME

B.1 PURPOSE, BACKGROUND AND KEY COMPONENTS

B.1.1 Programme Purpose

BIODIVERSITY AND NATURAL RESOURCES MANAGEMENT PROGRAMME PURPOSE:

To conserve biodiversity, ecological processes, wilderness qualities and values through monitoring, applied research and targeted management interventions.

B.1.2 Background

The ecological background to the park has been described in detail in Part 2 of the planning documentation and this document needs to be read in conjunction with this management plan. The background document contains a wealth of maps and references to help our understanding of the ecological systems that define the park. This section is a brief summary to “set the stage” for the management plan. In addition, more information is available in Section B2 (Issues and Concerns).

Hwange National Park was first conceived as a conservation area in 1928 but was only officially gazetted in 1959. At the outset there was no assessment of the area as a cohesive wildlife unit and this eventually led to the railway line between Bulawayo and the Victoria Falls being used as the eastern boundary which excluded the traditional dry season water sources of the Gwayi and Shangani rivers. As we shall see, this decision has had a major effect on the ecology and management of the park.

Most of Hwange, and especially the Kalahari sand areas, were a wet season wildlife area as there was no significant natural water in the park during the dry season, except at a few springs and seeps and in pools in the northern area. Largely as a result of the park boundaries which cut off access to the Gwayi River system, a supplemented water programme was established in 1935 resulting in the drilling of close to 100 boreholes in the park. The availability of permanent water through the pumping programme has allowed the animal populations, and especially the elephants, to increase. Hwange, arguably, now has one of the highest densities of elephants in Africa during the late dry season. This is an entirely artificial situation brought about by pumping underground water into pans. In the early years very few elephant were recorded in the park and in 1935 between 2,000 to 2,500 animals were estimated for the park.

The park is shaped by its underlying geology and at least 75% of Hwange is on wind-blown Kalahari sand. The northern parts of the park are on basement complex rocks, consolidated sandstones and basalts. These areas have well defined river systems and, in places, rugged topography. Erosion is an ongoing concern in parts of the north. The Dzivanini flats in the extreme south are another area on basalt geology but the terrain is very flat with poor drainage. There is a rainfall gradient from north to south with the north experiencing slightly higher average rainfall. Frost is an important variable for the survival of wildlife, especially in bad years as extreme frost can significantly reduce the food available later in the year.

Park managers in the 1970s and 1980s, and in keeping with the management ethos of the period, saw the large increase in elephant numbers as a threat to the biodiversity of the park and a culling programme was carried out between 1966 and 1986 which saw nearly 17,000 elephants removed from the system, with culls concentrated in the northern and southern areas of the park. This management strategy kept the elephant population at around 15,000 to 20,000 animals. However, when culling ceased in 1986, there was a rapid increase in elephant numbers to around 35,000 to 40,000 (effectively a doubling) and the population has oscillated around this new mean for the last 20 years.

There is no doubt that the increased elephant numbers have changed the vegetation in the park but less is known about their effect on the biodiversity of Hwange. Elephants, in combination with fire, are the key modifiers of the habitat in Hwange. The park maintains an active fire management programme centred around early burning and firebreaks. This programme is able to contain the incidence and extent of fires in most years. However, there doesn't appear to be a focussed elephant management plan for the park. During the last 20 years water has been provided for them as a matter of course for the tourism industry and as a matter of conscience for the animals themselves. There has been very little research on the water resource and the system appears to have been managed for the end users (wildlife, and particularly elephants) rather than with regard to sustainable use of the resource (water).

Hwange is an important research centre for Zimbabwe and a considerable amount of research has been done in the area and more is underway. The research in Hwange represents a remarkable synergy for long-term research as you have the ZPWMA research unit on one side and committed research partners from world-renown institutions on the other. Many of these institutions have been involved in research in the park since the 1990s.This is an opportunity that should be capitalised on and it would be possible to turn Hwange into an internationally celebrated research centre for dry savannah systems. It would take some forward thinking by all those concerned to turn it into a reality.

As a significant part of Hwange's border is with Botswana and the elephants (and some of the other animals) represent a shared population the need for cross-border research collaboration is evident. The need for this type of collaboration is embodied in the KAZA agreement and it is expected that it will become increasingly important.

Climate change is now accepted as real and the effects of this change are expected to be felt in the near future. An analysis of Hwange's rainfall showed that the area is already moving towards a drier phase. The park can expect less overall rainfall and more frequent drought periods. This will have a marked effect on the viability of the park as a functioning ecological entity, especially given the artificial water situation. Increasing drought decreases both forage and surface water availability and it is likely that more water will need to be pumped to compensate. At the same time the effect of the elephants on the now stressed vegetation is likely to increase and this will have a knock on negative effect on other herbivores. In summary climate change will threaten the conservation status of Hwange

The park has a rich prehistory and history and two national monuments are located within its boundaries, both walled structures of relatively recent origin – Bumboosi and Mtoa. In addition the area is littered with sites of iron-age and stone-age occupation but almost all of these are not demarcated or properly known. The archaeology and history of the park needs to be professionally investigated and recorded before these sites become lost.

Hwange is the source of populations of animals that are important to the hunting industry in the adjacent safari concessions (safari areas, titled land and communal areas). To the north the land is controlled by the ZPWMA and consists of safari areas. To the east and south are hunting concessions

for the Forestry Commission, the Gwayi farms and the communal areas (through the CAMPFIRE programme). Some quotas are high but unfortunately the utilisation data, of far more relevance for management of the industry, was not available for this report.

Hwange cannot be considered in ecological isolation and the park needs to take cognisance of unfolding events on its boundaries. the two most important of these are coal mining (both in the north and east) and the likelihood of the Gwayi-Shangani dam being built. With respect to coal a massive coal project is proposed on the eastern boundary with a power producing plant being established at the Gwayi River administrative centre. The Gwayi-Shangani dam has been a possibility for many years but now seems to be moving towards fruition. The effect of a large body of permanent water on the large population of Hwange elephants cannot be underestimated. Serious attention needs to be paid to reconciling both these forms of land use with the national park.

In terms of biological diversity, Hwange is fortunate to be on the interface between the drier Kalahari environments and the wetter miombo environments and this has resulted in a diverse species range of mammals, birds and reptiles in the park. Recent estimates indicate 1,200 species of vascular plants, 400 species of birds and 100 species of mammals. With respect to large mammals (the main tourism draw) the following broad population estimates are provided (from the 2014 aerial survey).

- Elephant 45,800
- Buffalo 2,200
- Sable 900
- Zebra 2,100
- Roan 145
- Kudu 620
- Impala 3,200
- Giraffe 1,200
- Waterbuck 540

The wildebeest population estimate was zero, clearly a result of no animals been seen in the survey transects. Numbers are thought to be around 500 animals.

With respect to predators the following population estimates are provided from various research groups

- Cheetah 30
- Lion 600 (in whole area)
- Painted Dog 150 (in whole area)
- Spotted Hyena 9 animals per 100km^2 (in research area around Main Camp)

B.1.3 Key Components

The Biodiversity and Natural Resources Management Programme, mainly in conjunction with the Park Operations, Administration and Infrastructure Programme, will address issues relating to the conservation and protection of the environment of Hwange. The problem of assigning activities to programmes is a common one in park management plans as there are many cross-cutting issues. For example, anti-poaching and fire management activities are controlled and managed through staff supervised by the park administrators and not by the ecologists. However, the ecology section collects and analyses information which is used by the park administration to implement the activity. Therefore a close association is needed between these two programmes.

In the documentation, this separation between analysing an intervention and actually carrying it out, will surface again and again. The Biodiversity and Natural Resources Management programme is specifically to advise and assess information and make recommendations for the appropriate intervention. These are then carried out through the other programmes.

Table B.1: Key components of the Biodiversity Programme

Key Components	**Description**
Monitoring	Monitoring refers to activities designed to give management a long-term insight into parameters that affect the park. This includes climatic data, wildlife estimates, tourism information, utilisation of the wildlife resource outside the park and other basic information. Monitoring programmes should be designed to hypotheses about change.
Research	There is a fine line between research and monitoring but in this context it means a project specifically initiated to answer a management question. Many research projects leave behind a monitoring component. Research is bigger than biodiversity and there is a research component to other programmes but it is the role of this programme to collate and disseminate these results. In addition, research will take place beyond the boundaries of the park.
Resource Management	Resource management refers to fire and vegetation management (including exotics). Fire management is a special case and this is dealt with in more detail under the Park Operations, Administration and Infrastructure programme. In addition the programme deals with wildlife management – legal offtakes through hunting, problem animals, cropping, culling, removals, introductions and veterinary issues.
Water Management	This is a vital aspect of the management of Hwange as the park relies completely on artificial water supplies to maintain the elephants and other wildlife during the peak of the dry season. The technical aspects of pump and borehole maintenance are dealt with in the Park Operations, Administration and Infrastructure programme but biodiversity programme concerns itself with monitoring and advice.

B.2 THREATS, ISSUES AND CONCERNS

Planning is largely about finding solutions to threats and concerns and their identification is an important step in the process. The threats, issues and concerns identified for the Biodiversity Programme were used to help develop the objectives and research and monitoring framework which are detailed later in this chapter. They are summarised in Table B.2 and more fully described in the following tables (B.3 to B.6), where they have been broadly grouped into vegetation, water, wildlife, management and other categories.

Table B.2: Summary of issues and concerns facing the biodiversity programme

Cat	Issue	Cat	Issue
Vegetation	o Wild fires o Fire and tree regeneration o Fire management o Herbivore impact o Changing vegetation o Invasive species o Erosion o Encroachment	**Wildlife**	o Poaching o Hunting inside national park o Elephant die-offs o Diseases o Elephants restricting water access o Decline of certain species o Species management priorities o Low density of medium sized carnivores o Gwayi-Shangani Dam o Carnivore baiting for safari hunting o International pressure on management
Management	o Little monitoring input to anti-poaching o Inadequate communication of research results o Localised research o Biodiversity maintenance o Maintain the size of the park/ buffer zone o Unclear research policy	**Others**	o Landuse and management of surrounding areas o Collection + management of baseline data o Climate change o CASE power station o Other mines
Water	o Artificial water management system o Costs of artificial water o Responsibility for artificial water o Large waterless areas o Water management o Lack of knowledge about water (age) o New supplemented water pans o Lack of a scientifically sound water management plan		

Table B.3: VEGETATION related issues and concerns

Issue	Description
Wild fires	Wild fires have the potential to be a major problem in Hwange. However, in many years, they have been contained through active fire control measures implemented by the ZPWMA and its conservation partners. In fact, 2011 was one year recently where a significant part of the park was burnt but in other years since 2009 fires have been localized.
Fire and tree regeneration (M)	Fire has an impact on the ability for trees to regenerate. Late season hot fires are more serious and have the potential to alter the vegetation significantly. If an area is opened up by elephant damage it allows fires to start more easily.

Table B.3: VEGETATION related issues and concerns	
Issue	**Description**
Fire management (M)	Apart from the wild fires, appropriate use of fire as a management tool has the potential to allow management of the vegetation. Early burning is used to remove fire load and late hot burns can be used to reduce bush encroachment into vlei lines.
Herbivore impact (M)	The Hwange elephant population is estimated at between 20,000 and 40,000 animals. In the dry season (July to Nov) these animals are concentrated in the north and east of the park (approximately 30% of the area) where they remain in close proximity to the pumped pans. The sheer bulk and feeding needs of these animals has a seasonally deleterious effect on the vegetation, especially in the immediate vicinity of the pans. It should also be noted that other animals can impact vegetation as well.
Changing vegetation Unpalatable tree Increase (M)	The combined forces of fire and elephants can have a significant impact on the vegetation, both locally and in a wider area. Research is showing that there is a gradual increase on unpalatable trees (e.g. *Erythrophyllum*) growing around waterholes. The reasons for this are unclear but are probably related to the seasonal stress on the vegetation from herbivores and particularly elephant.
Invasive species (M)	It is generally believed that invasive species are not a problem for the park. However, this may be a false assumption. More research into the prevalence of invasive species needs to be carried out and strategies developed to deal with them.
Erosion (Water)	Erosion, especially on the soils derived from the Basement Complex rocks and Karoo sediments in the Robins and Sinamatella areas, is a cause for concern. Erosion surfaces are often on land that has been disturbed by farming activities in the past.
Grassland Encroachment	Open grasslands are rare in Hwange but are seen along fossil and recent drainage lines. These areas are important for biodiversity and wildlife, but also for tourism (e.g. Kennedy/Masumamalisa vlei) but are under threat from encroachment by indigenous woody species.

Table B.4: WATER related issues and concerns	
Issue	**Description**
Artificial water management system	The success of Hwange as a conservation area is premised on its artificial water provision programme. This programme evolved from the need to develop a tourism programme in an area that was effectively waterless during the dry season. This led to a drilling and pumping programme that today sees 60 pans being artificially maintained during the dry season. This is a significant economic and management burden.
Costs of artificial water	As mentioned above, the maintenance of the artificial water system is costly. In the first instance there are the direct running costs of diesel. Then there are the costs of diesel placement, pump repairs and maintenance. The cost of drilling new boreholes must be added to this – these are replacement holes for existing artificial waterpoints, not new waterpoints. Recently several solar pumps have been installed in an effort to reduce running and maintenance costs and initial results seem promising.
Responsibility for artificial water	Currently several private sector companies and NGOs have taken on responsibility for maintaining a significant proportion of the pumped water supplies. Of the 60 holes pumped in 2014 at least 50% had some private sector or NGO involvement, either completely or in part. The sustainability of this should be ascertained and ways sought to ensure that pumping effort is maintained in the long-term.

Table B.4: WATER related issues and concerns	
Issue	**Description**
Large waterless areas	Under the natural system large parts of the park are waterless for a significant part of the year, and even with the artificial water programme in place, there are still significant parts of the west and south of the park that have little wildlife in the dry season.
Water management	The possibility of water management may need to be considered (e.g. rotational pumping) but there is a need to carry out an assessment of existing research on this topic and decide if new research is needed. Opening or closing water points without proper planning and research could have significant implications on wildlife movements and ultimately tourism (H).
Lack of knowledge about water (age – H)	Very little is known about the age of the water that is pumped into the Hwange pans. It is not known if the water is from ancient aquifers or from aquifers that are replenished on an annual basis. Some preliminary research has been carried out which indicates that it is fossil water that is being pumped (30-50 years old). Research into this question is part of the remit of the Hwange-Sanyati Biological Corridor project and the ZPWMA needs to be actively involved in this.
New supplemented water pans (related to concessions) (H)	Although the tourism plan recommends that only low key wilderness camps be established (but including one new semi-permanent camp) the opening of new camps comes with a demand for water in these areas, both for humans and wildlife. There is no ecological base for the opening of new pans with supplemented water supplies. Rather, it would be in response to pressure from tour operators to improve the tourism value of their concessions and this could have the effect of compromising the biodiversity of these areas. The allocation of new concessions needs to be tempered by the biological realities and consistent with the water management plan.
Lack of a scientifically sound water management plan	The pumping of water for wildlife in Hwange is a knee-jerk reaction to the annual dry season. It is tempered by funds, tourism needs and equipment. There is no actual plan and the management of water needs to be on a more scientific basis.

Table B.5: WILDLIFE related issues and concerns	
Issue	**Description**
Poaching (H)	Poaching is a perennial problem in all African protected areas. It takes two main forms – valuable, but inedible parts (e.g. horns and tusks) or meat. Some meat poaching is subsistence, but there is a trend towards the commercialisation of the meat trade in some areas. At present it appears that poaching for tusks and horns is the more prevalent form in Hwange NP, with poisoning incidents being widely publicised. However, outside the park subsistence poaching, mainly using snares, is very prevalent. This can also impact non-target species (e.g. painted dog).
Hunting inside national park (L)	Ration and management hunting has been carried out inside National Parks for a number of years. Initially conceived as a way for staff on patrol to supplement their food, it has evolved into a system for supplementing the diet of all staff on station. A recent development has been the commercialisation of the ration hunts whereby some of the quota are sold to visiting sportsmen to allow the ZPWMA to generate income at the station level. In the case of elephant they shoot non-trophy bulls and the meat is used for rations. It should be remembered that this quota is also a management and training quota that allows staff to experience dealing with dangerous game.

Table B.5: WILDLIFE related issues and concerns	
Issue	**Description**
Elephant die-offs	Hwange is home to spectacular elephant concentrations during the dry season. These concentrations can lead to local exhaustion of the food supply and can result in elephants starving to death even though there is still water in the pans. As the Hwange elephant population is thought to have reached its maximum (and there is some disagreement about this) these die-offs can be expected at regular intervals as the population fluctuates around a mean of approximately 40,000 animals. This may be more of a problem for tourism rather than biodiversity.
Diseases	The wildlife disease situation in the Hwange area is not well known. The Hwange Tsholotsho boundary is the longest boundary between a protected area and an area with a significant livestock population. This can lead to the possibility of disease transmission between livestock and wildlife.
Elephants restricting water access	During the dry season when all wildlife is concentrated on the water supplies elephants will restrict other wildlife from accessing the water, mainly because of their sheer bulk and numbers. However, research indicates that a change in behaviour of affected species (i.e. changing the preferred drinking time), means that it is not as significant problem as initially thought.
Decline of certain species (H)	Declines in selected species have been noted. These include rhino (mainly through poaching) and other species where the cause is not so clear (e.g. wildebeest [in some areas], roan, sable). However, these declines need to be properly documented and causes established to allow management interventions if necessary.
Species management priorities (H)	Species management priorities for the park have not been defined. Country-wide selected species such as rhino, painted dog and crocodile have management plans and these could guide the selection and management priorities for key species in the park. A preliminary priority list could include wildebeest, roan, sable, giraffe and mongooses.
Low density of medium sized carnivores (H)	Although Hwange is one of the best places to see carnivores in Zimbabwe there is a concern that the numbers of some species (e.g. cheetahs and painted dogs) is low. However, it needs to remembered that even these low populations (of painted dogs) represent a significant percentage of the southern African population.
Gwayi-Shangani Dam	The Gwayi-Shangani dam has been under consideration for many years but has failed to materialise for economic reasons. However, the project seems to be gaining ground again and a further $50 million has been pledged by the China-Africa Sunlight Energy mining company(developing the Gwayi Mine). The appearance of a large expanse of permanent water less than 20 km away from the Hwange NP boundary will have an effect on the wildlife populations in the park, and especially on elephant. What these effects will be can only be speculated but it could draw elephants away from the park to the dam in the dry season. This will affect the Forestry areas as well as the commercial lands to the north of the forestry areas. The interplay between the dam and the proposed power station will also need to be investigated as it will be in the middle of any corridors between the park and the dam. In addition, water from the lake may be used for agriculture and thus exacerbate human-wildlife conflict in the area. There could also be wildlife movements into communal areas adjacent to the dam (e.g. Lupane) and this will also result in human-wildlife conflict.
Carnivore baiting for safari hunting	Baiting carnivore species for safari hunting is an on-going practice. Most lions and leopards are shot on the park boundary and 32% of lions shot on the eastern boundary have been shot on one small enclave (25km^2), indicating that these animals have been attracted to the properties by the use of bait..

Table B.5: WILDLIFE related issues and concerns	
Issue	**Description**
International pressure on management strategies	A cornerstone of Zimbabwe's elephant management strategy in the past was elephant population reduction and over 17,000 elephants were removed from Hwange between 1966 and 1985. This stopped in the late 1980s and since then there has been a change of public opinion regarding culling elephants and the trade in their body parts. If reducing elephant numbers in the park was deemed necessary (by whatever methods) there would be a considerable international outcry, and it might be difficult to implement this course of action.
Unclear research goals	Although a considerable amount of research has been carried out in the park and surrounding areas, Hwange does not have a clearly defined research direction. The individual organisations involved in the research are moving towards defined research goals but ZPWMA needs to be the overall driver of research for the Hwange system to ensure consistency and access to the material for management purposes.
Inadequate analysis of data collected by patrols	Although a significant amount of data is collected on patrols this data needs to be properly compiled, assessed and made available to inform and guide management. The results of such an analysis will be invaluable to guide the efficient use of the resources available for anti-poaching and to inform adaptive management.
Inadequate Communication of research results (M)	Hwange is a centre for research in Zimbabwe but there is a need for communication of the results of this research, not only to the scientific community, but also to local stakeholders and visitors to the park. This would go a long way towards a wider acceptance and belief in this research. It should be noted that the ZPWMA is the repository for information generated from research as a condition of any research permit issued by the Authority is for regular reporting and the submission of papers and theses to the ZPWMA library.
Localised research (M)	Although a significant amount of research has been carried out in Hwange, most of this has been concentrated in the east of the park, with some in the north. There is a need for a more complete understanding of other parts of the park and research into the wilder areas needs to be encouraged
Biodiversity maintenance (H)	The maintenance of biodiversity in the park is a concern and this is largely related to the elephant problem. In the past the ZPWMA believed that the park needed to be managed to maximise biodiversity and not be dominated by a few large mammal species. Woodlands and other vegetation types needed to be protected to maximise biodiversity and the damage that elephants were causing to some vegetation types to the elephant reduction practices of the 1980s.
Maintain the size of the park and buffer zone (H)	As the human population increases, demands for more agricultural and grazing land will increase. As the Hwange "conservation complex", a mix of protected and wildlife utilisation areas, represents almost 20% of Matabeleland North province it is likely that demands for a change of land use from conservation to agriculture/pastoral use may become more common as time goes by. In addition, mining activities (both existing and proposed) will impact on the size of the buffer zone.

Table B.6: OTHER biodiversity related issues and concerns	
Issue	**Description**
Land use and management of surrounding areas (H)	Hwange is fortunate in that its northern boundary is also Parks and Wildlife Estate. However, in Zimbabwe its eastern and southern boundaries are all under different forms of land use (communal, state and private Land). The western boundary is formed by Botswana. Fortunately, most of the adjacent areas in Botswana are classified as conservation areas but their use strategy is now unclear following the complete cessation of safari hunting in that country in 2014. In addition, the Pandamatenga irrigation scheme is a significant agricultural development on the boundary of the Robins area.
Continued collection of baseline data and management of this data (H)	Hwange is fortunate to have several long running, externally funded research programmes. These cover a range of species and topics. Monitoring and collection of baseline data is part of the research programmes for both the external research groups and the ZPWMA Scientific Services Unit. However, this data is often fragmented and difficult to access. The ongoing collection (to ensure continuity) and management of this data is of paramount importance for to ZPWMA for adaptive management of the resources.
Climate change	Climate change is now an accepted fact (although the causes may still be contested by some). As Hwange is a marginal and low rainfall area, the effects are likely to be severe and significant changes in the ecology could occur. In short, the environment is expected to get drier and extreme events are more likely to occur (droughts etc). Hwange's size and linkage to other conservation areas will help enable the ecosystem and associated wildlife adapt to the projected impacts of climate change.
CASE power station	The proposed coal mining at the Gwayi and the construction of a power station close to the park is highly likely to have an effect on the park. Although the day to day "business" of the park may not be affected there are concerns that the influx of workers into the area will have on the wildlife. The mining operation is likely to be unsightly and polluting and these are concerns for the future of tourism in the park (see also under tourism) and in the surrounding areas.
Other Mines	Hwange town was established on the basis of coal deposits and a significant amount of mining takes place not far from the park boundary. A recent development is Makomo mine with open cast excavation occurring right on the boundary of the Deka Safari Area. The effect of these operations on wildlife is not well known.

B.3 GUIDING PRINCIPLES

The following guiding principles were elaborated for the Biodiversity and Natural Resources Management Programme after consideration of the issues and concerns, the identified opportunities and a review of national and international policies, Acts and initiatives. The guiding principles are listed below and described in more detail thereafter.

1. Change is an integral part of the environment
2. Management will be based on available scientific information
3. Commercial consumptive use is not compatible with Park goals
4. Conservation principles will also apply and be promoted outside the park
5. Interventions will be kept to a minimum
6. Management of artificial water will be based on the resource and not on the users

1 Change is an integral part of the environment

Change is an integral part of natural systems and park management should not aim to preserve these systems frozen at a given point in time. Rather this change should be recognised as an integral part of the evolution of the park and efforts should be made to monitor and understand the underlying processes. However, it must also be remembered that Hwange is not a natural system.

2 Management will be based on available scientific information

Hwange is a focal and important park for research in Zimbabwe with a significant amount of work being carried out both by ZPWMA and NGOs and other external researchers. Some of these are long running comprehensive research programmes that are consistently producing world class data. Consequently there is a considerable body of information to guide management decisions in the park. It is a central tenet of the current park plan that management needs to be adaptive but also needs to be based on sound data and the research needs to be guided towards answering management related questions.

3 Commercial consumptive use is not compatible with park goals

National parks are areas with the highest level of protection in Zimbabwe and commercial consumptive use of their resources goes against the central reason for their creation. Current consumptive uses include tourist related trophy hunting, fishing, capture of animals and ration/training hunting. Where possible these forms of use should be prohibited or reduced.

4 Conservation principles will also apply and be promoted outside the park

Hwange Park management will influence the surrounding communities, local and district governments, and other agencies to help ensure that activities occurring outside the park do not impair park resources and values, especially through local district planning forums. Cognisance will be taken of transboundary issues and conservation agendas will be pursued here when possible.

5 Interventions will be kept to a minimum

Apart from the provision of water during the late dry season, a non-intervention policy will be pursed in general. However, interference with natural processes may occur to maintain wildlife and plant species diversity, to preserve sensitive species or to restore native ecosystem functioning that has been disrupted by past or ongoing human activities.

6 Management of artificial water will be based on the resource and not on the users

Currently water management in Hwange is based on keeping as many boreholes functioning through the dry season as possible (almost 60 in 2014). The maintenance of the system has allowed elephant numbers to almost double since 1986 and in some years food shortages are evident, leading to a die-off. This plan proposes to manage the water supply system on a more scientific basis and move towards a system based on the water resource (availability, recharge, salinity) rather than being managed to maintain the current elephant population.

B.4 CONSERVATION TARGETS

Conservation targets depict the ecological systems, communities, species and both the cultural and scenic values that are identified as priorities for conservation. When effectively and collectively managed, conservation targets reflect and maintain the overall health of the ecosystem. In addition, conservation of subsidiary systems, communities and species that have not been prioritised can also be achieved through the conservation of the main targets. Conservation targets classify the special biological and ecological processes of Hwange National Park. They are briefly summarised below (Table B.7) before being shown in more detail with sub-targets and key ecological attributes (Table B.8).

Table B.7: Conservation Targets summary for Hwange NP

Grouping	Conservation Target	Summary
Ecosystems	Wetlands	As Hwange is a desert environment with limited wetlands those that occur are an important conservation target. Wetlands in the Hwange scenario include the extensive seasonally flooded Dzivanini mudflats, the northern river systems and the springs, seeps and pans scattered throughout the park.
	Sinamatella geomorphological systems	Most of the park is flat and on Kalahari sands. However the north contains areas of basement complex and Karoo sedimentary rocks. These areas are drained by a number of rivers which give rise to special environments for Hwange. Eroded sandstone bluffs provide spectacular views and there are pockets of granite outcrops which are special habitats.
Communities	Special vegetation communities	Hwange displays a diverse range of vegetation types, dictated by soils and rainfall. Large parts of the park are covered by *Baikiaea*, mopane and acacia woodlands and bushlands but there are pockets of unique and special vegetation types, some of which are also important for tourism. These include the palm savannahs, grasslands on fossil drainage lines, old Acacia groves and hilltop and slope vegetation.
Communities	Medium and large carnivores	The medium and large carnivores are important ecologically being at the top of the food chain. In addition, they are important for tourism in Hwange and possibility of sightings of the key species is good. The park is also home to some unusual smaller carnivores.
	Charismatic herbivore assemblages	The supplemented water programme has allowed populations of herbivores to increase and to become concentrated in the dry season. This congregation of a diverse range of species around the pans is one of the features of the park.
Species	Rare and threatened species	Hwange is home to a number of rare and threatened species. The most obvious of these is the rhinoceros (both black and white) but there are many other, less obvious species such as cheetah, painted dog, roan, gemsbok, tsessebe, pangolin, brown hyena, bat eared fox and aardvark that occur in the park. In fact, Hwange is considered to be the most important conservation area for many of these species in Zimbabwe.

The sub-targets and key attributes for these Conservation Targets were also specified and are shown below.

Table B.8: Conservation Targets, sub-targets and key attributes for Hwange NP

Target	Sub-Targets	Key attributes
Wetlands	Mudflats	o Water birds o Amphibians
	Permanent water	o Fish o Fish Eagle o Crocodiles, Hippos
	Seasonal surface water	o Specific Plant Communities (e.g. water lilies, sedges) o Seasonal breeding amphibians
	Springs	o Algal community o Plant community (sedge and *junceus*)
	Seeps	o Water flow
	Rivers	o Riverine vegetation o Sand o Fish, crocodiles, hippo o Fish eating birds o Physio-chemical characteristics
	Common Attributes	o Rainfall o Climate Change
Sinamatella Geo-morphological Systems	Sandstone outcrops	o Cultural sites o Fossil Trees o Large leaf rock fig o Mocking chat
	Granite Kopjes	o Fauna and Flora o Cultural sites/Ruins o Klipspringer o Peeling bark *Commiphora*
	Steep slopes and scarps	o Klipspringer o Dassies
	Common Attributes	o Integrity of feature
Special vegetation communities	o Grasslands on fossil drainage lines o Vleis and mudflats o Teak woodlands on dune crests o Acacia groves (*Tortilis, Erioloba*) o Palm savannahs o Calcrete areas	o Size and extent o Integrity (health) o Land use patterns o Indicator species (Density and distribution) o Soil moisture relationship o Canopy touching, adults in reproductive state. Recruitment

Table B.8: Conservation Targets, sub-targets and key attributes for Hwange NP		
Target	**Sub-Targets**	**Key attributes**
Medium and large carnivores	o Lion o Leopard o Cheetah o Painted dog	o Population size and distribution o Population trends o Prey availability o Habitat availability o Connectivity and movement o Predator interaction o Offtake o Conflict with humans
Charismatic herbivore assemblages	o Elephant o Giraffe o Zebra o Buffalo o Kudu o Sable	o Population size and distribution o Population Trends o Food availability o Habitat Availability o Connectivity and movement o Offtake o Conflict o Degradation of ecosystem o Diseases o Competition for resources
Rare, threatened and locally extinct species	o Rare and threatened mammals (Cheetah, Painted Dog, Rhino, Roan o Gemsbok, Tsessebe, Pangolin, Brown Hyena, Bat Eared Fox, Aardvark)	o Population size and distribution o Population Trends o Food availability o Habitat Availability o Connectivity and movement o Offtake o Conflict o Diseases o Competition for resources
	IBA Species (Birds of prey, vultures, hornbills, Cranes)	
	Reptiles (Python, tortoise, Lungfish)	

In accordance with Conservation Target methodology a threat analysis was carried out for the targets with an indication of the severity and scope of the threat. Finally each threat was ranked. This analysis informed the development of the research and monitoring programme.

Table B.9: Preliminary threat analysis for Hwange Conservation Targets

Cons. Target	Threat	Severity	Scope	Ranking
Wetlands	Climate change	Very high	Very high	Very high
	Tourism development	High	Low	Low
	Aquifer depletion	High	Medium	Medium
	Pollution	Low	Low	Low
	Invasive species	Medium	Low	Medium
Sinamatella Geomorphological Systems	Erosion	High	Medium	Medium
	Herbivory	High	Medium	Medium
	Archaeological/Hist. site degradation	Medium	Low	Medium
Special vegetation communities	Bush encroachment	High	High	High
	Fire	High	Medium	Medium
	Herbivory	High	High	High
	Climate change	Very high	Very high	Very high
	Invasive species	Unknown	Medium	Medium
	Poorly managed tourism	Medium	Low	Medium
Medium and large carnivores	Poaching (incidental via snares)	High	High	High
	Diseases	High	High	High
	Overhunting	High	Medium	Medium
	Human-Wildlife Conflicts	High	High	High
Charismatic herbivore assemblages	Poaching	Medium	High	Medium
	Changing palatable vegetation	Medium	High	Medium
	Climate change	High	High	High
	Resource competition	High	Medium	Medium
Rare, threatened and locally extinct species	Poaching	Medium	Medium	Medium
	Diseases	High	Medium	Medium
	Human-Wildlife Conflicts	Medium	High	Medium
	Competition	Medium	Medium	Medium
	Human interference	Low	Medium	Medium

Table B.10: Preliminary threat analysis for Hwange Conservation Targets

Conservation Target ⇒ / **Identified Threat** ⇓		**Ecosystem**		**Communities**		**Species**	
		Wetlands	**Sinamatella Geomorphological Systems**	**Special Vegetation Communities**	**Medium/Large Carnivores**	**Herbivore Assemblages**	**Rare Species**
1	Erosion		**Medium**				
	Fire			**Medium**			
	Climate change	**Very high**		**Very high**			
2	Arch/Hist site degradation		**Medium**				
	Bush encroachment			**High**			
	Changing vegetation					**Medium**	
	Competition						**Medium**
	Diseases				**High**		**Medium**
	Herbivory		**Medium**	**High**			
	Invasive species	**Unknown**		**Medium**			
	Resource competition					**Medium**	
3	Human interference						**Medium**
	Poorly managed tourism			**Medium**			
	Pollution	**Low**					
	Poaching				**High**	**Medium**	**Medium**
	Overhunting				**Medium**		
	Tourism development						
	Aquifer depletion	**Medium**					
	Human-Wildlife Conflicts				**High**		**Medium**

1 = System threats
2 = Ecological threats
3 = Human induced threats

B.5 OBJECTIVES, TARGETS AND ACTIVITIES

Based on the threats, issues and concerns and the guiding principles outlined above the following objectives and targets were formulated for the Biodiversity and Natural Resource Management Programme. They are summarised below before being described in detail. At the end of this section the three year activity plan based on the objectives and targets is presented.

Objective 1: Research and monitoring effectively addresses management needs

Targets

1.1: Adequate research and monitoring equipment available in Hwange
1.2: Sufficient human capital available
1.3: Appropriate baseline data compiled, collected and analysed
1.4: Research priorities are focussed on understanding of conservation targets and underlying system processes
1.5: Improved monitoring of natural resource use
1.6: Improved monitoring and mitigation of the human-wildlife interface
1.7: Improved monitoring of protection activities
1.8: Hwange becomes a regional centre of research excellence

Objective 2: Wildlife populations, ecological biodiversity and key habitats are protected, maintained and enhanced

Targets

2.1: Elephant management plan developed
2.2: Rhino sanctuary established
2.3: Rare and endangered species research expanded
2.4: Special protection areas identified
2.5: Comprehensive fire management programme continued and improved
2.6: Grassland encroachment controlled
2.7: Invasive species controlled
2.8: Erosion sites monitored and controlled

Objective 3: Land use issues in the greater Hwange area are addressed

Targets

3.1: Corridors are identified and protected
3.2: Land use changes in the Hwange-Gwayi corridor are addressed and mitigated

Objective 1: Research and monitoring effectively addresses management needs

Change is an integral part of biodiversity and an understanding of the processes underlying this change are vital for our understanding of ecosystems. The desired future state is one where we understand enough about the system to ensure that interventions do not have unintended consequences.

Research and monitoring is carried out by the ZPWMA Scientific Services Unit in Hwange and by research institutions, universities and NGOs. For example, CIRAD/CNRS (France) and WildCru (University of Oxford) have both been involved in extensive research programmes over the last 20 years and the data collected and papers written have significantly contributed to our understanding of Hwange's ecological processes. However, given that change is an integral part of the system, the work will never be completed.

Target 1.1: Adequate monitoring and research equipment available in Hwange

In order for research and monitoring activities to be carried out it is important that sufficient equipment is available at the ZPWMA Scientific Services Unit in Hwange. Until recently the biggest problem facing the ZPWMA research in Hwange was the lack of vehicles and fuel, but this has been resolved. It is difficult to maintain any ecologically based programme if one has limited time in the field to measure and sample. The situation has improved with the donation of the "Mbada" landrovers.

The Main Camp office complex has several offices for research. These include a library, an office, herbarium and research "lab." As most researchers have been based at Main Camp over the years, this is where the bulk of the work has been carried out.

Action 1.1.1: Appropriate monitoring and recording equipment secured

Appropriate monitoring and recording equipment will be needed to ensure that basic and applied monitoring can be carried out. It is likely to include cameras, computers, GPS, computer software, field battery systems etc. New technologies should be investigated and used, if appropriate (e.g. Cyber Tracker).

Action 1.1.2: Main Camp laboratory improved

It would be advantageous to establish a basic laboratory at the Hwange Scientific Services Unit for tasks identified from the Ecological Monitoring Framework that could be carried out in-house. Equipment is likely to include microscopes, centrifuge etc. In addition, given the frequent power cuts experienced at Main Camp, a reliable power back-up system is needed. This could also service the administration offices as they are in the same complex.

Action 1.1.3: Appropriate maintenance of equipment

As with all equipment used in all programmes maintenance will be the key to longevity. Staff who will be using the equipment need to have training on proper use and care of the equipment. If any equipment needs regular maintenance or special storage situations these should be noted and adhered to.

Action 1.1.4: Data storage systems improved

With any digital storage systems backup is vital and investment into appropriate backup storage systems will be required. A system for regular backups of all data should be devised and adhered to. In addition a backup of the backup is advised (at longer intervals) which should be stored in a different physical location to the rest of the information to guard against the possibility of fire or theft.

Target 1.2: **Sufficient human capital available**

There are two resident ecologists based at Main Camp, with one position being a recent addition. Neither Sinamatella nor Robins Camp has a resident ecologist. This means that ecological activities in the north are limited.

One ecologist is based in the Matetsi Safari Area who also covers the Victoria Falls/Zambezi area. There are good linkages and collaboration between the Hwange and Matetsi stations.

Action 1.2.1: Ecologist positions maintained

The current ecologist positions should be maintained, and junior staff allocated to the unit should be increased (especially those with some scientific background) so that effective research and monitoring can be carried out.

Action 1.2.2: Ecologist based in the north

A resident ecologist needs to be based in the north of the park. Ideally, and in the long-term, each station should have its own ecologist but as an interim solution the post should be filled at either Robins or Sinamatella. The northern part of the park is completely different and our understanding of the system needs to be improved.

Target 1.3: **Appropriate baseline data compiled, collected and analysed**

It is important that the baseline datasets are adequate enough to provide a base future monitoring and research. Some datasets exist for the park and surrounding areas but there are also some gaps that need to be filled. The actions to update and the baseline datasets are outlined below.

Action 1.3.1: Current species lists updated

The bulk of the initial work on the species lists for Hwange was undertaken in the 1960s and the 1970s and these are periodically updated. However, there are gaps and these need to be addressed so that baseline lists for all groups is available. Other data sources should also be considered when amending these lists such as patrol reports, tourist sightings and citizen science groups. These lists are important for a full understanding of the biodiversity of the park.

Action 1.3.2: Climatic data collection continued and expanded

The coverage for climate data monitoring was significantly more extensive in the past than it is today. Collection of adequate climatic data, over as much of the park as possible, is an important monitoring task, especially as we are faced with a changing climate. The ZPWMA and CIRAD maintain rain gauges at selected pans and stations in the park and this should be encouraged. In addition, the placement of rain gauges (and other climatic recording equipment) should be expanded if possible.

Action 1.3.3: Wildlife distribution and density datasets continued

Significant, ongoing datasets are in existence regarding the distribution and density of wildlife in Hwange and the surrounding areas. The ZPWMA, in conjunction with conservation orientated NGOs, has been carrying out road strip counts throughout the eastern and northern parts of the park; in addition spoor transects are being carried out, both inside and outside the park and several organisations have started camera trapping surveys. This data needs to be centrally collated and made available to all players and used for informed management decisions.

In addition, the Wildlife and Environment Zimbabwe NGO has been carrying out annual 24 hour game counts at waterholes during the dry season for the last 42 years. This almost continuous record represents a valuable dataset and WEZ should be encouraged to continue and publish the data in a peer-reviewed journal.

Aerial surveys have been carried out in the park since the 1970s. These surveys usually focus on elephants but many other species are also recorded as part of the dataset. The most recent was in 2014, as part of a continent-wide survey of elephants. These should be continued, funds permitting. The HSBC project has a budget line for survey work and the Authority should collaborate with that project on this work.

Action 1.3.4: Fire mapping datasets improved

Several stakeholders, including the ZPWMA itself subscribe to the MODIS fire mapping service. This is a valuable dataset and the research centre should have an accessible historical and current dataset. In addition, a fire frequency map was created in 2009. The possibility of updating this should be investigated.

Action 1.3.5: Invasive species data improved

The database on invasive species is poor and this needs to be addressed as a matter of urgency. The first step is set up the baseline so that the extent of the problem can be ascertained. Once the baseline is in place then the spread of invasives, both plant and animal can be monitored. As with the species lists, tourists, patrol staff and citizen science groups should be approached for data. Particular attention should be paid to the development areas and semi-permanent camps as nodes for the introduction of invasive species (see also Target 2.7).

Action 1.3.6: Understanding of underground water improved

Given the reliance of the park on underground water, surprisingly little is known about this resource. Management of the water has been based on elephant demand and not on knowledge of the resource, which is finite. One of the key questions is – are we pumping from a renewable resource? In other words are the aquifers being recharged through the local rainfall. Very limited work carried out by the University of Nevada suggests that the pumped water is between 30 and 50 years old, indicating possible aquifer draining.

Understanding the underground water in Hwange is also one of the research proposals in the HSBC project documentation and there should be close cooperation between park management and this project.

Action 1.3.7: Pans and their surroundings monitored

An inventory of all pans with boreholes, dams, seeps and springs should be carried out. Later this could be expanded to included dry season pools in the northern rivers and boreholes on pans which are no longer functioning. It should include all available information such as depth, dates, number of holes, pumping equipment and an assessment of the quality and quantity of water (a new project on this aspect was started in 2015 between CIRAD and ZPWMA). A basic assessment of the major pans was carried during this planning process (2014) and this should be updated and expanded.

Action 1.3.8: Electronic bibliography improved

An electronic bibliography was created during the formulation of this management plan and this data should be made freely available to anyone with an interest in the park and its surrounding areas. A bibliography, however, is an unfinished work as it will continually be added to and so it should be regarded as the starting point for future updates.

The larger the bibliography becomes the more important it is to catalogue it correctly so that it is possible to search the metadata files to find relevant and appropriate information.

Action 1.3.9: New data collection technologies investigated and adopted

New tools for the collection data have been developed recently and are proving to be extremely useful for protected area management. These include Cybertracker and the Spatial Monitoring and Reporting Tool (SMART). SMART is a new and improved tool for measuring, evaluating and improving the effectiveness of wildlife law enforcement patrols and site-based conservation activities. Essentially it improves the ability of ranger patrols to collect information in the field and of ecologists and data managers to evaluate and process this data to feed into management activities and planning.

The use of this free software system should be investigated and used, if deemed relevant and useful. The system would have use throughout the Biodiversity Programme data collection areas and not just for baseline information (e.g. targets 1.5, 1.6, 1.7 etc).

Target 1.4: **Research priorities are focussed on understanding of conservation targets and underlying system processes**

The desired future state of Hwange is where the evolving ecosystem functioning and status is understood and this knowledge is used to make informed management decisions to achieve the Park's objectives. In order to achieve this desired state, an Ecological Monitoring Framework has been developed in this management plan for future monitoring of the health of the ecosystem and to ensure the sustained maintenance or enhancement of the viability of the Conservation Targets.

Ideally, the functioning of the ecosystem should be fully understood, the status of the key attributes known and the threat levels should be comprehensively identified and monitored. This knowledge can be used to make informed management decisions in order to meet the park's objectives and thus a fully adaptive management system will be operational. Therefore, research and monitoring are key elements in biodiversity management. In summary, research and monitoring activities in the park will lead to:

- a better understanding of the Park's biodiversity and natural values;
- identification of changes to the environment in the Park;
- effective management of the Park and the region and
- indications of the effectiveness of management actions in protecting Park values.

Action 1.4.1: **Coordination of research improved**

Although there has been a significant amount of research done in the Hwange ecosystem it is vital that the direction of this research is coordinated by the ZPWMA, both at the HQ level and, perhaps more importantly, at the field level. Records of approved projects and the associated reports need to be kept at station level. These should have project summaries and current status and indicate if they completed properly or not. This would assist with the better management and coordination of research across the wide field of players,

Action 1.4.2: Ecological monitoring framework improved and updated

This plan contains an ecological monitoring framework, provided at the end of this section. However, this is for guidance only and should be amended if necessary. Usually the monitoring framework is a "wish list" of activities that could be carried if enough funds, personnel and equipment were available. However, it needs to be rooted in reality and must be affordable, practical and sustainable. In addition, cognisance should be taken of new information and shifting conservation paradigms and strategies.

Action 1.4.3: Research priorities refined and improved

This plan also contains an assessment of research priorities for Hwange, developed during the participatory workshops held during the development of this plan. This list needs refinement during the life of the plan so that it becomes practical and takes into account the conservation targets and underlying system processes. It could also be used to guide external research institutions and individuals interesting in doing research in the Hwange ecosystem.

The preliminary list of research priorities established for Hwange National Park is shown in Table B.12, after some introductory comments on the research areas (Table B.11). Some of the currently identified research priorities are covered under the basic monitoring activities outlined in the monitoring framework (Section B.6). It is imperative that this listing provides the way forward for research in the park. It also needs to be modified in the light of new information and funding and capability practicalities.

Table B.11: Hwange Research Priorities - Overview

Water	The park's wildlife and tourism is maintained through the provisioning of underground water through the dry season. Given that this situation has developed and persisted over the last 90 years remarkably little is known about the aquifers and sources of water. It is vital that there is some understanding of the age of the water (is it recharged annually or not) and the quality and quantity if the pumping of water in the park is to continue. In addition to the artificially supplied pans there is a need to understand the hydrology of the northern river systems.
Ecosystem Processes	Ecosystem processes covers a wide variety of energy, water and related cycles and the relationships between species. In Hwange perhaps one of the most important in the short-term is the elephant as they affect so much of the park. However, the effects of climate change (moving towards a drier regime) is probably going be the most difficult to manage in the long-term. Understanding these ecosystem processes is important and to do so long-term research must be conducted.
Wildlife	Hwange is on the interface of two major vegetation/rainfall regimes – the Kalahari desert to the west and the moister miombo related vegetation to the east. Being on this interface has raised the diversity of species found in the park. For example, both the side-striped and black-backed jackal are found in the park. The side-striped is towards the southern end of its range while the black-backed is towards the northern end. Similarly, gemsbok are found in the park, animals which are at the eastern edge of their range. There are a wide range of studies that need to be carried out to improve our understanding of the wildlife in Hwange. Priority species include roan, sable, waterbuck, wildebeest, giraffe, eland, mongooses and ostrich as their numbers appear to be declining.
Park periphery	The park cannot be considered in isolation. The relationship between the park and the surrounding area, and especially those communities, who were relocated to establish the park, is vital for its continuance as a protected area into the future. It is important to understand how people deal with wildlife and to improve on these systems given the increased populations in the area (both wildlife and people). Long-term land use planning is a key to managing wildlife human interactions in the Hwange area, especially given the developments that may happen in the vicinity (e.g. Gwayi-Shangani Dam coal mining projects etc).

Table B.11: Hwange Research Priorities - Overview	
Vegetation	The vegetation of Hwange is in a state of change and the two main modifiers of habitat are elephants and fire. Control of fire is on ongoing process through firebreak maintenance, early burning and physical control. But the elephant issues are less clear. The population is increasing, as is their effect on the environment. At some point some hard decisions may need to be made regarding the Hwange elephants and, if control of the population is required, manipulation of the water supply could well be the key. However, information on the likely ramifications of this need serious research attention, given the likely public relations risk from any manipulation of the system.
Indicator species	One way of measuring the health of the environment is the use of indicator species. Properly identified and monitored, changes in these species (number, distribution etc) can provide an indication of the health of the entire system. At the very least negative changes can be used as an alarm system for concern.
Fire	Fire, along with elephants, is one of the main habitat modifiers operating in Hwange. The main objective in the past was to suppress the incidence of fire and this is an ongoing process through firebreak maintenance, early burning and physical control. More research is needed on the effects of the different management scenarios using fire (and on fire suppression as a management tool) and this is one of the research items being tackled by the HSBC project.
Archaeology/ Cultural	Hwange has a rich archaeological heritage as it was occupied since the stone age but there is very little information on this heritage. In fact most sites are probably unknown and are in danger of degradation by both development and wildlife.

Table B.12: Hwange Research Priorities		
Category	**Main Research Priority**	**Secondary Research Priority**
Water	o Ground water recharge o Quality and quantity o Manipulation experiments focussed on elephants o Water access for other animals	o Distribution o Impacts of distribution o Impacts of abstraction o Modelling below ground hydrology o Seasonal rivers and springs o Impact of any new boreholes
Ecosystem Processes	o Elephant effects on ecosystem processes	o Trophic relationships o Impacts of climate change – frost o Status and dynamics of wetlands o Soil erosion and rehabilitation
Wildlife	o Elephant demography and movement o Ecology and conservation of rare, endangered, threatened species o Ecology and conservation of other species	o Wildlife utilisation o Meta population management (rare species) o Disease ecology o Invasive species
Park periphery	o Human-Wildlife Conflict o Mining o Landuse/landcover change	o Source-sink dynamics o Law enforcement o Poaching o Interpretation and extension o Disease epidemiology o Indigenous knowledge systems

Table B.12: Hwange Research Priorities		
Category	**Main Research Priority**	**Secondary Research Priority**
Vegetation	o Changes in vegetation	o Invasive species o Regeneration of special communities o Encroachment o Mapping o Fire effects o Effects of climate change on vegetation
Indicator species	o Amphibians o Arthropods	o Migratory wild fowl o Bird atlas o Invertebrates
Fire	o Frequency o Extent and effects o Fire experiments	o Mapping o Effects of fire on large and charismatic herbivores o Fire and biodiversity o Fire and soil nutrients
Archaeology/ Cultural	o Inventory focussing on iron age	o Fossil forest inventory o Restoring archaeological sites

Action 1.4.4: Research encouraged and supported in Hwange

All external research in Hwange is regulated through the ZPWMA HQ. This HQ issues permits to research organisations and individuals. In order to encourage and facilitate research into the Hwange ecosystem the protocols regarding applications for research permits and the issuing of these need to be clear and follow approved policy. The fees should to be standardised and set to a level designed to encourage research. Applications should be processed timeously to allow researchers to plan and budget for their operations.

All external researchers need to liaise with the ZPWMA Scientific Services Unit in Hwange. The practice of using the Authorities researchers in the external research programmes should be continued. Junior ecologists and ranger personnel are included in projects and can use this time to broaden their experience in the field and their understanding of research.

Target 1.5: **Improved monitoring of natural resource use**

Hwange is the core of a safari hunting industry that exists in the areas surrounding it. These include Safari Areas (also under the control of the ZPWMA), Forestry Areas, Communal Areas and Large Scale Commercial Framing Areas. All of these areas rely, in part, on Hwange being the source population for the animals that are hunted.

The Hwange area is underlain by extensive deposits of coal. These have been exploited since the early part of the last century in the vicinity of Hwange town and some of these operations directly abut the safari areas. In addition, the possibility of a new deposit being exploited, a few kilometres from the Hwange boundary at the Gwayi River, is materialising. The opening of this deposit and the associated infrastructure that will be established at Gwayi River to exploit it is likely to have a significant effect on the park and the conservation activities in the surrounding area.

Action 1.5.1: Utilisation data timeously analysed

This action refers to both legal and illegal offtakes as they both access the same resource. All data from hunting safaris was collected on hunting return forms (TR2 forms) which are deposited at the Matetsi Safari Area HQ for subsequent analysis. Currently data will be collected online. Data from the

safari areas, Forestry areas and communal lands is usually more reliably submitted to the Authority than is the data from the commercial privately held areas.

Collection of the data is only one part of the task. Timely analysis of the data, and especially that to do with legal offtakes, is a vital task as this will inform quota setting meetings and give information on the long-term sustainability of the hunting industry. Use of the TR2 information, in conjunction with physical measurements of trophies, will allow the Authority to build up a comprehensive picture of wildlife utilisation and trophy quality in the areas surrounding Hwange.

However, it appears that analysis of this data is behind with data backlogs. This should be rectified as soon as possible so that new, incoming data can be analysed immediately after the hunting season. Only in this way will the Authority be able to respond effectively to changes happening within the system.

The park is the source of most of the animals hunted in the surrounding areas. Many of the key species (especially elephant and lion) in community areas, and on privately controlled land, are shot a short distance from the park boundary.

Other utilisation data includes ration/management use, PAC animals and illegal offtakes. The illegal offtake is obviously the most difficult to record but any data collected by anti-poaching patrols and others needs to be a part of the information mix.

Action 1.5.2: Mining activities and their effect on wildlife monitored

The proposed coal mining at Gwayi River is expected to have a significant effect on wildlife use in the area to the east of the park. It important that this is monitored. In addition ,water quality assessments need to be carried out, in conjunction with the mining company. The mining development has produced an environmental assessment report and this needs to be accessed and stored on station as a baseline. EMA indicates that they recently relaxed their requirements for document access and so it should be possible to get a copy of the document.

In addition, existing mining operations on the boundaries of the conservation areas (e.g. Deka Safari Area) need to be monitored and their effect on wildlife assessed.

Action 1.5.2: Other resource use monitored

There is limited use of other natural resources in the park. These include wildlife (ration and management hunting, and more recently use of the ration quota by safari clients), grass by communities under special arrangement and fishing in Mandavu Dam. The use of these resources also needs to be monitored (e.g. fish bag limits).

Target 1.6: **Improved monitoring and mitigation of the human-wildlife interface**

The eastern and southern boundaries of Hwange are bordered by communal lands (Hwange and Tsholotsho) and by land in private hands. Although the movement of wildlife into these areas is beneficial for the hunting industry in them, it is also a cause for concern for the people living in these areas. Both carnivores and herbivores cause significant problems in the surrounding Communal Lands. Lions and hyenas are the main carnivores involved in HWC and both can cause stock losses. Elephants are the most visible herbivore and their capacity to damage crops is immense. However, other animals such as buffalo and kudu will also devastate crops.

Response to reported incidents is through the ZPWMA and the CAMPFIRE Associations linked to the RDCs.

Action 1.6.1: Improved recording and analysis of HWC data

Conflicts (threats, community actions, deaths, crop destruction etc) are reported to ZPWMA or to the RDCs through CAMPFIRE. All of this data needs to be centralised at the ZPWMA Scientific Services Unit and analysed, at least on an annual basis. In addition, NGOs such as the WildCru and painted dog programmes also receive data and this needs to be transferred to ZPWMA or the RDCs. These data are needed to ensure a greater understanding of the human-wildlife conflict along the Hwange interface so that mitigation measure can be put in place. The data can also be used to determine HWC hotspots to focus intervention activities.

Action 1.6.2: Disease monitoring improved

The issue of diseases in wildlife and the transmission of disease between wildlife, livestock and humans needs to be monitored. Data on incidences of disease, death etc needs to be collected and forwarded to the veterinary department. Standard operating procedures need to be followed when diseases are detected and there should be a stronger collaboration on these issues than there is at present.

Action 1.6.3: Mitigation systems to reduce predator HWC maintained

An early warning system for predators has been developed between the communities in the Hwange and Tsholotsho Communal Lands and the Lion Guardians Programme. The system relies heavily on the cell phone network and communities are warned of collared lions in (or approaching) their areas. Obviously not all lions are collared so the system is not foolproof but there are indications of success. This system should be maintained and expanded as necessary.

A key factor which results in livestock losses to predators is livestock husbandry. Are the animals corralled at night, are herders in attendance, etc? Evidence suggests that if the animals are well looked after and properly corralled at night the chances of them being taken decreases significantly. A moveable plastic boma system has been developed to improve the husbandry of livestock and therefore reduce losses. The use of this system should be encouraged.

Action 1.6.4: Monitoring of land cover changes along the Hwange-Community interfaces

Monitoring of land cover provides an indicator of changing land uses in the areas surrounding Hwange NP. This will be important if the coal mining project goes ahead. It should also be remembered that much of the area is underlain by coal deposits and that there may be future pressure to open other areas for mining. Monitoring of land cover can also provide information on shifting patterns of agriculture which can allow the ZPWMA to react to possible problems.

This section links into Objective 4 of the Park Operations Programme. This programme is responsible for anti-poaching activities mainly, but also for other resource protection activities as well. However, the research sections needs to monitor protection activities and this information needs to feed back to managers so that they can be more effective with limited resources.

Target 1.7: **Improved monitoring of protection activities**

Action 1.7.1: Development of a standardised patrol monitoring system

The routing, duration and timing of patrols, either vehicle or foot based needs to be mapped and the data inputted into a simple system. The feedback from this system will include maps of areas patrolled from which patrol effort over areas of the park can be determined.

The possibility of using paper based maps until the electronic system has been established (and also as a backup) needs to be fully investigated.

In addition, the use of new technologies and systems developed for protected areas should be investigated and adopted (see section 1.3.9).

Action 1.7.2: Regular feed back to management

Collection of the data is one step in the process. The data needs to properly analysed and presented to park management for it to be of use.

***Target 1.8:* Hwange becomes a regional centre of research excellence**

Research in Hwange started in the 1960s but it is only in the last 20 years that the body of research coming out of Hwange is becoming exceptional. Prior to 2000, most research was done by departmental ecologists who, although they produced a significant body of work, did not have peer reviewed publications high on their list of priorities.

As most of this work was written for internal consumption, its dissemination for wider use is a problem. Until recently all materials were stored in the strong room at Main Camp. However, concerns about the deterioration of the papers led to them being moved to HQ. The HQ library must ensure that these papers are available whenever they are needed for research.

University related NGOs have had a major input into the direction and volume of research carried out in the park and surrounding areas.

In fact the opportunity exists for Hwange to become one of the major, park related research centres in Africa, probably to rival places like the Serengeti in Tanzania and Kruger in South Africa.

Action 1.8.1: Research centre concept investigated

Given that a considerable amount of research in Hwange is carried out by external researchers the proposed research centre represents an opportunity for ZPWMA and external researchers to mix and communicate ideas and research.

Although dependant on funding and space the centre could include several offices to host both ZPWMA and external researchers, a meeting room, library, tea room/sitting area and computer room.

It is proposed that the centre is administered through a steering committee, composed of one representative of each project and Parks (one ecologist and one management person, as well as a maintenance person when needed). This Steering Committee would ensure coordination, collaborative projects, complementarities, as well as office space allocation. Two chair persons would be elected, annually and overlap between co-chairs is recommended so that continuity is ensured.

The Centre would report to Parks HQ annually and the reporting team should comprise a mix of ZPWMA and NGO/external research personnel. An advisory board could be constituted, with ZPWMA directors, NGO advisors and University senior scientists not affiliated with the Centre. Advisory Board meetings should be held annually and could be combined with the reporting meeting.

The funding for such a Centre would need to be sourced but it is likely that NGOs and research institutions active in Hwange would be interested in contributing. ZPWMA would need to be clear about building ownership, parameter for use etc.

Objective 2: Wildlife populations, ecological biodiversity and key habitats are maintained and enhanced

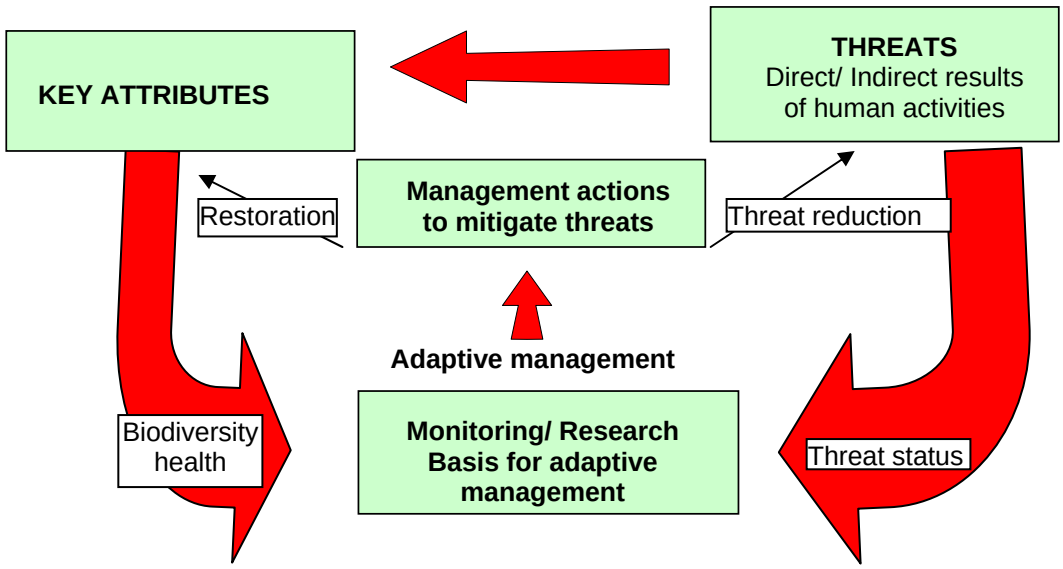
One of the primary aims of the Biodiversity and Natural Resources Management Programme will be to conserve the biodiversity and ecological processes of the park. Given that ecological management is an inexact science and that the databases underlying some management decisions are not as complete as they could be, this programme subscribes to the principle of adaptive management. In other words, the outcome of a particular management policy or intervention may not be exactly known but the intervention activity can be modified as the outcome scenarios unfold.

The adaptive management approach is a key part of the Biodiversity and Natural Resource Management Programme and some of its central concepts are outlined in the guiding principles and reiterated in the Programme Purpose. A brief description of the approach is shown below.

The Adaptive Management Framework

Adaptive management implies applying management strategies without being fully confident of the outcomes. However, the process means that the eventual or partial outcome is a result which can be used to temper further interventions to see which strategy will provide the best possible outcomes in the long-term. The adaptive management framework (Figure B.1), depicts a feedback loop between management actions to conserve biodiversity and to mitigate the threats on the key attributes for the conservation targets. The Conservation Targets, their key attributes and the possible threats have been identified (Section B.5) and the three-year activity plan sets its actions based on the rating of the threat. Where a threat is rated very high adaptive management action is also a priority.

Figure B.1: Adaptive management framework



Target 2.1: Elephant management plan developed

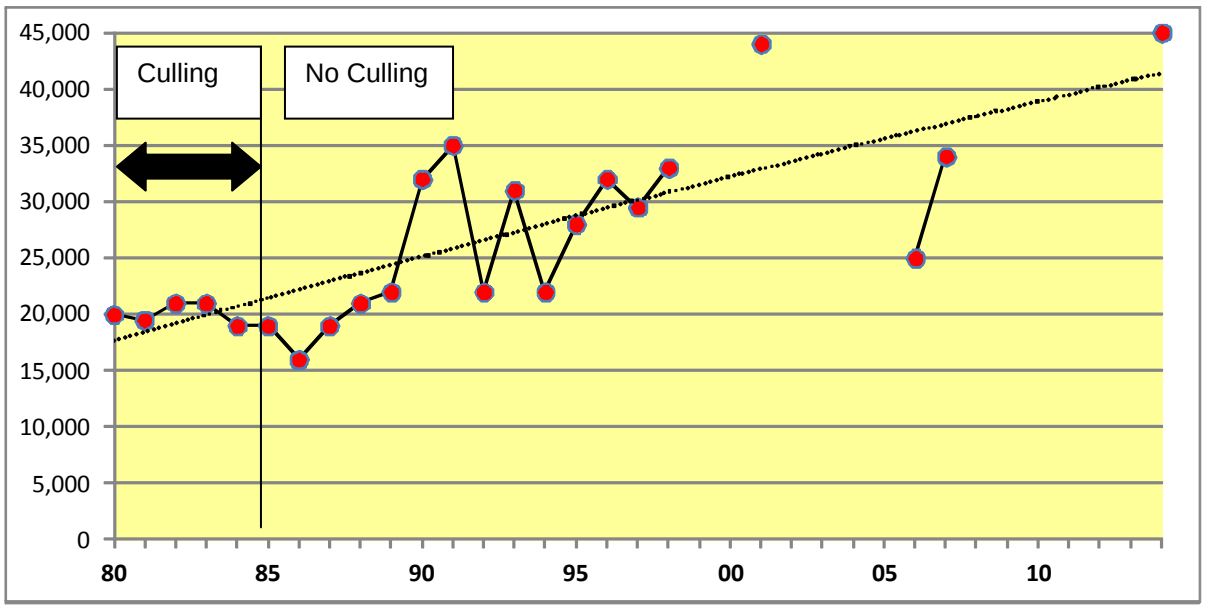
Background to the Hwange Elephants

More than any other animal, elephants are what defines Hwange as an ecological unit and as a tourism destination. They are key to what happens in the park. Although much of what follows below has been outlined in the programme background (Section B.1.2) and Part 2 of the planning documentation (Background), it may be repeated here to focus the arguments.

According to historical information Hwange was largely devoid of elephants in the dry season in the early part of the last century. This was due to the area being waterless after the pans dried up. Animals moved to the Shangani and Gwayi Rivers and into Botswana, although the Botswana connection is not confirmed. The artificial water programme started in 1936 and since that time approximately 80 boreholes have been drilled and around 60 were pumped in 2014.

The supplemented water programme has not always been running as effectively as it is now and there have been times when the system was not able to pump enough water as was required. These times were usually reflective of the political and financial crises in the country as a whole which meant that fuel and funding to keep the pumping programme going at capacity was very short, which led to the closure of some pans at various times.

In the 1970s and 1980s, in keeping with the conservation ethos of the time, at least 18,000 elephants were removed from the Hwange system by culling them. This kept the population at around 20,000 animals but when culling ceased in 1985, it only took a few years for the population to effectively double and is now standing at around +40,000 animals (data from aerial surveys). One must consider the confidence limits from those surveys and the WEZ waterhole counts indicate that the elephants are at a much lower level (i.e. around 25,000 today). But general consensus is that there are significantly more elephant in Hwange now that there were in 1985, whatever the final estimate is.



The artificial water programme allowed the elephant population to expand to its current levels. It should be noted that some of the increase is thought to have come from immigration into the system from Botswana and not from the natural rate of increase alone. It is assumed that the population is currently around its limit and the numbers can be expected to fluctuate around the new mean. Die-offs during bad years when there is enough water, but not enough food, can be expected.

Hwange is close to 15,000 km^2 and its vegetation represents a significant food source for elephants, especially those areas in the centre and west which are only accessible during the rains. As soon as there is substantial rain in Hwange at the end of the dry season it becomes difficult to see elephants around the pumped waterholes, whereas a few days previously the numbers had to be seen to be believed.

There are calls to open up new boreholes to spread the pressure on the food source during the seasonal bottleneck. It is likely that, if this course of action was taken, there would be a short-term benefit as elephants would be able to access new food sources and the pressure on the existing areas would be reduced. However, it is also likely that the elephants would breed up into the available food and water space and that in a decade the park would be experiencing the same food shortage problems but with an increased elephant population over an expanded area.

The Hwange elephant population has been artificially created and managed and can be considered a large ecological experiment. So what are the options for the future? Most people believe that the elephant numbers are too high and that perhaps the system would benefit if the numbers were reduced. If so, then how to achieve this reduction? And to what levels? It must also be remembered that Hwange elephants are part of a larger linked elephant population and reduction efforts may be offset by immigration.

Culling has been discussed but the amount of killing needed to bring the populations back to around 15,000 animals (considered the sustainable level in the 1980s) is probably not possible (but also not considered impossible). We also need to go back to one of the guiding principles “change is an integral part of the system” and that attempts to maintain the ecosystem at a given state may be unwise.

Perhaps the most appropriate tool available is the one that was used to bring the elephants up to their current levels – water. The current practice is to continually expand the water available and even during this planning process, boreholes were being resuscitated. Much of the drive for the expansion of the waterholes comes from the tourism concessionaires wanting to attract wildlife and elephants into their areas. It should be noted that there are concerns that the first animals to suffer if the water was turned off would be the smaller, less mobile species. The elephants could be expected to congregate at the remaining waterholes, thereby exacerbating the problems in those areas. If water is used as a tool to reduce or affect the spatial distribution of elephants there needs to be well designed experimental work prior to any larger scale manipulations, so that management is reasonably sure of a desirable outcome. In addition, the effect of elephants dying of starvation on the tourist industry needs to be taken into account.

An option is to continue the status quo - continue pumping the pans at their current level, being aware that there probably will be pressure from operators to expand the pumped pans. Even if this is the strategy, elephant die-offs can be expected when the right climatic conditions come into play – poor rains followed by a late start to the next rainy season, and the food situation compromised by severe frost or fire. Climatic and other conditions (e.g. fire) could even force a Tsavo situation, where there was a massive elephant die-off brought about mostly from insufficient food. The elephants in Tsavo are now at a much lower level than before but they completely changed the vegetation over a significant part of the park before succumbing to starvation. It should be noted that the starvation of the elephants was not the only reason for the current low numbers in Tsavo; massive poaching also was a significant contributing factor.

Another factor to be considered for elephant management in Hwange will be the Gwayi-Shangani dam. This dam will be a large permanent body of water, approximately 20 km from Main Camp and may change the elephants’ survival strategies in the late dry season. Human activity in the area is also expected to increase with a coal mine being established at Gwayi.

In many plans for elephants (e.g. the previous Hwange Park Plan, the Kruger National Park Plan) there have been extensive discussions about thresholds of potential concern (TPC). These were developed in the Kruger National Park as part of their effort to integrate science and management. TPCs are a set of operational goals that together define the spatial and temporal variation in ecological conditions for which an ecosystem is managed. The concept is still in development and

modifications to the original definitions are continually occurring, mainly aimed at ensuring that it is possible for management to respond effectively to the TPCs.

Broadly speaking the thresholds of potential concern represent the upper and lower limits along a continuum of change in selected environmental indicators. Taken together, TPC's define the envelope of desired conditions within which ecosystem may vary. When the upper or lower thresholds are reached, or when it is predicted that they will soon be reached, an assessment of the cause is implemented. This assessment provides the basis for determining whether management action is warranted and/or whether the TPCs should be recalibrated in the light of new knowledge and/or understanding.

In practical terms defining and measuring these TPCs requires considerable research effort, one that may be beyond the capacity of research organisations in Zimbabwe. If this is the route that will be taken with regard to elephant management it will be important to ensure that the research and monitoring capacity is on hand and that it will be sufficiently funded.

The Zimbabwe Elephant Management Plan

Zimbabwe is in the process of producing a national elephant management plan, the first stage of which was the preparation of a Strategic Elephant Conservation Policy and Management Plan Framework (Hwange, December, 2014). This framework will be rolled out into four regional action plans and one of these areas is north-west Matabeleland, into which Hwange falls.

The vision, targets and strategic objectives/outputs of the five key components of this framework are shown below.

Zimbabwe Strategic Elephant Conservation Policy and Management Plan Framework

Long-term Vision: To conserve elephants at levels that will enable them to contribute to the conservation of biodiversity, national development, and Zimbabwe's cultural heritage

Targets:

1. To maintain at least four demographically and genetically viable elephant populations in Zimbabwe
2. To maintain or increase elephant range in Zimbabwe
3. To maintain numbers / densities of elephant at levels that do not adversely impact on biodiversity conservation goals while contributing to economically viable and sustainable wildlife-based land uses

Zimbabwe Strategic Elephant Conservation Policy and Management Plan Framework					
Key Compo-nents	**1. Protection and law enforcement**	**2. Biological Monitoring and Management**	**3. Social, Economic and Cultural Framework**	**4. Building Conservation Capacity**	**5. Coordination, collaboration and programme management**
Strategic Objectives	**Objective 1**. Ensuring effective protection of all populations of elephant in Zimbabwe	**Objective 2.** Implementing effective biological and ecological management to achieve populations that are within upper and lower acceptable limits to change in numbers and distribution	**Objective 3.** Implementing strategies that enhance the contribution of elephant to rural livelihoods and national development	**Objective 4.** Ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and financing are mobilised, available and used efficiently and effectively	**Objective 5**. Ensuring effective coordination and collaboration with national and international stakeholders to achieve these strategic objectives,
Outputs	**Output #1:** Management actions, security and law enforcement to minimise illegal losses of elephants and their habitats from all populations implemented	**Output #2:** Adaptive management to achieve viable populations in all four sub-populations implemented	**Output #3:** Fair distribution of financial benefits from elephants improved and tolerance for living with elephants increased	**Output #4:** Sufficient numbers of trained, equipped, motivated and effective personnel are deployed and operational	**Output #5:** Coordination mechanisms to assess and review adaptive elephant population management and strategic planning established and operating

Action 2.1.1: Preparation of an elephant management strategy and action plan for the Hwange ecosystem in the context of the regional and national plan

Given the emotions surrounding elephant management, any decisions taken may elicit a storm of protest where science gets challenged. In view of this, this management plan does not recommend any prescriptions for elephant management in Hwange. Rather it sets in motion a course that should lead to informed decisions being taken.

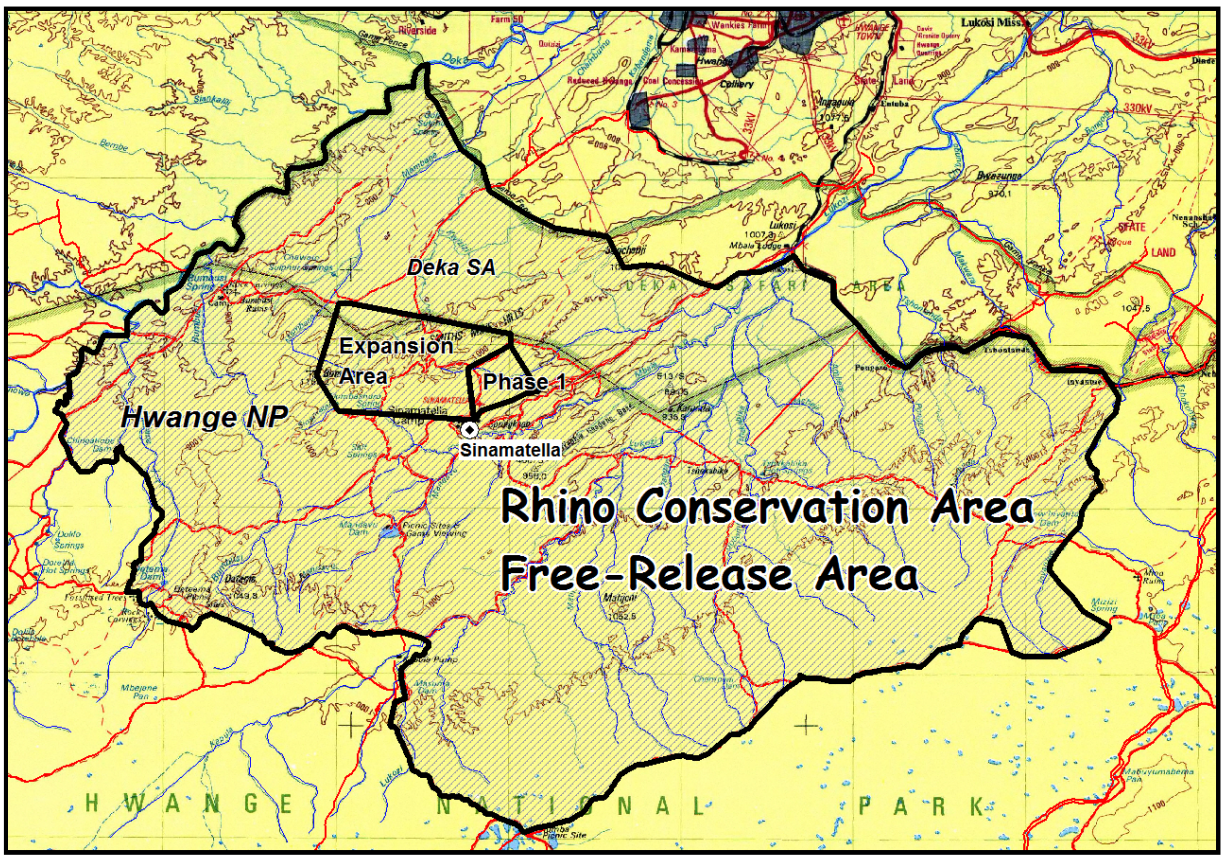
The regional North-West Matabeleland elephant management plan will be developed in the near future and this will be a pivotal document in charting the way forward for Hwange's elephants. Given that the Hwange population is maintained by artificial water the action plan may need to have a Hwange specific component.

Target 2.2: Rhino sanctuary established

Rhino are an African flagship species and have been the focus of significant conservation efforts throughout Africa, There are currently few rhinos in Hwange but plans are underway for a rhino release programme in the Sinamatella area, once the security of the park is deemed sufficient for their protection. The model is based on the Ngulia Rhino Sanctuary in Kenya (Tsavo West) which has an initial small fenced and intensively guarded protection area with the possibility of expansion into a larger fenced area. The eventual goal is to allow the rhinos to be released into a larger unfenced area, depending on the prevailing security situation.

Action 2.2.1: Rhino conservation area defined and feasibility study carried out

An initial rhino sanctuary area, based on the Ngulia model has been defined and is shown below. Phase 1 is 10 km^2, the expansion area is 50 km^2 and the free release area is 1,500 km^2. The free-release area extends into the Deka Safari Area. In addition, a feasibility study was carried out when defining this area. .



Prior to embarking on a rhino restocking and release programme the area needs to be protected effectively. If the area is not secure it is likely that the animals will be poached. Ensuring that Hwange is secure enough for such a programme to be initiated falls under the remit of the Park Management Programme and is not considered as a specific activity under the target of establishing a rhino sanctuary. But it would be foolhardy to start such a programme without the area being properly protected.

The feasibility study should be revisited once the security situation for the park is considered to be under control. The applicability of the model also needs to be reassessed in the light of developments at other similar sites. The study should also address such issues such as sourcing of funds, acquisition of materials, construction of the enclosures etc.

Target 2.3: Rare and endangered species research expanded

Hwange is home to a number of rare and endangered species, both globally and locally (not including elephant, given the Hwange context). These include cheetah, painted dog, lion, roan, gemsbok, tsessebe, pangolin, brown hyena, bat-eared fox and aardvark. Although a significant amount of research has been carried on some of the large and medium sized predators (lion, painted dog and cheetah) there is little information available on some of the other rare and endangered species found on the list above.

Action 2.3.1: Expansion of research to lesser known species

Research into the other, lesser known carnivores and herbivores should be encouraged and promoted by the ZPWMA. This could include approaching NGOs and universities with possible project proposals, or least synopses of research required that would benefit the park.

Target 2.4: Special protection areas identified

Hwange contains a wide variety of habitats, some of which are unusual, especially in the Zimbabwean context. Although many areas requiring special protection are known by people working in Hwange, few have been formally identified and described. The Mbiza Palm savannah is one exception. The areas need to be mapped, both from the ground and using appropriate imagery. An accessible database needs to be stored on all stations.

Action 2.4.1: Areas identified and described

There is a need to formally identify and describe these special protection areas. Places that could be included in such a database are wetlands, special plant communities (teak, mudflats, vleis, acacias, palms), special soil types (e.g. calcrete), springs and seeps and archaeological sites.

Action 2.4.2: Protection measures and monitoring strategies in place

Concurrent with the description and mapping of the special protection areas, details of the proposed protection strategies for the areas needs to be detailed. Once there is agreement on the protection measure (exclusion, fire etc) then these need to be implemented. Finally a monitoring strategy is needed for all sites so that the effect of the interventions can be gauged.

Target 2.5: Comprehensive fire management programme continued and improved

Fire is one of the major threats facing the park and if left unchecked, it could have a significant and deleterious effect of the vegetation. Although there are divergent opinions on fire management it is apparent that control of fire is the first step for any fire management regime.

Uncontrolled fires are a common occurrence in Hwange, although the situation has improved in recent years. The cause of fires is not well known but they can be started by illegal hunters within the park or by natural causes. Other fires start outside the park and will move in if not stopped.

Action 2.5.1: Fire monitoring database improved

Fire monitoring has been ongoing since the late 1960s, but has also been sporadic. The recent development of satellite fire monitoring and the almost immediate dispersal of this information via email and internet has changed the way in which fires are studied. However there is also a need to ensure that new fire data is backwardly compatible with research that has gone on before (specifically burn scar data). There is also a need to routinely ensure that the data is accessible and useable on the station computers.

Action 2.5.2: Fire management plan developed with annual updates

The development of an adaptable fire management plan that can be changed to suit the climatic circumstances is a priority. As with anti-poaching and law enforcement activities, fire is one of the cross-cutting issue for park management. The Biodiversity and Natural Resources Management Programme is responsible for the recording and analysis of fire data but the Park Operations, Administration and Infrastructure Programme is responsible for implementation of fire management and control measures. There needs to be significant collaboration between the two programmes to ensure that fires are effectively controlled and managed.

All stations have fire management plans and these need to be annually updated. The plans should include an analysis of the events of the previous years actual fire management activities (firebreaks, back burns, fire attended to etc.).

Action 2.5.3: Fire prevention and control measures implemented

As mentioned above the prevention and control of fires is the responsibility of the Park Operations, Administration and Infrastructure Programme but the measures that are carried out need to feed back into the recording and analysis system.

Action 2.5.4: Collaboration with other stakeholders

Many of the fires that impact on the park cross into the park from other areas. It will be important to continue to collaborate with neighbours to the park with regard to fire prevention and control (see also Collaborative Management Programme).

Target 2.6: Grassland encroachment controlled

Grasslands represent a very small part of Hwange and therefore are important ecosystems, both for biodiversity and tourism. They are important for tourism at it is easy to see wildlife in these areas. However, some grassland areas (e.g. the Kennedy/Masumamalisa drainage line) are being encroached by woody species. Rather than let this encroachment continue, park management has opted to intervene and stop this encroachment.

Action 2.6.1: Define all areas of concern

As with any interventions, knowledge is the key to effective management. The first step is to create a database of all areas of concern.

Action 2.6.2: Monitoring plots/fixed point photography points established

Monitoring plots and fixed point photography points should be established. Some of these may have been established in the past and, if so, they should be located as they represent an important historical record.

Action 2.6.3: Appropriate interventions implemented

The standard procedure for dealing with grassland encroachment is a late season controlled hot burn. Care needs to be taken to ensure that such burns do not escape out of their target area. In addition, prior to burning, a careful assessment of the area needs to be undertaken to ensure that the burn does not have an adverse effect on the wildlife in the area (e.g. predator cubs). Physical clearing of encroaching plants is another possible method.

Target 2.7: Invasive species controlled

In general, the spread of invasive species in the park is relatively low. However, it is remarkably easy to believe that there is no problem with invasives and then only to find out too late that there is a serious problem, especially with regard to plants. The Indian Mynah has been seen at several places in Hwange and this is a cause for concern because of its ability to displace native species.

Action 2.7.1: Extent of problem assessed

The first step for any control programme for exotic and invasive species is an assessment of the population. Although no studies have been carried out in Hwange there is anecdotal evidence to suggest that invasives are present in may parts of the park. In some areas, notably the Deka River an infestation of syringa (species unknown) is a cause for concern. A clearer understanding of the problem is needed and research into this is a priority.

The HSBC project is proposing to develop an Invasive Alien Species (IAS) atlas for the Forestry areas as part of its project implementation. Perhaps this should be extended to include Hwange and the data collected by the ZPWMA could feed into this initiative. (see also Target 1.3).

Action 2.7.2: Exotic plant and animal control strategy developed

It is vital that a framework and strategy to deal with the exotic and invasive plants is formulated at the earliest opportunity. This strategy should draw on work carried out in other areas, notably the Kruger National Park and identify the likely and practical control measures that could be carried out.

Action 2.7.3: Control measures implemented

Implementation of the control measures identified under 2.7.2 is likely to be time consuming, labour intensive and costly. However, these measures aimed at control and eradication should be implemented at the earliest opportunity.

Target 2.8: Erosion sites monitored and controlled

Erosion was listed as a cause for concern in the previous plans. This referred to the northern areas on basement geology, and where the topography is steeper.

Action 2.8.1: Database established

The first step will be to establish a database of all areas of concern, There are some examples of sheet erosion and areas where roads have caused erosion and these can be used to initiate the database. These should be documented and photographed and compared to any information from the past.

Action 2.8.2: Control measures implemented

If deemed necessary appropriate control measure for erosion should be implemented. In some cases all that may be required is to monitor the site, while other areas may require more active management.

Objective 3: Land use issues in the greater Hwange area are addressed

Hwange cannot exist in isolation and the future of the park needs to take into account the changes that are happening in the adjacent areas. The park is considered to be a source population for the safari hunting activities that occur in the adjacent areas and also a source of animals that can disperse through a much larger landscape. This dispersal concept has been formalised in the Hwange-Sanyati Biological Corridor project which is expected to get underway in 2015.

Target 3.1: Corridors are identified and steps taken for their protection

Action 3.1.1: Corridor mapping improved

There has been some preliminary work carried out on corridors but this has largely been based on a few records of wildlife movements and conjecture. Investment in corridors is not cheap and it would be advisable to map these corridors more effectively so that they are based on realistic information.

Action 3.1.2: Integration with the HSBC project

The HSBC project relies heavily on the corridor concept and believes that there are wildlife movements between Hwange NP and the areas south of Lake Kariba, up to the Matusadona NP. The project is inspired by the notion of maintaining habitat connectivity across large landscapes, especially for “keystone” species such as elephants. The project has a component, led by the Ministry of Environment to promote development planning and coordination at the wider landscape level of the HSBC area and to facilitate corridor-level scaling up of land management and biodiversity conservation tools and initiatives. Park management should be a part of these processes.

Target 3.2: Land use changes in the Gwayi-Shangani area are addressed

There are two large development projects moving towards an operational phase in the area adjacent to Hwange. These are the Gwayi-Shangani Dam and the CASE coalfield and power station. Both have the potential to significantly affect the ecology of Hwange.

Action 3.2.1: Gwayi-Shangani Dam options assessed

The Gwayi-Shangani Dam is a national project that has been considered since the 1950s. A dam wall (70 metres high) will be constructed just downstream of the Gwayi-Shangani confluence and this will create a lake with a capacity of 674 million cubic metres. The lake will have a surface area of over 140 km2 and a perimeter of nearly 200 km. Completion is expected by 2018. The appearance of a large and permanent body of water less than 20km away from one of Africa’s densest elephant populations can be expected to have an effect of their survival strategies in the late dry season.

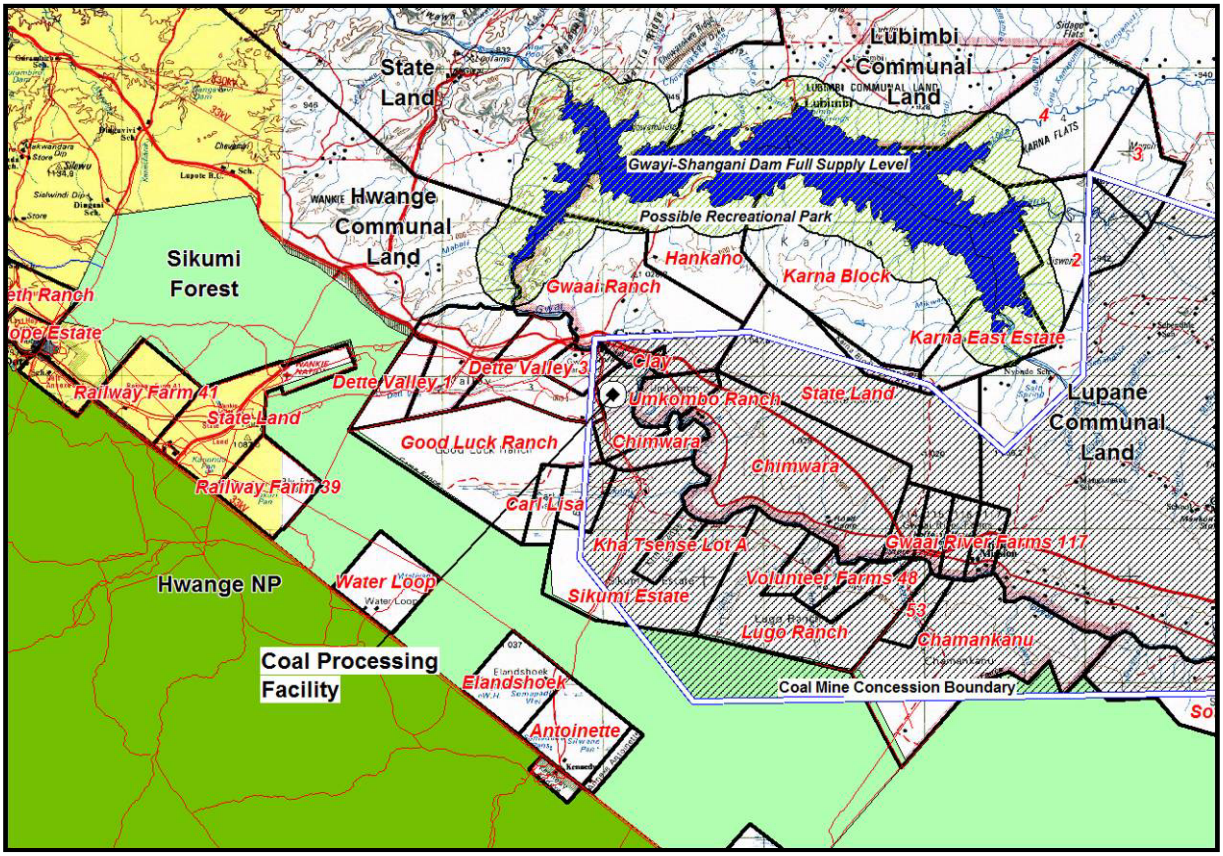
The area between the park and the Shangani River is used for safari hunting and for photographic tourism and thought needs to be given to the longer term classification and use of this area. It is a mix of land under control of the private sector, state land, Forestry Estate and communal land (see figure at the end of this target description). In addition, it is likely that a recreational park will be established around the new dam and this will be under the control of the ZPWMA. The authority should take the lead in negotiating with all stakeholders in the area to ensure that an ecologically sustainable solution is reached.

Action 3.2.2: Coalfield impacts on the park assessed

At the same time that a major ecological change is expected in the Hwange system, a major sociological change is also expected. Much of the Hwange area is underlain by coal and a Zimbabwean-Chinese cooperative project has been established to mine coal in the area between the park and the proposed Gwayi-Shangani Dam. A large coal processing plant will be established at the Gwayi business centre which will produce electricity, as well as exporting the coal itself. Although details are sketchy and the environmental assessment of the project is difficult to access, it appears that the project has been approved.

A large influx of workers to the area can be expected, given that the mine will be producing nearly 6 million tones of coal per annum through two main shafts.

Figure B.2: Gwayi-Shangani Dam and CASE Coal mine in relation to the Hwange NP



In addition to the proposed mine above the impact of other coal mining operations close to the park should be investigated and assessed.

Table B.13: Summary and three year Activity plan: Biodiversity and Natural Resources Management Programme							
OBJECTIVE 1: RESEARCH AND MONITORING EFFECTIVELY ADDRESSES MANAGEMENT NEEDS							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
1.1: Adequate research and monitoring equipment available in Hwange	*1.1.1: Appropriate monitoring and recording equipment secured*	Equipment needs defined	In conjunction with well defined monitoring direction	Some done under HSBC	Ecologist	10,000	**1**
		Funds sought for appropriate equipment	Cameras, computers, GPS, software, field battery systems etc	As soon as possible	Ecologist		
	1.1.2: Main Camp laboratory improved	Assessment of equipment needs	To direct funding	Early 2016	Ecologist	10,000	
		Funds sought for appropriate equipment	Microscopes, centrifuges etc	Mid 2016	Ecologist		
		Backup Generator	To service offices as well	Mid 2016	Procurement		
	1.1.3: Appropriate maintence of equipment	Training course identified	Equipment longevity	Early 2016	Ecologist	1,000	
		Appropriate staff trained	Identification of staff	End 2016	Ecologist		
	1.1.4: Data storage systems improved	Assessment of needs	In collaboration with IT	Early 2016	Ecologist, IT Specialist, Procurement	1,000	
		Equipment secured	Funding sources	Mid 2016			
		Backup system adhered to	Very important	Daily, weekly and monthly depending on data			
1.2: Sufficient human capital available	*1.2.1: Ecologist positions maintained*	No loss of staff positions		These positions need to maintained	HR Resources	Sunk	**1**
	1.2.2: Ecologist based in the north	Post created and filled	Vital		HR Resources	Sunk	
1.3: Appropriate baseline data collected	*1.3.1: Current species lists updated*	Current lists on station		Some lists updated already	Ecologist	Sunk	**3**
		System for updating		Annual Revision	Ecologist		
	1.3.2: Climatic data collection continued and expanded	Ongoing climate data collection		Ongoing	Ecologist	Sunk	**2**
		Expansion of collection stations in conjunction with third party researchers	Vital to understand climate change	Already underway	Ecologist, Ext. Research		

High priority = 1; Low priority =3

Table B.13: Summary and three year Activity plan: Biodiversity and Natural Resources Management Programme

OBJECTIVE 1: RESEARCH AND MONITORING EFFECTIVELY ADDRESSES MANAGEMENT NEEDS

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
1.3: Appropriate baseline data collected…	*1.3.3: Wildlife distribution and density datasets continued*	Ongoing aerial surveys	HSBC funding?	Appropriate intervals	Ecologist, Ext. Research	20,000 aerial 10,000 annually for ground	**1**
		Ongoing standardised road and spoor counts		Annually			
		Ongoing annual waterhole counts	Reliant on WEZ	Annually			
	1.3.4: Fire mapping datasets improved	Modis data organised and available on stations	Past data accessible and scheduled inputs for new	Mid 2016 and ongoing New data at least every 6 months	Ecologist	0	**2**
		Updated fire frequency map	Suitable person identified	End 2016	Ecologist, Ext. Research		
	1.3.5: Invasive species data improved	Database established and maintained	Framework in place + system for updates	Mid 2016	Ecologist, Ext. Research	Sunk	**1**
	1.3.6: Understanding of underground water improved	Studies on water age carried out	Possible under HSBC	End 2016	Ecologist, Ext. Research	50,000	**1**
		Ongoing monitoring and recording of pumping outputs	Records need to be accessible	Ongoing			
	1.3.7: Pans and their surroundings monitored	Pan inventory completed	Base established already	End 2016	Ecologist, Ext. Research	Sunk	**2**
	1.3.8: Electronic bibliography improved	Centralised electronic bibliography established and updated at regular intervals	Significant research available.	Mid 2016 and ongoing	Ecologist, Ext. Research	Sunk	**2**
	1.3.9: New data collection technologies investigated and adopted	Investigation of SMART and Cybertracker systems	Possible under HSBC	Mid 2016	Ecologist, Ext. Research	5,000	**1**
		Adoption and integration of the same	Training if needed	End 2016	Ecologist		
1.4: Research priorities are focussed on understanding of conservation targets and underlying system processes	*1.4.1: Coordination of research improved*	Updated records system on stations	Properly filed reports, proposals etc	End 2016	Ecologist	2.000	**2**
	1.4.2: Ecological monitoring framework improved and updated	Regular revision of the draft ecological monitoring framework	Annual ecology/research meeting format?	Every two years	Ecologist		**2**
	1.4.3: Research priorities refined and improved	Ongoing refinement of the research priorities					**2**

High priority = 1; Low priority =3

Table B.13: Summary and three year Activity plan: Biodiversity and Natural Resources Management Programme

OBJECTIVE 1: RESEARCH AND MONITORING EFFECTIVELY ADDRESSES MANAGEMENT NEEDS

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
1.4: Research priorities cont…	*1.4.4: Research encouraged and supported in Hwange*	Document on research direction in Hwange	Extracted from Plan	Annually	Ecologist	Sunk	**1**
		Timely issuing of permits at ZPWMA HQ	Ensuring research continuity	Annually and as required	Chief Ecologist		
		Fees reflect the advantage of research to Hwange	Ongoing negotiation	Ongoing			
1.5: Improved monitoring of natural resource use	*1.5.1: Utilisation data collected and timeously analysed*	Utilisation databases at Matetsi updated	Information dissemination important	Some already done. Ongoing	Ecologist Matetsi	Sunk	**2**
		Annual reports on utilisation produced to feed into quota setting meetings		Annually			
	1.5.2: Mining activities and their effect on wildlife monitored	ZPWMA actively engages in the CASE project prior to implementation	Vital as this project has the potential to impact negatively on the park	Prior to construction/implementation	Ecologist	1,000 for fuel Rest sunk	**1**
		Ongoing monitoring if project becomes operational		Ongoing	Ecologist		
	1.5.3: Other resource use monitored	Databases on fishing, grass cutting and use of ration quota		Ongoing	Ecologist	Sunk	**3**
1.6: Improved monitoring and mitigation of the human-wildlife interface	*1.6.1: Improved recoding and analysis of HWC data*	Centralised database established	Collating data from Councils, Forestry and other sources	Early 2016	Ecologist, Ext. Research, Extension Officer	1,000 for fuel. Rest sunk	**1**
		Constant communication with other players for data plus feedback		Ongoing			
		Hotspot identification	Maps and ground truthing	Mid 2016			
		Detailed report on HWC at regular intervals		At least annually			
	1.6.2: Disease monitoring improved	Database on disease occurrence established	In collaboration with Veterinary officials	Mid 2016	Ecologist, Vet. Dept	Sunk	**2**
		Collaboration with other players		Ongoing			

High priority = 1; Low priority =3

Table B.13: Summary and three year Activity plan: Biodiversity and Natural Resources Management Programme							
OBJECTIVE 1: RESEARCH AND MONITORING EFFECTIVELY ADDRESSES MANAGEMENT NEEDS							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
1.6: Improved monitoring and mitigation of the human-wildlife interface cont…	*1.6.3: Predator early warning systems maintained*	Collaboration with RDCs, communities and WildCru on the status of this programme	Already well established	Ongoing	Ecologist, Ext. Research, Extension Officer		**1**
	1.6.4: Livestock husbandry systems improved	Collaboration with RDCs, communities and WildCru on the status of this programme	Already well established	Ongoing			
	1.6.5: Monitoring of land cover changes along the Hwange-Community interfaces	Download and acquisition of appropriate data	Recent Landsat	At least annually	Ecologist, Ext. Research	5,000 for image analysis	**3**
		Liaison with UZ, other institutions	Especially Geography Dept				
1.7: Improved monitoring of protection activities	*1.7.1: Development of a standardised patrol system*	Until SMART is embraced establish a simple paper map system		Early 2016	Ecologist, Ext. Research	5,000 for training	**1**
		Development of GPS based systems	Linked to 1.3				
	1.7.2: Regular feed back to management	Timely analysis and report back of the data	Vital for appropriate management interventions	At least quarterly	Ecologist		
1.8: Hwange becomes a regional centre of research excellence	*1.8.1: Research Centre concept approved*	Meetings between ZPWMA and Ext Research to develop concept	Agreement on concept and siting	End 2016	Chief Ecologist, Ext. Research	Based on study results	**1**
	1.8.2: Funds acquired and research centre built	Fund raising and building		End 2017			

High priority = 1; Low priority =3

Table B.14: Summary and three year Activity plan: Biodiversity and Natural Resources Management Programme							
OBJECTIVE 2: WILDLIFE POPULATIONS, ECOLOGICAL BIODIVERSITY AND KEY HABITATS ARE MAINTAINED AND ENHANCED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost.**	**Priority**
2.1: Elephant management plan developed	2.1.1: *Preparation of an elephant management strategy for the Hwange ecosystem*	Initial and possible subsequent meetings to develop the strategy	Needs to tie-in with Regional and National Strategies	Process underway early 2016	Chief Ecologist, Ecologist, Stakeholders	5,000 for meetings	**1**
2.2: Rhino sanctuary established	2.2.1: *Rhino conservation area defined and feasibility study carried out*	Feasibility study updated		Study revised by end 2016	Ecologist, Stakeholders	3,000	**1**
2.3: Rare and endangered species research initiated	*2.3.1: Expansion of research to lesser known species*	Document on state of knowledge of lesser known species to inform prospective researchers	In collaboration with ext. researchers	Document by end 2016	Ecologist, Ext Researchers	Sunk	**3**
2.4: Special protection areas identified	*2.4.1: Areas identified and described*	Database on special protection areas established and updated thereafter	In collaboration with National Museum. See also Tourism 3.2 and Collaborative Management 2.3	Database "complete" by mid 2017	Ecologist, NMMZ	Sunk Fencing on a case by case basis	**2**
	2.4.2: Protection measures and monitoring strategies in place	Fencing of sites if required		By end 2016	Ecologist, NMMZ		
2.5: Comprehensive fire management programme continued and improved	*2.5.3: Fire monitoring database improved*	Modis data collected in central computer and made accessible		Ongoing	Ecologist		**2**
	2.5.2: Fire management plan developed with annual updates	Fire management plan updated and modified annually if necessary	See Park Management programme 4.2	Annually	Management Staff	Sunk	**1**
	2.5.3: Fire prevention and control measures implemented	Firebreaks, reactive fire management, early burning		Ongoing		Sunk	**1**
	2.5.4: Collaboration with other stakeholders	Development of "joint" fire management plan	See Collaborative Management programme 4.1.3	Ongoing		3,000 for meetings	**1**

High priority = 1; Low priority =3

Table B.14: Summary and three year Activity plan: Biodiversity and Natural Resources Management Programme							
OBJECTIVE 2: WILDLIFE POPULATIONS, ECOLOGICAL BIODIVERSITY AND KEY HABITATS ARE MAINTAINED AND ENHANCED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost.**	**Priority**
2.6: Encroachment of grasslands is controlled	*2.6.1: Define all areas of concern*	Database of bush encroachment areas		Initial database by mid 2016	Ecologist, Ext Researchers	Sunk	**2**
	2.6.2: Monitoring plots/fixed point photography points established	Access to past research	Materials may be at HQ	Ongoing	Ecologist	2,000 for fuel	
		Database expanded and upgraded		Ongoing	Ecologist, Ext. Researchers		
	2.6.3: Appropriate interventions implemented	Late season hot burns if necessary		As per research	Mgmt	Sunk	
2.7: Invasive species controlled	*2.7.1: Extent of problem assessed*	Invasive species database with locations	In conjunction with HSBC project	Initial database by mid 2016, then ongoing	Ecologist, Ext. Researchers	Sunk 1,000 for meetings	**1**
	2.7.2: Exotic plant and animal control strategy developed	Control strategy document via meetings and research		Strategy document by 2017	Ecologist, Ext. Researchers		
	2.7.3: Control measures implemented	Implementation of identified measures		As required by strategy	Ecologist, Mgmt Staff	Sunk	
2.8: Erosion sites monitored and controlled	*2.8.1: Database established*	Erosion database established.	Also to include historical records	Database by end 2017	Ecologist	Sunk	**3**
	2.8.2: Control measures implemented	Appropriate control measures implemented.		As appropriate	Ecologist, Mgmt Staff		

High priority = 1; Low priority =3

Table B.15: Summary and three year Activity plan: Biodiversity and Natural Resources Management Programme							
OBJECTIVE 3: LAND USE ISSUES IN THE GREATER HWANGE AREA ARE ADDRESSED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost.**	**Priority**
3.1: Corridors are identified and steps taken for their protection	3.1.1: *Corridor mapping improved*	Reassessment of corridors	See Collaborative Management 1.5. Possible via HSBC	Corridor status report by end 2016	Ecologist, Ext. Researchers	1.000 Fuel	**1**
	3.1.2: Integration with the HSBC project	Close liaison with project officers		Ongoing	Ecologist, Mgmt Staff		
3.2: Land use changes in the Hwange-Gwayi corridor are addressed	3.2.1: *Gwayi-Shangani Dam options assessed*	Corridor mapping, land use options assessments, Recreational Park assessment		Assessment documents completed by end 2016	Ecologist, Ext. Researchers	1,000	**2**
	3.2.2: Coalfield impact on the park assessed	Assessment of existing EIA and update with new information.	Access to the EIA needs to be granted by EMA	Early 2016	Ecologist	1,000	

High priority = 1; Low priority =3

B.6 MONITORING FRAMEWORK

A preliminary monitoring framework was established which is based on the identified conservation targets and their key attributes. The practicality of such a monitoring framework is sometimes debatable but it provides a roadmap for an idealised and desirable monitoring programme, should funds and personnel be available.

It must be remembered that this is a first pass and that one of the activities of this programme is to modify this research framework to ensure that it is relevant and practical.

Conservation Target 1: Wetlands						
Ecological Attribute	**Indicator of change**	**Method of measurement**	**Collection frequency**	**Potential partners**	**Already being collected?**	**Priority**
Rainfall	Precipitation	Rain Gauges	Ongoing	External researchers, Forestry, Operators	Yes but needs extension	High
River integrity	Flow rates	Gauges	Seasonal	ZINWA	No	Medium
River bank integrity	Vegetation structure, vegetation competition	FPP?	3 years	External researchers,	No	High
	Change in land use; extent and erosion	Remote sensing	3 years	External researchers,	No	Very high
Permanent water	Size and number pans	Ground survey	Annually	WEZ, FoW, External researchers	Partially	High
	Size and number pools in rivers	Ground survey	Annually			High
Water quality	Salinity in pans	Water analysis		WEZ, FoW, External researchers	Just started	High
Fish abundance/diversity	Stock assessment	Ecological surveys	Seasonal	External researchers	No	Medium
	Numbers	Frame surveys, socio-economic surveys	Seasonal		No	
	Species richness	Habitat monitoring, sampling	Seasonal		No	
Amphibian/Reptile Surveys	Stock assessment	Ecological surveys	Seasonal	External researchers,	No	Medium
Water bird Surveys	Numbers	Bird count indices	Seasonal	External researchers, Birdlife	No	Medium

Conservation Target 2: Sinamatella Geo-morphological Systems						
Ecological Attribute	**Indicator of change**	**Method of measurement**	**Collection frequency**	**Potential partners**	**Already being collected?**	**Priority**
Cultural Sites	Status and condition	Observations	Seasonal	NMMZ, RDCs	No	High
Fossil Trees	Amount human disturbance	Baseline and monitoring	Every two years	NMMZ		
"Endemic" species (klipspringer, hyrax etc)	Population status	Counts/indices		External researchers	No	Medium
Integrity of feature	Erosion	Ground surveys	Every 2 years	External researchers	No	High

Conservation Target 3: Special Vegetation Communities						
Ecological Attribute	**Indicator of change**	**Method of measurement**	**Collection frequency**	**Potential partners**	**Already being collected?**	**Priority**
Indicator species	Density and distribution	FFP, sample plots	Annual	External researchers	Historical	Medium
Size and extent of vegetation community, (fragmentation?)	Area coverage	Remote sensing	Annual	External researchers	No	High
	Fragmentation level	Remote sensing	Annual	External researchers	No	High
	Fire frequency (extent and timing)	Remote sensing	Annual	External researchers	Partly	High

Conservation Target 4: Medium and Large Carnivores						
Ecological Attribute	**Indicator of change**	**Method of measurement**	**Collection frequency**	**Potential partners**	**Already being collected?**	**Priority**
Population size, distribution and structure	Numbers	Trophy quality, tourism sightings, counting	Ad hoc	Forestry, Hunting Companies	some	
	Distribution	GPS sightings, collaring, etc	Ad hoc	Forestry, Hunting Companies	some	
Population viability (recruitment/mortality?)	Numbers	Surveys				
	Sex ratios, ages	Surveys				
Prey abundance and distribution	Prey abundance	Counting				
	Prey distribution	GPS, GIS and RS				
Trophy quality	Size	Size of jaws				
	Hunt effort (time)	Timing				
	Age	Skull size, length				
Genetic diversity?	Status (condition)	Observations				
	Appearance	Observations				
	Survival	Observations (cohort)				
	Life expectancy/ life span	Collars				

Conservation Target 5: Charismatic Herbivore Assemblages						
Ecological Attribute	**Indicator of change**	**Method of measurement**	**Collection frequency**	**Potential partners**	**Already being collected?**	**Priority**
Population size, distribution and structure	Numbers, distribution	Aerial and ground census	Annual	External researchers	Yes	Very high
Habitat availability/ quality?	Key forage and non-dietary resources`	Permanent plots to monitor vegetation	Annual	External researchers	No	Very high
		Fixed point photos				
		Monitor spatio-temporal distance from surface water				
Level of demand/ consumption of illegally harvested bushmeat?	Number of poaching incidences	Counting of carcases, snares etc	Dairy	External researchers	Yes	Very high

Conservation Target 6: Rare, Threatened and Locally Extinct Species						
Ecological Attribute	**Indicator of change**	**Method of measurement**	**Collection frequency**	**Potential partners**	**Already being collected?**	**Priority**
Population size and distribution (data for locally extinct species to be added once introductions complete)	Number in known groups	Tag individuals in each group and then frequent patrols to get counts	Monthly	External researchers	No	Very High
	Age and sex structure of known groups	Supplement data from other censuses, e.g. waterhole counts				
	Spatial distribution	Mapping of sightings	Ongoing			
	Individual monitoring		For reintroduced species			
Habitat availability	Woodland/grassland levels	Measurement system to be devised	Annual	External researchers	No	Very High
Genetic diversity (for introduced species)	Level of gene diversity	Genetic analysis	5 years?	External researchers	No	High

The following table summarises the "deliverables" that can be expected to ensure that the Biodiversity and Natural Resources Management Programme is implemented. It focuses on things that can be can be "ticked off" and is expected to act as a guide to help with the implementation of this programme.

Table B.16: Plan "deliverables" summary – Biodiversity and Natural Resources Management Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
Objective 1: Research and monitoring effectively addresses management needs			
Updated species lists	Aerial survey reports	Back-up generator system	Basic recording equipment on stations
Ongoing climatic records	Other distribution and density reports/documents	Hwange Research Centre	Data back-up systems
Modis fire data	Annual WEZ documentation		
Invasive species database	Underground water reports		
Electronic bibliography	Pan inventory		
HWC database	SMART assessment		
Wildlife disease database	NGO annual and quarterly reports		
Standardised patrol system	Updated ecological monitoring framework		
	Updated research priorities		
	Utilisation data reports		
	Reports on adjacent coal mining projects		
	Land-cover map updates		

Table B.16: Plan "deliverables" summary – Biodiversity and Natural Resources Management Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
Objective 2: Wildlife populations, ecological biodiversity and key habitats are protected, maintained and enhanced			
Special Protection Areas database	Hwange elephant management strategy		Endangered species research projects
Fixed point photography database	Updated rhino sanctuary study		
Invasive species database	Special protection Areas reports		
Erosion site database	Updated fire management plan		
Objective 3: Land use issues in the greater Hwange area are addressed			
	Corridor identification and maps		
	Report on the ecological implications of the Gwayi-Shangani Dam		
	Coalfield reports		

C SUSTAINABLE TOURISM PROGRAMME

C SUSTAINABLE TOURISM PROGRAMME

C.1 PURPOSE, BACKGROUND AND KEY COMPONENTS

C.1.1 Programme Purpose

SUSTAINABLE TOURISM PROGRAMME PURPOSE:

To provide a diverse and sustainable, high quality wildlife viewing, wilderness and cultural experience to both local and international visitors that maximises income whilst ensuring that the biodiversity and environmental values of the park are not eroded.

C.1.2 Background

Introduction

Hwange, the flagship National Park in Zimbabwe, is also its largest at over 14,500 km^2. Most of the park is covered by a sheet of Kalahari sand which is typically flat and waterless. The northern part of the park is on basement geology and unconsolidated sediments and is cut by several drainage lines. This area has a more rugged and interesting topography from a tourism point of view. Hwange is famous for its elephant populations (currently estimated to be around 45,000 animals) and its relatively easily viewable carnivores, along with a host of other species.

Historically the Kalahari sand areas were wet season grazing grounds and the wildlife moved to permanent water in the dry season (the Gwayi and Shangani rivers mainly). However, in 1928, these water sources were effectively cut off from the park as the railway line became the boundary and, in order to keep the game in the park, an artificial water programme was started in 1935. This was successful and it was expanded until today there are approximately 60 supplemented water points that help to sustain the wildlife through the dry season in about 40% of the park. The programme of artificial water has also led to a significant increase in the elephant population (numbers were very low in the early 1900s) which is good for tourism and marketing of Hwange but has the potential to have a negative effect on the vegetation and biodiversity.

Access

Hwange is located in north-west Matabeleland and many tourists access the park through Victoria Falls airport with all three ZPWMA camps being within easy reach. However, the road condition to Robins can deter tourists from visiting this area. The main gates are adjacent to the management camps at Main Camp, Sinamatella and Robins (Mpofu, Mbala and Nantwich respectively).

Tourism concentrations in the park are largely a result of the historical development of the area. Main Camp was established as the management centre for the park in the 1930s and the development of roads and pans fanned out from here. It also is close to the main Bulawayo to Victoria Falls road and thus became the focal point of tourism in the park.

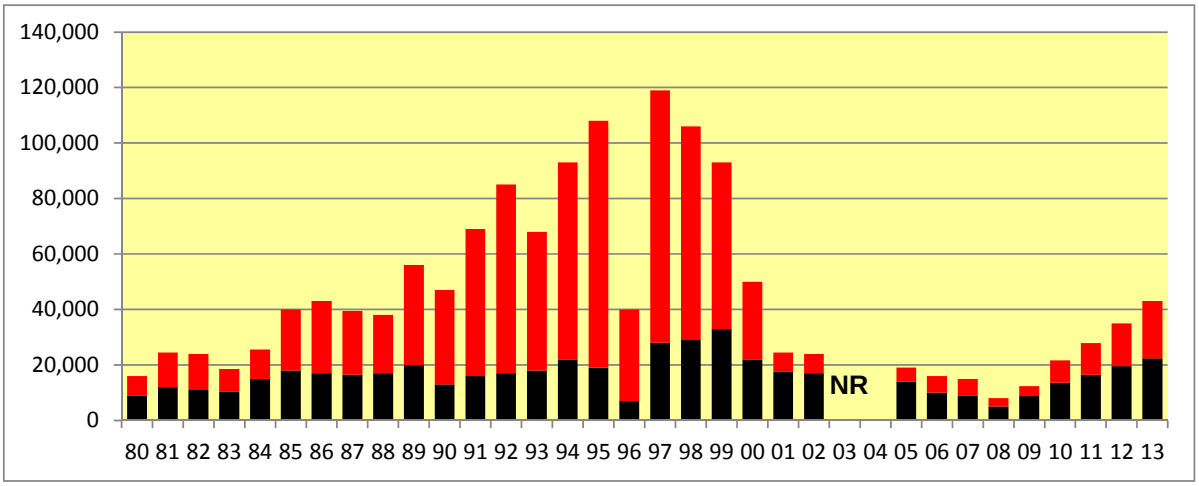
The original access to Main Camp from the Victoria Falls – Bulawayo Road was down the Dete Vlei but the current new road was constructed in the 1960s. The narrow tar between Main Camp and Shumba was laid down in 1962 and was a gamble for cost recovery from increased tourism. Robins and Sinamatella were both on the site of previous private land and were initiated in 1938 and 1948 respectively.

Tourism History

Tourism started in Hwange in the early 1930s when the first boreholes were drilled and dams constructed to attract game. In those days most tourists were camping as there was no accommodation, apart from some simple pole and dagga huts constructed in 1933. However, most guests preferred to camp outside the huts. In 1949 there were 2,771 visitors and this had grown to over 25,000 by 1965. The first brick huts were established in 1966 at Main Camp and these formed the basis of the current camp.

Tourism peaked in 1997 with approximately 140,000 entries[2]. However between 1992 and 1999 it was likely that entries were in excess of 100,000 per annum in most years (1996 excluded). At that time, apart from Makololo and Linkwasha, there were no private sector camps inside the park. Most visitors were accommodated outside the park in a plethora of camps on different land categories – safari areas, forestry estate and private land. Many of them used these areas for their activities along with visits to the park. Main Camp received the most visitors, averaging around 80% of the total, Sinamatella with around 15% and Robins with around 5%.

Figure C.1: Tourist entries at Main Camp – 1980 to 2013
Black is local visitors, red is foreigners; NR = No Records



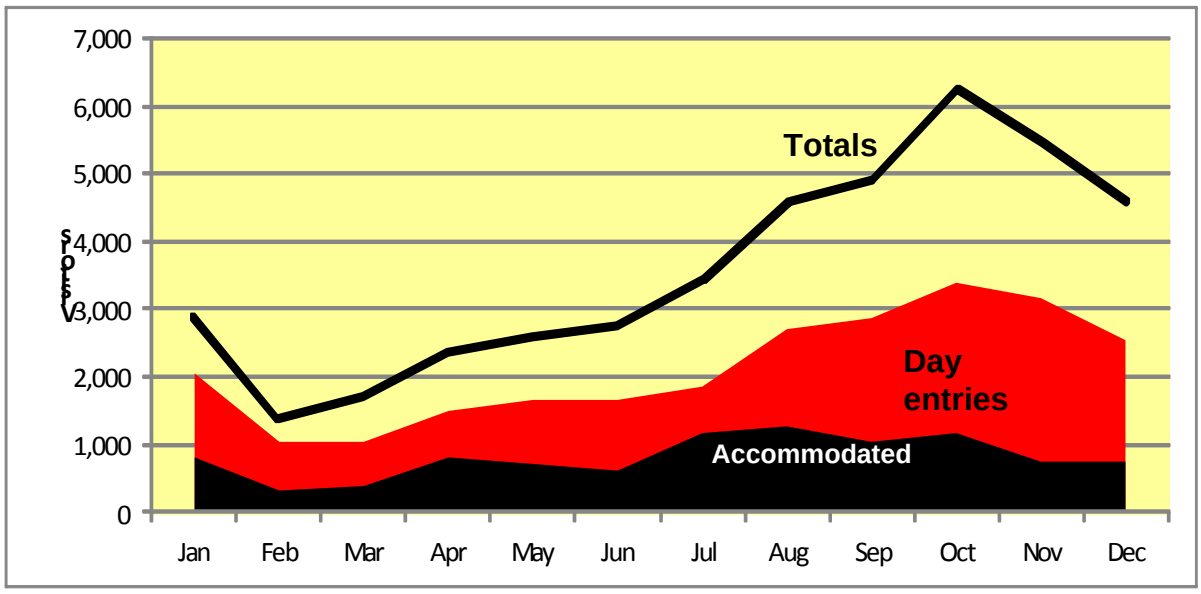
[2] *The figure above reflects main camp data only. The figure of 140,000 is from extrapolating the percentage visitors for the three camps in the 1980s and in recent years. These average out at 80% of entries are at Main Camp, 15% at Sinamatella and 5% at Robins.*

Existing Tourism

There are at least 400 beds available inside the park (and this does not include the camping "beds"). Over half of these are the ZPWMA self-catering beds available at the three management stations. At present there are an additional 400 beds available outside the park, with half of these provided by the Hwange Safari Lodge, located to the east of the Main Camp Gate.

In 2014 there were an estimated 60,000 tourist entries to Hwange – 81% through Main Camp, 13% Sinamatella, 6% Robins. Based on the Main Camp statistics, this represents a doubling of entries in the four years since 2010. There is a strong seasonal component to tourism with a peak during the late dry season (July to October). At Main Camp 74% of entries in 2013 were day entries with 16% of visitors accommodated in the ZPWMA roofed units – lodges, chalets and cottages.

Figure C.2: Main camp visitors in 2013



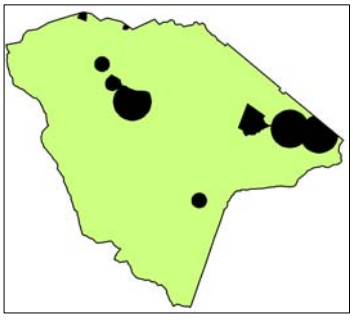
The accommodation in Hwange ranges from communal camping sites at $10/day to up-market lodges at $800/day. The ZPWMA self-catering units at Main Camp, Sinamatella and Robins cater for the mid market and are used extensively by Zimbabweans and regional tourists. The private sector camps inside the park also offer a wide range of pricing starting at levels which are at much the same level of the ZPWMA camps.

Camping is a popular activity in Hwange and the picnic sites, located at seven sites in the park (Jambili, Kennedy 1, Ngweshla, Shumba, Masuma, Deteema and Mandavu), and at the Guvalala Platform, are popular sites where overnight campers need to share the facilities with day visitors. These sites are more expensive than the lodges and require far less maintenance and upkeep.

Concessions

Figure C.3: Concession Areas

There are nine exclusive concessions inside Hwange which cover approximately 1,000 km^2 (7%) of the park. Eight of these are owner built camps while one is a ZPWMA facility (Bumboosi). All of these areas are off-limits to general tourism. The leases are not standardised with respect to concession size, bed limits, fees and lease length. Lessees pay a right to lease fee (usually every five years) and an annual fee. In 2013 these fees amounted to nearly $200,000 and this figure is fixed, unless the leases are renegotiated. (This estimate takes into account the right to lease fee divided by 5).



Activities

There are a number of activities available to tourists in Hwange but the main ones are either game drives (self-drive or guided), or waiting at hides situated at waterholes for wildlife. These are standard activities available in many wildlife areas. However, Hwange is creating a market for walking safaris. These are mainly carried out from the concession camps but also by registered professional guides using special campsites located at Mandavu, along the Lukosi River and at Mange 3 and Kennedy 2. Night drives are currently permitted in concession areas by concession holders.

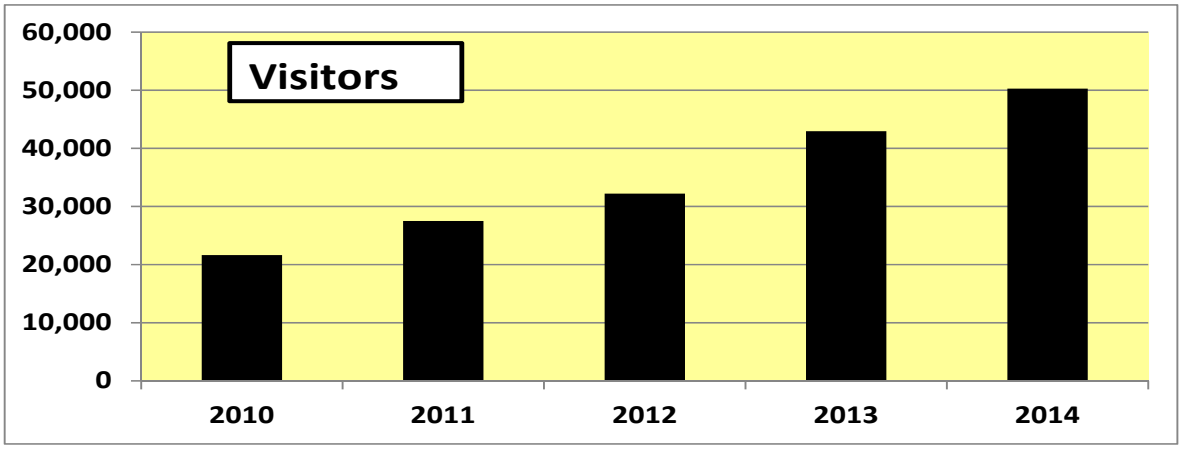
Adjacent Areas

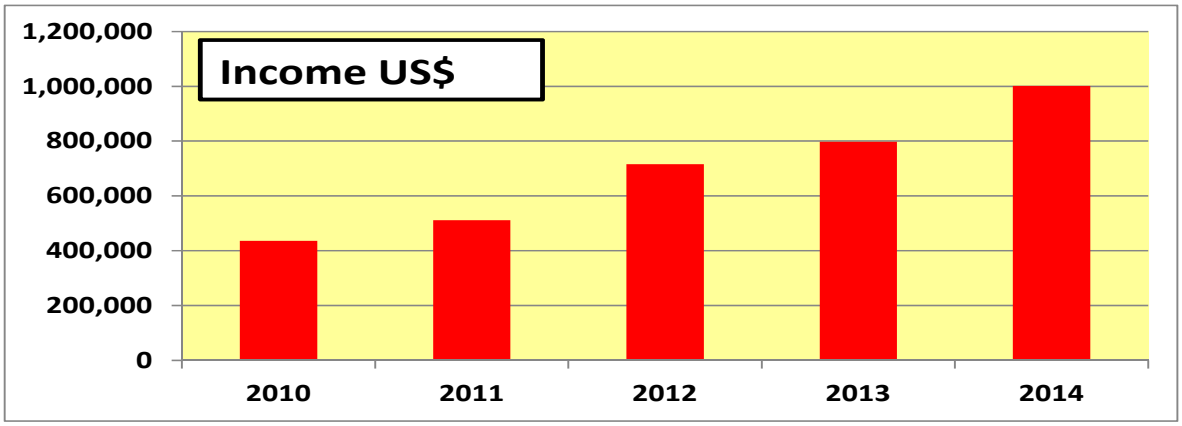
The northern part of the park is bounded by safari areas under the control of ZPWMA. To the east are Forestry Commission areas, state land, large scale commercial farming areas (most given over to wildlife utilisation) and (but without a direct boundary) the Hwange Communal Land. The whole of the southern boundary is the Tsholotsho Communal Land while the whole of the western boundary is shared with Botswana (mostly wildlife management areas and a Forestry reserve). Safari hunting is carried out in the communal lands, the safari areas, parts of the forestry estate and on the large scale commercial farming areas. The park is the source for many of the animals hunted along the eastern and southern boundaries.

Income and tourism numbers

Since 2010 the number of visitors (and income) to the Hwange Main Camp area has been increasing at around 20% per annum, which is impressive. In addition the number of foreigners (who pay four times as much of an entry fee than locals) has also been increasing. Revenue from tourism has increased from around $400,000 in 2010 to over $1 million in 2014.

Figure C.4: Visitors and income to Hwange Main Camp 2010-2014





Income Generation Scenarios

Hwange is one of the most important revenue generators for the Authority through photographic tourism but this industry has and will continue to fluctuate in response to political and economic changes. For example, Zimbabwe went through one of the world's highest inflation rates in the early 2000s which saw economic difficulties in all sectors of the economy. The effect that this had on tourism and therefore income can be clearly seen in the figure showing arrivals at Main Camp on page 4. The importance of this is that some of the fee negotiations for concessions and camps inside the park were not in the Authorities favour, even though they may have been considered fair at the time.

As the Authority is a parastatal it is vital that it generates enough money through its income generating activities to fund its management and protection function. It should also be noted that the Authority is managed as a country-wide entity and the income from the high-earning parks is used to support other areas with low visitation. It is also used to support central management, for example the HQ offices in Harare and the Regional Offices in the main centres. This means, that even though Hwange may soon find itself generating enough money for its own management purposes, it will need to apply for a budget from the central HQ in order to run its operations. At present the stations are able to retain 10% of gate entry fees for on-station use.

The bottom line is that the ZPWMA does not generate enough income to properly fulfil its conservation mandate. This leads to reduced effectiveness in the field which, in turn, can lead to a degraded resource base, fewer tourists and then less income – a negative feedback scenario. In 2013 it was estimated that, even if the park was able to retain all its income for that year, it would not have been enough to fund the management of the park (but certainly would have funded a reasonably efficient management programme).

The plan "philosophy'

Given this context, park managers expect a management plan to provide scenarios that will boost incomes significantly. One option for increased "easy" revenue would be to continue to concession out the park. The KAZA TFCA Integrated Development Plan (IDP) recommends this route and although this does have some advantages, its major problem is that it would require opening up areas which are designated as wilderness and allowing operators to put in artificial water. The opening up of new artificial water points was not recommended by the Biodiversity programme as it would compound the elephant problem (see Biodiversity programme). In addition concessions also alienate parts of the park from general tourism.

The philosophy of the sustainable tourism programme for Hwange is defined as:

- Resist large concessions. If more concessions are on offer in the wild zones consider a 1km radius for privacy.
- Allow limited use of the wilderness areas through low impact camps and ensure that operators are aware that they will not be permitted to open another elephant attracting pan.
- Improve the ZPWMA facilities. This will lead to increased usage and the possibility of increased fees
- Improve the product in the park so that there is a desire for the development of the industry in adjacent areas. This will lead to increased visitation.
- An improved product will also open the door to fee increases, as operators and visitors will see value for money
- Market the wilderness aspect of the park

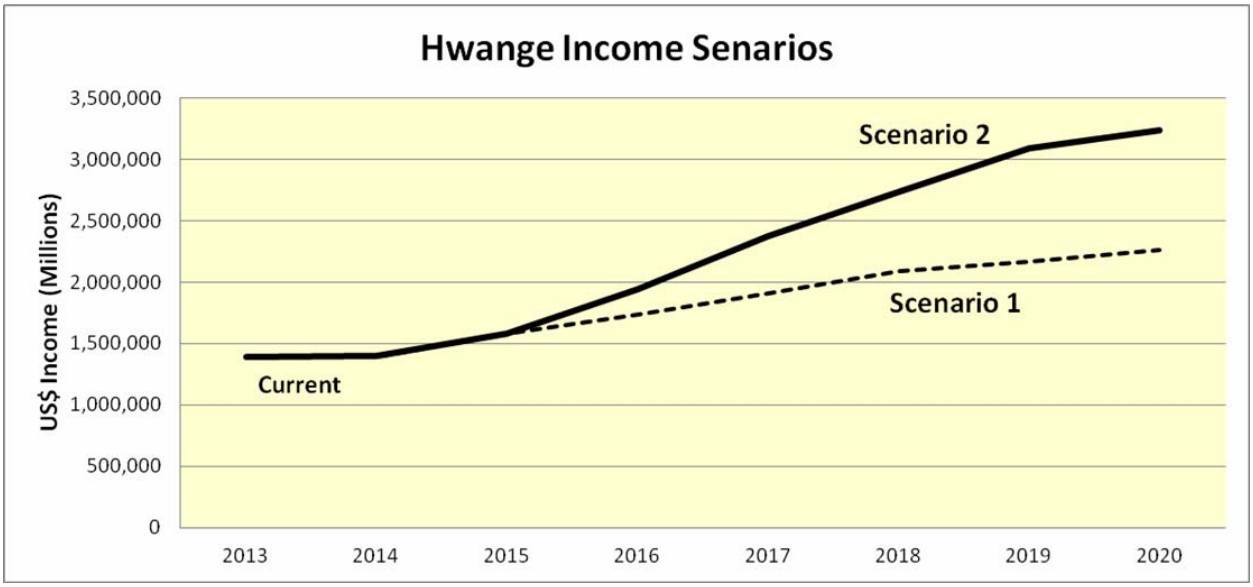
Other ways in which the Authority can generate and increase revenue are discussed below.

Table C.1: Methods of generating and increasing income

Aspect	Comments
Improved entry fee collection	The amount of entry fees collected can be significantly improved by either outsourcing the collection to a professional collection company or by putting the responsibility for fee collection on the operators themselves. If the latter, then independent verification of collection will be important. An electronic ticketing system will also improve the collection of fees.
Hiking tourist entry fees	Entry fees are a "tax" on the consumers of a product – in this case the tourists. It is generally believed that this market is more willing to pay increased fees (within reason) than are the operators where lease fees are a tax on the product suppliers (see below).
Hiking operator fees	As noted the fees paid by the respective concessionaires is highly variable, ranging from less than $3,000 to close to $50,000 per annum. There is no link to the size of the concession. One way of increasing revenue is increase the fees that operators pay (rentals and right to lease fees), especially for those concessions on very low fees. There is a danger with this approach as there may be legal problems, it could cause some operators to default and possibly lead to the development of a mass-market style of tourism as operators struggle to find ways to meet the increased fees.
Move to more flexible fee structures	Currently, for most concessions, ZPWMA charges a high fixed fee and a right to lease fee for concessions within the parks estate. This takes the risk of the tourism operation away from the Authority but it means that there is little incentive for operators to perform, especially if they have negotiated a low fixed fee. Other fee structures are being investigated by the Authority and this includes a variable fee structure which incorporates a guaranteed annual minimum. Lease fees under this arrangement are usually set at around 10% of net. The Authority has a stake in the success or failure of an operation with a variable fee arrangement. If the operator does well, so does the Authority. The variable fee also provides an incentive for the operator to improve his product.
Extending the season	Currently, when it rains sufficiently the elephants disappear and this effectively marks the end of the tourism high season. During the rains accessibility is a problem and this can be tackled by improving roads and river crossings. The other way to extend the season is to tap into a different market (specialist trails. e.g. birders, walkers). However, these are unlikely to be high volumes.

Given the discussion above, and based on the proposed tourism plan, two income scenarios were generated for the park (Figure C.5). This shows that income to the park can be expected to increase from a current level of just under $1.5 million per annum to between $2.5 and $3.5 million per annum. The details of the two scenarios are briefly outlined below.

Figure C.5: Income scenarios for Hwange NP 2013-2020



The income for 2013 is the actual recorded income while that for 2014 is for Main Camp only and adjusted for the expected percentages of visitors to Sinamatella and Robins. The income differs from that shown in Figure C.4 as it is for the whole park and not just Main Camp.

Scenario 1:
- Tourism increases at a lower level that the past 5 years (10% annum to 2018; 5% thereafter. The Improved product in the park is expected to lead to resuscitation of camps outside which will result in increased beds
- The seven new camps will add close to 100 beds inside the park
- Phased annual camp establishment and 1 more semi-permanent camp in 2015

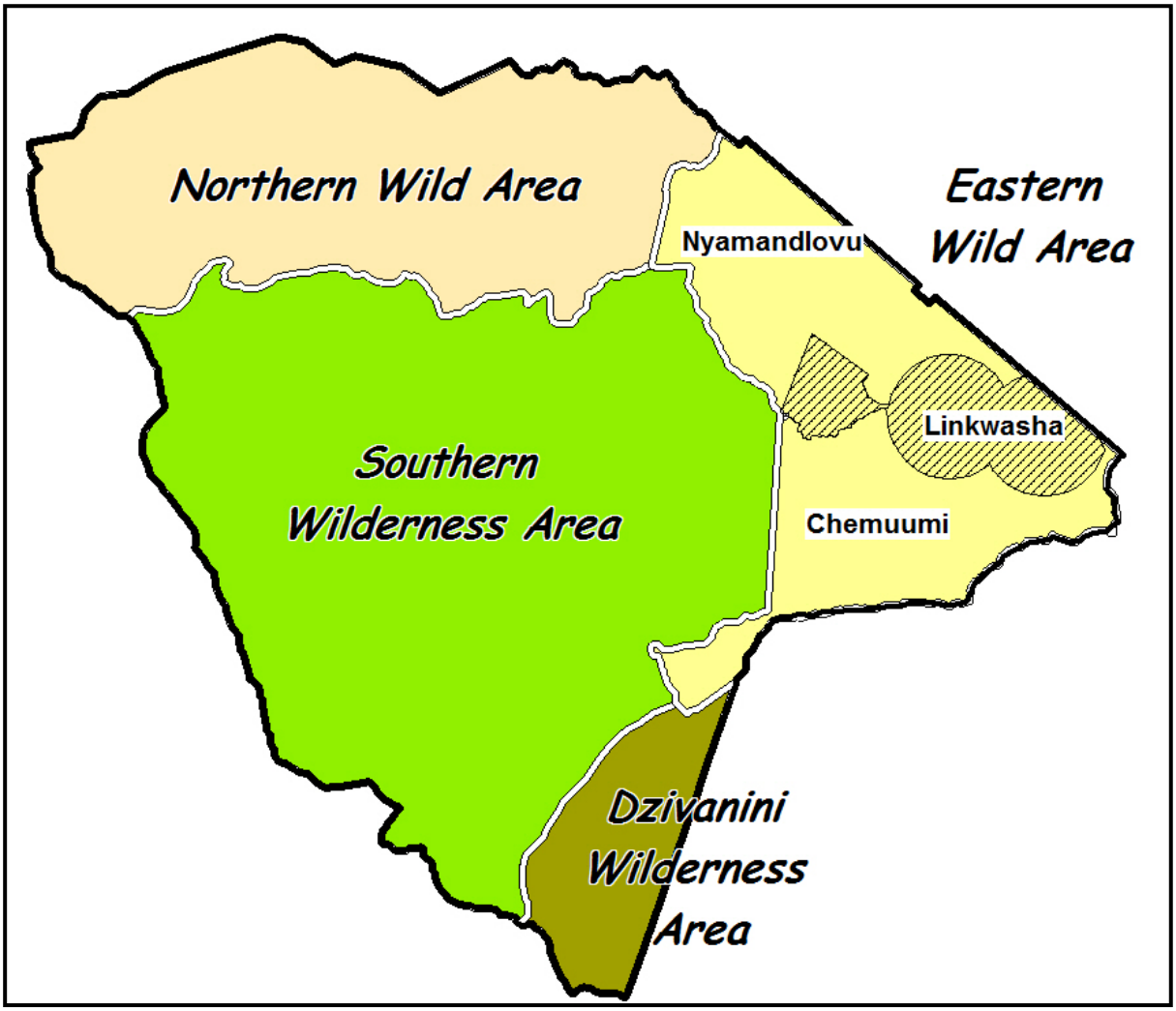
Scenario 2: As above but with the following additions:
- Improved product will allow increased additional entry fees $5 in 2016; $5 in 2020
- Fixed Fees for concessions will be renegotiated to reflect a standard area value
- ZPWMA Accommodation Fees increased as a result of improved facilities (25%)
- Improved and expanded campsites plus improve booking management is expected to double campsite occupancies

Zone Summary

The zones defined in the 2003 plan were adopted and modified to reflect the current situation on the ground. They were adjusted to match the biological “management compartments” defined in the 2003 plan and to exclude established permanent camps that had been established in the wilderness areas. There is more detail on these areas in Part 2 of the plan. The Southern and Dzivanini Wilderness zones are separated on the basis of their soil types which has a huge bearing on accessibility, especially during the rains. The Eastern Wild Area has three sub-zones based on current usage.

The current broad zone plan is shown below (Development and Special Conservation Zones excluded).

Figure C.6: Tourism zone plan for Hwange NP - 2014



C.1.3 Key Components

The Sustainable Tourism Programme has a number of components and these are described below (Table C.2).

Table C.2: Key components for the Sustainable Tourism Programme

Key Components	**Description**
Tourism Development	Existing tourism needs to be managed and the proposed tourism development plan needs to be implemented. Regulations regarding the use of the park by tourists need to clearly defined and enforced.
Tourism Management	Tourism management is an important component of the tourism programme. ZPWMA needs to ensure that the behaviour and developmental regulations are adhered to, that the environmental effects of tourism are monitored and acted on if limits are exceeded
Education/ Interpretation/ Research	Education of the public about the environment is one of the important functions of the tourism programme. This includes ensuring that school groups and other educational entities are catered for. This component links strongly with the Collaborative Management Programme.
ZPWMA Tourism	The ZPWMA runs its own tourism facilities in Hwange and is responsible for ensuring that these are successful. Currently the facilities contribute strongly to the income but the facilities are ageing and in need of refurbishment.
Marketing / PR	Marketing of the attractions of the park needs to be improved. The ZPWMA should develop marketing strategies to ensure that the tourism product is well known and appreciated in the marketplace.

C.2 THREATS, ISSUES AND CONCERNS

There are a number of threats, issues and concerns facing the development and management of tourism in Hwange. These are summarised below (Table C.3) before being described more fully in the following tables (Tables C.5-C.8). The identification of these threats, issues and concerns helped to develop the objectives for the programme.

Table C.3: Summary of issues and concerns facing the Sustainable Tourism Programme

Cat	Issue/ Concern	Cat	Issue/ Concern
Administration	o Pressure for development o Revenue Leakage via booking system o Operator Fees o Poor policing of tourists o Offtake data not analysed o Waste management o Inadequate tourism data collection and analysis o NMMZ Sites inside a national park	**Tourist Product**	o Reservation issues o Poor adherence to Park Rules o Not enough camping sites o No exclusivity at picnic sites o Large parts of park off-limits o No clarity on tourist roads o Exclusive operators use whole park o Limited game drive roads o Poor road maintenance o Not enough “stretch-points” o Pump noise o Not enough information/maps o Poor signage o Badly sited camps o Congestion o Nervous wildlife
Environmental	o Elephant die-off o Large parts of park without wildlife in dry season o Limited wet season viewing	**Infrastructure**	o Poor quality ZPWMA facilities o Poor roads o Main airport not functional
Community	o Archaeological sites not well known o Poor community benefits/participation	**Public Relations**	o Safari hunting in Park o Mines (Makomo/CASE) o Cyanide Poaching o Guiding standards o Main road wildlife deaths

However, there are a number of opportunities that need to be considered when planning for tourism in Hwange. These include

- Wilderness and walking character of the park
- Education
- Analysis of the competitive edge of Hwange in the marketplace

Table C.4 : ADMINISTRATION threats, issues and concerns facing the Tourism Programme	
Pressure for development	There is a need for Hwange to generate income and this leads to a pressure for the allocation and development of tourism sites. Several prime sites were negotiated and leases during the days of Zimbabwe's economic collapse when any income was desperately needed. Allocating sites is a short-term solution that could result in over development, cheapening of the product and decline of the overall park product.
Revenue Leakage via booking system	Most of the tourist bookings are done and paid for in Harare, although each station does control some accommodation. The system in the Park is poorly linked to the central reservation system in Harare, which leads to revenue and opportunity loss.. Interestingly this concern was also flagged in the 2003 Hwange park plan. The ZPWMA is working on an internet booking system which will resolve these issues once it becomes operational. (expected during 2015)
Operator Fees	No consultation on fee increases with operators. This leads to fee increases after bookings have been made and deposits taken. Usually this means that the operator will pay the increase rather than going back to the client.
Poor policing of tourists	There is very little policing of tourists mainly because management staff have other pressing issues on a day-today basis.
Offtake data not analysed	It proved to be impossible to gather data on offtakes in the Hwange Ecosystem. It appears that, although the data is recorded it is not analysed and there is a huge backlog of data that needs to be assessed to allow the sustainable setting of quotas in the future. It appears that data for those areas under parks' control have been analysed but there is a problem getting timely returns from other sectors (private sector, RDCs etc).
Waste management	Waste management is a problem for tourism and management facilities. There is scope to improve this, both at the operator and ZPWMA levels.
Inadequate tourism data collection and analysis	Tourism data is collected at a broad level at the points of entry – Main Camp, Sinamatella and Robins and filled out on standard sheets that are summarised on a monthly basis. However, to fully understand the tourism product and its use, collection of more detailed and its timely analysis, would allow ZPWMA to react to changing circumstances and design a more appropriate tourism product. For example, entries from all internal private sector camps should be recorded separately, the use of picnic sites needs to be recorded at the site as these are often booked but not used etc.
NMMZ Sites inside a national park	All archaeological and historical sites in Hwange fall under the jurisdiction of the National Museums and Monuments, not the ZPWMA. In Matobo NP (for example access to selected sites incurs a further fee from the NMMZ. They are also responsible for its interpretive materials as well as its protection.

Table C.5 : TOURIST PRODUCT threats, issues and concerns facing the Tourism Programme	
Reservation issues	It is generally believed that the current reservation system has problems. ZPWMA runs on a centralised booking system with all bookings being made through the CBO in Harare. This leads to many bookings being made and not being taken up. Payments are done at the CBO as well. A computerised central booking system is under development and this should address all of the current issues. To offset the potential losses from "walk-ins" being turned away, 20% of the accommodation on the stations now comes under control of the area manager.
Poor adherence to Park Rules	Given the size of the park and the difficulty of policing the tourist traffic there are many visitors who flout the rules (mainly self-drives). Night drives, walking, off-roading and fishing are all cited as being problems.
Not enough camping sites	Camping is a very popular activity in the park, especially at the picnic sites. Currently there are five sites for this activity and they appear to be very popular. Additional sites may be a way to improve revenues.
No exclusivity at picnic sites	There is no exclusivity at the camping sites. The fees for these sites are higher than for lodges but during the day the picnic sites are open to all tourists – see above regarding pricing complaints.
Large parts of park off-limits	Concessions cover approximately 1,500 km^2 of the park. The siting of three of these concessions – Somalisa, Makololo and Linkwasha effectively cuts off the Ngamo Pan area which is a prime game viewing area. In addition, the Nehimba concession effectively cuts off the Nehimba and Shakwankie seeps from normal tourist visitors.
No clarity on tourist roads	There is no clarity on which roads are permitted to be used by tourists. The unwritten belief is that many roads, especially in the south and west, are off-limits to tourists but these are not specified in any tourist information, or by signposting on the ground.
Exclusive operators use whole park	A complaint voiced during the participatory meetings hosted during the development of this plan is that, although the operators of the exclusive camps have large areas at their disposal, they are often in other areas of the park.
Limited game drive roads	There are limited tracks available for game viewing in some areas. This is especially true in the vicinity of Main Camp where the most vehicle pressure is experienced.
Poor road maintenance	Linked to the above, inadequate road maintenance limits the extent of the useable game viewing road network.
Not enough "stretch-points"	Apart from the five picnic sites, the two platforms and the two viewing sites visitors are not permitted to leave their cars. In a park the size of Hwange there needs to be more opportunity for visitors to alight from their vehicles.
Pump noise	Most of the pumps are situated close to the pans and these can generate significant disturbance for visitors, in terms of noise, but also in terms of aesthetic views and pollution.
Not enough information/maps	There are no current guide-books on sale about the park and the maps available are photocopies of a map produced in the 1970s. The Bulawayo Branch of Wildlife and Environment Zimbabwe (WEZ) has produced a good map of the park and a new print run is expected in the near future.
Poor signage	Many of the road signs in the park have been destroyed by elephants. This is an ongoing problem and the design of an elephant proof sign is required. One strategy would be to have regular maintenance of important signs.

Table C.5 : TOURIST PRODUCT threats, issues and concerns facing the Tourism Programme	
Badly sited camps	Two private sector camps have been built in inappropriate sites. Nehimba Camp is close enough to the main road to be easily visible during the dry season and Kapula Camp is 2km from the Masuma Picnic Site. It is very likely that there will be light pollution from these sites in the dry season.
Congestion	The poor road network leads to congestion around prime areas and scenic routes, especially in the dry season. This problem is relatively easy to solve with the opening of new roads and old road alignments and the opening of new park entry points.
Nervous wildlife	In certain areas wildlife is difficult to see and appears nervous of vehicle. It is thought that this is due, in part, to the fact that animals are hunted in these areas for management purposes.

Table C.6 : ENVIRONMENTAL threats, issues and concerns facing the Tourism Programme	
Elephant die-off	This is related to the perceived seasonal over-population of elephants in Hwange which are concentrated in the north and east during the late dry season. With the right climatic conditions (poor rains, followed by a harsh frost, followed by a late start to the rains) elephants will die of starvation in the prime tourist areas. This last happened several years ago with an estimated 2,000 animals dying. The drying environment, uncertainty about the aquifers and technical pumping problems could lead to a significant die off in the future.
Large parts of park without wildlife in dry season	During the dry season approximately 50% of the park is without water and consequently is without water and substantial numbers of large mammals. This makes it poor from the tourism point of view.
Limited wet season viewing	Conversely, the state of many of the roads in the park means that the area available for wet season game viewing can be limited

Table C.7 : INFRASTRUCTURE threats, issues and concerns facing the Tourism Programme	
Poor quality ZPWMA facilities	The ZPWMA tourism facilities at Main Camp, Robins and Sinamatella were constructed at least 50 years ago and have deteriorated. Currently considered adequate by locals many visitors are put off by the poor state of the facilities. Area managers are limited by funding to carry out maintenance.
Poor roads	As with all programmes, the poor state of the roads affects the tourism programme. There are two parts to this. Firstly, the road network needs to be expanded to alleviate congestion. Secondly, road maintenance needs to be timely and effective. Signage in some areas is also inadequate.
Main airport not functional	The Hwange airport is hardly used and there is some concern that it has deteriorated to point of not being able to receive large aircraft. This airport helped to fuel the mid 1990s tourism boom and had daily scheduled flights.

Table C.8 : COMMUNITY threats, issues and concerns facing the Tourism Programme	
Archaeological sites not well known	Apart from the two main archaeological sites in the park (Mtoa and Bumboosi) there are numerous other stone age and historical sites. However, very little is known about these and the exact location of most is probably unknown. Even the two main sites are rarely visited and have little protection (although Mtoa appears to have had an elephant restraining fence in the past). A very important point to remember is that these sites fall under the jurisdiction of the National Museums and Monuments, even though they are in a national park. The modalities for their protection and use need to worked out between ZPWMA and NMMZ.
Poor community benefits/participation	Communities are not involved in any of the camps inside the park. Currently there is only one operational camp in the communal land areas adjacent to Hwange – Camelthorn Lodge in Tsholotsho. However, many camps run community programmes with inputs into education, infrastructure and community well-being projects. In addition, many of the camp employees come from the surrounding areas. This topic is addressed more fully in the Collaborative Management Programme.

Table C.9 : PUBLIC RELATIONS threats, issues and concerns facing the Tourism Programme	
Safari hunting in Park	This is an evolution of the ration quota. During the period of economic difficulties in Zimbabwe (2005-2009) the ZPWMA was financially challenged. Allowing safari hunters to utilise part of the ration quota was a way to raise money for management activities and this activity still continues. This is very bad publicity for the park and the ZPWMA may need to rethink its strategy on this, given the rebound of the photographic tourism industry. Not only is it considered to be against the tenets of a National Park to allow hunting, it may affect tourist arrivals in the longer-term.
Mines (Makomo/CASE)	Coal deposits are common in the area and several of these have been developed. The largest is the Hwange Coalfield around which the town of Hwange has developed. However, there are coal deposits close to the park that are currently being mined (Makomo) or will be mined in the near future (CASE). Every tourist who enters the park at Sinamatella will pass through the Makomo mining site which is an unpleasant entry and exit experience for visitors.
Cyanide Poaching	Although it is suspected that poisoning with cyanide is not a new phenomenon, it reached an alarming level with over 100 confirmed carcasses in the 2013 wet season. Most of these were in the Dzivanini area. There are reports of new poisoning cases in 2014. This generated significant media attention, which has a negative impact on the Park. However, it should also be noted that the incident also generated a lot of support for the park, both financially and in kind. In addition, policies were changed to allow recruitment to increase the anti-poaching force in the park.
Guiding standards	Guiding standards and protocols are important in building up a long-term quality tourist industry. This will become more important as the levels of tourism increase to avoid vehicle clustering around wildlife and waterholes, vehicles driving in front of other vehicles and blocking views, noise at waterholes and stopping points *etc*.
Main road wildlife deaths	Wild dog deaths on the main Bulawayo to Victoria Falls Road are still relatively common. In addition there are also deaths of other species. There should be legal enforcement of speed limits in sensitive areas and speed bumps installed in high road kill areas.

C.3 GUIDING PRINCIPLES

The following guiding principles were elaborated for the Tourism Programme after consideration of the issues and concerns, the identified opportunities and a review of national and international policies, Acts and initiatives. The guiding principles are listed below before being described in more detail.

10. Wilderness character of Hwange will be promoted
11. Walking safaris will be an integral part of the Hwange experience
12. The cultural and archaeological heritage of the park will be promoted and protected
13. Communities should benefit from tourism
14. Public tourism Infrastructure will be expanded and improved, initially concentrating on existing facilities
15. Tourism will be diversified
16. Communications with stakeholders will be open and transparent
17. Developments will be phased
18. Educational and citizen access will be facilitated

1 Wilderness character of Hwange will be promoted

A significant part of Hwange has been designated as wilderness and these areas have generally been off-limits to tourists since the park was established. They are wilderness areas primarily due to either their geology (basalt soils impassable during the rains) or the complete lack of surface water in the dry season (central desert). This plan intends to maintain this wilderness character and believes that it will be an important marketing tool for the future of the park.

2 Walking safaris will be an integral part of the Hwange experience

Hwange is marketed as a walking park by many operators. Walking in the company of an armed professional guide or qualified ZPWMA ranger is currently permitted almost anywhere in the park. In marketing terms Hwange is synonymous with a high-quality walking experience. This is seen as a competitive edge for the park and should be encouraged and expanded. However, the standards of guiding need to remain high to ensure that this activity remains a high profile one for the park.

3 The cultural and archaeological heritage of the park will be promoted and protected

There are a significant number of cultural and archaeological sites within the park but few of them have been properly documented. They range from fossilised forests around 200 million years old (strictly speaking, not an archaeological site) to walled structures dating from a few hundred years ago, two of which are national sites protected by the Museums and National Monuments. In between are a number of stone age/iron age sites and some historical sites. The Tourism Programme recognises the value of these sites, both to the surrounding communities and to the nation, and will work with the National Museums and Monuments of Zimbabwe to ensure that the cultural and archaeological heritage of Hwange is promoted and protected.

4 Communities should benefit from tourism

It is widely recognized that if parks do not benefit the neighbouring communities, their long term sustainability will be challenged. Establishment of the park required the resettlement of communities into the Hwange and Tsholotsho Communal Lands and tourism development and management of the park should benefit these communities where possible. Already there are benefits such as tourism at camps and lodges, both inside and outside the park and some tourism operators have specific community related programmes aimed at improving the well-being of adjacent communities. In addition, safari hunting is permitted in CAMPFIRE areas adjacent to the park and benefits accrue to District Councils and

communities through these programme. Hwange is the source of most of the animals that are shot under this programme and the benefits should be expanded to the extent possible.

5 Public tourism Infrastructure will be expanded and improved, initially concentrating on existing facilities

The current tourism infrastructure in the park available for use by the general public is limited and sometimes in poor condition. At peak game viewing times there is congestion around the prime areas and this expected to get worse as tourist numbers rise. These include the “Nyamandlovu Pan circuit” and the Kennedy-Ngweshla area. The main entry point to the park is through the Main Camp gate and there will be a need to upgrade and expand the road network in this area. The infrastructure available at the picnic sites and stopping points may need upgrading and new sites need to be established. Opening “new” access gates will also help to ease congestion at the Main Camp area facilities.

6 Tourism will be diversified

Currently focussed on game-drive tourism, with some emphasis on walking it is believed that diversification of the tourist product will enable the park to tap into a larger market. In addition, more activities and accommodation types could translate into longer stays by visitors and increased income to the park.

7 Communications with stakeholders will be open and transparent

As with many aspects of the management of a national heritage, transparency and open communications with stakeholders is vital to avoid suspicion and distrust. The same holds true for the tourism stakeholders.

8 Developments will be phased

Any development of new tourism facilities must be compliant with the park zonation and should be phased, especially as the ZPWMA is trying to attract a new type of operator. A case in point are the proposed Annual Camps which are expected to open up new areas on a temporary basis (see section C.4.2 for more detail). Rather than allocating all of these at one time, a few should be tested to ascertain market response and their viability.

9 Educational and citizen access will be facilitated

Access to the park for citizens and its importance as an educational destination is enshrined in the Park Purpose. Parts of the park are easily accessible and have habituated wildlife which makes game viewing easy. The number of school visitors through the Main Camp gate is significant and many come in large school buses. Access for this type of visitor will be facilitated.

In addition, in keeping with the Wildlife Policy, affordable citizen access to the park will be maintained and better promoted.

C.4 PERMITTED TOURISM DEVELOPMENTS

C.4.1 Introduction

Hwange hosts a diverse range of accommodation facilities ranging from wilderness camping to up-market exclusive lodges. The authority also runs its own self-catering accommodation aimed at the lower end of the market, and is used a lot by Zimbabweans and self-drive tourists.

Hwange also maintains a cross- section of the tourism market. Parts of the park (at least 1,000 km^2) are exclusive use areas, mostly aimed at up-market safaris while other parts of the park are effectively high-use, almost mass-market tourism areas (e.g. Main Camp/Kennedy Vlei areas). In terms of branding of the park for the future it is expected that the walking and wilderness will play a large part. In order to maintain its market position decisions need to be taken regarding the permitted types and numbers of tourism developments in the park. This section defines these developments.

A summary of the permitted infrastructure in the park is shown below and defined in more detail in subsequent tables.

Table C.10: Summary of permitted tourism infrastructure for Hwange NP outside the Development Zones

	Type	**Brief description**
Infrastructure	Annual Camp	Must be removed on an annual basis. No traces to remain
	Semi-permanent tented camps	Accommodation units are tents. Concrete plinths permitted but no dug in foundations. Walls permitted on storerooms, kitchens, ablutions etc. All structures must be capable of being removed
	Hides/Platforms	Platforms or buildings made from wood or concrete
	Picnic sites	Fenced with ablutions and shelters. Attendant lives on site
	Picnic stops	Indicated by concrete table and benches. No ablutions or attendants.
No Infrastructure	Mobile operator camp	These are defined sites which can be occupied fro one to seven days. Long-drop or chemical toilets. All traces to be removed. To be used by registered operators and not open to the general public.
	Horse camp	Occupied for 1 to 3 days. All traces to be removed.
	Exclusive campsites	Sites similar to the mobile operator camps for use by the general public will be considered subject to the concerns about policing being addressed.
	4x4 camp	Defined site with a long-drop toilet. Similar to a mobile operator camp.

C.4.2 Permanent / Semi-Permanent Camps

Permanent tourism structures will only be permitted within the development zones (Main Camp, Sinamatella, Robins, Nantwich, Deka and Bumboosi). Permanent structures are defined as stone or concrete buildings with built in foundations. Lodges, cottages and chalets are located at all the management camps, as are ablution facilities for campers and those using cottage accommodation.

Semi-permanent camps are permitted in the Wild Zones.

In the past the policy was to encourage tourism outside the Parks and Wildlife Estate as this allowed developers and operators greater freedom with regard to building styles and regulations. This started in the 1970s with the construction of the Hwange Safari Lodge and continued through to the late 1990s when there were an estimated 30 accommodation facilities feeding the tourism activities in and around the Main Camp area. There are currently nine camps open on state, Forestry and alienated land but several former sites are looking to reopen their doors with the resurgence of tourism since 2010.

However, since the early 2000s, a number of leases have been given inside the park and this has led to the establishment of a number of camps inside the park. In order for some kind of standardisation the camp types are defined below. In addition, this plan recommends the establishment of an “annual camp” to diversify tourism into the wilderness areas and this is also defined in the table.

Table C.11: Specifications of camps permitted in Hwange NP

Camp Type	Specifications
Semi-Permanent	A semi-permanent camp is defined as a camp which may be continuously occupied for one or more years but should be constructed so that it may be dismantled and all traces of its existence readily removed. No semi-permanent camp should be larger than: o 36 client beds - 18 units with shower and toilet o 3 by 2 bed tents for occasional occupants o 3 by 2 bed units domestic staff l kitchen o 1 dining/lounge/bar o 1 secure store Several camps run two smaller camps side by side with a communal service area, others have split their allocated beds into two separated camps (e.g. two 16 bed camps). The camp may be built either from canvas or poles, thatch and wood planking with either concrete or dagga floor. All other materials are to be imported. The camp may not be built in sight of other park visitors, within 300m of a water point or in any special conservation zone. A water supply from one of the existing bore holes via an underground pipe to an overhead tank in the campsite may be installed. *Most camps have installed additional waterholes almost in the camps to attract wildlife for visitors so although they may be 300m away from the main waterpoint or pan they attract wildlife, especially elephants, right into the camp areas. This should be controlled.* The total number of people permitted to occupy a camp is restricted to: o 36 clients o 30 staff (*(guides, management, catering and general staff*)

Table C.11: Specifications of camps permitted in Hwange NP	
Camp Type	**Specifications**
	Generators are permitted but need to be sound proofed. They should be large enough to power the hot water system. Firewood may be purchased or imported for one camp fire for aesthetic reasons. Wood should only be used for cooking and water heating as a backup should there be a gas or power problem. All litter is to be placed in a rubbish pit which is to be burned at regular intervals and all non-combustible rubbish must be removed to the dump at the nearest development area or town. The development of lawns using grass species indigenous to the park to within a maximum of 10 m radius of the camp is permitted.
Annual Camp	• Must be completely removed each year • No concrete permitted • Sites are moveable within the zone • 6 tents/12 beds max, preferably smaller • Erected after 1st April • Removed before end November • Low noise generators permitted • Aesthetic wood fires only – gas/solar for cooking + water heating

C.4.3 Temporary Camps and Campsites

Temporary camps and campsites are an important part of the accommodation mix available in Hwange.

Table C.12: Temporary Camps and Campsites	
Camp Type	**Specifications**
Temporary Mobile Operator Camp	A temporary camp is defined as camp established for the duration of one visit to a particular site and should be dismantled at the end of the visit. Generally speaking the groups should be small (6 to 8 guests with associated staff). These camps can be serviced by vehicle so any new sites need to carefully consider road access. There is no restriction on the location of campsites except that: 1. They should not be situated within 100 m of a water point (but preferably further) 2. They should be sited so that they are concealed from the view of other tourists using the area Development is limited to no more than one temporal long drop and one ablution facility with a french drain. All camp equipment and non combustible rubbish must be removed from the area at the end of each period of occupancy and sites are to be left showing minimum signs of human occupation. The collection of firewood is permitted, subject to an appropriate fee but the number of fires is limited to one per campsite and fires must be properly protected to ensure that there is no risk of wild fires. No vegetation is to be cut for the erection of temporary camp structures or any other purpose, Other restrictions may be imposed at the discretion of the Planning Committee of the Department. Currently these sites are located at Vikani, Rhino Bar, Mandavu Dam, Kennedy 2

Table C.12: Temporary Camps and Campsites	
Camp Type	**Specifications**
	and Manga 3.
Horse Camp	A horse camp is similar to a temporary mobile operator camp but has extra facilities for the horses (high-wire to secure them, portable 4 strand electric fence, fodder and extra water in bowser). Sites will be defined in conjunction with management prior to each season and can be used by registered horse safari operators only. The camp will be completely dismantled at the end of each visit and may only remain up for a maximum of five days (three being more normal). Other restrictions which refer to location, development, firewood collection and the cutting of vegetation are the same as for the Mobile Operator Camp.
Exclusive Campsite	Individual sites to be occupied a maximum of 10 people. Long-drop toilet provided. Braai site comprising of a metal stand with fire place. All litter to be removed and bags provided from reception (we hope). Wood to be purchased at collection points. Exclusive campsites will be more expensive than the developed campsites or picnic sites. Visitors will be paying for the exclusivity rather than for site developments. Maximum stay 7 days. A minimum of five people needs to be paid for. For example, if only two people use the site, they still need to pay for five people.
4x4 Camp	Tied to a 4x4 route. Similar to the exclusive campsite above. The possibility of linking the 4x4 routes with sites in the communal lands must be investigated. This will connect the community areas to tourism in the park.
Overnight Fly Camp	Access will only be on foot and supply by vehicle will not be permitted. Sites are not tied to a specific locality but used site locations must be given to ZPWMA. It is expected that initially sites will vary considerably but, once operators and ZPWMA staff become more familiar with the areas, they will become more fixed. Only for single night occupancy. All litter to be removed. Wood can be collected in the immediate vicinity
Public Campsite	Public campsites are located at all three management stations and are well used. Ablutions are provided

C.4.4 View Points, Platforms, Picnic Sites etc

The infrastructure types listed below are all built and maintained by the ZPWMA.

Other Infrastructure	
Other infrastructure	**Description**
Hides	Several of these have been constructed in the park, some dating back many years. They are currently located at Crocodile Pools, Big Toms, Little Toms, Shumba, Guvalala, Nyamandlovu. Water and toilets are available at Big Toms, Guvalala and Nyamandlovu (Shumba toilets at nearby picnic site). Most hides are elevated structures giving a good view of the pan or waterhole.
Picnic sites	Popular and well used sites in the park, both by day and overnight visitors, these are located at Jambili, Kennedy 1, Ngweshla, Masuma, Deteema (2 sites) and Mandavu. These sites all have water and ablutions and are cared for by an attendant.

Other Infrastructure	
Other infrastructure	**Description**
Picnic stops	Several picnic stops are found in the park. These have some infrastructure such as concrete tables and seats. There are no toilet facilities. These are located at Bembesi, Verney's and Mabuya Mabema.

C.5 MANAGEMENT INFRASTRUCTURE

Management infrastructure in the Hwange National park consists of the following:

Infrastructure Type	
Communications	**Management**
• Roads (also for tourism) • Airstrips • Radio Masts	• Staff Accommodation • Offices • Ancillary infrastructure

Management infrastructure should be kept to a minimum in Wilderness Zones where possible. However, it is recognised that it may be necessary to maintain this infrastructure in these zones which may have the effect of compromising them.

C.5.1 Roads

The road system in Hwange is inadequate for the expected tourist load (assuming a move back towards the 1996 levels). Even at the current levels, there are complaints about congestion and having to drive the same roads. A key part of this plan will require the opening of new roads and loops and the upgrade of selected roads, especially in the Wild Areas, and especially in the Nyamandlovu sub-zone.

C.5.2 River Crossings

River crossings are a problem in parts of the north on the rivers systems of the Deka and Lukosi. An extensive bridge and crossing network was built up in the past but a number of these bridges are reaching the stage of being in need of significant attention.

C.5.3 Signage

Hwange is well signposted in the north and east but many signs show a lack of maintenance and a number have been destroyed by elephant. The closer the sign is to a management station the more likely it is to be maintained. There needs to be an assessment of which type of sign is less likely to be destroyed or moved by elephants and then these should be erected at key points and road junctions.

C.5.4 Airstrips

Aircraft were an important part of management in the past and there were at least 20 strips. They were also used for tourism with large strips at all the management camps. It seems unlikely that there will be a return to aerial management in the foreseeable future

C.5.5 Entry Points

Entry in Hwange by general tourists is currently at the following points

- Mpofu gate (payments at Main Camp)
- Mbala Gate (payments at Sinamatella)
- Nantwich gate (payments at Robins camp)

In addition entrance by arrangement is currently possible at

- Kennedy 1 Gate
- Ngamo Gate

Table C.13: Gates and entry points	
Gate	**Recommendations**
Main Gates	
Mpofu	Entrance to Main Camp. Is an entry control point. All fees are paid at Main Camp. This gate should be upgraded to reflect its status as the point at which most tourists will get their first impression of Hwange. The staff building should be permanent structures and there should be washroom facilities for tourists. The possibility of a small shop could also be considered.
Mbala	This is the main entrance gate for Sinamatella and is located on the boundary of the Deka Safari Area. All fees are paid at Sinamatella. No tourism facilities on site.
Nantwich	The main entrance gate for Robins.
Manned Special Arrangement Entry Points Entry by registered operators and vehicles permitted	
Kennedy 1	Currently services The Hide
Ngamo	Currently services Bomani and Camelthorn Lodges.
Dete	This gate was operational in the past and negotiations between the ZPWMA and operators are underway for its reopening. It will service camps in the Dete area and, once open will ease the pressure of the Main Camp entrance.
Umtshibi	Operational in the past and should be considered once more camps come on-line in its adjacent area
Deka	Serviced Chokamella camp in the Deka Tail but no longer operational
Unmanned Gates These gates are currently entry points along the Tsholotsho boundary fence. All are unmanned	
Makona	A few kilometres from Makona sub-station. This could be an entry point for 4x4 trials if these turn out to be successful. Also for Josibanini Camp. At present no developments recommended but it should be considered should future circumstances warrant it.
Ngulube	These three gates allow vehicle access through the fence. They have been used to allow legal community access for activities such as grass cutting.
Ndodana	
Ngwenga	

C.5.6 Litter

Hwange will establish a policy of litter in-litter out. This means that rubbish receptacles will not be provided at platforms, picnic sites or hides. Previously ZPWMA took on the responsibility of removing tourism rubbish from the park which led to the development of large and unsightly dumps at all management facilities. Now all day and overnight visitors will be required to remove their litter from the park.

C.6 PERMITTED TOURISM ACTIVITIES

The following activities will be permitted in the Hwange National Park. It is important to define these activities clearly for the avoidance of doubt in the future.

Table C.14: Permitted tourism activities for Hwange

Activity	**Description**
Vehicle Based Activities	
Guided game viewing by vehicles	Professionally guided drives need relevant permits and required vehicle licenses.
Night Drives	Currently night drives are permitted in the Concession areas only. However a trial night drive activity from established camps is recommended using ZPWMA staff or accredited operators. It was expected that there would be a demand for “bush dinners/late sundowners” as part of this activity.
Guided 4x4 trails	4x4 users have to be accompanied by a Hwange accredited guide. This will ensure some measure of compliance with the regulations. This could also allow the emergence of another type of guide with their own 4x4. Trips need to be booked and users will be encouraged to report any signs of environmental disrespect (e.g. litter, off-road trails etc). As the trails are booked through ZPWMA, the Authority will know who has been on the trail previously and this is a method of policing. Only two tours permitted in the Wilderness areas at any one time. No off-road driving permitted.
Unguided 4x4 trails	Not on offer at this time because of policing problems
Unguided 2x4 and 4x4 game viewing by vehicles	No off-road driving permitted. The 2x4 roads need to be defined and indicated on maps, as do the roads that 4x4 vehicles are permitted to use.
Non-Vehicle Based Activities	
Unguided walks	Not permitted but tourists are permitted to leave their vehicles at designated sites (platforms, picnic sites etc).
Guided walks	Walking with professional guides or a park ranger is permitted almost anywhere in the park. Walks can be short (usually in response to a sighting or tracks), day, or part thereof (usually in a predetermined area) or multi-day (using campsites established at various points in the park). Code of conduct to be adhered to.

Table C.14: Permitted tourism activities for Hwange	
Activity	**Description**
Hides	At least eight ZPWMA built hides scattered throughout the park, the most popular being Nyamandlovu,11 km from Main Camp. Some are in need of maintenance (e.g. painting, roof destroyed, toilets not working). In addition several operators have established their own “hides” at waterholes. These are limited to being small platforms protected by logs from elephants or containers buried underground.
Picnic stops	Tourists are permitted to get out their cars at a number of sites within the park. These include the hides mentioned above and the attended and un-attended picnic sites.
Bush Dinners/ Meals	Very popular activity in other areas. Usually run in conjunction with a night drive. Sites need to identified and agreed upon.
Fishing	Fishing is permitted at Mandavu Dam. Most visitors are locals from the Hwange town area. Currently there seem to be no restrictions and it is vital that some are developed - rod/line, bag limits, seasonality, sites for fishing
Camping	Overnight camping by the general public is currently permitted at the five attended picnic sites and at Guvalala platform. In addition, camping at several exclusive bush camps is permitted with a registered guide (Vikani, Rhino Bar, Lukosi Bridge, Mandavu Dam, Manga 3 and Kennedy 2).
Others	
Access to Traditional Sites	Currently there is no formal access to traditional sites, either by tourists or community members. These sites need to be identified, described and access to selected sites permitted. The Mtoa, Bumboosi and Deteema sites are declared national monuments and fall under the direct control of National Museums
Mountain Biking	This activity is carried out at Josibanini camp in the south of the park. In addition, Hwange hosts an annual mountain biking gathering to raise funds for pump maintenance.
Horse Safaris	Horse safaris were carried out in Hwange between 2007 and 2010. These were both day-rides and multi day horse trails. This activity is being re-established on the edge of the park in Dete and will be permitted in the park on a trial basis initially
Specialist Safaris	Specialist safaris such as those focussing on birds or amphibian will be encouraged.

Activities Specifically not Permitted in the Hwange National Park at present

- Ballooning
- Micro-lighting
- Aerial viewing by light aircraft or helicopters
- Off-road driving
- Elephant back safaris

Should any of these activities be proposed in the future a full consultative process needs to be carried out prior to permission being granted.

Table C.15: Summary of permitted developments and activities by zone.	
Zone	**Permitted Activity/Development**
Wilderness Zones	• Annual Camps • Horse Camps
Wild Zones	• Semi-permanent tented camps • Annual Camps • Horse camps • Mobile operator camps

C.6.1 Activity "Codes of Conduct"

The following "Codes of Conduct" have been formulated to inform visitors about appropriate behaviour while camping, walking, picnicking or driving. These must be made available to visitors and should be regarded as enforceable regulations.

These Codes of Conduct can be amended from time to time, if deemed necessary.

Driver Guides Code of Conduct

- Respect the space of other visitors at waterholes and sightings
- Talk quietly, No radios
- Don't crowd sightings, especially predators
- Stay in your car unless at a designated getting out point
- Remove your litter from the park, especially plastic water bottles

Walking Code of Conduct

- All litter to removed. At overnight camps combustible material may be disposed of in the fire but you must ensure that it is completely burned
- Human waste must be buried and all toilet paper burnt in the same scrape
- Avoid brightly coloured clothes. More to ensure that you do not disturb other visitors rather than the wildlife.
- Campfire to be properly extinguished and ash to be buried

Fishing Code of Conduct

- Fishing is permitted at Mandavu Dam only
- A fishing licence has to be obtained for *every* day that a person intends to fish. A maximum of two rods/person/licence.
- No drying or smoking of fish in the Park; gutting of fish must be done at the dam.
- A maximum of 6 fresh fish can be taken home per fishing licence.

Attended Picnic Site Code of Conduct

- Fires only permitted in the established braai sites.
- Wood to be purchased at collection points
- Cooking on gas will be encouraged
- Remain within the fenced area
- Ensure that you clean the facilities after use (toilets, sinks etc).
- All litter to be removed

4x4 Code of Conduct in Wilderness Areas

- Trips need to be booked in advance through Main Camp
- All trips will be accompanied by an accredited 4x4 guide, either in their own vehicle or as a passenger (The guide accreditation protocols will need to be developed).
- Ensure that your vehicle is mechanically sound
- Always travel with a minimum of two vehicles
- Remain on the tracks at all times
- All litter to be removed
- All human waste to be buried, toilet paper burnt
- When camping follow the Camping Code of Conduct
- Ensure that ZPWMA personnel at a management station knows your movements
- Carry wood with you that has been purchased from a collection point. Collection of wood from along the trail is not permitted.

C.7 LIMITS OF ACCEPTABLE USE

Defining the carrying capacity for tourists in Hwange is a topic that has repeatedly surfaced during the planning process. Carrying capacity, when referring to tourism, is a concept that has largely been discredited. This is mainly because the limits to tourism use are subjective and relate to a number of factors, some of the important ones being the visitor perception and expectations of natural systems. It is more meaningful to define a limit of acceptable use

Limits of acceptable use is a tool for defining how much use of an area will be permitted and generally refers to tourist numbers. These numbers are always a compromise between conservation and income generation and are usually set conservatively to compensate for inadequate data on which to base decisions. Another defining factor is the quality of the "tourism experience".

Monitoring the effects of tourism is a vital component when defining the limits of acceptable use. It is believed that the limits to acceptable use may change in response to changing circumstances, degradation of the environment and the demands of the market. What is acceptable today may well be unacceptable tomorrow and vice-versa.

In this management plan limits of use have been set using a two-pronged approach. Firstly, infrastructure limits have been set by defining accommodation facilities in the zones. Secondly, the types of activities permitted in each zone are listed with definitions of these. The following table (Table C.16) sets some base limits of acceptable use for the different zones within Hwange.

Table C.16: Draft limits of acceptable use for Hwange

	Zone	Current	Future
Wild	**Northern**	• 4 x operator mobile sites • 2 x Parks sites out for lease • 3 x semi-permanent lodge sites	• 4 mobile operator camping sites (esp. Robins) • Northern area – 2 annual camps • Picnic sites. Fix existing and open new ones • Exclusive campsites • 1 x semi-permanent camps (Chivisa)
	Eastern	• 5 x semi-permanent camps • 3x picnic, camping • 2x platform • 2x mobile site	• Horse camps (temporary) • 2x mobile camps • Picnic, platforms
Wilderness	**Southern**	• None	• 4 x annual camps • Horse camps • Mobile operator camps • 4x4 camps
	Dzivanini	• None	• 2 x annual camp

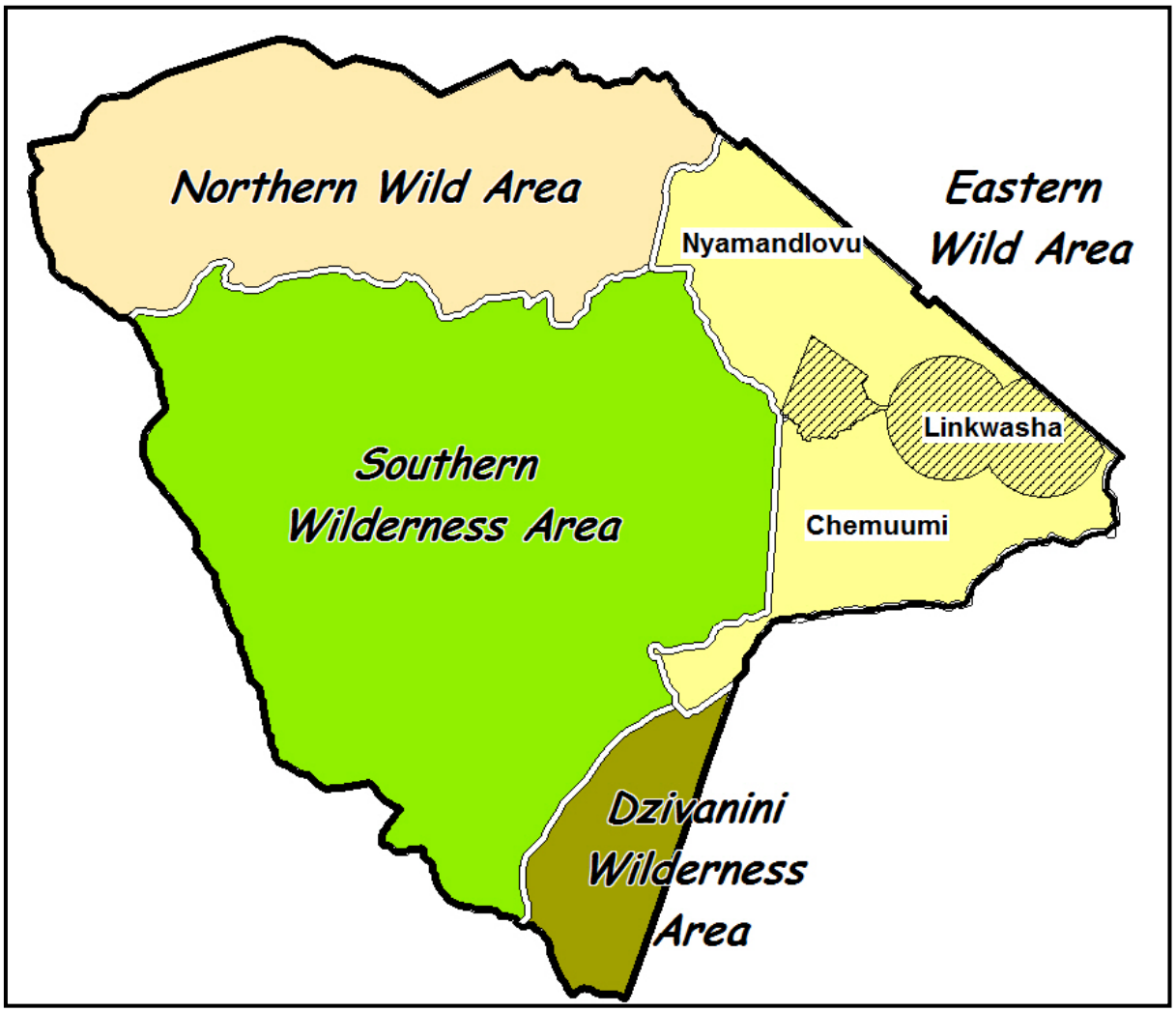
C.8 ZONE DEVELOPMENT SUMMARY

C.8.1 Overview

Four types of zones were considered appropriate for Hwange. The main zone types were wild and wilderness zones while the sub-zone category included development and special protection zones. In addition, due to the complexity of use, the Eastern Wild Zone was sub-divided into three sub-zones. Maps of these zones appear on the following pages.

Hwange Zone Types	
Type	**Comments**
MAIN ZONES	
Wilderness	To preserve the natural wilderness qualities of the area in as a pristine state as possible. The general consensus of opinion was that no new waterholes for wildlife should be opened in these areas. However, if Annual Camps were permitted, they would be allowed to access underground water for the camp but not for game water supply.
Wild	To provide large tracts of relatively undisturbed but accessible land for non-consumptive visitor use. Some areas of the Wild Zones are effectively high-use areas but it was believed that the retention of the zone nomenclature would help with the marketing of Hwange.
SUB-ZONES	
Special Protection	These areas are to protect sites that have unique, unusual or otherwise important biotic or abiotic features. Special protection zones are defined as all areas with springs and seeps (200m radius), archaeological sites (size to be determined on individual basis) and the Mbiza palm stand. In previous plans it was also stated that other unique vegetation or geological sites should be afforded special protection status. Those that immediately spring to mind are the Deteema Fossil Forest (probably more than one site?) and the Ngamo flats (already identified as a unique area by the “Four Corners” project). There is a need to be more specific about these Special Protection Sites and a database should be established by the Ecology Section. There should also be a system to make the public aware if the importance of these sites. There are many undocumented archaeological sites in the park and, as these are defined and documented, they should be added to the database.
Development	The purpose of these zones is to provide for staff accommodation, offices, workshops and tourist complexes. These were defined in 1987 and again in 2003. They are listed as the three management stations – Main Camp, Sinamatella and Robins (now to include Makona – but Makona not to have tourism facilities at present) and the management camp at Umtshibi. Then Nantwich, Bumboosi and Deka as tourism sites under ZPWMA, but probably to be leased out.

Figure C.7: Tourism Zones for Hwange in 2015

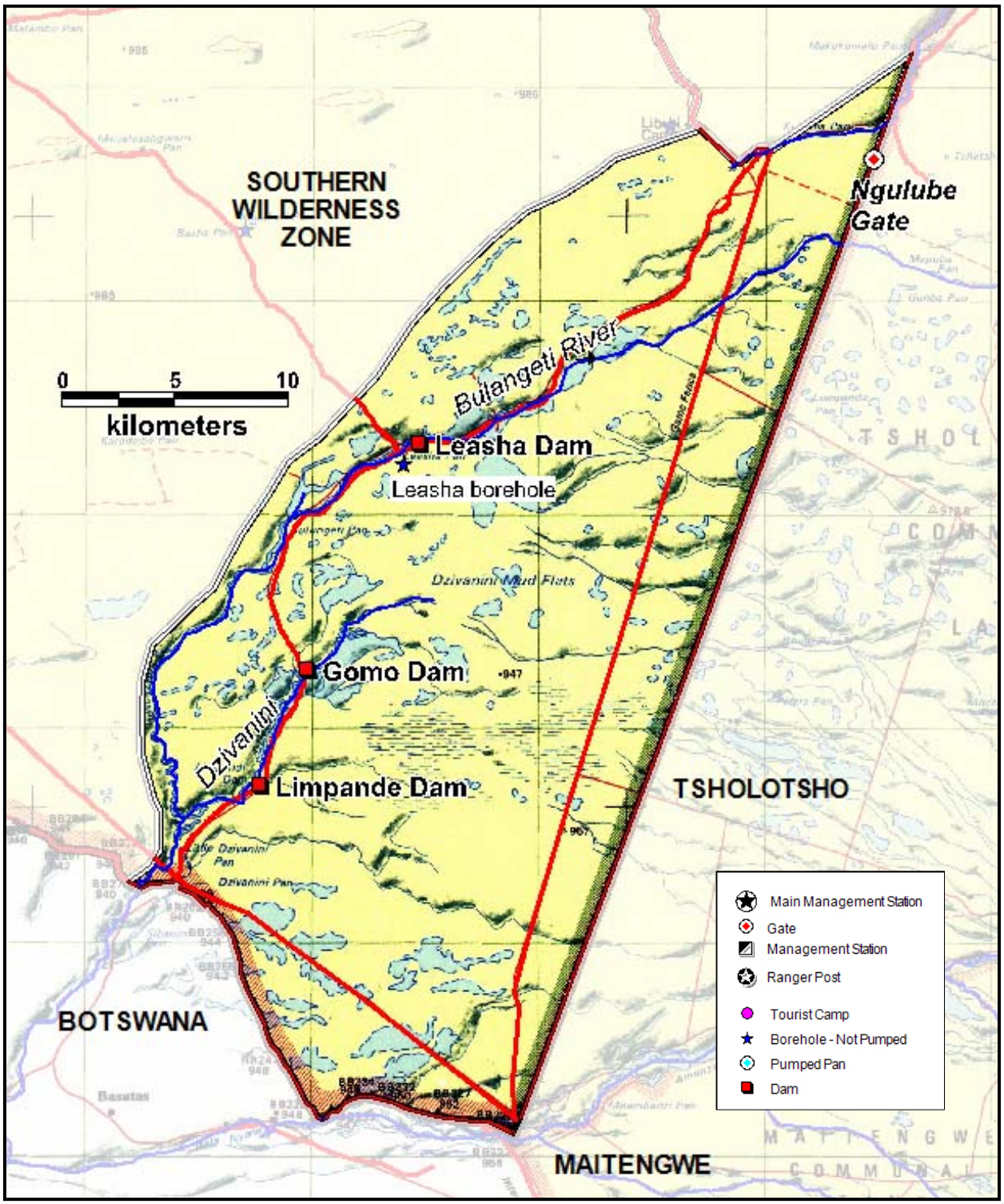


C.8.2 Wilderness Zones

The purpose of Wilderness Zones is to preserve the natural wilderness qualities of the area in as a pristine state as possible. The general consensus of opinion was that no new waterholes for wildlife should be opened in these areas. However, if Annual Camps were permitted, they would be allowed to access underground water for the camp but **NOT** for game water supply.

DZIVANINI Wilderness Zone: 857 km^2	
Description	Seasonally waterlogged area dominated by mopane woodland and scrubland on soils derived from basalt rocks. Three dams in this area, all of which need attention.
Boundaries	Following the northern edge of the basalt soils to the Josibanini-Leasha road in the vicinity of Libuti Pan. Then following that road down past Kukama Pan to Ngulube Gate. Then down the fence line to the Botswana border.
Sub-Zones	None
Existing Developments	None
Proposed Developments	2 x annual camps
Permitted Activities	• Guided walking • Overnight camping at designated sites with pro-guide or ZPWMA ranger • 4x4 Access
Notes	

Figure C.8: Dzivanini Wilderness Zone



SOUTHERN Wilderness Zone: 7,107 km^2	
Description	Kalahari sand area with no rivers perennial surface water. "True" Kalahari environment. Currently no pumped water in this area apart from a few pans right on the boundary (Guvalala, Danga, Manga 1 and 3).
Boundaries	The western boundary is the Botswana border between Tibukai pan (BP566) in the north and Little Dzivanini pan and the Dzivanini river in the south. Then up the northern edge of the basalt soils to the Josibanini-Leasha road in the vicinity of Libuti Pan. Then up to Josibanini Camp (excluding the camp and along the track to Makona (excluding Makona station). Then a straight line to Beaver Pan and Manga 3 Pan. Then along the road past Manga 1 and Nhoro Pans to Guvalala Pan. The boundary then follows a mixture of the tarred road and other tracks to Bumbumutsa Pan. Along this section Shapi Pan, Giraffe Springs, White Hills pan, Nehimba Camp and Camp Hwange are excluded from the zone. From Bumbumutsa the boundary follows the track past Dandari and Tibukai pans to the Botswana border.
Sub-Zones	None
Existing Developments	None
Proposed Developments	• 4 x annual camps • Horse camps • Mobile operator camps • 4x4 camps
Permitted Activities	• Guided walking • Overnight camping at designated sites with pro-guide or ZPWMA ranger • 4x4 Access
Notes	

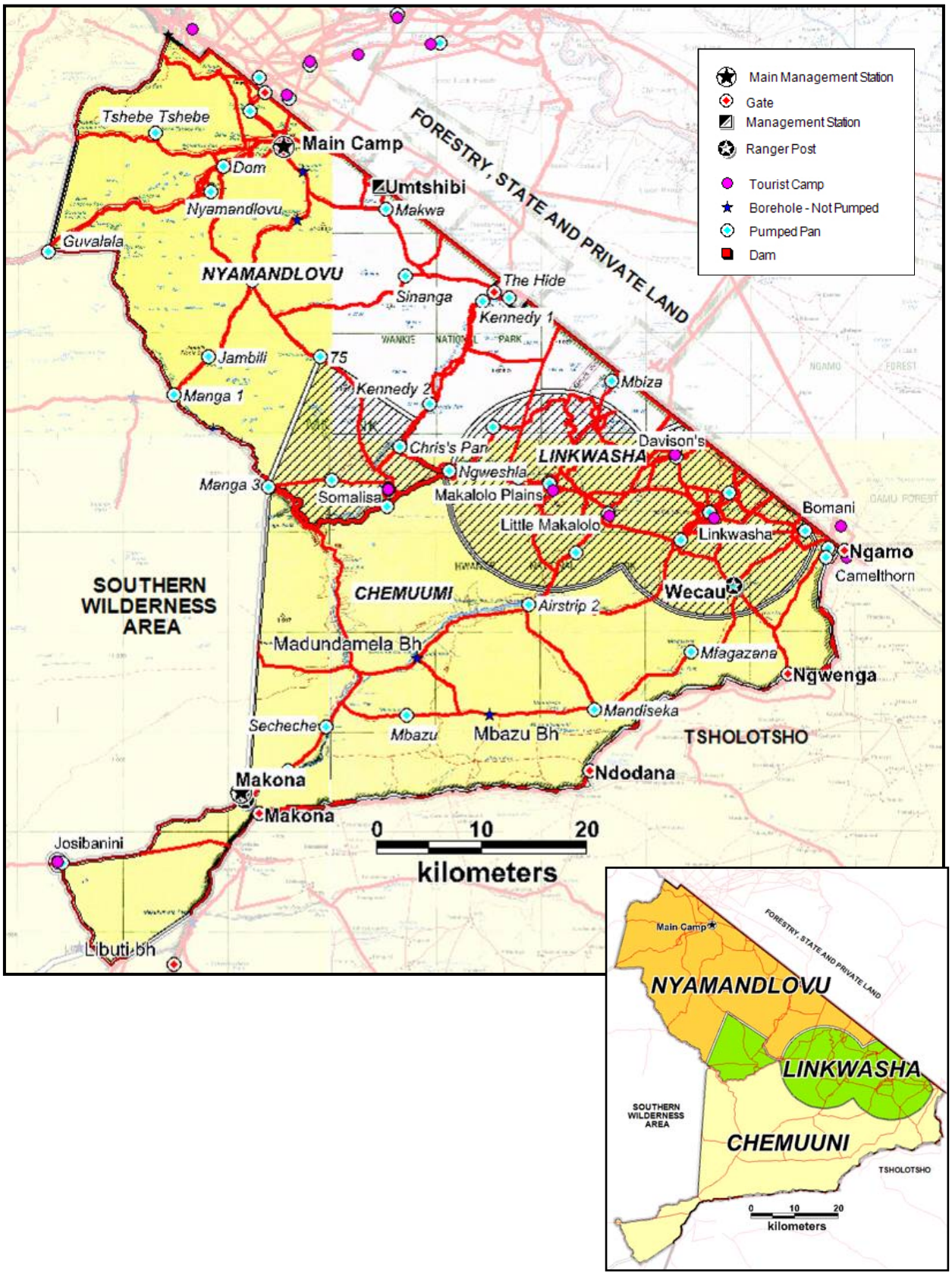
Figure C.9: Southern Wilderness Zone

C.8.3 Wild Zones

The purpose of these zones is to provide large tracts of relatively undisturbed but accessible land for non-consumptive visitor use. Some areas of the Wild Zones are effectively high-use areas but it was believed that the retention of the zone nomenclature would help with the marketing of Hwange.

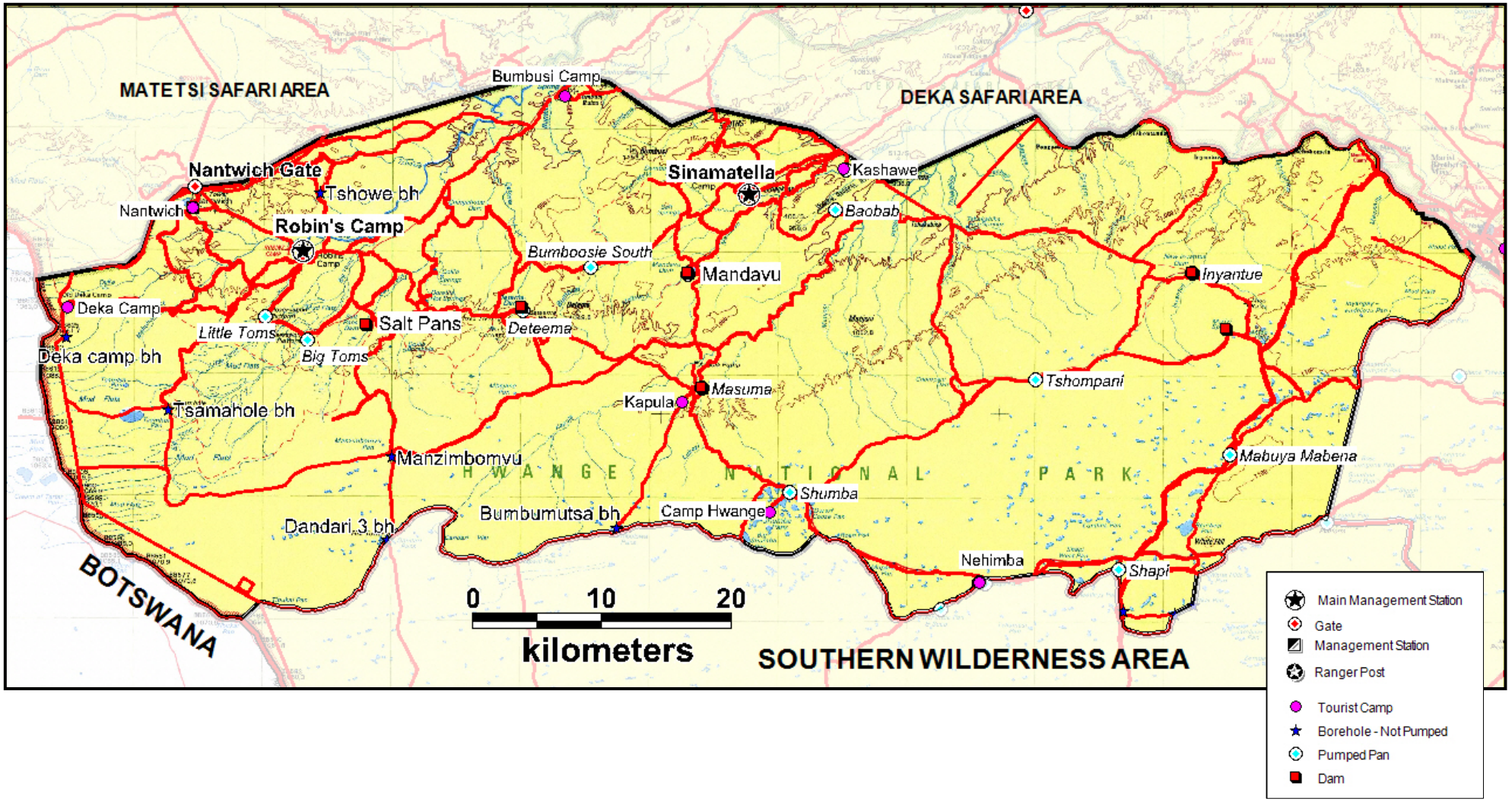
EASTERN Wild Zone: 3,180 km^2	
Description	The most heavily utilized area from a tourism point of view. No rivers or perennial surface water. However, the system is maintained by approx 50 boreholes.
Boundaries	Follows the track from Dete to Tsabema Pan, then a straight line across to Guvalala Pan. Then follows the track past Nhoro Pan to Manga 1 Pan, then down the improved track to Manga 3 Pan. Then a straight line to Beaver Pan and the Makona sub-station. After Makona it follows the track to Josibanini Camp, then south to Libuti and then the old track up to Ngulube Gate. Both Makona and Josibanini are inside the Zone.
Sub-Zones	**Nyamandlovu Sub-Zone:** 14 pans pumped in 2014. Currently where most tourism is concentrated with many accessing the park from camps located on the park boundary. Tourism in this sub-zone should be expanded (roads, stopping points, picnic sites). There are no camps in the Hwange Communal Land and community benefits from tourism in this area are limited. This aspect needs attention. 1,183 km^2 **Linkwasha Sub Zone**: 14 pans pumped in 2014. Exclusive use tourism concession area. The current status to be maintained as these areas are under existing leases. 692 km^2 **Chemuumi Sub Zone:** 10 pans pumped in 2014. Currently little tourism apart from the south-east corner which is accessed from camps in the Tsholotsho Communal Land and Ngamo Forest Area. This zone should focus on linking into to tourism from the Tsholotsho Communal Land 1,305 km^2
Existing Developments	• 5 x semi-permanent camps (Four in Linkwasha sub-zone and Josibanini) • 3x picnic, camping • 2x platform • 2x mobile site (Kennedy 2 and Manga 3)
Proposed Developments	• Horse camps (temporary) • 2x mobile camps • Picnic, platforms
Permitted Activities	• Game drives (2x4 and 4x4) • Picnicking • Guided walking • Overnight camping at designated sites • Horse riding
Notes	

Figure C.10: Eastern Wild Zone



NORTHERN Wild Zone: 3,565 km^2	
Description	Mostly basement complex, Karoo sediments and basalt rocks with some Kalahari sand areas in the south. Elevated views, rivers and pools. Surface hard for roads but river crossing issues.
Boundaries	Park boundary to the north and east. Then following the road between Dete and Tsabema Pan, Then a direct line across to Guvalala Pan. The boundary then follows a mixture of the tarred road and other tracks to Bumbumutsa Pan. Along this section Shapi Pan, Giraffe Springs, White Hills pan, Nehimba Camp and Camp Hwange are included in the zone. From Bumbumutsa the boundary follows the track past Dandari and Tibukai pans to the Botswana border, thence northwards along the international boundary
Sub-Zones	None
Existing Developments	• 4 x operator mobile sites • 3 x Parks sites out for lease (Bumboosi, Nantwich/Isilwane, Deka) • 4 x semi-permanent lodge sites (Camp Hwange, Nehimba, Kapula, Kashawe)
Proposed Developments	• 4 mobile operator camping sites (esp. Robins) • Northern area – 2 annual camps • Picnic sites. Fix existing and open new ones • Mana type exclusive campsites (trial, policing problems, need to be escorted??) • 1 x semi-permanent camps (Mtoa)
Permitted Activities	• Game drives (2x4 and 4x4) • Picnicking • Guided walking • Overnight camping at designated sites • Horse riding • Fishing (Mandavu Dam)
Notes	

Figure C.11: Northern Wild Zone



C.8.4 Development Zones

The purpose of these zones is to provide for staff accommodation, offices, workshops and tourist complexes. These were defined in 1987 and again in 2003. They are listed as the three management stations – Main Camp, Sinamatella and Robins (now to include Makona – But Makona not to have tourism facilities at present) and the management camp at Umtshibi. Then Nantwich, Bumboosi and Deka as tourism sites under ZPWMA, some to be leased out.

Table C.17: Development Zones in Hwange NP

Type	Name	Comments
Management Stations	Main Camp	Largest camp in the park with at least 1,000 permanent residents. Includes at least 200 tourist beds plus campsites
	Sinamatella	Built on the site of an old farm. Has roofed accommodation for 60 visitors plus an extensive campsite. Approximately 300 permanent residents.
	Robins	The last management camp to be established for the park (excluding Makona). Approximately 150 permanent residents and roofed accommodation facilities for 50 visitors.
	Makona	Recently established management station with two buildings. Expansion plans include 20 housing units for management staff.
	Umtshibi	Management camp for ZPWMA. Effectively a "lease" area to a different section of ZPWMA with little to do with day-to-day park management.
Tourism Sites	Deka	Tourist site on Botswana border. Was burnt down and currently unoccupied
	Bumboosi	Leased and functional but with very low occupancy
	Nantwich and Isilwane	Under renovation by ZPWMA and expected to be operational soon

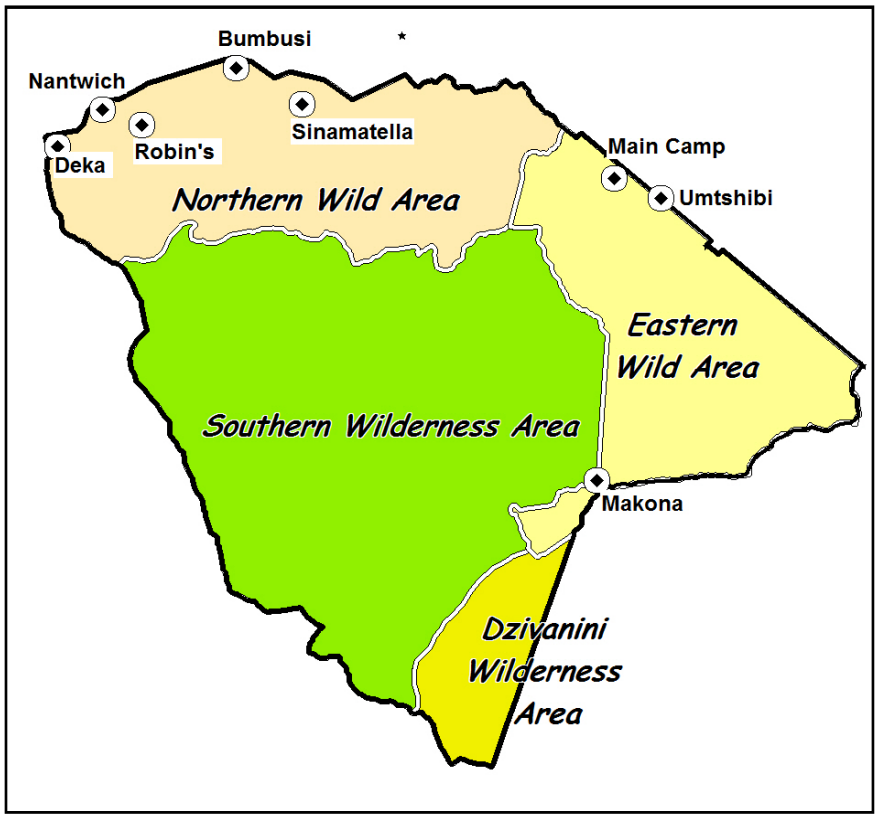
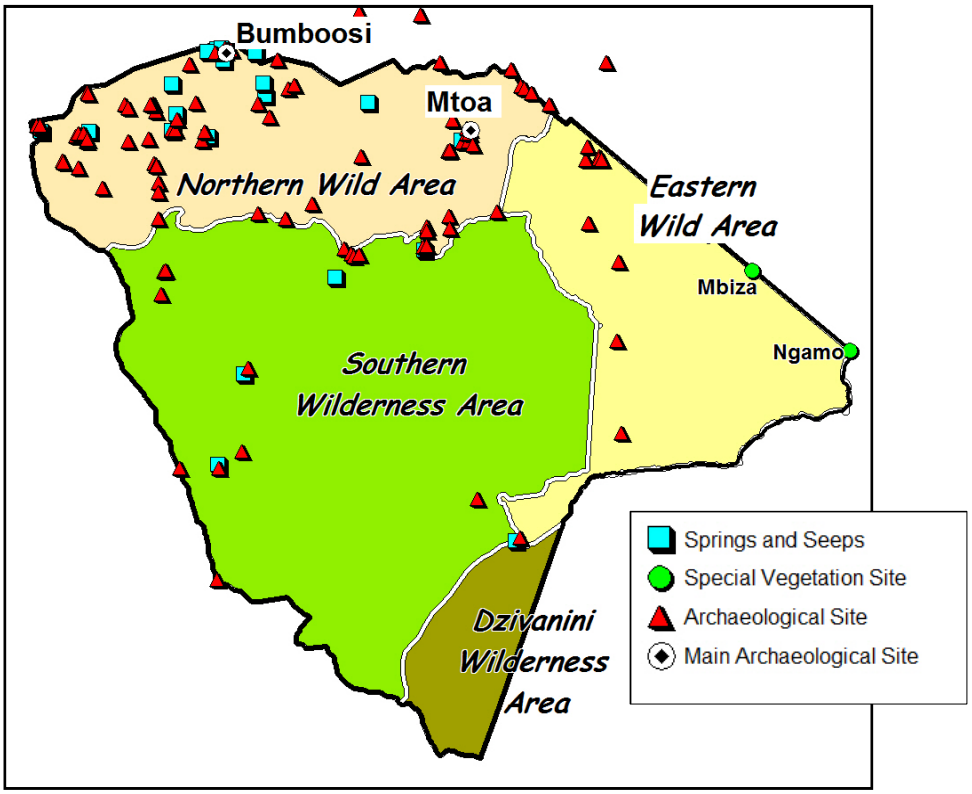


Figure C.12: Development Zones

C.8.5 Special Conservation Zones

These areas are to protect sites that have unique, unusual or otherwise important biotic or abiotic features. Special conservation zones are defined as all areas with springs and seeps (200m radius), archaeological sites (size to be determined on individual basis) and the Mbiza palm stand. In previous plans it was also stated that other unique vegetation or geological sites should be afforded special protection status. Those that immediately spring to mind are the Deteema Fossil Forest sites and the Ngamo flats (already identified as a unique area by the precursor project to the KAZA TFCA – the "Four Corners" project).

Figure C.13: Special Conservation Zones



There is a need to be more specific about these Special Protection Sites and a database should be established by the Ecology Section. There should also be a system to make the public aware if the importance of these sites so they are appropriately respected and protected. There are many undocumented archaeological sites in the park and, as these are defined and documented, they should be added to the database.

- Mbiza Palm Savannah

- Nehimba Seeps
- Shakwankie Seeps
- Shabi Shabi Seeps
- Mahohoma Seeps

- Deteema Fossilised Forest

- Bumboosi Ruins
- Mtoa Ruins
- Bumboosi Petroglyphs

Some sites, especially the seeps and springs are already compromised by roads and tracks (a conservation area of at least 200m from the centre of the site was recommended in 1987). Each site needs to be looked at in detail and the necessary adjustments made.

C.9 OBJECTIVES, TARGETS AND ACTIVITIES

Four management objectives have been described for the Tourism Programme. The objectives and their targets (summarised below) were defined after analysis of the threats, issues and concerns and the guiding principles. There is a text description of the components prior to presentation of the first three year activity plan. Numbering in the text provides the linkage between the summary table and three year action plan.

Objective 1: Tourism product improved, expanded and diversified

Targets

1.1 Tourist road system expanded and upgraded, especially in the Nyamandlovu sub-zone
1.2 ZPWMA accommodation facilities upgraded and improved
1.3 Park entrance gates improved and expanded
1.4 Annual camps in Wilderness Zones established
1.5 Other camps in Wild Zones established
1.6 More use made of ranger tours
1.7 4x4 route established
1.8 Horse safari trials
1.9 Access to the park improved
1.10 Visitor information materials accessible

Objective 2: Management and administration of tourism improved

Targets

2.1 Appropriate visitor behaviour defined, publicised and enforced
2.2 Appropriate guide behaviour defined
2.3 Visitor statistics collection and analysis improved
2.4 Leases conditions standardised
2.5 Reception services improved
2.6 Signage improved
2.7 Litter management improved
2.10 Visitor impact monitored

Objective 3: Educational facilities and activities developed, improved, promoted and interpreted effectively

Targets

3.1 Interpretation facilities established and improved
3.2 Cultural and historical sites become part of the tourism package
3.3 Promotion of educational trips

Objective 4: Branding and marketing focussed and coordinated

Targets

4.1 Hwange brand clearly defined
4.2 Regional tourism promoted

Objective 1: Tourism product improved, expanded and diversified

Hwange has a well developed tourist accommodation network, with camps both inside and outside the park. Currently totalling over 400 beds, with a range of accommodation types ranging from camping to luxury up-market safaris, most visitors can find accommodation fitting their taste and economic status. A significant number of the beds available in the park are provided by the management authority and these largely cater for the local and regional market.

Target 1.1: Tourist road system expanded and upgraded, especially in the Nyamandlovu sub-zone

The road network was established in the 1960s and 1970s and, apart from a few additions, has remained static since that time. There have been complaints that the road network, especially in the Nyamandlovu sub-zone, is not extensive enough and this leads to congestion. Tourism numbers have been rising at about 25% per annum since 2010 and if this trend continues the situation will become worse. The obvious solution is to expand this network with some carefully chosen road alignments that are capable of taking 2x4 vehicles, at least throughout the dry season. Loops should be considered so that visitors do not have to travel down the same roads (*e.g*. some cross links between the tar road and the Tsabema road).

Action 1.1.1: Road plan formulated

Prior to any roads being opened the network needs to be considered in its entirety and this requires a well defined road plan. This plan should also include maintenance levels for existing and new roads. The road plan must be formulated in conjunction with the Park Management Programme (see Target 2.1 of that Programme).

Action 1.1.2: New alignments opened, other alignments upgraded

Once the road plan has been agreed upon then work can begin of the new alignments and the upgrades. As with many other physical developments in the plan the roads need to be prioritised and phased to fit in with available funds.

Action 1.1.3: Repair of main tar

.
The main tar road between Main Camp and Shumba Pan was built in the 1960s and has not seen much maintenance since then. Although it is easily passable, many sections are in a poor state of repair which makes for a poor quality game viewing experience. A decision should be taken about this road otherwise it will just continue to deteriorate. Whatever decision is taken – resurface, repair or remove will be expensive and intrusive. Any work needs to be undertaken with liaison with the national roads authority (ZINARA).

Target 1.2: ZPWMA Facilities upgraded and improved

Extensive accommodation facilities which are run by the authority are located at the three management stations – Main Camp, Sinamatella and Robins. These are self-catering facilities largely aimed at the local and regional market but are also used by international visitors. At each station there is a range of facilities on offer from camping through to lodges with internal ablution and kitchen facilities. Most of these facilities were built in the 1970s and some are reaching a stage were refurbishment is needed to ensure that they will still attract visitors.

A recent study for the ZPWMA led by Crafford and Crafford architectural consultants deals with the introduction of “green technology” into the parks facilities. This includes solar for heating and power systems, rainwater harvesting and filtration, waste management and heating and cooling systems. The document recommends that these technologies can be applied to all camps in Hwange, as well as the picnic sites.

Action 1.2.1: Roofed accommodation improved

As mentioned above many of the ZPWMA facilities are in need of maintenance and probably a significant refurbishment. This will be an expensive and time consuming process and will need to be carried out in phases so as not to remove too many accommodation units from the stations at one time. The process is already underway at Sinamatella.

All units use wood as the fuel source for water heating, with the boilers at some stations being very wasteful. It is recommended that a phased approach to solar geysers should be implemented. In addition, many units have bath-tubs which use a significant amount of water. It should be a policy to replace these with showers as soon as practically possible. Other aspects of “green technology” such as water harvesting should also be considered when upgrading the units.

There are a number of small improvements that can go a long way to having satisfied visitors. These include working light bulbs, clean kitchen facilities, sufficient and clean utensils, working curtains and mosquito nets etc. Improved visitor satisfaction will mean improved reputation leading to better occupancies.

Action 1.2.2: Investigation of privatisation of accommodation in main development zones

Most conservation authorities in Africa do not run lodging and/or restaurants. Zimbabwe and South Africa are notable exceptions. The rationale for staying away from the hospitality business is that protected area management authorities should focus on their core business of ecosystem/ biodiversity protection and leave management of tourism facilities to tourism professionals.

Currently the ZPWMA runs tourism facilities in most of its parks. It is responsible for the upkeep and maintenance of these facilities and for making bookings and collecting the income. In short the Authority is a key player in the Zimbabwean tourism industry. In Hwange the Authority has over 200 beds in the three main development zones. It also has accommodation units at several other development sites in the north of the park (Deka, Nantwich, Isilwane and Bumboosi – see Action 1.2.3).

The accommodation facilities in the main development zones (Main Camp, Sinamatella and Robins) were built at least 50 years ago and are showing their age. Maintenance has been sporadic and some units are reaching the point where it will require a significant upgrade to make them competitive in the tourism marketplace. This will be expensive.

A concern about privatising the camps under the control of ZPWMA is that an investor will have a significant up-front refurbishment cost and would need to recover this by raising prices. This goes against one of the statements in the Park Purpose – that Hwange will maintain its commitment to Zimbabwean Citizens by promoting educational visits and affordable access for the general public.

ZPWMA needs to carry out a cost-benefit analysis of running these camps themselves or the possibility of privatising them. This analysis will assist the ZPWMA to determine which scenario is most beneficial financially. However the looming refurbishment of the accommodation should be factored into this analysis.

Action 1.2.3: Northern minor development zone camps contributing to park income

There are three camps in the Northern Wild Zone that are currently running well below their financial potential. These are Nantwich/Isilwane, Bumboosi and Deka. These camps are in designated Development Zones which means that permanent structures are permitted. All were constructed at least 40 years ago.

Nantwich and Isilwane are very close to each other. Isilwane is a large house while Nantwich consists of three separate units. At present the ZPWMA is proposing to use these as accommodation units falling under Robins Camp and work on repairing them is ongoing.

Bumboosi is on a lease expiring in 2015. The current incumbent pays a very low rental (approx $3,000 per annum) and the ZPWMA should consider either putting the site out to tender again or renegotiating the rental fees with the lease holder so that they reflect the value of the site.

Deka camp has been damaged by fire and unused as a result for several years. The site was put out to tender at least twice previously but was not allocated for reasons unknown. Deka can be regarded as a seasonal site because of access problems and this needs to be factored into any lease negotiations.

These camps must contribute to the income stream for Hwange and this means ensuring those that are leased will go for market related rentals, and that they are marketed properly so that they attract visitors.

As with Action 1.2.2 above a cost benefit analysis of either the ZPWMA running the camps themselves or putting out to the private sector needs to be carried out. The variable fee model should also be used for these analyses.

Action 1.2.4: Picnic sites improved and expanded

The picnic sites are very popular and are good way for the Authority to generate income without too much investment. Currently these are located at Jambili, Ngweshla, Kennedy 1, Mandavu, Shumba, Deteema and Masuma with Ngweshla, Masuma and Deteema probably being the most popular. This is because these three allow viewing of game from the site, while the others are a bit removed from the pan or waterhole.

Although the facilities at some sites (e.g. Ngweshla) have been improved recently most sites could benefit from improved facilities. In keeping with the “green technology” drive currently being considered by the ZPWMA these methods of heating and collecting water should be investigated and installed.

There is scope for opening more of these in the park. Obviously they need to be situated where there is water, both to service the site and to attract wildlife. In addition, some of the sites need to be improved (e.g. Deteema).

The possibility of some separation between the overnight visitors and the day visitors should be investigated. The modicum of exclusivity that could be provided through some rearrangement of sites would probably greatly increase their attractiveness to visitors and hence value to the Authority.

The choice of new picnic sites should be decided by the Authority, although they could ask operators for input. It is advisable that the opening of new sites is phased and the sites monitored to ascertain their attractiveness to visitors. The sites would need to be fenced for protection of visitors.

Action 1.2.5: Platforms improved and expanded

There are two platforms in the park. The most popular and accessible is Nyamandlovu as it is close to Main Camp and is well used by wildlife. Guvalala is further and has issues with saline water so is not as popular. People are permitted to overnight at Guvalala. There is scope to improve the existing platforms and the possibility for more of these. It has to be remembered that a platform will require water and ablution facilities. The possibility of erecting a platform at Makwa Pan is already under discussion between ZPWMA and Friends of Hwange.

It is recommended that the Makwa site be completed and operational before considering any new sites. This will allow the Authority to gauge the response to the site from visitors. Platforms should be located close to the gates/camps to allow visitors time to enjoy evening viewing and still be able to exit the park in accordance with opening regulations.

Action 1.2.6: Mobile camping sites expanded

Exclusive camping sites that are available for walking safaris are found along the Lukosi River, at Mandavu Dam, Kennedy 2 and Manga 3. Generally these are without facilities and are used by commercial operators with the necessary guiding permits. Expansion of these sites would improve the wilderness product on offer and new sites should be opened in response to demand.

However, it will also be vital that there is a limit to these. Too many will degrade the experience. As with many other aspects of the development of tourism a phased approach is recommended with a single new site being opened. This will allow the authority to gauge the effectiveness and popularity of the site prior to any further sites being opened. Consultations should be held with the mobile operators who need these sites to ensure the success of their businesses.

Action 1.2.7: Exclusive campsites established

Excusive campsites are a popular accommodation facility in other Zimbabwean parks such as Mana Pools and Gonarezhou. Currently no such facility exists in Hwange – visitors can camp at picnic sites (where there is no daytime exclusivity), at the public campsites or at a mobile operators site where they need to be accompanied by a professional guide.

The downside to exclusive campsites from a management point of view is the lack of control. Management is expecting visitors not to abuse the privilege of having an exclusive site in the park by breaking park regulations. Policing of use of the sites and behaviour by visitors can be problematic. There is also a need to properly price these sites. They should be more expensive than the picnic sites, but not so expensive that they are not used.

The placement of these sites will need careful thought. They should only be permitted in the Wild Zones. It is likely that there is more scope for such sites in the northern part of the park – Sinamatella and Robins. As with other proposed tourism developments phasing is recommended to allow the Authority to gauge the success of the site and to address any policing problems that become apparent.

Action 1.2.8: Stopping/Stretch points expanded

There are a few stop points in the park where unescorted visitors can get out of their cars. These are at the platforms (Nyamandlovu, Guvalala, Crocodile Pools, Big Toms, Little Toms), the “attended” picnic sites (Jambili, Kennedy 1, Ngweshla, Deteema, Masuma, Mandavu) and the “unattended” picnic sites (Mabuya Mabema and Bembesi). There is a need to designate more places where visitors are permitted to leave their cars. The easiest way to achieve this would be to establish several more unattended picnic sites, set back a short distance from selected pans. These places are designated by concrete tables and benches and they should be as unobtrusive as possible.

Action 1.2.9: Continual improvement of ancilliary ZPWMA services

Restaurants have been opened at Main Camp and Sinamatella by ZPWMA and these have proved to be successful. In addition, shops and bars have also been opened at all camps and these do good business. Fuel sales have started and Main Camp and will be opened at the other camps in due course. Continuation and expansion of these services will improve the tourist experience.

Target 1.3: Park entrance gates improved and expanded

There are three main entrance gates to the park – Mpofu, Nantwich and Mbala. These service the three management stations – Main Camp, Robins and Sinamatella respectively. In addition entrance by tour operators by special arrangement is possible at Kennedy 1 and Ngamo. In the past there were several other gates available for special arrangement entries and these were located at Dete, Deka Tail and Umtshibi.

Finally the Tsholotsho fence has four gates built into the fence. These are unmanned and allow vehicle access into the park.

Action 1.3.1: Main entrance gates improved

There is a need to upgrade the main entrance gates as these are the visitor's first view of the park and its management. This is especially true of Mpofu, through which most visitors enter the park. The gate needs to leave the visitor with a favourable impression that the park is being properly managed. To do this there need to have permanent structures with some visitor facilities such as toilets and a small outlet selling drinks at the very least. A small reception area with a map and some information is also a possibility.

Action 1.3.2: Main Camp Reception and Restaurant Facilities Upgraded

The authority already has a proposal in place for the upgrade and remodelling to the Main Camp reception and restaurant area. This includes an expanded seating area, improvements to the interiors and a boma dining area.

Action 1.3.3: Tourist entry points opened in response to demand

There were several other access points to the park in the past, especially in the vicinity of Main Camp. These are by special arrangement only and are not open for general access by the public. Currently, the Dete gate is under discussion between ZPWMA and tour operators and it is likely that this will be opened in the near future. ZPWMA should respond to increasing demand in the future by allowing access at other points as well.

Action 1.3.4: Opening hours extended, especially in summer

The current gate opening times are 6am to 6.30 pm in summer. At the height of summer it is light by 5 am and only dark after 7. The gate opening hours should be extended which will also reduce speeding towards the park gate at the earlier closing time.

Action 1.3.5: Re-entry fees assessed

Currently re-entry fees are paid by all individual visitors but tour operators are exempt. This is perceived as a problem at Main Camp as private visitors cannot go game viewing in the morning, exit for lunch and return in the evening. The possibility of waiving this fee should be considered.

***Target 1.4:* Annual camps in Wilderness Zones established**

Annual camps are seen as an easily reversible and environmentally appropriate way to use the wilderness areas for tourism. The positions of these camps can be changed annually, to take advantage of improved knowledge of the area or in response to poor (or improving) water supply.
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Action 1.4.1: Initial sites selected

Any wilderness camp will be reliant on water and, as the biodiversity programme recommends that no new holes are drilled in the park, the initial sites chosen will need to be at existing boreholes. In the Southern Wilderness are these are located at Mahoboti 1 and 2, Njekwa, Mtswiri, Mapafa, Basha, Libuti, Giraffe Springs, Verney's and Manga 2. In the Dzivanini Wilderness there is a borehole at Leasha Dam.

It is recommended that the sites chosen are not within 10 km of an existing camp or within 5 km of the boundary of the zone. This will be to discourage these camps being set up on the boundaries of the wild zone and being used to access these higher use zones. The concept of the wilderness camps is to use the wilderness area itself, not to be a springboard into the popular tourist areas.

It must be made clear to any operators that water extracted from the borehole will not be used to develop another pan. Small dishes will be permitted to provide water for birds and small mammals but these must not develop into new elephant watering points.

Another option would be to ask operators to put forward proposals for a site or sites to establish annual camps. These could then be evaluated by ZPWMA with respect to other management factors. It also allows the operator to bring their knowledge of the market and to what may be commercially viable, rather than leaving this up to ZPWMA staff who may not recognise the commercial values or pitfalls associated with any particular site.

Action 1.4.2: Sites advertised and allocated

Once the sites have been chosen it is recommended, given the remoteness of the area that a single site is allocated as a trial to a reputable operator, rather advertising all sites at once. The first year should be regarded as a trial basis before issuing a longer term lease (say five years).

Action 1.4.3: Monitoring of camps

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The progress of the camp both environmentally and economically will be monitored by ZPWMA and any modifications to the terms and conditions of operation based on the information will be discussed fully prior to changes.

Target 1.5: **Other camps in Wild Zones established**

Action 1.5.1: Chivisa camp established

A semi-permanent camp is to be established in the Chivisa area, west of Dete. This camp will be on a standard lease with a small exclusive zone (approximately 1km radius around the camp). Access to the camp is expected to be via the Dete gate (see section 1.3). In keeping with the policy on boreholes, the camp will be permitted to access underground water for camp use and not to supply a pan to attract wildlife.
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Target 1.6: **More use made of ranger tours**

The Authority has recently established its own photographic “unit” at Main Camp. A landrover has been converted to a game-drive configuration and can be hired for tours of the park. In addition, qualified rangers are permitted to take clients on walking tours but these are generally limited in scope.

Action 1.6.1: Ranger walking tours advertised and expanded

Ranger walking tours are carried to Sedina pan which is a few kilometres from Main Camp. These get good reviews but are not used as much as they could be. Part of the problem is poor advertising and this is easily resolved. The walks should be advertised on the website, at Main Camp, and included in any printed promotional materials.

Action 1.6.2: ZPWMA guided drives expanded

The Authority has one converted landrover at Main Camp which is used for guided drives into the park. The ZPWMA tours should compete with other operators on a level playing field and also provide a quality guiding experience.

***Action 1.6.3: ZPWMA* Night drives trialled**

Currently, the only night drives permitted in Hwange are those from the private concessions. This plan recommends that a trial night drive is carried out from the main management stations. Night drives are usually run in conjunction with either a late sundowner outing or an early bush dinner. This means that exit through the gate should be before 8 PM. Sites for Bush dinners should be chosen with care by management authorities.

***Target 1.7:* 4x4 route established**

The South African 4x4 market is perceived to be a double edged sword when promoting the use of wilderness areas. Although there are many users and clubs and associations that promote sustainable use and appropriate behaviour in the wilderness, there are instances of abuse and bad behaviour (off road driving, fee avoidance, litter etc). The main problem is that, by encouraging this type of tourist into remote areas, policing is very difficult.

In the longer-term, the possibility of access to the Tsholotsho area and the southern part of the park through Makona by people using the customs post at Maitengwe, may help to create a 4x4 circuit.

Action 1.7.1: Trial 4x4 route and protocols

A trial 4x4 access system is proposed in the plan, which can be modified as the practicalities of the operation become apparent. In the trial it is proposed that a specified route is defined and participants MUST stick to this routing. In addition all team leaders must be approved by ZPWMA. This approval can be made at the park level. In order to be approved the person must be either a registered guide with ZPWMA, or a member of a recognised 4x4 club, but they must have sought and gained ZPWMA approval prior to the trip

All trips must be booked and records kept. Other trip users will be encouraged to report instances of litter, off-road driving etc. As the Authority knows who was on the trail previously, and all users must be accompanied by an approved guide, it will allow for some control. This may also allow for local operators to qualify as 4x4 guides and to accompany trips through the wilderness areas.

***Target 1.8:* Horse safari trial**

Horse safaris were carried out in successfully Hwange between 2007 and 2010. This is a popular activity which has little environmental impact and also will help to bolster Hwange's reputation as a wilderness park. A horse safari operation is currently being established on the edge of Hwange in Dete town. At present this operation has negotiated for use of the communal and forestry areas and is expected to begin safaris in 2015.

Action 1.8.1: Trial of day rides in the park

As a first step trial day rides should be offered in the park. These could either be from Main Camp (which would mean that stables and associated infrastructure would need to be renovated/ established) or from an existing operation outside the park. There is an operation currently based at Dete and, if this operator were permitted to use the Dete Gate (see section 1.3), it would allow easy access to the park.

Protocols regarding ranger accompaniment, rules and regulations, areas to be used etc would need to be agreed between the Area Manager ZPWMA and the operator. The possibility of somehow including communities in such an operation (as the rides could also take in parts of the Hwange Communal Land) should also be investigated.

Rides need to be advertised and marketed.

Action 1.8.2: Trial of longer multi-day rides in the park

Multi-day horse rides have been a popular wilderness area activity and the demand for new and exciting rides probably outstrips the supply. Once the protocols for day rides in the park have been established then multi-day rides should be trialled. This activity was done in the park prior to 2007 so precedents and protocols were established. If the trials prove successful this could become a more permanent park activity, thereby diversifying tourism.

With the effective closure of the Hwange Main airport in the 2000s most access to the park for international visitors has been through Victoria Falls. A small transport industry has grown up in response to the need with companies being established to bring clients from the Victoria Falls to Hwange (approximately a two hour drive).

Target 1.9: **Access to the park improved**

Action 1.9.1: Scheduled road serives from Victoria Falls

Although it is easy to get to the park from Victoria Falls using the established operators, it can be expensive for tourists travelling on their own. One bus company has a scheduled service between the Falls and Hwange Safari Lodge but this is only a few times a week. There is a case to encourage the private sector to exploit this niche, especially if tourist numbers continue to grow.

Action 1.9.2: Hwange Main Airport

This airport has been closed for at least a decade. When it was operational it was part of a flight triangle taking in Kariba, Victoria Falls and Harare. It would be an asset to the region if this airport was operational again. However, some concern has been expressed that the lack of maintenance of the runway means that it is not just a case of getting a carrier (e.g. Air Zimbabwe) to resume flights. There may be a significant cost associated with ensuring that the runway is safe enough for commercial aviation.

The pros and cons of reopening scheduled air services into Hwange needs to be pursued and a detailed business analysis carried out.

Action 1.9.3: Train services investigated

The railway is an obvious access route into Hwange which is currently under utilised. This is because the trains usually pass through Hwange at night and they are notoriously unreliable. A private sector train schedule between the Falls and Dete would be a tourist attraction in its own right. Acquisition of an appropriate engine and carriage stock is likely to be expensive and the necessary permissions would need to be sought from the National Railways. Currently one tourist operator is negotiating with NRZ for a permit to operate a diesel powered railway car between Dete and Ngamo (Imvelo).

Target 1.10: **Visitor information materials accessible**

Action 1.10.1: Professional tourist map on sale

Two maps are sporadically available at the tourist offices. One is the WEZ map which contains significant detail but is currently unavailable and the other is photocopied map from the 1970s which is given away free to visitors. There is a need for a professionally produced map, for sale at a nominal price. This map should clearly define the tourist roads and contain information about the park and the rules and regulations.

Action 1.10.2: Free tourist map available

The free tourist map needs to be updated but should always be available on request for visitors. It should focus on the northern part of the park and exclude all management roads.

Action 1.10.3: Guide books promoted

A guide book is needed for Hwange and the private sector should be encouraged to carry out this activity. Tourist numbers in Hwange are reaching levels where it may become attractive for someone to produce a commercial guidebook for sale.

Action 1.10.4: Other information made available to tourists

Many tourists who visit the park have any idea about how the environment and the underlying processes may affect their individual stay. For example, tourists complain that they hardly see elephant in a park with the highest density in Africa or that there is no water. If they were informed about the dynamics of rainfall on the elephants or the fact that all water in the park (especially the main camp area is pumped from underground they may be more appreciative of the place they have come to visit. These could be in the form of posters in the reception area, bar and museum (the water issues could even be printed out and placed in each accommodation unit).

Objective 2: Management and administration of tourism improved

Tourism is the economic driver for the park and the environment needs to be conducive to encourage operators and tourists. However, tourism also needs to be managed effectively to ensure that it does not degrade the very resources that it relies on. Management of tourism is a wide ranging topic. The ZPWMA is in the process of commissioning an online booking system and this is expected to be operational during 2015. There have been long-standing problems with the current booking system but most of these are expected to be resolved by the time this plan has been approved and hence recommendations for this are not part of the plan.

Target 2.1: Appropriate visitor and guide behaviour defined, publicised and enforced

A key to controlling the behaviour of tourists is to ensure that the rules are well defined and that everyone is aware of them. In addition, these rules need to be enforced and appropriate fines and other punishments handed down for transgressors.

Appropriate guide behaviour, especially with regard to vehicles, has been problematic on occasions. Drivers sometime crowd at unusual sightings or push in front of other vehicles that are stopped away from the waterhole or sighting.

Action 2.1.1: Codes of Conduct updated and finalised

Preliminary “codes of conduct” for visitors and guides are included as part of this management plan. However, over time, they may need to be modified, tightened or expanded, depending on the circumstances.

Action 2.1.2: Codes of Conduct circulated and publicised

All tourists and operators need to be aware of the “codes of conduct” so that ignorance cannot be an excuse for bad or inappropriate behaviour. Registered operators will be furnished with the documents annually. They will be displayed in relevant locations, which include the reception offices, restaurants, at picnic sites and platforms etc. It may be possible to have relevant sections printed on the back of entry receipts.

Action 2.1.3: Public participation in tourist monitoring

Individuals with a standing in the tourism community or who have a defined commitment to wildlife should be encouraged to approach the Authority to act as additional monitors re inappropriate behaviour by tourists and guide. They are not expected to make arrests, rather to advise the transgressor of inappropriate behaviour and to report back to ZPWMA. The exact modalities of how the system should be setup need to be agreed on by the ZPWMA.

***Target 2.2:* Visitor statistics collection and analysis improved**

Although a significant amount of tourism related data is collected at the stations there is room to improve the type of data collected and its analysis. Focussing on relevant data and collecting it in a way that it is easy to analyse will put the authority on top of a dynamic and changing situation and allow it to react to these changes more effectively.

Action 2.2.1: Assessment of data collection needs, recording and analysis systems

The tourism data currently collected is quite broad and there is a need for more focussed data collection. A fuller picture will allow ZPWMA to asses the impacts of its various interventions and to guide future interventions. For example, it was difficult to get an accurate picture of the situation at the popular picnic sites. The data were not separated out in the general statistics so it was not possible to gauge the actual overnight use of the sites. In this instance the attendants should be required to keep detailed records of day visitors and overnight visitors which are collected at regular intervals. It will be necessary to clearly define what data needs to be collected and what its use will be.

Action 2.2.2: Systematic collection and analysis of data

Once the data collection needs have been defined then a system must be in place in ensure that it is collected at source, transferred to a central repository and then timeously analysed. There is no point to collect data and leave it unanalysed for years. A significant part of its value lies in using it to respond to the tourism market.

***Target 2.3:* Lease conditions standardised**

There are currently nine internal camp leases in Hwange and they are all different. There is no standardisation on the fees, size of concession areas, length of leases, terms and conditions etc. This is largely a historical artefact as many leases and concessions were issued some time ago. Although these are legally binding and it will be difficult to change in retrospect, some consideration needs to be given to standardisation.

Action 2.3.1: Any new camps will have a standard lease with standardised conditions

Any new camps being established inside Hwange will have standardised terms and conditions in the lease. This is currently being implemented throughout the parks and wildlife estate, as well as in Hwange. Large concession areas will be avoided; new camps will have exclusive use of a small zone close to the camp. In addition, the rentals per hectare are undervalued. Other lease issues that need to be standardised, where possible, are length of lease, environmental conditions, access etc. Standardisation of lease fees is probably not a major requirement as long as the fee charged reflects the market value of the site.

Action 2.3.2: Market related rentals and standardised leases for existing leases

Although it may be legally impossible, ZPWMA should consider negotiating with concessionaires over the terms and conditions of their leases when they come up for renewal. The current low rentals for prime sites and large areas of the park hamper the income generating capacity of the park and ways to renegotiate the fees should be investigated. This should be considered a priority strategy - to get market related rentals from existing leases. The possibility of operators accepting a variable fee structure when leases are renegotiated should be pursued.

Action 2.3.3: Formalise operator contributions

Many operators, especially those with concessions inside the park, make contributions towards the management of Hwange. These contributions include pumping water, providing diesel, maintaining pumps and boreholes, maintaining roads and firebreaks etc. At present these contributions are not formalised in any way; they are all voluntary and therefore the possibility exists that they can be affected by the economic climate. If in financial straits an operator is under no obligation to continue with the contribution which may render the system unsustainable. Negotiations should be opened with operators and other donors to ensure that the system is sustainable, especially with regard to the pumping of water.

Target 2.4: **Reception services improved**

For most visitors the reception office is their first point of contact with staff of the Park. It is important that staff are courteous, friendly, efficient and informative. The display materials in the reception offices may need to be redone, but this is not considered a priority.

Action 2.4.1: Training of front office staff

Appropriate training courses for front office staff need to be identified and conducted. It may be more convenient for the trainers to visit the stations, assess the staff and provide the appropriate training and refresher courses in-house.

Action 2.4.1: Reception displays improved

Generally speaking the reception displays are informative but show some signs of wear. Where necessary they should be redone or updated. Maps are important to visitors and there should be an updated one on display in the reception areas.

Action 2.4.3: Reception area upgraded

Generally speaking the reception displays are informative but show some signs of wear. Where necessary they should be redone or updated. Maps are important to visitors and there should be an updated

Target 2.5: **Signage improved**

Although signage in the park is generally good, much of it needs to be maintained. It is possible for most visitors to fine their way around the park using the signs and a simple map. However, may signs need to be repainted, some need to be repaired and others need to be replaced.

Action 2.5.1: Elephant proof signs designed

Elephants are the single most effective destroyers of signs and they need to be designed to withstand this “onslaught”. Signs need to be low and robust. Tall signs will have a very limited life span as they will be used as scratching posts. New signs need to be “elephant proof” and designs for this should be investigated and trialled.

Action 2.5.2: Ongoing refurbishment of existing signs

Painting and repair of existing signs. Usually this is a function of distance from a management station but efforts should be made to access signs that are further away. This activity should become part of a regular maintenance plan.

Target 2.6: **Litter management improved**

Litter in the park is a problem at all facilities. Uncovered and poorly managed litter is found at picnic sites, management stations and at the main stations. Part of the problem is that ZPWMA encourages visitors to deposit litter in the park by providing bins at campsites and picnic sites. It is imperative that a trash-in, trash-out policy is established.

Action 2.6.1: Design and implement a "trash in-trash out" policy

All picnic sites have litter receptacles and these encourage people to deposit litter in the park, making it the Authorities problem. When these are collected (which is not often, and sometimes hardly at all) the problem is then just transferred to the management stations. It will be important to organize and coordinate the litter problem. For example, it may be that visitors now just deposit their waste at the gates, again making it a ZPWMA problem. If this proves to be the only way in which tourists will respond – they are unlikely to take it back home and may just dump it on the roadside – then a system must be in place for the station to handle the litter. Some concession camps remove their litter to the Municipal dump in Dete, but again this is a transference of the problem. The litter issue needs some serious thought (see also next section).

Action 2.6.2: Improve on-station litter management

One problem is asking visitors to bring the rubbish out is that it now becomes the authorities problem to deal with it in the development areas. This has now to be added to the litter being generated from the development campsites and by the management staff. Appropriate systems must be developed to ensure that the litter footprint is a small as possible. This should include a system of separating the litter so that tin-cans can be crushed and biodegradable litter incinerated.

Target 2.7: **Visitor impact monitored**

Action 2.7.1: Tourism monitoring framework developed

Thresholds of potential concern with regards to visitor use and impacts will be developed over time, and data collected which can feed back into adaptive management system. This will be developed in conjunction with the Ecology Programme. Monitoring methods that will allow management to react prior to a problem become too large need to be carefully devised. Monitoring should also be extended to cover the visitor satisfaction surveys.

Objective 3: Educational and interpretive facilities, activities and materials developed

In keeping with the objectives for the Parks and Wildlife Estate, as outlined in the Wildlife Policy, education and interpretation are important functions for protected areas. The key areas for this programme are the development of interpretations facilities on the ground, the composing and dissemination of written materials and the education of the public, especially schools.

Target 3.1: Interpretation facilities established and improved

Action 3.1.1: Museums open on all stations

Museum buildings exist at Robins and Main Camp and currently both have displays. There is a small display in the reception area at Sinamatella but no dedicated museum. It may be possible to incorporate a small museum section the restaurant complex at Sinamatella. Interpretation facilities are important, especially for educational purposes and these building must remain functional.

Action 3.1.2: Displays updated

Displays in the reception areas and the museums need to be updated regularly. NGOs involved in research should be asked for contributions and the possibility of donor funding specifically for educational displays should be pursued. Cultural information needs to be included in the displays.

Action 3.1.3: Package and disseminate research information

As seen in the Biodiversity programme there is a wealth of research information about all aspects of Hwange. Much of this is in the form of theses and scientific papers. CIRAD/CNRS distribute their material on a CD. The publication of semi-scientific articles on the Hwange ecosystem should be encouraged and copies of these kept on station.

Action 3.1.4: Station shops to sell reference materials

There are no wildlife reference books on sale in the Hwange area. Although this is a market related aspect it may be an idea to have some general books on sale for visitors.

Action 3.1.5: Hwange website established and maintained

Hwange is featured in the Zimbabwe Parks website but the information is scanty and, at times, misleading. The park should have its own website, even as a subsidiary link through the main ZPWMA website. A plan should be developed and budgeted for the design, updating and maintenance of such a site.

Target 3.2: Cultural and historical sites become part of the tourism package

Hwange has a significant number of archeaological and historical sites but many of them, especially the stone age and iron age sites are unknown. In fact, many have only been recorded once and are probably not identified on the ground. This situation will lead to a devaluing of the resource and its probably eventual loss to the nation as a whole. It should be priority that this situation is addressed as soon as possible. It must be remembered that jusridiction of such sites falls to the National Musuems and Monuments of Zimbabwe (NMMZ) and not to the ZPWMA. The Authority will need to work closely with NMMZ to ensure that this heritage is protected and appreciated.

Action 3.2.1: Inventory of cultural and historical sites

This action will be carried out in conjunction with the Collaborative Management Programme (see Target 3.2 of that Programme). The National Museums and Monuments of Zimbabwe will need to initiate the study and inventory.

Action 3.2.2: Cultural site map and information developed

Once the inventory has been completed the information needs to be disseminated. The main methods will be via maps and information fliers. It may also be possible to indentify an individual or an institution to compile a book on the subject.

Action 3.3.3: National Museum sites protected

There are two archaeological/cultural sites in Hwange registered with the Museums and National Monuments of Zimbabwe. These are the Mtoa and Bumboosi sites and they will elicit the most interest from visitors. Making them more accessible also means that steps have to be taken for their protection, both from visitors and wildlife. Again the ZPWMA should work closely with the NMMZ on this.

Target 3.3: Promotion of educational trips

Hwange serves an important function as an educational “hub” with a recorded 11,000 school age visitors in 2013. Just viewing the school buses coming past the main entrance gate at Main Camp shows a cross section of schools from all over the country.

Action 3.3.1: Expansion of activities for school groups

Currently school buses are limited in where they can travel in park. In addition the time to access the park is limited because, apart from booking out cottage accommodation, most of the school tours will stay away from the park (see next action). Some innovative thinking is needed to try to ensure that the children get more from their Hwange experience. One strategy would be to ensure that they visit the upgraded museum. Another may be to define a very short walk in the vicinity of the camp past some interesting trees etc so that the children can experience the environment.

Action 3.3.2: Possibility of dormitory accommodation in surrounding areas investigated

In the 2003 plan there was a possibility of constructing dormitory style accommodation in the Dete Annex. At that time there was a possibility of the Annex being incorporated into the park, but this never happened. The possibility of accommodation suitable for schools should be pursued with other landholders adjacent to the park.

Objective 4: Branding and marketing focussed and coordinated

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In terms of tourism product, Hwange is a diverse park. On the one hand it is in danger of moving towards the style of tourism found in East Africa or the Kruger with hordes of vehicles clustered around a wildlife event. However, it is also a park of extensive wilderness and this aspect is also being marketed successfully.

Hwange will need to walk a fine line between these two types of tourism.

In addition, the park has received bad publicity through several poorly thought-out utilisation strategies. These include the use of the ration/management quota for safari hunting clients and the capture and sale of live animals. Although the numbers of animals involved are small the negative effects of such strategies on tourism have the potential to be significant.

Target 4.1: Hwange brand clearly defined

At present the Hwange "brand" is not clearly defined and different players have different ideas as too what it should be. It will be necessary for the ZPWMA and the operators to agree on the brand concept for the park.

Action 4.1.1: Development of the Hwange brand

The possibility of identifying and engaging a suitable public relations consultant for the development of the Hwange brand should be considered. An outsider is less prone to bias and is likely to clearly see the problems and opportunities. Development of the brand will need to take into account both the wilderness aspects of the park as well as the higher-density type of tourism taking place close to the main management camps and especially in the Nyamandlovu sub-zone.

It will also be vital, during the development of the Hwange brand, to ensure that it relates to a Zimbabwean "tourism brand". Zimbabwean tourism has suffered from negative publicity, mainly relating to politics and economics, in recent times. This negative publicity needs to be countered by the Authority taking a long-term view about the promotion of its protected area network in the marketplace.

Action 4.1.2: Wilderness and walking consolidated as a significant part of the Hwange experience

Almost 55% of Hwange has been designated as wilderness under the current plan. This represents a marketing edge and many operators are already using walking and the wilderness as a way to sell their camps and activities. These aspects of the park need to feature strongly in any branding concept.

Action 4.1.3: Operators to be graded

It will be important for all operators in and around the park to subscribe to the "brand" that is put forward for Hwange. It is easy to erode the brand in the marketplace if there are operators who do not maintain the required standards and ethics. Grading of operators could be either by the ZPWMA or a recognised grouping of tour operators. This grading could feed into the marketing materials developed for the Hwange brand.

Target 4.2: **Regional tourism promoted**

Hwange is an integral part of the north-west Matabeleland tourism circuit which is focussed on Victoria Falls. Since the closure of the Hwange commercial airport most tourists fly into Victoria Falls and are driven to Hwange, mostly Main Camp and Sinamatella. In addition the KAZA TFCA is being used as a tourism marketing tool for the wider region.

Action 4.2.1: Hwange to attract visitors from the Victoria Falls

Virtually every tourist who visits Zimbabwe will want to go to the Victoria Falls. This represents a significant pool of potential customers located between one and two hundred kilometres away from the park. Unfortunately the international airport is not on any regular schedules and so most visitors will drive to the park (see Target 1.9). The distance and amount of driving time involved makes the marketing of day trips difficult. There should be a concerted effort to ensure that Hwange is a highly visible product in the Victoria Falls.

Action 4.2.1: Integration into the KAZA tourism circuit

Hwange is also an integral part of KAZA and there are proposals to open new border crossings to Botswana to facilitate the flow or tourists. These are long-term plans but they may come to fruition once the demand is there. Hwange needs to become visible in any tourism materials developed for or through the KAZA initiative.

Table C.18: Summary and Three Year Activity Plan – Sustainable Tourism Programme

OBJECTIVE 1: Tourism product improved, expanded and diversified

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
1.1: Tourist road system expanded, especially in the Nyamandlovu sub-zone	*1.1.1: Road plan formulated*	Road plan defined	With input from park users	Early 2016	Mgmt, Tourism, Ecologist, Stakeholders	500	**1**
	1.1.2: New alignments opened, other alignments upgraded	Phased rollout of defined plan		Ongoing	Mgmt, Stakeholders?	Dependant on plan	
	1.1.3: Repair of main tar	Feasibility study	With ZINARA?	Feasibility started by end 2016	Tourism, Mgmt, ZINARA	2,000	**2**
		Funding secured					
1.2: ZPWMA Facilities upgraded and improved	*1.1.1: Roofed accommodation improved*	Phased unit refurbishment (study and implementation)	Green energy solutions re heating and water collection	Report by mid 2016 and ongoing	Mgmt, Tourism,	200,000	**1**
		Replacement of wood geysers	Based on above	Ongoing	Mgmt, Tourism,	100,000	
		Minor refurbishment programme	Ensure working lights, cleanliness, cutlery etc	Ongoing	Tourism	5o,000	
	1.2.2: Investigation of privatisation of accommodation in main development zones	Feasibility study of privatisation of minor development zones	Nantwich, Isilwane, Deka	By end 2016	Tourism, HQ (Consultant?)	3,000	**2**
		Feasibility study of privatisation of a main development camp	Main Camp, Sinamatella, Robins	By end 2016	Tourism, HQ (Consultant?)	3,000	
	1.2.3: Northern minor development zone camps contributing to park income	Leasing of these sites for market related rentals	See 1.2.2. Bumboosi already leased, Deka also?	New rentals in effect at lease renewal	Tourism, HQ	Sunk	**1**
		Nantwich and Isilwane used by visitors	If run by the Authority then needs to be working	Completed by end 2016	Tourism, HQ	Sunk	
	1.2.4: Picnic sites improved and expanded	Choice of new sites and establishment	Take advice from operators and stakeholders	Sites defined mid 2016, then ongoing	Tourism, Ecologist, Stakeholders	Sunk but 50,000 dependant on complexity	**1**
		Possibility of some separation at current sites		Ongoing	Tourism, Ecologist, Stakeholders		
	1.2.5: Platforms improved and expanded	Makwa site completed	Take advice from operators and stakeholders	End 2016	Tourism, Ecologist, Stakeholders	50,000	**2**
		New sites investigated, established		Ongoing once identified	Tourism, Ecologist, Stakeholders	Sunk	

High priority = 1; Low priority =3

Table C.18: Summary and Three Year Activity Plan – Sustainable Tourism Programme

OBJECTIVE 1: Tourism product improved, expanded and diversified

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
1.2: ZPWMA Facilities upgraded and improved cont.…	*1.2.6: Mobile camping sites expanded*	New site(s) chosen, established	Phased approach	Report mid 2016, then ongoing	Tourism, Ecologist, Stakeholders	5,000	**2**
	1.2.7: Exclusive campsites established	Site(s) chosen	Northern areas have more scope	Report mid 2016, then ongoing	Tourism, Ecologist, Stakeholders	5,000	**2**
		Phased trial initiated	Trial results to define way forward		Tourism		
	1.2.8: Stopping/Stretch points expanded	Site(s) chosen, established	Phased approach using unattended picnic sites		Tourism, Ecologist, Stakeholders		**2**
	1.2.9: Continual improvement of ancilliary ZPWMA services	Rollout of shops, restaurants and fuel		Ongoing	Tourism. Mgmt	50,000	**2**
1.3: Park entrance gates improved and expanded	*1.3.1: Main entrance gates improved*	Mpofu gate established	Reception, toilets, small shop	Early 2017	Tourism. Mgmt	20,000	**2**
	1.3.2: Main Camp Reception and Restaurant Facilities Upgraded	As per the consultancy design	Boma, improved dining area etc	As per funding	Tourism. Mgmt	200,000	**2**
	1.3.3: Tourist entry points opened in response to demand	Dete gate opened and operational	Demand for this gate is sufficient to warrant opening	Open early 2016	Tourism, Mgmt	10,000	**1**
		Other gates considered in response to demand	Depends on development of tourism. Roads also to considered	Ongoing	Tourism, Mgmt		
	1.3.4: Opening hours extended, especially in summer	Opening hours extended	Allows extended time at peak viewing hours in park	Early 2016	Tourism, Mgmt	Sunk	**1**
	1.3.5: Re-entry fees assessed	Re-entry fees waived for general tourists		Decision mid 2016	Tourism, HQ	Sunk	**1**

High priority = 1; Low priority =3

Table C.18: Summary and Three Year Activity Plan – Sustainable Tourism Programme

OBJECTIVE 1: Tourism product improved, expanded and diversified

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
1.4: Annual camps in Wilderness areas established	*1.4.1: Initial sites selected*	Initial site(s) selected	Phased approach	Decision late 2016	Tourism, Ecologist, Stakeholders	Sunk	**2**
	1.4.2: Sites advertised and allocated	Site(s) advertised and tendered		Tenders out Early 2016. Allocation well in advance of season	Tourism, HQ	Sunk	
	1.4.3: Monitoring of camps	Monitoring system in place for camps		To start with camp erection	Tourism, Ecologist,	Sunk	
1.5 Other camps in Wild Zones established	*1.5.1: Chivisa camp established*	Chivisa site selected and tendered	Small exclusion zone for privacy. Decision on pumping	Allocation during 2016 for start 2017 season	Tourism, Ecologist, HQ	Sunk	**2**
1.6 More use made of ranger tours	*1.6.1: Ranger walking tours advertised and expanded*	Walks advertised	At reception, in rooms, on ZPWMA website etc	Immediate	Tourism, Mgmt (for staff allocation)	500	**1**
	1.6.2: ZPWMA guided drives expanded	Additional vehicles converted	Dependant on demand. Needs advertising	Ongoing	Tourism, Mgmt	20,000	
	1.6.3: ZPWMA night drives trialled	Drives advertised	At reception, in rooms, on ZPWMA website, at local hotels etc	Ongoing	Tourism, Mgmt	Part of 1.6.2	
		Bush dinner sites and protocols established	Careful selection of routes and sites	Underway mid 2016	Tourism, Ecologist, Mgmt	Sunk	
1.7 4x4 route established	*1.7.1: Trial 4x4 route and protocols*	Trial routing and camping sites established	Policing protocols to be considered carefully	Trial in 2016 season	Tourism, Ecologist, Mgmt	Sunk	**2**
		Approval of 4x4 guides	Protocols for licensing at local level (i.e. Hwange)	In time for trial	Tourism, Ecologist, Mgmt		
1.8 Horse safari trials	*1.8.1: Trial of day rides in the park*	Main Camp stabling investigated	If not Main Camp then from stables outside the park	Immediate	Tourism, Ecologist, Mgmt	Sunk unless stables	**2**
		Day rides in park	Routing to be defined	Immediate			
	1.8.2: Trial of longer multi-day rides in the park	Multi day trials	Routing not to interfere with other tourism	After success of day rides		Sunk	

High priority = 1; Low priority =3

Table C.18: Summary and Three Year Activity Plan – Sustainable Tourism Programme

OBJECTIVE 1: Tourism product improved, expanded and diversified

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
1.9 Access to the park improved	*1.9.1: Scheduled road services from Victoria Falls*	Encourage private sector to supply services	Demonstrate that the demand is there?	Ongoing engagement with operators	Tourism, Mgmt	Sunk. Operator costs	**3**
	1.9.2: Hwange main airport	Investigation of strip safety	Engagement with DCA	Before end 2016	Tourism, Mgmt		
		Encourage appropriate operator	Identification of operator		HQ		
	1.9.3: Train services investigated	Questionnaire to operators and Vic. Falls hotels etc	Engagement with National Railways of Zimbabwe	Ongoing engagement with operators and NRZ	Mgmt, HQ		
1.10 Visitor information materials accessible	*1.10.1: Professional tourist map on sale*	Encourage private sector to produce map	ZPWMA to consider own version	Immediate	Tourism	10,000	**1**
	1.10.2: Free tourist map available	Update existing map	Liaise with WEZ	Immediate	Tourism	1,000	
		Ensure enough copies on hand to distribute					
	1.10.3: Guide books promoted	Encourage private sector to produce guidebook	Demand will increase with increased tourist numbers	Ongoing	Tourism		
	1.10.4: Other information made available to tourists	Posters in reception and restaurant areas	To reflect common biodiversity issues – elephants, water, fires etc	Immediate	Tourism	500	
		Information sheets in accommodation	Including reasons for water problems etc	Immediate	Tourism	200	

High priority = 1; Low priority =3

Table C.19: Summary and Three Year Activity Plan – Sustainable Tourism Programme

OBJECTIVE 2: Management and administration of tourism improved

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
2.1: Appropriate visitor behaviour defined, publicised and enforced	*2.1.1: Codes of conduct updated and finalised*	Codes finalised	Drafts contained in this management plan	Early 2016	Tourism	Sunk	**1**
	2.1.2: Codes of conduct circulated and publicised	Finals available on internet, as computer files and as printouts	To be included on maps	After finalisation	Tourism		
	2.1.3: Public participation in tourist monitoring	Investigation of the legalities of the system	Liaison with appropriate stakeholders	Immediate	Tourism, HQ		
		Applicants assessed and appointed		After finalisation of 2.1.3	Tourism		
2.2: Visitor statistics collection and analysis improved	*2.2.1: Assessment of data collection needs, recording and analysis systems*	Assessment of current collection and reporting methods and recommendations			Tourism	Sunk	**1**
	2.2.2: Systematic collection and analysis of data	System for recording and timely analysis					
2.3: Lease conditions standardised	*2.3.1: Any new camps will have a standard lease with standardised conditions*	Development of a standardised lease	To be developed in conjunction with HQ	Prior to issuing of tender documents (see 1.4 and 1.5)	HQ, Tourism	Sunk	**2**
	2.3.2: Market related rentals and standardised leases for existing leases	Legalities of this possibility investigated	Liaison with operators	To tie in with lease renewals			
	2.3.3: Formalise operator contributions	Legal advice	May tie into renegotiated leases	Immediate and ongoing		5,000	
		Discussions with operators					
2.4: Reception services improved	*2.4.1: Training of front office staff*	Courses identified	Possibility of bringing course to the park to be investigated	During 2016 and ongoing	Tourism	2,000	**2**
		Courses attended					
	2.4.2: Reception displays improved	Map and posters developed and printed for display	Perhaps part of complex refurbishment (see 1.3.2)? But interim materials to be developed as well	Immediate	Tourism	2,000	**1**

High priority = 1; Low priority =3

Table C.19: Summary and Three Year Activity Plan – Sustainable Tourism Programme							
OBJECTIVE 2: Management and administration of tourism improved							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
2.5: Signage improved	*2.5.1: Elephant proof signs designed*	Investigation of existing signs to see which have lasted		During 2016	Tourism, Mgmt	10,000	**2**
		Trials of improved designs					
	2.5.2: Ongoing refurbishment of existing signs	Painting of signs, repair of broken ones	Not only in areas close to the camps	Immediate, Ongoing			
2.6: Litter management improved	*2.67.1: Design and implement a "trash, trash-out" policy*	Assessment of systems in other protected areas	Approach NGOs for assistance (e.g. WEZ)	Early 2016	Tourism, Mgmt		**1**
		Design and implement for Hwange					
	2.6.2: Improve on-station litter management	Separation system investigated		Ongoing	Mgmt	4,000 for trash removal	
		Liaison with Municipal dumps in nearby towns	Dete, Hwange				
2.7 Visitor impact monitored	*2.7.1: Tourism monitoring framework developed*	Assessment of sites and behaviour	Baseline of sites established	By mid 2016	Tourism, Ecologist	Sunk	**2**
		Visitor satisfaction surveys		Ongoing			

High priority = 1; Low priority =3

Table C.20: Summary and Three Year Activity Plan – Sustainable Tourism Programme

Objective 3: Educational facilities and activities developed, improved, promoted and interpreted effectively

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
3.1: Interpretation facilities established and improved	*3.1.1: Museums open on all stations*	Sinamatella building	Part of Restaurant Complex	By end 2016	Tourism, Mgmt	15,000	**2**
	3.1.2: Displays updated	Main Camp museum updated	Currently ongoing	Immediate	Tourism, Mgmt	5,000	
		Sinamatella displays updated	Include cultural information	Immediate		5,000	
		More natural history displays at Robins	Possible complete revamp	Start in 2016		15,000	
	3.1.3: Package and disseminate research information	Centralised repository of research papers, theses and publications	Probably Main Camp	Initial set up by end 2016	Ecologist, Ext Researchers, Tourism		**3**
		Encourage "popularisation" of this information	Liaise with external researchers	Ongoing			
	3.1.4: Station shops to sell reference materials	Business plan of possibilities	Guide books, maps	Ongoing	Tourism		**2**
	3.1.5: Hwange website established and maintained	Website establishment and maintenance budgeted	Hosting/development as donation?	By end 2016	Tourism, Stakeholders	10,000	**2**
		Funds/assistance sought to ensure that it becomes operational					
3.2: Cultural and historical sites become part of the tourism package	*3.2.1: Inventory of cultural and historical sites*	Inventory of all known sites	In association with National Museums	Database "complete" by mid 2017	NNMZ, Tourism, Mgmt	5,000	**1**
		Site demarcation when appropriate		Ongoing			
	3.2.2: Cultural site map and information developed	Database and map accessible	In association with communities	By mid 2017	Community Stakeholders, Tourism NMMZ	1,000	
	3.2.3: National Museum sites protected	Mtoa and Bumboosi sites protected	From elephants as well as visitors	Recommendations mid 2016 then implementation	NMMZ, Tourism, Mgmt		
3.3: Promotion of educational trips	*3.3.1: Expansion of activities for school groups*	Museum visits		Ongoing	Tourism, Mgmt	Sunk	**2**
		Short walks	Safety protocols established				
	3.3.2: Possibility of dormitory accommodation in surrounding areas	To be pursued with landholders adjacent to the park			Tourism, Stakeholders	Sunk	**3**

High priority = 1; Low priority =3

Table C.21: Summary and Three Year Activity Plan – Sustainable Tourism Programme

Objective 4: Branding and marketing of Hwange focussed and coordinated

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
4.1: Hwange brand clearly defined	*4.1.1: Development of the Hwange brand*	Suitable consultant sought	Liaison with operators	Commission mid 2016	Tourism, Consultant		**2**
		Brand developed				5,000	
	4.1.2: Wilderness and walking established as a significant part of the Hwange experience	Walking trails encouraged	Already an key part of tourism in Hwange	Ongoing	Tourism, operators	Sunk	**1**
		ZPWMA to become more active	Short walks from stations				
	4.1.3: Operators to be graded	Operator grading system developed	To ensure high-quality reputation for Hwange	System established by end 2016	Tourism		
4.2: Regional tourism promoted	*4.2.1: Hwange to attract visitors from the Victoria Falls*	ZPWMA in Victoria Falls to liaise with Hwange to raise the Hwange visibility	Liaison with hotels and tour operators	Ongoing but with specific	ZPWMA Hwange and Vic Falls		**2**
	4.2.1: Integration into the KAZA tourism circuit	ZPWMA to ensure attendance at all KAZA meetings	Ensure Hwange is featured in any KAZA tourism materials	Ongoing	Tourism	1,000	**3**

High priority = 1; Low priority =3

The following table summarises the "deliverables" that can be expected to ensure that the Sustainable Tourism Programme is implemented. It focuses on things that can be can be "ticked off" and is expected to act as a guide to help with the implementation of this programme.

Table C.22: Plan "deliverables" summary – Sustainable Tourism Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
Objective 1: Tourism product improved, expanded and diversified			
	Road plan and design	New roads and improved roads	Isilwane/Nantwich contributing to park income
	Cost benefit analysis of privatising main camps	Tar road repaired	Deka lease allocated
	4x4 route protocols	Improved accommodation units at all camps	Bumboosi lease renegotiated
	Maps available (free and for sale)	Solar/electric hot water systems	Extended gate opening hours
	Guide book?	Showers installed	Re-entry fee decision
	Information posters	New and improved picnic sites	ZPWMA night drives
		New and improved platforms	Horse safaris
		New mobile sites	
		New exclusive campsites	
		New unattended picnic sites (stopping points)	
		Shops/restaurants at all stations	
		Mpofu entrance gate	
		Dete (and other) limited access gates opened	
		Annual camps	
		Chivisa camp	
OBJECTIVE 2: Management and administration of tourism improved			
Improved, accessible tourism data	Codes of conduct	Improved reception displays	Trash-in, trash-out programme
	Standardised lease draft for Hwange	Improved signage	
	Tourism monitoring framework	Litter system at stations	

Table C.22: Plan "deliverables" summary – Sustainable Tourism Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
Objective 3: Educational facilities and activities developed, improved, promoted and interpreted effectively			
Hwange website	Cultural site inventory	Museums functional with updated displays	Improved product diversity in shops
		Protection of major cultural sites	Improved activities for children
		School accommodation in adjacent areas	
Objective 4: Branding and marketing of Hwange focussed and coordinated			
	Hwange brand documentation		Records of KAZA |meetings
	Advert materials for Victoria Falls		

C.10 ENVIRONMENTAL IMPACTS AND MITIGATION

This section provides a brief summary of the possible environmental effects of some of the activities and developments that will be carried out by this programme. Possible mitigation measures are also outlined. All major developments such as roads and camps must have an environmental assessment. However, in the case of tracks and campsites it may be enough to draft an environmental statement rather than carrying out a full, legally compliant, environmental assessment which can be expensive and time consuming.

Table C.23: Mitigation measures for the Sustainable Tourism Programme

Development/Activity	**Potential Impact**	**Mitigation Measures**
Roads (internal tracks)	• Erosion • Opening up of new areas	• Proper drainage • Correct alignments • Adherence to limits of use
Annual and Semi-permanent camps	• Site degradation • Litter • Aesthetic aspects • Permanent presence (positive)	• Professional EIA • Tight leases • Proper policing
Escorted walking	• Increased risks to visitors	• Trained staff
4x4 access to remote areas	• Degradation of wilderness • Information about illegal activities (positive)	• Education of visitors • Policing
Opening up cultural sites to visitors	• Defiling of sites by visitors • Loss of spiritual value to community	• Education of visitors • Policing • Defining which can be visited

D PARK OPERATIONS, ADMINISTRATION AND INFRASTRUCTURE PROGRAMME

D PARK OPERATIONS, ADMINISTRATION AND INFRASTRUCTURE PROGRAMME

D.1 PURPOSE, BACKGROUND AND KEY COMPONENTS

D.1.2 Programme Purpose

PARK OPERATIONS, ADMINISTRATION AND INFRASTRUCTURE PROGRAMME PURPOSE:

Transparent, accountable and efficient administration and management of human, financial and physical resources to support the Hwange National Park's purpose

D.1.2 Background

The Park Operations Programme is the core programme for the management of Hwange. This is the foundation on which effective protection of the environment and utilisation of its resources through tourism depends. If the Park Operations Programme is not effective then it is likely that the park will fail to achieve its objectives outlined in the other three programmes.

Hwange is effectively managed as three parks – Main Camp, Sinamatella and Robins. In addition, the Makona sub-station has been established on the Tsholotsho boundary. As we shall see this is expected to mature into a full station with its own area of jurisdiction. All Area Managers are on equal superiority and the central command lies with the Regional Manager in Bulawayo. It should also be noted that the Area Manager of Robins has the added responsibility of the management of Kazuma Pan NP.

Figure D.1 Hwange management areas

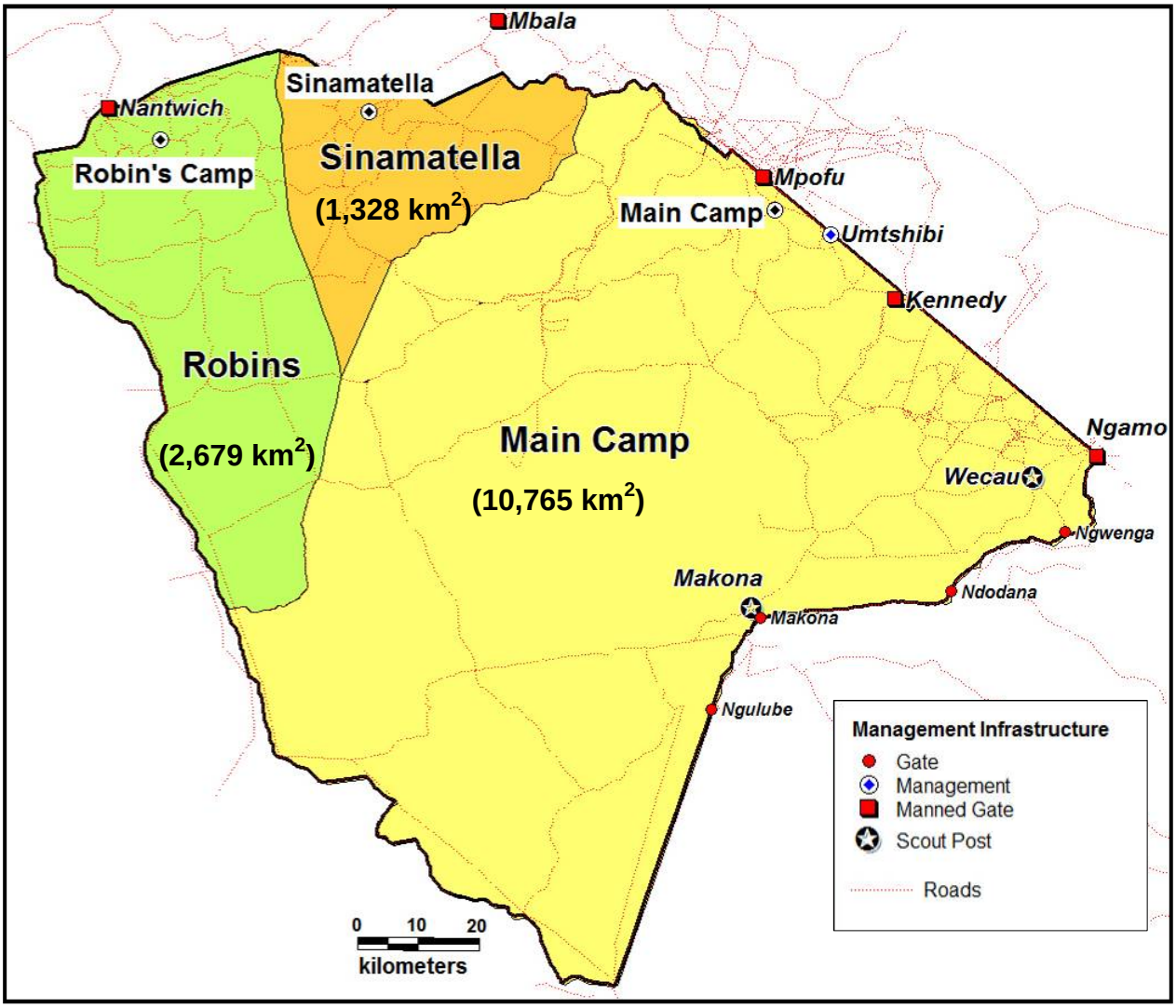


Table D.1: Salient features of the three administrative areas		
Main Camp	**Sinamatella**	**Robins**
Area: 10,765 km^2	**Area**: 1,328 km^2	**Area**: 2,679 km^2
Park %: 73%	**Park %**: 9%	**Park %**: 18%
Geology: Mostly on Kalahari Sands with extensive "mudflats" on basalts in the Dzivanini area	**Geology**: Basement complex and undifferentiated sandstone. Elevated eroded hills	**Geology**: Batoka basalts in the north with some extensive, poorly drained mudflats. Kalahari sand in the south
Drainage: Undefined drainage on Kalahari sand. Fossil drainage feeders into the Nata catchment in the south. Numerous pans	**Drainage**: Inyantue and Lukosi drainage	**Drainage**: Mainly drained by the Deka and part of the Lukosi.
Pans: 41 pans pumped in 2014	**Pans**: 9 pans pumped in 2014	**Pans**: 3 pans pumped in 2014
Vegetation: Broad mix of woodland and bushland. Mopane in extreme south	**Vegetation**: Mopane and mixed bushland	**Vegetation**: Mainly mopane woodland in the north and mixed *Baikiaea* woodland in the south
Roads: 2,400 km of roads with 262 km of class 1 and 2 roads, 2,040 km of class 3 and 4 roads.	**Roads**: 482 km of roads with160 km of class 1 and 2 roads, 313 km of class 3 and 4 roads.	**Roads**: 893 km of roads with 73 km of class 1 and 2 roads, 758 km of class 3 and 4 roads.
Tourism: Main camp with over 100 beds. Seven leased concessions totalling 1,000 km^2.	**Tourism**: Sinamatella camp with 40 beds. Three leased concessions and one leased camp (Bumboosi) with concession areas totalling 130km^2.	**Tourism**: Robins Camp with 80 beds. Parks owned camps at Nantwich and Deka – currently vacant.
Management Concerns: Water management, fire, elephants, poaching	**Management Concerns:** Erosion surfaces, eroding river crossings, Fire. Rhino, poaching	**Management Concerns:** Fire and poaching. Kazuma Pan is part of Robins responsibility
Staff: 102, 66 rangers	**Staff:** 75. 44 rangers	**Staff:** 40, 27 rangers

An organisation is only as good as its staff and a strongly motivated team mean that the chances of plan implementation are greatly increased. A key component of the Park Operations Programme is the improvement of morale on the field stations. Training of staff to improve their effectiveness is also an important part of improving morale

A perennial problem for many management authorities is insufficient staff and Hwange is no exception. However, increasing staff numbers without a corresponding increase in the housing, equipment and other resources to enable them to carry out their duties effectively, would be counterproductive. At worst it could strain the existing facilities and equipment without improving the management effectiveness of the station. In addition, many of the current staff houses are in need of renovation and upgrade.

Illegal use of natural resources in protected areas is an ongoing and perennial problem and the Hwange is no exception. Currently all stations carry out extended patrols (7-14 days) and day patrols, but at a relatively low level. Many parts of the park are difficult to access, especially during the rains and this means that illegal activities can be difficult to detect. Types of illegal activity include poaching with weapons, snaring, removal of plant products etc. Although protection of resources is a key issue for the Biodiversity and Natural Resources Management Programme the day-to-day execution of anti-poaching is covered under the Park Operations, Administration and Infrastructure programme as the staff carrying out these duties fall directly under park management.

Fire is another programme cross-cutting issue. Fire records have been kept since the 1960s and they show that fire is a major issue for the park. As with anti-poaching monitoring and research of fires and their effects on the environment are carried out by the Biodiversity and Natural Resources Management Programme but the implementation of fire prevention and control activities fall under the Park Operations, Administration and Infrastructure programme.

An important, and sometimes overlooked part of park operations is maintenance. Good maintenance of equipment will extend its useable life, reducing the need for new equipment. In addition, training of staff to respect and handle equipment properly can go a long way towards reducing losses, and this includes defensive driving.

In order to effectively manage a national park a minimum amount of equipment is required and Hwange has a shortfall of vehicles and other essential equipment. The significant upgrade and redevelopment of the road system is expected to take place during the life of this plan, a task that will be greatly facilitated with proper road building and maintenance equipment.

Communications are another fundamental part of park management. Radio communications between HQs, field stations and patrols on the ground are vital to effectively combat illegal resource use, fires and to bolster the morale of the field staff. As the park is split into three separate management sectors communications between these sectors is important for management and tourism. Finally there is the issue of communications between the field staff in Hwange and the higher chain of command – i.e. regional HQ in Bulawayo and national HQ in Harare.

Management and maintenance of the supplemented water system is an important part of this programme. Hwange Main Camp has a separate workshop devoted to game water supplies the function of which is to ensure that pumps are working throughout the pumping season. However, in recent years, NGOs and operators assist with the pumping of water by taking on responsibility for selected boreholes and pans.

D.1.3 Key Components

The Park Operations, Administration and Infrastructure programme is at the core of park management. This programme underpins the other three programmes and the key responsibilities or components of park management that this programme addresses are briefly outlined below (Table D.2).

Table D.2: Key components of the Park Operations, Administration and Infrastructure Programme

Component	Brief Description
Anti-poaching	Policing and anti-poaching is a big part of the management of a protected area. Much of it is the routine patrolling, but staff also need to be able to respond to specific incidents. This activity is strongly linked to the Biodiversity Programme.
Water Management	Management and maintenance of the approximately 60 supplemented water points in the park is a massive and expensive task. Currently the ZPWMA receives assistance with this activity from various stakeholders but nothing is legally formalised.
Access	Roads, tracks, bridges and airstrips. The park has approximately 3,800 km of roads and tracks, many of them being in poor condition. Wet season access is severely restricted. River crossings in the north can be problematic.
Buildings	Construction and maintenance of offices, staff housing, gates and outposts. This component does not include the tourism infrastructure (lodges, campsites etc) which falls under the Tourism Programme
Transport	Reliable transport is vital for effective management of a park. Equipment needs to be properly cared for and maintained. Until recently the vehicle situation in the park was dire but has now been improved.
Staff Welfare	Staff welfare and morale is a very important part of park management and these issues need to be addressed effectively to ensure that the park is properly secured
Finances	Correct management of finances, especially as each park is striving to be financially self-sufficient, is an important component of the Park Operations Programme.
Fire Management	Fire management is carried out through this programme but is also closely linked to the Biodiversity Programme.
Communications within ZPWMA	ZPWMA, as an organisation, is run from the Harare HQ, although field managers do get some autonomy. Good communications between the HQ and the park is vital for effective management.
Staff capacity building	Well trained staff contribute towards an effective and motivated force. Capacity building of staff at all levels is important.
Field Communications	Telephone, radio and other communication means between the park and the outside world. Also refers to internal park communications, usually by radio. (radios, repeaters, emergency channels, channels)
Boundaries	The maintenance of the boundaries falls under this programme.

D.2 THREATS, ISSUES AND CONCERNS

There are a number of issues and concerns specific to the Park Operations, Administration and Infrastructure Programme. These are briefly outlined below (Table D.3), prior to being described in more detail in the tables that follow (D4-D6). Broad categories are used to help simplify the approach and assist with the development of the objectives (section D.4).

Table D.3: Summary of threats, issues and concerns
Park Operations, Administration and Infrastructure Programme

Cat	Issue	Cat	Issue
Management	o Split management o Communications o Poaching o Ration/ management hunting o Fire o Management partnerships o Law enforcement o Unauthorised people on stations	**Infrastructure/Resources**	o Size of area o Porous boundary fence o Inadequate road network o Poor rainy season access o Firebreaks o Insufficient staff o Inadequate staff housing o Insufficient vehicles o Insufficient equipment o Proper functioning of game water supply o Poor communications o Water Issues o Ageing Infrastructure o Power Issues
Staff Motivation	o Challenging conditions o Insufficiently trained staff o Low morale o Loss of expertise o Payment Issues		

Table D.4: STAFFING AND MORALE issues and concerns
facing the Park Operations, Administration and Infrastructure Programme

Issue/Concern	Brief Description
Challenging conditions	Hwange is a relatively remote park and many staff come from other parts of Zimbabwe. The nearest town is Hwange which is accessible from both Sinamatella and Main Camp easily. However, conditions on station are challenging with respect to accommodation, schooling and health care.
Insufficiently trained staff	Many of the staff on station are of ranger grade. Training of staff is important, both in field and management skills. Currently there is not enough staff training to ensure that the staff are adequately trained for their tasks.
Low morale	Factors that contribute towards low morale **Health**: Although there is a rudimentary clinic at Main Camp, there are no health facilities at Sinamatella or Robins. **Education**: There is a school at Main Camp but no facilities at other stations **Transport**: Transport to shops and other centres is limited **Low Salaries**: Salaries in government are not high and sometimes paydays are delayed **Poor Accommodation**: This is mentioned elsewhere but contributes towards low morale.
Loss of expertise	Promotion and rotation of staff is a management strategy for the ZPWMA. Unfortunately this sometimes means that knowledge and expertise is lost to the stations. In addition, older staff are lost through retirement.
Payment Issues	Payments can be late to both staff and casuals. In fact some casuals report very late payments which is a problem as they may be reluctant to work for ZPWMA in the future.

Table D.5: MANAGEMENT issues and concerns facing the Park Operations, Administration and Infrastructure Programme	
Issue/Concern	**Brief Description**
Split management	Hwange National Park is split into three management units, each with an area manager. This effectively means that management of the park is split administratively. Each unit is responsible for its own protection and community activities, management of its own tourism etc. Reporting is to the Area Manager in Bulawayo who deals not only with Hwange, but also with other parks and safari areas in Matabeleland North and South.
Communications	Communications between the field and headquarters can be problematic. This is an ongoing problem in management authorities with a centralised chain of command. Sometimes decisions are made in HQ that will impact operations on the ground without enough consultation.
Poaching	Poaching, both for trophies and meat, is an ongoing problem within the Hwange National Park and surrounding areas. This is a problem for the Biodiversity programme but the control of this illegal activity falls to the management programme.
Ration/ management hunting	This is an ongoing activity in national parks and appears to be more of a concern for the tourism programme than for biodiversity. It becomes a matter of public relations and the ZPWMA has already responded to concerns by reducing quotas and moving the hunting to other areas (which may already be over-utilised – but that is another issue).
Fire	Fire is essentially a biodiversity problem but the management and control of fire falls within the ambit of the Park Management Programme. Wild fires have the potential to adversely affect large portions of the park but it appears that the situation is under better control in recent years. It should be noted that although Main Camp has a fire management plan, it has not been updated for some time but this should define the firebreak network and the early burning regime (if any).
Management partnerships	The long-term viability of management partnerships is a concern. Currently private sector assists with game water supplies and infrastructure maintenance but this is not a formal agreement with well defined responsibilities
Law enforcement	Law enforcement activities are centred around pro-active patrols and reactive missions. However, there does not seem to be a systematic approach to the patrol system and monitoring of results with a feedback loop for planning of law enforcement activities.
Unauthorised people on stations	Concern was expressed about the numbers of people staying in the accommodation at the development areas, especially Main Camp. There may be significant numbers of unauthorised people residing in these camps.

Table D.6: INFRASTRUCTURE AND RESOURCES issues and concerns facing the Park Operations, Administration and Infrastructure Programme	
Issue/Concern	**Brief Description**
Size of area	Related to the low numbers of staff and insufficient equipment is the size of the area. At 14,000 km2 law enforcement and infrastructure maintenance is an expensive business.
Porous boundary fence	The Tsholotsho boundary with the park is with a veterinary standard fence but its integrity has been compromised with strands fluctuating between 4 and zero. The fence is an important definer of the park boundary to the community and, if it were intact, could help to stop livestock incursions into the park. In addition, a wildlife buffer zone was established to the east of the park boundary and this was also fenced. This fence appears to have completely disappeared with much of the wire probably going into snare material.
Inadequate road network	Much of the road network is in a poor state. Many roads are unusable during the rains and a number of road alignments in the south still need to be opened. This is a cross-cutting issue that affects the tourism programme as well.
Poor rainy season access	Once the rains have set in properly access to much of the park becomes problematic. This makes management responses to problems over much of the park either slow or impossible.
Firebreaks	Although the firebreak situation has improved in recent years with inputs from the private sector, it is still a massive annual undertaking in terms of manpower and equipment. The park does not have an up-to-date fire management plan.
Insufficient staff	There are currently 220 staff for the park, with 65% of these (143) being rangers. This indicates a staffing level of one ranger per 100 km^2, clearly inadequate for effective policing.
Inadequate staff housing	Even at the current staff levels there is not enough accommodation. This sees tourism facilities being taken over by senior staff and junior staff having to share inadequate accommodation units. There are also issues with the quality of accommodation with some units been sub-standard. Poor accommodation contributes to low morale. Finally, the plan is likely to recommend increased enforcement staff. This will be meaningless without accommodation expansion and improvement.
Insufficient vehicles	The park has 10 light vehicles split between three stations. The situation improved in 2013 with a donation from Mbada Diamonds but there is still not enough to ensure that all facets of park management are carried out effectively. In addition, there is need for a staff bus to ferry children from the station to school and staff to town for resupply. Currently management vehicles are used for this purpose.
Insufficient equipment	As with the vehicles, the equipment available for park management activities is inadequate. Equipment in this case also refers to tipper trucks, tow graders, tractors etc. Apart from this type of equipment there are also problems with respect to sufficient and appropriate fire fighting and basic patrol equipment (e.g. tents, boots, radios etc). For these activities to be carried out effectively this type of equipment has to be on hand and functional.
Proper functioning of game water supply	As mentioned elsewhere at least 60 boreholes are being pumped during 2014. The funding and maintenance of this system is a daunting task, starting with ensuring that sufficient diesel in on hand and can be supplied to the pumps at the right time. In addition, during the pumping season many pans have pump attendants (usually casual labourers) and they need to be housed, supplied and to have communications.

Table D.6: INFRASTRUCTURE AND RESOURCES issues and concerns facing the Park Operations, Administration and Infrastructure Programme	
Issue/Concern	**Brief Description**
Poor communications	All stations are now equipped with internet which is a significant step forward. Main Camp is on the cell phone network and there are selected spots at Sinamatella where signal can be found. However, the network at Main Camp is sporadic and leads to a reduction in management effectiveness. This could be resolved through the installation of a booster system? Or perhaps there is a case to approach cell phone companies for installation of a more effective system.
Water Issues	The supply of water to the stations is the responsibility of ZINWA and the ZPWMA pays them to supply water. However, at all stations water supply is problematic and erratic. This can have consequences for the tourism programme as well. At Main Camp, elephants, in their quest for water, will damage the main water supply lines leading to erratic supply. At Sinamatella the pump is sometimes not functional and the pipes appear to have been constricted by deposits will lead to inadequate water supplies.
Ageing Infrastructure	The three management stations have infrastructure from the 1960s and before and some buildings have not been maintained sufficiently. In addition the sewerage system at Main Camp has some serious issues.
Power Issues	All stations are supplied by ZESA. Robins is fortunate enough to be on the supply line to Botswana where ZESA ensures that the supply is continuous as it is selling power to that country. However at Main Camp and Sinamatella the power supply is sporadic and problematic. Main Camp has an auxiliary power supply system for the restaurant and limited supply to the tourist accommodation but this does not extend to the offices and workshops.

D.3 GUIDING PRINCIPLES

The Park Operations, Administration and Infrastructure Programme is the supporting programme for all management of the park. This programme is the foundation on which effective protection of the environment and the sustainable utilisation of resources through tourism depends. If this programme is not effective then it is likely that the other programmes will fail.

The programme will ***address issues related to the human, financial and physical resources within the park,*** and take into consideration the applicable national policies and legislation while doing this. It aims to ensure that Hwange's exceptional resource values are maintained through effective use of available resources and existing infrastructure. The programme will incorporate lessons learnt from the past, and combine this with best practise gleaned from the modern conservation era for implementation of this plan.

1. Trained and motivated staff are the most important asset for park management
2. Management and financial resources are finite
3. Park infrastructure and activities designed to cause minimal environmental impact
4. Good access and communications are vital for effective management
5. Quality and transparency needed in all spheres of operation

1 Trained and motivated staff are the most important asset for management

Staff are more likely to operative efficiently if they are well motivated. This includes fair salaries which are paid promptly, and decent living and working conditions. In addition, training is an important component for staff morale as it improves their effectiveness and value to the Authority, as well as to themselves. Furthermore adherence to the disciplinary code also helps to ensure that morale remains high.

2 Management and financial resources are finite

The Park Operations, Administration and infrastructure programme recognises that management and financial resources are finite, and the use of available resources needs to be applied in the most effective way.

3 Park infrastructure and activities designed to cause minimal environmental impact

Park infrastructure, which includes roads, airstrips, headquarters communications equipment, staff quarters etc, can have an adverse effect on the environment if not properly designed and located. Conservation of Hwange's Exceptional Resource Values and biodiversity will take precedence in all management actions and decisions. All developments and activities will be designed and conducted so as to have minimal environmental impact.

4 Good access and communications are vital for effective management

One of the primary factors which will improve the effective management of protected areas is a good communications infrastructure. Roads and bridges need to be up to certain standard to ensure that staff are able to respond to security situations and that resupply is feasible. Investment in upgrading and maintaining these links is of paramount importance.

In addition, an efficient and reliable communications system is necessary to ensure that park management is effective. This is true both for communications between the field and the Authority headquarters in Harare, and for communications between the management stations, outstations and staff out on patrol.

5 Quality and transparency needed in all spheres of operation

Quality and transparency will be the benchmark for infrastructure and equipment procurement, construction and maintenance. In addition, staff will set the example of best practise as park users.

D.4 OBJECTIVES, TARGETS AND ACTIVITIES

Six management objectives have been described for the Park Operations, Administration and Infrastructure Programme. The objectives, their targets, actions and activities were defined after a detailed analysis of the current management systems and an analysis of the threats, issues and concerns facing the programme. The programme purpose and the guiding principles also played a major role during the process. Nowhere is the issue of cross cutting activities more apparent than for the this Programme and some activities such as anti-poaching and fire management are defined as part of other programmes but their implementation is through this programme.

There is a text description of the objectives and their subsequent activities prior to the tabular presentation of the three year action plan, which represents the heart of the programme.

Objective 1: Effective and efficient human resource base available

Targets

1.1: Sufficient numbers of trained staff on stations
1.2: Ongoing training of staff
1.3: Staff welfare improved
1.4: Performance and professionalism of staff improved

Objective 2: Appropriate infrastructure improved

Targets

2.1: Management road network improved
2.2: Staff housing improved and maintained on existing stations
2.3: Station management buildings improved and maintained
2.4: Makona station expanded
2.5: Aerial support for Hwange improved
2.7: Reliability of station water supplies improved
2.8: Buildings and other immovable structures maintained

Objective 3: Adequate equipment acquired

Targets

3.1: Sufficient and appropriate vehicles available for management activities
3.2: Sufficient and appropriate patrol equipment
3.3 Communications network improved
3.4: Offices properly equipped
3.5: Adequate fire-management equipment on stations
3.6 Plant and equipment maintained effectively

Objective 4: Resource protection optimised

Targets

4.1: Comprehensive and operational law enforcement system in place
4.2: Fires effectively controlled

Objective 5: Improved financial management accountability

Targets

5.1: Financial plans and revenue collection strategies improved
5.2: Sustainable financing mechanisms
5.3: Internal reporting systems improved

Objective 6: Sustainable management of water provision for biodiversity

Targets

6.1: Water management plan
6.2: Reduced reliance on pumped water
6.3: Pump management systems
6.4: Monitoring

Objective 1: An effective and efficient human resource base available

Effective management of the park requires a well trained, professional and motivated workforce of a size commensurate with the size of the park. As with most protected areas in Africa, Hwange does not have sufficient staff to meet its management mandate and this has to be addressed. However, the housing facilities available at present are not adequate even for the current staff on the stations. Any increase in staff numbers will need to address the housing issue.

Target 1.1: Sufficient numbers of trained staff on station

Action 1.1.1: General staff establishment increased

The following table (D.7) outlines the shortfall of staff for Hwange. In addition, the Makona sub-station is expected to expand and become an station in its own right. However, given the constraints with employing more staff this plan recognises that it may be a more sustainable position to have fewer, well motivated staff than a large number of un-trained and ineffective people on the stations.

Table D.7: Current staff establishment compared to approved establishment

C= Current; P=Proposed; S=Shortfall	**Main Camp**			**Sinamatella**			**Robins**		
Position	**C**	**P**	**S**	**C**	**P**	**S**	**C**	**P**	**S**
Area Manager	1	1	0	1	0	0	1	1	0
Senior Wildlife Officer	1	1	0	1	0	0	0	1	1
Wildlife Officer	0	2	2	1	0	0	1	1	0
Senior Ranger	3	4	1	3	0	0	2	2	0
Ranger 1	12	16	4	10	0	0	5	12	7
Ranger 2	17	30	13	30	0	0	13	15	2
Ranger 3	34	50	16	1	0	0	7	15	8
Senior Ecologist	1	2	1	0	0	0	0	0	0
Ecologist	2	3	1	0	1	1	0	0	0
Senior Ranger–Scientific Services	1	2	1	0	0	0	0	0	0
Ranger 1-Scientific Services	0	3	3	2	0	0	0	1	1
Ranger 2-Scientific Services	1	5	4	1	0	0	0	1	1
Ranger 3-Scientific Services	2	6	4	0	0	0	0	1	1
Medic	2	5	3	0	1	1	0	1	1
Clerk	4	5	1	1	0	0	1	2	1
Reservationists	3	5	2	2	0	0	1	2	1
General hand	9	25	16	1	7	7	0	6	6
Lodge attendant	8	20	12	9	6	6	1	9	8

Table D.7: Current staff establishment compared to approved establishment									
C= Current; P=Proposed; S=Shortfall	**Main Camp**			**Sinamatella**			**Robins**		
Position	**C**	**P**	**S**	**C**	**P**	**S**	**C**	**P**	**S**
Linen attendant	0	4	4	0	0	0	0	4	4
Handy man	3	9	6	3	0	0	2	2	0
Ranger 3 - (Stores man)	1	2	1	0	0	0	0	1	1
Ranger 3 - (Workshop assistant)	1	3	2	1	0	0	0	2	2
Ranger 3 - (Drivers)	5	8	3	2	0	0	0	4	4
Ranger 3 - (Gate attendants)	4	10	6	2	0	0	sunk	sunk	sunk
Ranger 3 - (Night watchman)	3	6	3	0	0	0	sunk	sunk	sunk
Ranger 3 - (Radio operator)	1	3	2	2	0	0	sunk	sunk	sunk
Ranger 3 - Commercial services	1	2	1	1	0	0	0	0	0
TOTAL	**120**	**232**	**112**	**74**	**14**	**14**	**34**	**83**	**49**
Patrol Staff Totals (field rangers)	**66**			**44**			**27**		

The first step will need to be a full staff assessment using this broad overview as the starting point. Area Managers should take the lead in such an assessment. The fact that rangers are often assigned to other management tasks also needs to be taken into account, as this depletes the pool of rangers available for enforcement duties.

Action 1.1.2: Makona Station staff establishment

The Makona sub-station was started in 2013 with the construction of two buildings, one for the station manager and the other for use as an office. ZPWMA proposes to build an additional 20 staff houses estimated to cost $170,000. This will increase staff compliment in this area to between 20 and 40 ranger staff. The ideal breakdown is shown below (Table D.8).

Table D.8: Additional staff for Makona	
Position	**Number**
Senior Wildlife Officer	1
Senior Ranger	2
Ranger 1	8
Ranger 2	15
Ranger 3	19
Radio operator	2
TOTAL	**47**

Target 1.2: Ongoing training of staff

Action 1.2.1 Capacity building and training programmes implemented

Training needs for Hwange need to be identified, and a training strategy for staff at all levels developed. Where possible, suitable in-house training programmes will be developed and implemented. As a point of interest, it has been noted that there are a significant number of experienced staff who are approaching retirement age. Some method of capturing their experience and passing it onto newer and less experienced staff should be sought.

Capacity-building and training programmes are a further important part of any effective organisation. The range of duties of Park staff are wide, with certain positions requiring extensive contact with the public such as tourism officers, field rangers are often engaged in highly sensitive law enforcement operations and technical staff need to engage in specialised duties. Failure on the part of Park management to constantly appraise and provide ongoing training and refresher courses for staff could have serious public relations, legal, or safety consequences. A range of training options should be explored, inclusive of developing cost-effective in-house training programmes.

Vehicles are expensive items to purchase, run and maintain and many of them have a limited life span. Although this can be due excessive use some of the problems can be traced back to poor driving and maintenance. It is recommended that all drivers of station vehicles undergo proper training in basic off-road driving skills and basic maintenance. This could go a long way towards extending the life of the vehicles.

Target 1.3: Staff welfare improved

Zimbabwean national parks are often located in remote areas of the country and, as such, present the staff in them with challenging conditions. The stations are often remote and far away from services such as health and education. In order for the staff to be motivated and content the supportive structures need to be in place.

Action 1.3.1: Education – Strategy to improve education of staff children developed
Action 1.3.2: Education - Practical interim solution for education of Robins and Sinamatella children

Currently, only Main Camp has a functional school and clinic. These facilities are often a function of station size with smaller stations not having reached the “critical mass” needed to fund these them. Consequently the schooling and health facilities at Sinamatella and Robins are rudimentary. There is some external support to the school at Main Camp from NGOs and tour operators . How is the school funded?

Logistically and financially the matter of educating of school children for staff is complex and costly, and a strategy for each station within Hwange must be developed to deal with the issue of education of staff children. This is a matter of urgency.

Action 1.3.3: Health – Strategy to improve heath-care access for Parks staff
Action 1.3.4: Health - Health and safety awareness
Action 1.3.5: Health - Hospital access assured

It is imperative that a strategy to improve health-care access for Parks staff is developed. This could include the development of on-station facilities should this fit in with the vision for the authority and is practical from a staffing, equipment and drug supply perspective. Monthly baby clinics must be conducted at each station.

Main Camp has a clinic staffed by a sister and two nurses. Ideally, the clinic needs to be mobile to visit outstations where there are no medical services. However the system is challenged by fuel and vehicle issues. In addition the procurement of appropriate drugs is erratic. The Main Camp clinic building is in need of rehabilitation.

AIDS awareness programmes should be constantly updated and implemented. Malaria prevention programmes will be carried out, and basic first-aid training courses for field rangers conducted annually.

The nearest hospital to the Hwange management stations is in Hwange town and it is important that serious cases can be taken to this facility should the need arise.

Action 1.3.6: Staff access to shops and social events provided

All three stations now have small shops and these stock basic goods. Prior to this all shopping had to be done outside the park. There is still a need for supplementary shopping and it must be considered in the planning of vehicle access. There may be a need for staff to attend funerals and, in addition, access to social events also needs to be considered. These demands need to be factored into plans for the use of vehicles and fuel.

***Target 1.4:* Performance and professionalism of staff improved**

As mentioned before it may be a more pragmatic policy to ensure that existing staff are well trained and motivated prior to employing new staff who would be relatively inexperienced. It is also vital that staff morale is high and it is important that staff and their behaviour is properly appraised, both for promotion and rewards, as well as for any disciplinary actions. This will promote a positive attitude on the stations.

Action 1.4.1: Code of conduct implemented

The ZPWMA has developed a detailed code of conduct complete with conditions of service and a disciplinary code. Staff will be made fully aware of content at all times, and managers will implement the code of conduct accordingly, referring to the appropriate clauses in the manual during disciplinary hearings.

Action 1.4.2: Appraisal and incentive system developed

In order to motivate staff an appraisal and incentive system to reward staff for good performances should be established. The incentive system would need to be transparent to ensure that hard work is rewarded.

Action 1.4.3: Industrial relations harmonised

Worker's committees form an important link between management and staff and should meet regularly. Grievances should be communicated to management through the appropriate channels, and transparent and timely feedback to staff is of great importance.

Objective 2: Appropriate infrastructure improved

There has been significant investment in Hwange management infrastructure in the past but maintenance has not been able to keep pace with deterioration.

Roads Hwange has a significant road network, especially in the north and the heart of this is a tar surfaced 60 kilometre link between Main Camp and Shumba Pan. This road was constructed in the 1960s and significant portions of it have fallen apart, currently with more use of the verge than the remaining tar by traffic. Many of the roads are tracks and best to be used by 4x4 vehicles. However there are several roads, especially those linking the stations, which can be used by 2x4 vehicles. In addition a number of game drive tracks in the vicinity of the main stations are also suitable for 2x4 vehicles.

Bridges There are numerous bridges and low level crossings in the more broken terrain near Sinamatella and Robins Camp and many of these are still functional and intact. However, there are some notable exceptions.

Airstrips: The airstrip network was extensive in the past with at least 20 strips functional. Many of these were developed in response to the culling programme and most of these are now no longer in use. The Main Camp strip was tarred but lack of maintenance means that most of it is unusable, although experienced pilots are able to use a section of it. Large airstrips are available at Sinamatella, Robins and Umtshibi. A recent addition has been a large airstrip constructed at Manga 3 to service Somalisa camp.

If deemed appropriate, internal environmental assessments will be carried out prior to construction of any infrastructure. However, should larger projects be considered it may be necessary to carry out an environmental assessment which includes a larger stakeholder input with final approval through the Environmental Management Authority.

Target 2.1: Management road network improved

As seen in the Tourism Programme there is a need to expand the tourist road network (see Target 1.1 of that Programme). Hand-in-hand with this there is a need to improve the management road network and it is important that these two activities are coordinated as some roads will serve both functions.

Action 2.1.1 Road plan developed

In conjunction with the tourism programme a road plan needs to be developed. This should define the proposed alignments as accurately as possible, the expected surface and status of the road and a justification for its opening, upgrade or realignment. Sources of materials also need to be defined and the equipment required to carry out the work listed. The road plan should also take into account the present and future access to the park. An annual maintenance plan for all roads must be drawn up at the same time.

An important part of this road plan will be an assessment of all river crossings in the north. Crossings that are in danger of being washed away need to be repaired or realigned as a priority.

Action 2.1.2 Road plan implemented

The implementation of the road plan will require a significant financial and labour input. Sourcing of funding for this may be difficult to find, or else could take some time. Therefore the road plan needs to be prioritised so that if funds are limited work can be phased across the priorities.

Target 2.2: Staff housing improved and maintained on existing stations

Existing housing for staff is generally in poor condition and in need of renovations. In addition, there are not enough units on station which means that some staff have to share while others use tourism accommodation as a "stop-gap" measure.

It is vital that the accommodation situation is developed in conjunction with any plans to increase staff numbers in the park.

Table D.9: Current houses and house shortages in Hwange

Locality and house types	Currently Available	Number vacant	Current shortage	Approved establishment shortage	Total new houses needed
Main Camp :					
Managers Houses	20	0	0	3	3
F13	3	0	9	17	17
F15	2	0	2	4	4
R 27	2	0	0	0	0
R 26	50	5	0	0	0
2 roomed/veranda	69	22	0	0	0
2 roomed/outside kitchen	12	1	0	0	0
4 roomed/veranda	4	0	0	0	0
3 roomed/toilet and bath	2	0	0	0	0
2 roomed single quarters 4 by 4 blocks	16	16	0	0	0
Sinamatella					
Managers Houses	4	1			
F13	3	0			
F15	2	0			
R 27	17	0			
R 26	10	0			
Single quarters (# rooms)	1	0			
4 Rooms Fabricated	24	0			

Table D.9: Current houses and house shortages in Hwange					
Locality and house types	**Currently Available**	**Number vacant**	**Current shortage**	**Approved establishment shortage**	**Total new houses needed**
Robins :					
Managers Houses	3	0	0	1	1
F13	1	0	0	19	19
F15	1	0	0	19	19
R 27	26	2	0	0	0
R 26	14	13	0	0	0
Single quarters (# rooms)	4	3	0	0	0

Action 2.2.1 Detailed assessment carried out

This plan has a preliminary assessment of the housing situation on the three stations but a full and comprehensive assessment still needs to be carried out. This assessment should be mindful of limited finances and be phased and prioritised.

In addition, it is likely that there are people residing in the camps that are actually unauthorised. Management should ensure that only those people who are staff or their permitted dependants reside on station.

Action 2.2.2 Additional houses constructed

Once funding has been secured the additional houses will need to be constructed. As mentioned above this may be phased as it will be related to available funding.

Action 2.2.3 Sewer system at Main Camp rehabilitated

The sewer system at Main Camp is dilapidated and in need of rehabilitation. This should be treated as a priority because of the associated health issues.

Target 2.3: Station management buildings improved and maintained

As with the accommodation, many management buildings on the three stations are in need of maintenance, renovation or repair.

Action 2.3.1 Assessment and recommendations

This document shows a preliminary assessment of the status of the management buildings on the three stations. As with the housing assessment this is a preliminary guideline listing and it is important to carry out a detailed assessment.

Table D.10: Other buildings and infrastructure shortages in Hwange

Station	Type	Existing	Condition	Requirements
Main Camp	Office	1	Good	Interior painting
	Workshop	1	Poor	Interior,exterior painting, sockets replace
	Water W'Shop	1	Good	Electrification repairs
	Butchery	1	Poor	Doors, fly gauze,gate,cold room repair
	Aircraft hangar	1	Good	Interior, exterior painting
	Storeroom	6	Good	
	Radio room	1	Adequate	Painting
	Tourist office	1	Good	Interior painting
	Clinic	1	Good	Furniture
	Restaurant/Shop	1	Good	Interior painting
	Museum	1	Good	
	School	1	Poor	Doors,light fittings,roof repair
Sinamatella	Office	2		Interior painting, curtaining and furnishing
	Workshop	1		Needs to be equipped
	Butchery	1		Also slaughter shed
	Storeroom			
	Radio room			
Robins	Office	0	No office	Need for an office block
	Workshop	1	good	Need equipment
	Butchery	1		Needs repairs and equipment
	Storeroom	5	good	Needs repairs
Makona	Accommodation	1	Good	
	Ops Room	1	Good	
Wexcau	Ops Room	1	Adequate	

Action 2.3.2 Renovations/Additional buildings

As with the staff housing, the plan for renovation of office buildings has to be prioritised and phased. Construction should continue as funds become available.

Target 2.4: Makona Station expanded

The long-term plan is that Makona becomes a park station and eventually ends up with its own management area, separate to Main Camp. This will require significant investment in infrastructure on station and funding to improve access to Main Camp. In addition, an airstrip should be considered. The water supply system for a large management camp also needs to be taken into account.

Action 2.4.1 Funding secured for development of Makona station

All of this will be expensive and the ZPWMA needs to secure the funding for this. Proposals have already been written and circulated and it is suggested that this is intensified after this management plan is approved.

Action 2.4.2 Construction

Once funding has been secured it will be necessary to ensure that the infrastructure is completed timeously to an acceptable standard and within budget, Care needs to be taken with the selection of a contractor, given that they will need to access the park to move materials and workers.

Target 2.5: Aerial support for Hwange improved

Management of the park had a greater focus on aircraft in the park in the past and there are many airstrip locations in the parks. Many of these were seasonal, developed in response to the culling programme, and consequently are currently unusable. ZPWMA has some aircraft, including a helicopter, but these are used in Hwange on an erratic basis. For example, the helicopter is based in Victoria Falls and comes for management purposes to the park on a sporadic basis.

Action 2.5.1 Assessment of the viability of aerial support for Hwange

Given the size of Hwange the use of aircraft could be a cost effective way of park management. However, it will require commitment from ZPWMA HQ with investment in aircraft (the Authority already has some) and, most importantly investment in the training of pilots. Given the salary structure of ZPWMA, it will be important to ensure that these pilots don't use their experience with the Authority to seek work with the private sector as soon as they are able.

Action 2.5.2 Airstrip Inventory and plan

A comprehensive inventory needs to be carried out on all strips within the park. This will include recommendations for rehabilitation and maintenance. There is no point to spend money opening a strip only to have it fall into disuse again. The plan needs to also recommend new strips (e.g. Makona) if deemed necessary.

Action 2.5.2 Strip rehabilitation and maintenance

Rehabilitation and maintenance of selected strips, as per the plan.

Target 2.6: Reliability of station water supplies improved

The Zimbabwe National Water Authority, (ZINWA), has traditionally been in charge of all domestic water supplies in Hwange and they currently supply water to the stations. However, the supply is erratic – pumps don't work, piping leaks, elephants dig up the main supply, the pressure is inadequate, etc. As all stations cater to tourists the irregular and erratic water supplies are a problem for the image of Hwange. They also are a big problem for staff living on the stations. A preliminary analysis of the current status of the Hwange domestic water supply was made, and is presented in the table below.

Table D.11: Status of the water supply infrastructure in Hwange

Location	Responsible authority	Source	Type of storage facility	Working status and suggested action
Main Camp	ZINWA	Borehole	Concrete reservoir	Poor pressure, many leaks
Sinamatella	ZINWA	Borehole	Concrete tanks	Pipe leaks, often no water, pump down and transformer was struck by lighting
Robins	ZINWA	Borehole	Gravitational tank	Constant borehole and pipe breakdowns
Makona	Parks	Borehole		Makona borehole not productive so water from Mpisa

Action 2.6.1 Control of water to be reinvested in ZPWMA

Obviously having ZINWA in complete control of the domestic water supply system is problematic. ZINWA should be approached to cede control to ZPWMA, as was the case for the game water supplies.

Action 2.6.2 ZPWMA to develop alternative water supplies

If the ceding of control of the water supplies to ZPWMA is not possible then ZPWMA should investigate the possibility of establishing parallel, supplementary water supplies for the stations. These could feed into the ZINWA storage systems on station.

***Target 2.7:* Buildings and other immovable structures maintained**

Maintenance of infrastructure is often overlooked in planning with a desire for new and improved buildings and transport infrastructure.

Action 2.7.1 Maintence plans developed and adhered to

It is vital that maintenance plans be drawn up for all infrastructure, and that these are adhered to. Proper maintenance will save money in the long run for the Authority.

Objective 3: Adequate equipment acquired and maintained

Management of a national asset such as Hwange requires a significant investment in equipment. This includes vehicles – both small and large, road maintenance equipment, fire fighting and workshop equipment etc. The equipment relating to game water supplies is dealt with under objective 6.

Target 3.1: Sufficient and appropriate vehicles available for management activities

Action 3.1.1: Detailed equipment inventory

An inventory of all current equipment in stock, with indication of serviceability and costs associated with any repairs needed, will be done, and a database created to keep track of stock. A preliminary analysis was carried out during the formulation of this management plan (Table D.12 and D.13) but this will need continual updating.

A tractor based system for road and firebreak maintenance is recommended, rather than a motorised grader approach. The logic behind this is that tractors are able to do many tasks while a motorised grader can only do one thing and, if it breaks down, it is expensive to replace. If several tractors are available it would mean that the work can continue.

A large 4x4 truck is recommended for deployments. Scoops, suitable for pan excavation, are also a requirement for Hwange.

Related to section 1.3 (staff morale) it is deemed important that a bus is purchased for Main Camp to service the educational, shopping, emergency needs etc of this relatively large community. If possible this bus should have a dedicated driver responsible for it.

Table D.12: Equipment inventory and shortages

	Main Camp		Sinamatella		Robins		
Type	**In stock**	**Short**	**In stock**	**Short**	**In stock**	**Short**	**Total shortage**
Land Cruiser	7	3	1 (NR)		1	1	1
Tractor	1	1	1 (L.Run)		1	0	0
Tipper Truck	1	0	1(NR)		1	1	1
Truck	1	1	3		1	0	0
4 Wheel Trailer	1	1	2 (1=NR)		0	1	1
Tipper Trailer	0				0	1	1
Mower	1	1			0	0	0
Tow Grader	1	1	1		0	1	1
Water Bowser	0	2	1		1	1	1
Compacter	0	1	1(NR)		2	1	1
Frontend loader	0	1			1	0	0
Scoops	0	2			0	1	1
Firefighter	0	1			0	1	1

Table D.12: Equipment inventory and shortages							
	Main Camp		Sinamatella		Robins		
Type	**In stock**	**Short**	**In stock**	**Short**	**In stock**	**Short**	**Total shortage**
Backpack sprays	2	20			3	32	32
Welding machine	1	1			1	0	0

NR = Non Runner; LR = limited Runner

Action 3.1.2: Purchase/acquisition of vehicles and other moveable equipment

Acquisition of the vehicles and moveable equipment, as with everything else in this plan id fund related. As with other requirements the equipment listing needs to be prioritised and phased.

***Target 3.2:* Sufficient and appropriate patrol equipment**

Action 3.2.1: Purchase of patrol equipment

The equipment needed for a patrol (both long and short-term) is outlined below (Table D.13). The patrol needs specialised equipment, but the individuals within the patrol also need standard equipment which is issued through the central management authority. The amount of equipment (including backups) that needs to be on station to ensure that patrols can be effective must be determined (see also the patrol schedules (Target 4.1). Adequate and appropriate weapons and ammunition are also required.

Table D.13: Equipment needed for patrols		
Group	**Individual**	
• 1 x VHF radio per group • 1 x GPS per group • 1 x basic first aid kit • 1 x light tent (or big tent for group)	• 1 pair boots • pair socks • pairs field overall • 2 water bottles • 1 mosquito net • 1 ground sheet • 1 sleeping mat	• 1 sleeping bag • 1 web belt • 1 bush hat • 1 backpack • 1 bivvie /raincoat • 1 pair of handcuffs

Target 3.3: Communications network improved

Communications are a vital part of park management and Table D.14 details the radio equipment on hand in Hwange, as well as the shortages.

Table D.14: Radio equipment analysis for Hwange

	Repeaters	shortage	Handsets	shortage	Vehicles	shortage	Base	shortage
Main Camp	4	2	TC500-8 EP40-18	CP040-10	nil	1 defender	3	2
Sinamatella	1	0						
Robins	1	1	12	13	0	3	0	3
Makona	2	4	2 tc500	CP040-10	0	0	3	2

Action 3.3.1: Investigation of alternate communications systems for Hwange

The “traditional” radio systems work well but they have their limitations. They can be compromised and communications can be monitored, they rely on power and recharge options for rangers on patrol are problematic and they are expensive. While this plan does not recommend a complete departure from this system, it recommends investigation of alternative communication systems.

One emerging system is that of cell phones. Although there is s school of thought that these can be used by poachers as well they do have many advantages. Firstly, it is very difficult for outsiders (Government and the service provider excepted) to access the system. Messages can be sent, recharge systems are often solar based, they are light and most people already have one. Coverage in Hwange is poor at the moment but this could be improved with representation to appropriate service providers. There is already a tower at Ngamo which services Ngamo Gate and the Wexcau base. In addition, other systems should be investigated. Technology is constantly evolving and suitable solutions may already be out there.

Action 3.3.2: Acquisition of radios

Based on the equipment analysis more radios should be acquired for Hwange. The expansion of the Makona station also needs to be taken into account.

Target 3.4: Offices properly equipped

Any management station has an office component which usually is a function of station size. In addition to the normal administrative offices station also have offices to deal with tourism and research. It is important that these are properly equipped so that staff are able to carry out their duties effectively.

Action 3.4.1: Inventory and purchase of general office equipment

An inventory of office equipment needs to be carried which will detail the shortfalls. As with all inventories the listing needs to be prioritised and phased. Once completed funding for the purchasing of equipment needs to be found.

Action 3.4.2: Purchase of monitoring and recording equipment

The research section needs to define an equipment "wish list". This should be in two parts – that necessary for general day-to-day monitoring and that for more ambitious research or monitoring projects. This is part of the Biodiversity Programme and should be read in conjunction with than programme. The details of this will be found in that programme.

***Target 3.5:* Adequate fire-management equipment on stations**

In order to fight fires effectively the stations need to have adequate equipment on hand.

Action 3.5.1: Fire fighting equipment acquired and available

The following equipment is from the fire management plan for Main Camp. It should be noted that the some of the equipment (vehicles, tractor, tow grader etc) serves dual purpose and is not specifically for the fire prevention programme.

Table D.15 Fire-fighting equipment - Sinamatella

Item	In Stock	Shortage
Disc harrow	0	1
Tractor drawn mower	1	1
Shovels	0	10
Racks	0	10
knapsacks	10	0
Pick axes	0	10
Wheelbarrows	0	10
Fire beaters	20	20

It is important that the equipment remains as part of the fire fighting unit and does not get seconded for other purposes. This is to ensure that it is available during emergencies.

***Target 3.6:* Plant and equipment maintained effectively**

As with infrastructure, the importance of maintenance cannot be stressed enough.

Action 3.6.1: Maintenance plans developed and adhered to

Regular and scheduled maintenance of plant and equipment will contribute to its longevity and will reduce operational and replacement costs. This is true of all types of vehicles, engines, equipment, radios and electronic equipment.

In addition, a sense of responsibility needs to be installed in users of equipment. It must be treated with respect.

Objective 4: Resource protection optimised

Hwange is fortunate to be a square shape. This means that the length of the boundary to the size of the areas protected is relatively small. It is also fortunate in having other conservation areas along its boundaries. To the north is safari area (Matetsi and Deka) and this land is under the jurisdiction of ZPWMA. To the east is Forestry Estate (Sikumi and Ngamo) and a mix of other land classifications, most of which have some form of conservation agenda. To the south is the Tsholotsho Communal Land (140 km long) which has been the source of incursions related to cyanide poaching of elephants in the last few years. Botswana forms the western boundary (120km) but most of this land also is under some form of wildlife utilisation (Forest Reserve or Community Wildlife Area). Currently, there is very little ZPWMA presence on this border, especially in the south.

The Hwange Sanyati Biological Corridor project, which is wide ranging project in the region, has a budget provision for enhancing anti-poaching capacity within Hwange. In addition there is a provision for funding joint patrols with Forestry Commission, Rural District Councils and appropriate NGOs. There needs to be close liaison with this project to ensure effective use of funds.

Target 4.1: Comprehensive law enforcement system improved and implemented

In order to meet the challenge of regulating the illegal off take of natural resources within the Park's jurisdiction, it is imperative that a multi-pronged approach to law enforcement is adopted.

Emphasis be given to developing and implementing a comprehensive and standardised patrolling system for rangers inside the Park boundary, supported by the provision of adequate patrol equipment and rations, and the establishment of a communications system with coverage extending throughout the Park,

In addition, there is also need to recognise that the Park's law enforcement efforts cannot take place in isolation and that collaboration with relevant authorities, inclusive of community structures, needs to take place.

Action 4.1.1: Improved and standardised patrol system

Hwange has large areas which are not accessible by vehicle, but which are frequently used by illegal poachers. The backbone of the patrolling system must therefore consist of rangers on foot patrols, supported by vehicles for deployment, upliftment and rapid response. Ongoing monitoring of law enforcement effort and results is essential, with regular feedback to management and field staff. For this system to be effective, data collection in the field must be consistent and accurate,

A law enforcement database will be set up and a system of regular input and analysis of data developed in conjunction with the research division which will provide the necessary monthly and quarterly reports on which to base planning of future deployment strategies. Again, the system is only as good as its maintenance and the data needs to be entered accurately into the database and analysed at regular intervals. This topic is also covered in the Biodiversity Programme (Action 1.3.9).

The possibility of developing a paper based recording system as a backup to electronic records will be developed. This system will also allow field staff to easily see the results of their efforts rather than having to wait for data to be analysed, which is important for morale.

An intelligence network will be developed and maintained around Hwange to enable managers to be more proactive and specific in their intervention.

Action 4.1.2: Routine patrols carried out

The goal for Park Management will be to achieve an average of 10 man-days on patrol duties/month for each field ranger (Table D.16). A programme dealing with the intensity and spatial distribution of deployment of rangers will be developed for each sub-sector, which will be discussed and adapted at quarterly management meetings, based on a review of the results and achievements of the previous quarter, using information from the databases.

Table D.16: Monthly LE table with current and target efforts

Type of law enforcement activity	Main Camp		Robins	
	Current	Target	Current	Target
Patrols – Extended (7 - 14 day)	7	10	249	240
Day patrols (local Patrols)	2	3	8	40
Mobile Patrols (rapid response)	1	2	2	2
Tourist monitoring	2	2	31	31
Meetings with police/community	1	2	1	1

The routine patrol schedule will be guided by the analysis of data provided by the Biodiversity and Natural Resources Management Programme.

Action 4.1.3: Reactive enforcement

Reactive enforcement activities will be carried out as required. This will be in response to reported incidents (*e.g.* gunshots, animal carcasses, cattle incursions, intelligence information *etc*). Reactive enforcement information will also be collected for the enforcement databases.

Action 4.1.4: Adequate patrol rations (and equipment) provided

Foot patrols take place in a remote and rugged environment, often under dangerous conditions. In order to maintain staff morale and safety it is important that staff is issued with the most appropriate equipment and rations. A minimum set of required equipment (see 3.1.3) and rations per patrol group have been established for field patrols in the park. The basic rations and equipment listing per patrol is listed below (Table D.17)

Table D.17: Equipment and rations needed for each long-term patrol
(Subject to change)

Equipment		Rations		
Specialised	**Basic**		**person/ day**	**4 person/ 10 days**
• 1 x VHF radio per group • 1 x GPS per group • 1 x basic first aid kit • 1 x light tent (or big tent for group)	• 1 pair boots • pair socks • pairs field overall • 2 water bottle • 1 mosquito net • 1 ground sheet • 1 sleeping mat • 1 sleeping bag • 1 web belt • 1 bush hat • 1 backpack • 1 bivvie /raincoat • 1 pair of handcuffs	Mealie Meal	500g	20kg
		Kapenta	25g	1kg
		Soya Mince	25g	1kg
		Beans	100g	4kg
		Rice	100g	4kg
		Salt	20g	800g
		Cooking oil	35ml	1.4 litres
		Sugar	100g	4kg
		Tea	15g	600g
		Curry powder	5g	200g
		Tomato paste	25g	1 tin/day
		Matches		2 boxes

Action 4.1.5: Collaborative law enforcement with other enforcement agencies and stakeholders

Park management acknowledges that law enforcement can, and should not, take place in isolation, and it is therefore important to involve stakeholders in the region *e.g.* police, judiciary establishments and community authorities for planning and implementation purposes at all times. It will be necessary to identify relevant stakeholders and to participate in, or form where necessary, appropriate forums for stakeholder discussions and collaboration.

An important part of enforcement is prosecution and park staff must follow up all cases correctly otherwise offenders may be excused or receive light sentences. A database of the outcomes of all prosecutions needs to be maintained on the stations.

Target 4.2: Fires effectively controlled

Different fire strategies are effective and appropriate for different geographical areas and management objectives. It is perceived that the combination of regular annual hot fires and elephant damage in the past has changed the habitat in parts of the park. Fire management strategies can be both proactive and reactive. Proactive fire management strategies include graded fire breaks and strip burns along roads and rivers, and reactive fire management strategies refers to situations where a fire team reacts to an already existing uncontrolled fire with the intention of putting it out using water and fire beaters, or by burning back from an existing road, fire break or river. In all the above cases special equipment and/or trained personnel is required.

The Hwange Sanyati Biological Corridor project has a budget provision for establishment and maintenance of fireguards and also for fire fighting operations. There needs to be close liaison with this project to ensure effective use of funds.

Action 4.2.1: Proactive fire management

An important component for pro-active fire management will be the annual fire management plan which will be prepared in conjunction with the Biodiversity and Natural Resources Management Programme.

Graded firebreaks without proper water drainages can lead to erosion and should best be avoided. An annual fire meeting will be held at the end of each wet season, in order to analyse the fire strategy for the coming year, dependant on a review of the successes and failures of the previous fire season and incorporating a spatial and time analysis of the areas that had burnt. Rainfall in the intervening period and subsequent fuel load will be taken into account in the planning exercise. This meeting will determine which roads are to be utilised for strip burns that specific year. This activity will follow after the slashing of all management roads has been completed, and will take place at the start of the dry season between May and July. If the same road will be used as the previous year for a strip burn, it should ideally be done on the alternate, but this may depend on the prevailing wind direction at the time of performing the burn. Staff and equipment will be prepared in a timely fashion prior to the start of the dry season.

Table D.18 Proactive fire management schedule

ACTIVITY	**TIME FRAME**
Grading of road networks and Fire guards	Apr-August
Clearing of roads and fire guards	May-October
Reseal pot holes on the tarred park road	July – Aug
Mow grass along tourist routes	Mar- May
Early burning along major fire guards	May-June
Block burning	May –July

Action 4.2.2: Reactive fire management

In the dry season, especially in the late hot dry season, there is need for quick reaction to respond to fires. The fire tower system in the Robins area should be considered for refurbishment. A team of people need to be on standby at all times, and a duty roster drawn up, inclusive of weekends and holidays, and equipment such as water bowsers, beaters and backpack sprays need to be ready for deployment at all times. Adequate personal protective gear and water bottles should be issued to all staff involved in fire fighting.

Objective 5: Improved financial and management and accountability

The successful management of Hwange will depend largely on the provision of adequate financial and physical resources which are applied effectively and accountably.

Target 5.1: Financial plans and revenue collection strategies improved

It is the aim of this management plan to improve the ability of the park to generate more income from tourism activities through the Sustainable Tourism Programme. With perceived increase income there is a need to develop appropriate strategy to handle this revenue collection.

Action 5.1.1: Financial plans and revenue collection strategies explored

The first step will be an analysis of current collection system and closing of potential leakages. This should be carried out in conjunction with the sustainable tourism programme. At the park level money is currently collected on station, rather than at gates. The gates, and especially the special entry ones (Dete, Ngamo etc) need to ensure that all entries are correctly recorded.

In addition there need to be clear and accountable receipting systems.

Action 5.1.2 Improve staff capacity to collect revenue

Staff capacity to collect and handle increased revenues will need to be improved through setting up of appropriate systems.

Target 5.2: Sustainable financing mechanisms

To ensure the long-term viability of Hwange, it is imperative that not only is its long-term managing cost needs guaranteed, but that its existence also has knock-on economic benefits for the region. Given the fragility of depending on a single source of revenue, for instance photographic tourism, for covering costs, it is imperative that a suite of funding options are explored and implemented to ensure the ongoing survival of Hwange.

Action 5.2.1: Sustainable finance mechanisms explored

An assessment of the options open for developing a sustainable finance mechanism for the Park needs to be carried out, exploring issues such as ecosystem services, carbon sequestration and establishment of trust funds.

Action 5.2.2: Additional funding for specific projects sourced

Resources allocated to Hwange may never be enough to address all management issues. It might be possible to identify very specific projects that fall within the development or support agenda of national or international donor or government agencies. The kind of projects envisaged under this type of funding sources could relate to species-specific funding (for instance the black rhino reintroduction, the proposed research centre), improvement of staff welfare (building of additional accommodation, clinic and school facilities). A strategy that identifies suitable projects needs to be defined and project proposals prepared and submitted.

Target 5.3: Internal reporting systems improved

There is a need for detailed reporting on all resources, inclusive of consumables such as fuel, rations and vehicle spare parts.

Action 5.3.1 Monthly reporting systems improved

Monthly returns to the Regional office under a predetermined timetable and schedule of work will be maintained. This also applies to quarterly and annual reports. A detailed inventory of all resources will be maintained, and a clear system of recording the use of all resource will be implemented.

Action 5.3.1 Improved communications between HQ and the field

The Authority has in place a standardised reporting system that runs from the field stations, through the regional HQ in Bulawayo and up to the National HQ in Harare. It is imperative that communications between the field stations and the higher levels in the chain of command are effective and open. This refers to all programmes and not only for this programme.

Objective 6: Sustainable management of water provision for biodiversity

The first borehole in the park was sunk at Ngweshla Pan in 1935, followed closely by others at Dom, Nyamandlovu, Shumba and Big and Little Toms. Drilling has continued over the decades and an estimated 100 boreholes have been sunk to service 70-80 pans. Several of these are now disused for a number of reasons which include salinity, difficulty of access and maintenance.

The numbers of pans pumped has often fluctuated in response to money, diesel availability and general state of the country. However, in 2014 nearly 60 pans will be pumped. Most of these still have diesel engines but several solar systems have also been established.

Initially the maintenance of the pumps and water supply systems was the responsibility of the then Ministry of Water Development. However, in 1982, the responsibility for the water systems was ceded to the ZPWMA. In 2014, responsibility for the pumping of the pans was split between the ZPWMA, tour operators and NGOs. These responsibilities are not formalised but reflect the interests and abilities of the players. For example, tour operators generally will only maintain boreholes and pump pans within their concession areas, NGOs can be constrained by the availability of funds, as is the ZPWMA.

There does not appear to be any long-term plan for the management of water and to date the system is managed for elephants. However, the water system should be managed for the recharge of the aquifer, not to ensure that the burgeoning population of elephants has water. Management of the water for elephants is likely to lead to a future catastrophe of unknown proportions.

The Hwange Sanyati Biological Corridor is a wide ranging project managed by WWF which has some components relating to Hwange. Of relevance to water management is a groundwater assessment and a budget line for establishment and maintenance of water points in the park. This section should be read in conjunction with the Biodiversity Programme.

Target 6.1: Water management plan

Management of the supplemented water programme in Hwange needs to be on a more formal footing. The first step will be to produce a water management plan which is updated annually.

Action 6.1.1 Pan/Pump/Borehole Inventory

This plan should have an inventory of all water resources in the park (partially carried out during the preparation of this General Management Plan). The inventory would include all known information about the pan and water supply system (e.g. date of establishment, number of holes, water quality, production, recharge data etc etc. We are aware that some of this information is currently not available but the database will provide an incentive for this information to be collected when possible. This actions links with Action 1.3.6 in the Biodiversity programme..

Action 6.1.2 Water Management Plan

The plan would contain details of the proposals for the coming dry season. This would include types of pumping systems, plans for refurbishment of boreholes or re-drilling, allocation of responsibilities, pump maintenance schedules, attendants, fuel resupply etc. Players other than ZPWMA should also contribute to the plan so that it becomes a cohesive whole. The practicalities of moving away from using diesel engines needs to be fully investigated. This is already happening with the installation of solar panels and pumps at several waterholes.

The water management plan should also address the issues that become apparent in times of crisis. In real terms this is related to the rainfall, or the lack of it. It is a balance between the amount of rain falling in the previous season, the intensity of frost and fire in the current year and the onset of rains in the current season. If the rains are poor, frost and fire cause significant vegetation damage during the winter and the dry months and the current rains are delayed this can lead to a situation where there is not enough food for elephants in the areas around the pumped pans. This will result in starving elephants and a probable die-off

***Target 6.2:* Reduced reliance on pumped water**

The ability of pans to hold water is dependant on their substrate, depth and size. It would appear that all the pans currently pumped would have been small seasonal depressions prior to pumping. Their current shapes and sizes have largely been the work of elephants. Pans will also change over time due to the action of elephants.

Pumping water is an expensive and tedious process and one way to reduce the cost would be to extend the period that the pans hold useable water. This can be achieved by deepening and enlarging them.

Action 6.2.1 Scooping of selected pans

Scooping pans is generally thought to an activity fraught with risk as there is always the possibility that the “seal” will be broken. Once this happens, the pans’ ability to hold water is reduced as it will leak away into the sand. However, with an experienced operator, the risk is greatly reduced and there is also always the possibility that, even if the seal has been disturbed, the action of the elephants will recreate this seal.

Several pans are already scooped in the Main Camp area but careful consideration should be given to extending this intervention. The longer the pans hold water, the shorter the pumping period to the next rains.

***Target 6.3:* Pump management systems**

Traditionally the pumping systems in Hwange have been diesel and windmills. Most boreholes use diesel pumps but recently there has been a move towards solar based systems.

Action 6.3.1: Standardise diesel engines, spare and donations

Diesel pumps are the “heartbeat of Hwange”. This refrain is often given to visitors who complain about the noise of the pumps. Diesel pumps are the most efficient pumping systems in areas off the ZESA grid – however, ZESA has its own set of reliability problems. Management of the pumps over the big areas of Hwange requires skill and dedication and ZPWMA has a special workshop set up for pump maintenance.

As part of an ongoing, but sporadic process, visitors, well wishers and donors provide pumps and associated equipment to the Park. It is imperative that donors are advised as to which pumps should be donated, and there probably needs to be some standardisation across all parties involved in the water provision programme.

Action 6.3.2: Properly equipped workshops for pump maintenance

Main Camp has a workshop specifically for pump and borehole maintenance. This needs to be properly equipped to ensure that it can carry out its mandate.

Action 6.3.2: Investigation of other pumping systems

Solar systems have been used with some success on several pans. Further trials should be carried out with these systems as they can cut costs and maintenance bills. In addition, solar technology is improving all the time and new equipment should also be investigated.

Target 6.4: Monitoring

There is very little monitoring of the amounts of water pumped and the quality of the water.

Action 6.4.1: Close cooperation with Biodiversity programme on monitoring of water

This issue is discussed in detail in the Biodiversity Programme but is also mentioned here as being an issue of concern for the management programme as they will need to be cooperation with the research section to ensure that the relevant information is collected, recorded and analysed.

Table D.19: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 1: EFFECTIVE AND EFFICIENT HUMAN RESOURCE BASE AVAILABLE							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
1.1: Sufficient numbers of trained staff on stations	*1.1.1: General staff establishment increased*	Full staff assessment Increase as per assessment	Accommodation issues to be resolved first	Assessment by mid 2016	Mgmt, HQ	Sunk	**1**
	1.1.2: Makona Station staff establishment	Funds secured for Makona station Building as per plan				250,000	
1.2: Ongoing training of staff	*1.2.1: Capacity building and training programmes implemented*	Needs identification		End Nov, 2015			**1**
		Courses (in-house and external) as required	Refresher and special needs (See Sustainable Tourism)	Annually	Mgmt	10,000	
		Experience and skills transfer between more experienced and newer staff	Appropriate methodology?	As soon as possible			
1.3: Staff welfare improved	*1.3.1: Education – Strategy to improve education of staff children developed*	Strategy defined for all stations Implementation as per recommendations	Main Camp school has sporadic external funding sources	Strategies by mid 2016	Mgmt		**1**
	1.3.2: Education - Practical interim solution for education of Robins and Sinamatella children	Solution addressed via strategy and implemented		Strategies by mid 2016. Implementation thereafter	Mgmt		
	1.3.3: Health – Strategy to improve heath-care access for Parks staff	Strategy developed Mobile clinic options investigated		Strategies by mid 2016	Mgmt. Health		
	1.3.4: Health - Health and safety awareness	AIDS awareness Malaria prevention Basic first aid training	Courses and information materials	Ongoing	Mgmt		
	1.3.5: Health - Hospital access assured	Vehicle available for hospital trips if required	To fit in with other vehicle needs	Ongoing	Mgmt		
	1.3.6: Staff access to shops and social events provided	Monthly shopping trips for supplies coordinated Transport for funerals, sporting events when possible	Dedicated bus to be considered. Funding possibilities investigated	Ongoing	Mgmt	50,000 for bus?	

High priority = 1; Low priority =3

Table D.19: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 1: EFFECTIVE AND EFFICIENT HUMAN RESOURCE BASE AVAILABLE							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
1.4: Performance and professionalism of staff improved	*1.4.1: Code of conduct implemented*	Park management to implement provisions of ZPWMA Code of Conduct	Code of Conduct easily available	Ongoing	Mgmt. HQ	Sunk	**1**
		Regular meetings for workers' committees to address staff grievances	At all stations	Ongoing	Mgmt		
		Transparent and timely management feedback to staff		Ongoing	Mgmt		
	1.4.2: Appraisal and incentive system developed	System needs to be transparent	Needs to be transparent	Annually	Mgmt	Sunk	**1**
	1.4.3: Industrial relations harmonised	Regular worker's committee meetings		At defined intervals. Ongoing	Mgmt	Sunk	**1**

High priority = 1; Low priority =3

Table D.20: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 2: APPROPRIATE INFRASTRUCTURE IMPROVED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
2.1: Management road network improved	*2.1.1: Road plan developed*	Road development plan Road maintenance plan Bridge and river crossing inventory	Workshop to define plan?	Inventory early 2016 Plan mid 2016	Mgmt	Sunk	**1**
	2.1.2: Road plan implemented	As per the road plan	Phased implementation	Ongoing	Mgmt	100,000	
2.2: Staff housing improved and maintained on existing stations	*2.2.1: Detailed assessment carried out*	Detailed assessment of infrastructure and staff utilisation	To include assessment of who is actually authorised to reside on stations	Assessment mid 2016	Mgmt		**1**
	2.2.2: Additional houses constructed	As per assessment	And as per funding	Assessment mid 2016	Mgmt	100,000	
	2.2.3: Sewer system at Main Camp rehabilitated	Assessment and costing prior to implementation		Assessment mid 2016	Mgmt	50,000	**1**
2.3: Station management buildings improved and maintained	*2.3.1: Assessment and recommendations*	Detailed assessment with refurbishment recommendations		Assessment mid 2016	Mgmt		**2**
	2.3.2: Renovations/ Additional buildings	As per plan	Phased approach	Start with funding availability	Mgmt	100,000	
2.4: Makona station expanded	*2.4.1: Funding secured for development of Makona station*	Proposals circulated	Strong justification document	Immediate	Mgmt		**1**
	2.4.2: Construction	As per proposal and available budget	Choose contractor carefully See also 1.1.2	Construction when funds available	Mgmt	250,000	
2.5: Aerial support for Hwange improved	*2.5.1: Assessment of the viability of aerial support for Hwange*	Business plan for improved aerial support	Funding, pilots, aircraft	Business plan by end 2016	Mgmt, Consultant?		**2**
	2.5.2: Airstrip Inventory and Plan	Strip database		Inventory early 2016 Plan mid 2016	Mgmt		
	2.5.3: Rehabilitation if required	Rehabilitate or maintain as per plan	Involve Pvt Sector	Start late 2016	Mgmt. Pvt Sector	50,000	

High priority = 1; Low priority =3

Table D.20: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 2: APPROPRIATE INFRASTRUCTURE IMPROVED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
2.6: Reliability of station water supplies improved	*2.6.1: Control of water to be reinvested in ZPWMA*	Representations to ZINWA for control to given back to ZPWMA	Resistance expected	Immediate and ongoing	Mgmt		**1**
	2.6.2: ZPWMA to develop alternative water supplies	Siting of additional boreholes	Additional piping, storage infrastructure to be factored in	Immediate	Mgmt	100,000	
***2.7:* Buildings and other immovable structures maintained**	*2.*7.1: Maintenance plans developed and adhered to	Annual maintenance plans	Action needed on the plans	Immediate as per funding as plans already exist?	Mgmt		**2**

High priority = 1; Low priority =3

Table D.21: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 3: ADEQUATE EQUIPMENT ACQUIRED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
3.1: Sufficient and appropriate vehicles available for management activities	*3.1.1: Detailed equipment inventory*	Inventory at station level	See also Table D.12	Inventory end 2016	Mgmt		**1**
		Prioritisation of purchasing		End 2016	Mgmt		
	3.1.2: Purchase/acquisition of vehicles and other moveable equipment	As per priority listing	Funding	Funding dependant	Mgmt, HQ	200,000	
***3.2:* Sufficient and appropriate patrol equipment**	*3.2.1: Purchase of patrol equipment*	All equipment and backups on stations	Most regarded as consumable equipment. Some from HSBC project, 2015	Ongoing	Mgmt	75,000	**1**
3.3: Communications network improved	*3.3.1: Investigation of alternate communications systems for Hwange*	Full investigation of pros and cons of using cell phones Representation to cell phone providers	Approach cell providers for input	Investigation mid 2016	Mgmt		**1**
	3.3.2: Acquisition of radios	Full radio needs assessment Purchase as per assessment	Some from HSBC project, 2015	Immediate and ongoing	Mgmt	40,000	
3.4: Offices properly equipped	*3.4.1: Inventory and purchase of general office equipment*	Office equipment inventory Priority purchasing schedule		Inventory early 2016	Mgmt	10,000	**2**
	3.4.2: Purchase of monitoring and recording equipment	Cameras, computers, GPS etc	See also Biodiversity Programme 1.1 Some from HSBC project, 2015	Ongoing and funding dependant	Mgmt, Ecologist	10,000	
3.5: Adequate fire-fighting equipment on stations	*3.5.1: Fire fighting equipment acquired and available*	Equipment defined as part of the fire management plans for the stations	Fire fighting equipment needs to be specific and not be assimilated into other uses (Target 2.5 in Biodiversity)	Immediate and ongoing	Mgmt	50,000	**1**
***3.6:* Plant and equipment maintained effectively**	*3.6.1: Maintenance plans developed and adhered to*	Equipment maintenance plans development	Culture of respect fro equipment needs to be instilled in users	Immediate as plans existing	Mgmt		**2**

High priority = 1; Low priority =3

Table D.22: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 4: RESOURCE PROTECTION OPTIMISED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
4.1: Comprehensive and operational law enforcement system in place	*4.1.1: Improved and standardised patrol system*	Patrol data collected and entered correctly	See also Biodiversity and Natural Resource Management Programme Implementation of new improved recording systems	Ongoing	Mgmt	Sunk	**1**
		Patrol data analysed		Ongoing	Mgmt		
		Patrol schedule based in inputs		Quarterly	Mgmt		
		Paper based backup system initiated		Maps by late 2015	Mgmt		
		Intelligence network		As required	Mgmt		
	4.1.2: Routine patrols carried out	As per schedule		Ongoing	Mgmt	Sunk	**1**
	4.1.2: Reactive enforcement	Responses to poaching, cattle incursion etc.		Ongoing	Mgmt		**1**
	4.1.3: Adequate patrol rations (and equipment) provided	All patrols with sufficient equipment and rations	See Table D.17 Some from HSBC project, 2015	Ongoing	Mgmt, HSBC	Sunk	**1**
	4.1.4: Collaborative law enforcement with other enforcement agencies and stakeholders	Stakeholder meeting to facilitate collaboration	See also Collaborative Management Programme	Mid 2011	Mgmt	Sunk	**1**
		Collaboration with Police, other field based organisations (e.g. Painted Dog) when necessary		Ongoing	Mgmt, Police. Other Stakeholders		
		Collaboration with prosecution agencies, courts when necessary		Ongoing	Mgmt, Courts, Police		
		Input into KAZA Security Planning and implementation		Current and ongoing	Mgmt		
		Database of prosecutions		Est. by late 2015	Mgmt		

High priority = 1; Low priority =3

Table D.22: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 4: RESOURCE PROTECTION OPTIMISED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
4.2: Fires effectively controlled	*4.2.1: Proactive fire management*	Practical fire management plan which analyses previous years environment and management	• Fire guard system • Observation points • Early burning strategy • Communication systems • Equipment provision and readiness	Annual updates at end of rainy season	Mgmt, Ecologist		**1**
		Fire guards cleared		Annual; date determined by rainfall but before June	Mgmt		
		Early burns		Annual; date determined by rainfall but before June	Mgmt		
	4.2.2: Reactive fire management	Equipment prepared and available		As required	Mgmt		**1**
		Staff on hand to reduce reaction times		Ongoing	Mgmt		
		Training for fire fighting staff		Ongoing	Mgmt		

High priority = 1; Low priority =3

Table D.23: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 5: IMPROVED FINANCIAL AND MANAGEMENT ACCOUNTABILITY							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost.**	**Priority**
5.1: Financial plans and revenue collection strategies improved	*5.1.1: Financial plans and revenue collection strategies explored*	Analysis of current collection system and closing of potential leakages	In collaboration with gates and Sustainable Tourism Programme	Late 2015	Tourism, Mgmt	Sunk	**1**
		Clear and accountable receipting systems		Ongoing			
	5.1.2: Improve staff capacity to collect revenue	Training of staff	Suitable training courses	Ongoing			**2**
5.2: Sustainable financing mechanisms	*5.2.1: Sustainable financing mechanisms explored*	Assessment of options		Mid 2016 and then ongoing revisions	Mgmt, HQ		**2**
	5.2.2: Additional funding for specific projects sourced	Strategy and funding proposals prepared and submitted	Use of management plan as fund raising tool	As possible	Mgmt, HQ		**2**
5.3: Internal reporting systems improved	*5.3.1: Monthly reporting systems improved*	Assessment of current monthly reporting systems and identification of areas of improvement		Assessment by early 2015	Mgmt, Accounting		**1**
		Monthly and annual reports of a high standard delivered timeously		Ongoing	Mgmt		
	5.3.1: Improved communications between HQ and the field	Field stations to be appraised of developments that could affect management on the ground	Including research permits etc.	Ongoing	HQ		**1**

High priority = 1; Low priority =3

Table D.24: Summary and Three Year Activity Plan – Park Operations, Administration and Infrastructure Programme							
OBJECTIVE 6: SUSTIANABLE MANAGEMENT OF WATER PROVISION FOR BIODIVERSITY							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
6.1: Water management plan	*6.1.1: Pan/Pump/Borehole Inventory*	Updating of draft inventory		By early 2016, Ongoing	Mgmt, Ecologist, Tourism		**1**
	6.1.2: Water Management Plan	Formalisation of current management activities into a clear and annually updatable water management plan	Rainfall to be taken into account	Annual			
6.2: Reduced reliance on pumped water	*6.2.1: Scooping of selected pans*	Pans defined in management plan	Care to be taken. Detailed records to be kept.	Annual or as required	Mgmt		**1**
6.3: Pump management systems	*6.3.1:Standardise diesel engines, spare and donations*	Document prepared for donors and well wishers		Document prior to 2016 pumping season	Mgmt, Water Workshop		**1**
	6.3.2: Properly equipped workshops for pump maintenance	Workshop inventory	Could be part of the documentation given to donors	Initial dependant on funding then ongoing updates			
	6.3.3: Investigation of other pumping systems	Documentation of trials on solar installations	In conjunction with NGOs (e.g. Friends of Hwange, Bhejane Trust)	Already started. Ongoing			**1**
***6.4:* Monitoring**	*6.4.1: Close cooperation with Biodiversity programme on monitoring of water*	In conjunction with Target 1.3 of the Biodiversity Programme	Development and expansion of monitoring parameters	Ongoing	Mgmt, Ecologist,		**2**

High priority = 1; Low priority =3

The following table summarises the "deliverables" that can be expected to ensure that the Park Operations, Administration and Infrastructure Programme is implemented. It focuses on things that can be can be "ticked off" and is expected to act as a guide to help with the implementation of this programme.

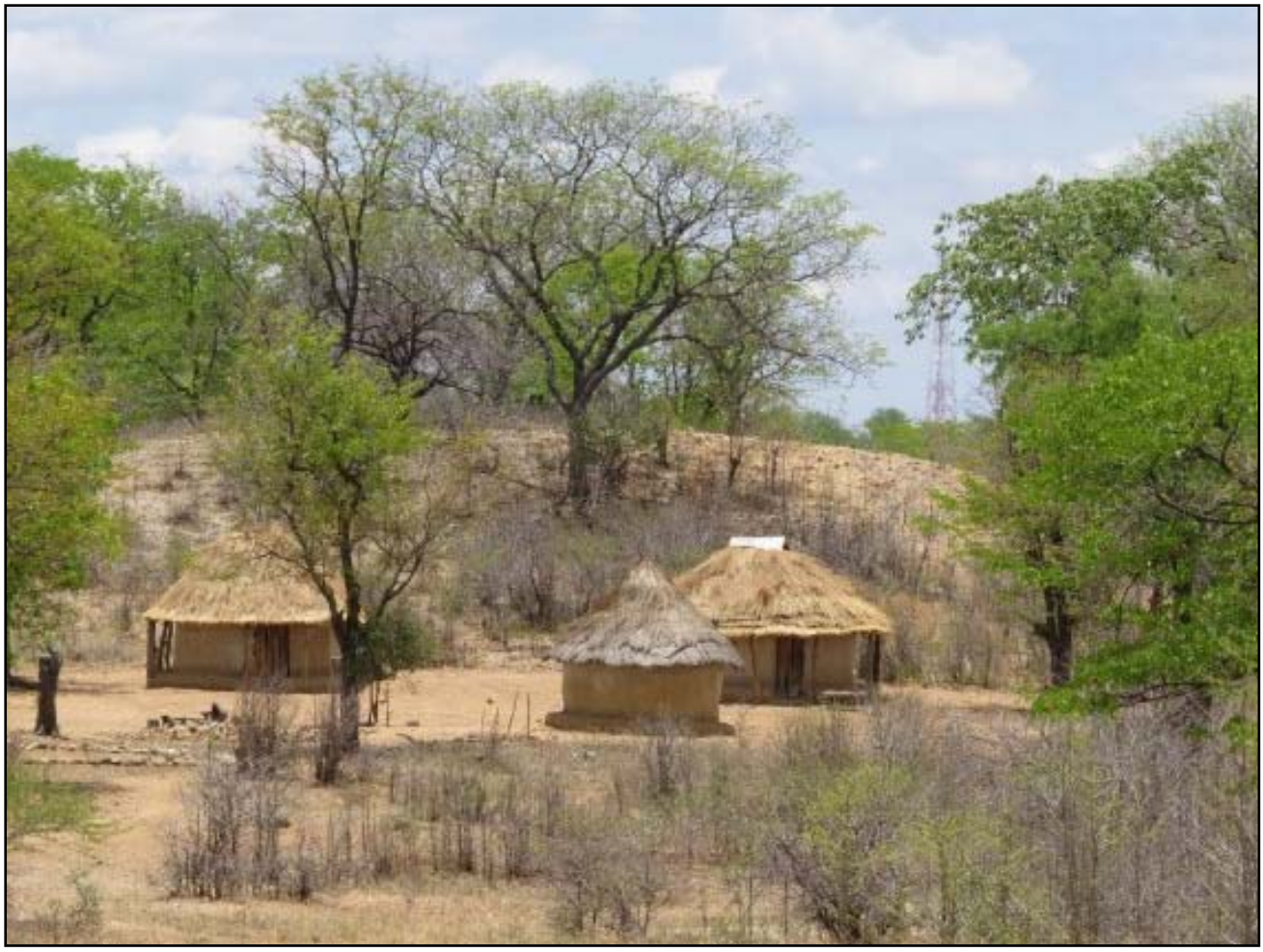
Table D.25: Plan "deliverables" summary – Park Operations, Administration and Infrastructure Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
Objective 1: An effective and efficient human resource base available			
	Staffing assessment		Vehicle available for children transport
	Makona proposal		First aid training courses and infectious diseases awareness
	Code of conduct finalised		Health workers employed (Sinamatella and Robins)
	Training needs identification document		Transport available for hospital visits
	Staff appraisal and incentive proposal		Transport available for shopping and personal emergencies
	Education Strategy		Effective workers committee
	Health Strategy		Ideal staff compliment
Objective 2: Appropriate infrastructure improved			
	Road Plan	New and improved roads	Control of station water supplies back with ZPWMA
	Detailed Equipment Inventory	Additional houses as per assessment	
	Bridge and river crossing inventory	Main Camp sewers repaired	
	Housing and management building assessments	Improved road to Makona	
	Aerial support assessment/business plan	Makona ranger housing and other infrastructure	
	Airstrip inventory	Improved airstrips	
	Infrastructure maintenance schedules	Additional boreholes and water infrastructure for stations	
Objective 3: Adequate equipment acquired			
	Equipment inventory		Additional light trucks
	Equipment maintenance schedules		Additional tractors
			Additional tipper trucks

Table D.25: Plan "deliverables" summary – Park Operations, Administration and Infrastructure Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
			Additional Heavy trucks
			Additional trailers + tipper trailer
			Tow graders and bowsers
			Fire fighting equipment
			Patrol equipment
			Radios
			Office equipment
			Monitoring and recording equipment
Objective 4: Resource protection optimised			
Enforcement databases	Regular enforcement/prosecution reports	Firebreaks/ Roads as firebreaks	Properly equipped patrols
	Collaborative enforcement strategy	Observation points	Collaborative enforcement meetings
	Fire management plan		Early burning
	SMART System?		Intelligence network
Objective 5: Improved financial and management accountability			
	Financial plans		
	Funding strategy and proposals		
	Monthly, quarterly and annual reports		
Objective 6: Sustainable management of water for biodiversity			
	Water management plan	Scooped pans	Water workshop upgraded
	Waterhole/Borehole inventory	Improved solar pumping systems trialled/expanded	
	Standardised pumping equipment document		
	Monitoring reports		

High priority = 1; Low priority =3

E

COLLABORATIVE MANAGEMENT PROGRAMME



E COLLABORATIVE MANAGEMENT PROGRAMME

E.1 PURPOSE, BACKGROUND AND KEY COMPONENTS

E.1.1 Programme Purpose

COLLABORATIVE MANAGEMENT PROGRAMME PURPOSE:

To promote an inclusive partnership between Hwange NP, local communities and regional and international stakeholders which fosters participation and custodianship.

E.1.2 Background

Introduction

Hwange was initially set aside as a conservation area in 1928 but was only formally gazetted in 1974. The current park boundary has required the incorporation of some legally titled land (e.g. around Sinamatella, Main Camp and Robins) and the resettlement of people, especially from the north and south.

Collaborative Management Concepts

Collaborative management has increasingly become important in park management because it seeks to create negotiated agreements between stakeholders and therefore offers possibilities for overcoming current and potential conflicts over natural resource exploitation. The following statements conceptualise the idea of collaborative management.

- Collaborative management can overwhelm parks if not handled carefully
- CBNRM is still developing and Hwange can develop the existing framework in the context of its challenges and opportunities
- Diverse concepts and frameworks for community-based natural resource management (CBNRM) are needed
- Learning from other countries successes and shortfalls is imperative
- Collaborative management approach (tools) should be made available
- Collaborative management is the key to natural resource management of Hwange
- There is a need to balance development values and conservation values
- Conservation and development can coincide and may be complementary

- CBNRM needs involvement of all stakeholders
- Resource sharing by all stakeholders is required
- Diversity of stakeholders in wildlife resource management should be recognised
- Projects must be clearly explained to stakeholders, including the time frame
- Collaborative monitoring and evaluation techniques are required

Stakeholder identification is important and should be considered an ongoing task. A preliminary listing is shown in Annex 2 but this is likely to evolve and change during the life of this plan.

Communities

Hwange has communities in the east (Hwange Communal Land) and south (Tsholotsho Communal Land). These areas are on different geology and soils and hence are quite different environments. Hwange Communal Land (CL) is on basement geology which gives rise to stony and thin soils on relatively rugged terrain. Most of the Tsholotsho CL is on Kalahari sands with an area on basalt derived soils in the south west (Dzivanini).

Hwange CL has no direct boundary with the national park while the Tsholotsho CL boundary is 140 km long, probably the longest community/protected area interface in KAZA.

Both communities have members who were relocated from the park when it was first proclaimed. In Hwange CL the villages close to Dete were established by people from the Sinamatella, Deka and Mtoa areas. There was some resentment about moving from lands that were considered to more productive to those in the Hwange CL. In Tsholotsho CL people were moved out of areas along the Chemuumi drainage channel. In addition, the Dzivanini area and other parts of the south were inhabited by San/Khosian people. The descendants of these people live in the western parts of the Tsholotsho CL.

Community Benefits

Communities benefit from the park in several ways. Firstly, both Hwange and Tsholotsho are divided into hunting areas leased through the CAMPFIRE Programme. Monies accruing to the communities from the hunting quotas and lease fees are administered through the CAMPFIRE programme and the Rural District Council. Due to overall economic decline in the past decade and land resettlement, revenue to communities has decreased, which has resulted in an increase in animosity towards parks and conservation of wildlife.

CBNRM has become a focus for wildlife and natural resource management in many areas in southern Africa (and elsewhere). The main objective of CBNRM is to manage wildlife and wildlife habitat in a way that benefits people living in area where they have to bear the cost of sharing their lands with wildlife. In Zimbabwe, this approach is facilitated through the CAMPFIRE programme. CAMPFIRE attempts to stimulate the long-term development, management and sustainable use of natural resources in Zimbabwe's communal areas by giving people more control and responsibility for managing their resources. Although intended to cover all natural resources its main focus has become wildlife use and specifically safari hunting. New CBNRM approaches are being trialled in Zimbabwe.

Problem Animals

Problem animals are an ongoing feature of being in a community area adjacent to a protected area. The closer the community is to the park, the more likely it is to bear the brunt of being in contact with wildlife. Perceptions about problem animals are usually focused on the larger herbivores (e.g. elephants) or carnivores (e.g. lions and hyenas). However, the reality is that the smaller creatures such as rats and baboons can also have a significant effect on crop viability.

Responses to problem animals are by the ZPWMA and the RDC through the CAMPFIRE programme. In extreme cases these responses usually involve the killing of a perceived culprit.

Buffers, Corridors

That wildlife moves out of Hwange is a well known fact. These are both localised movements across the boundary in to the surrounding areas but there are also larger scale movements. Elephants move into Botswana and towards Chizarira, lions have been recorded moving towards Lake Kariba and Zambia. However, our knowledge of these movements and corridors is limited.

Education

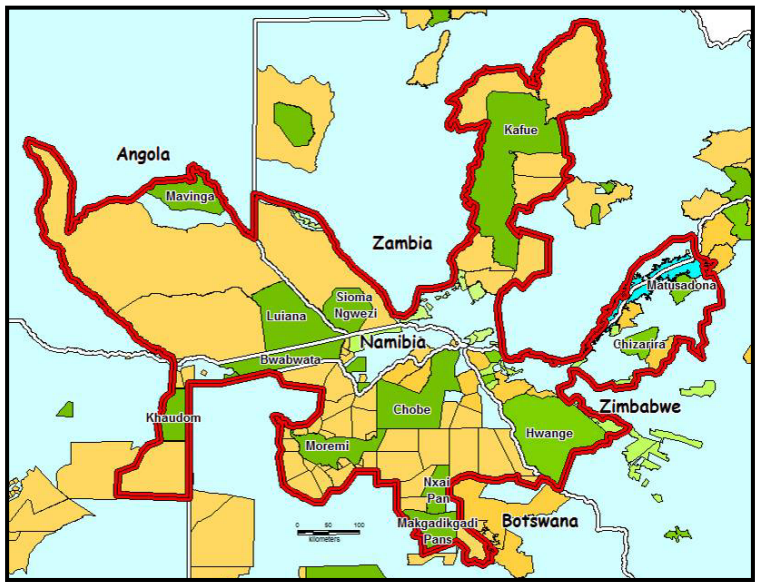
Hwange is a popular park with schools and children come from all over the country. In 2013 approximately 11,000 school children visited the park.

Other Stakeholders

Apart from the communities there are a number of other stakeholders who have an interest in the park. These are broadly listed below

- other government departments and parastatals (Veterinary, ZINWA, EMA, etc)
- non-government organisations (NGOs – CIRAD, WildCru, Painted Dog, Cheetah Conservation, AWF, etc),
- the private sector (titled land users in adjacent areas, tour operators etc)
- the mining sector (Hwange Colliery, CASE, Makomo).

Kavango-Zambezi TFCA



In recent years transboundary natural resource management has become a popular concept, especially in southern Africa and "Peace Parks" or Transfrontier Conservation Areas (TFCAs) are being established in several areas. Ideally there should be free movement of people and wildlife through these conservation areas that straddle international boundaries. However, the reality is proving difficult to implement, especially with regard to people.

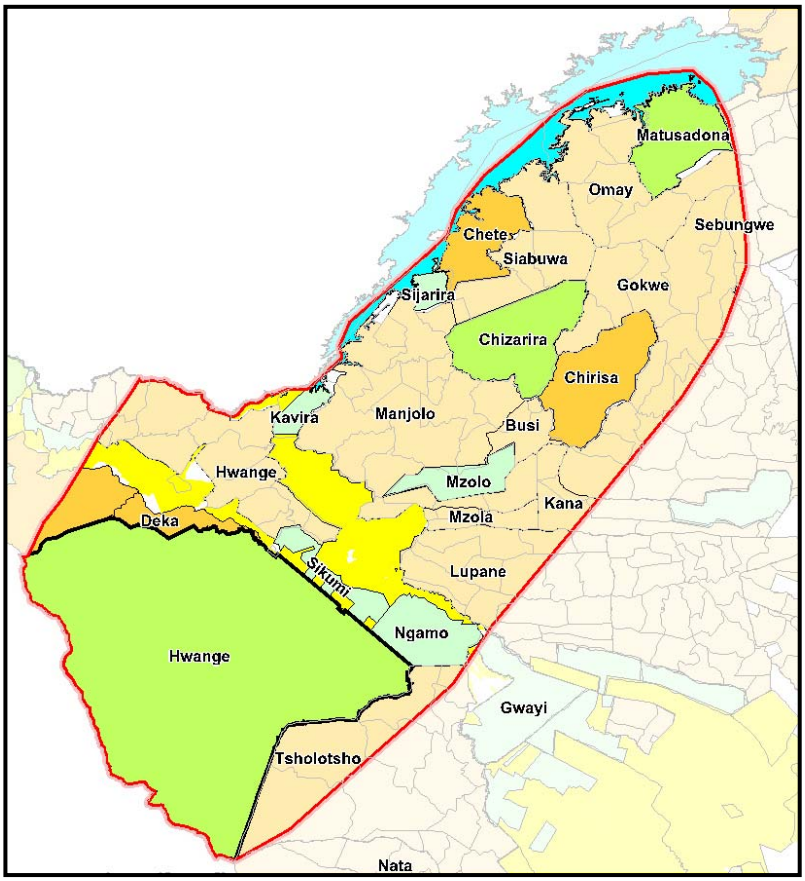
Hwange is on the southern end of the Kavango-Zambezi TFCA (KAZA) which is a collaborative agreement between five countries. The area is in excess on 350,000 km^2 and contains a significant number of protected areas ranging from national parks to multiple use areas (see figure).

Hwange-Sanyati Biological Corridor

The Hwange Sanyati Biological Corridor (HSBC) project covers an area of 57,000 km^2 in north western Zimbabwe and falls within the Kavango-Zambezi (KAZA) Trans-frontier Conservation Area (TFCA). It is a $6.4 million project being funded by the Global Environment Facility (GEF) over 5 years. World Bank is the implementing agency for the project, WWF is the activities implementing entity and the Ministry of Environment and Natural Resources Management is the coordinating authority. Key project partners are: Parks and Wildlife Management Authority; CAMPFIRE Association; Environmental Management Agency; and the Forestry Commission.

With respect to Hwange a project subcomponent would finance investments for improving park management, improving water and game water supply management, and supporting essential research and monitoring. A summary of specific activities to be supported with respect to neighbouring communities and their areas would include:

- Updating the annual plan for Hwange, in collaboration with buffer communities and relevant RDCs. The annual plan will be derived from this General Management Plan.
- Support to anti-poaching initiatives above and beyond general support to park rangers, including coordination with a range of anti-poaching initiatives both nationally and regionally.
- Vegetation monitoring baseline survey, based on analysis of remote satellite imagery – both at the beginning and end of the project.
- Fire ecology study of Hwange and surrounding forest reserves to inform a fire management plan.
- Conducting wildlife aerial surveys to assess the numbers of indicator species wildlife populations.



There is also a subcomponent that will be carried out in the Ngamo area of Tsholotsho - *Improved community livelihoods through wildlife management.* The detail of this includes improved HWC in selected wards of Tsholotsho District. Investments will include the following:

- surveillance mechanisms
- implementation of mitigation measures
- raising of awareness and community capacity
- promotion of chilli cultivation
- monitoring of changes in HWC and wildlife damage

E.1.3 Key Components

The Collaborative Management Programme has several key components which are listed below (Table E.1).

Table E.1: Key components of the Collaborative Management Programme

Component	Brief Description
Communities	Communities living adjacent to the park are a key focus for any collaborative management programme. Unless these close neighbours view the park in a positive light, the long-term future for the park will be difficult. The flow of benefits is expected to be in both directions and in return for rights such as access to park for tourism, traditional rights and other cultural reasons, community members are expected to respect the boundaries and limits of use of the protected area. Important aspects for this programme component are expected to be: o Open and transparent communications with communities and local authorities o Control of problem animals o Improvement of community well-being through empowerment strategies, capacity building, technology transfer, engagement in wildlife based tourism, improving livestock husbandry and caring methods in conjunction with other stakeholders.
Education/ Awareness/ Guidance	Education and awareness programmes are a long-term strategy for environmental protection. The benefits may not be immediately apparent and hence there is some reluctance on the part of management authorities to pursue this, but improving the local communities appreciation of the value of the environment may well be the aspect that will ensure the long-term sustainability of wilderness areas such as Hwange.
Stakeholder Communications	Apart from open communications with communities and the local authorities (see above) there are other stakeholders with whom communications are very important. These include the Forestry Commission, mining and development companies, Government organisations such as the Dept. of Livestock and Veterinary Services, Ministry of Environment, Water and Climate, and other relevant ministries.
Management of safari hunting	Administration and monitoring of the safari hunting industry is an important aspect of this programme and it is strongly linked to the Biodiversity Programme. Quota setting, resource use conflicts and law enforcement activities in the surrounding areas are important activities under this component. Although the Matetsi Safari Area is a separate unit in ZPWMA and has its own ecologist there need to be strong linkages between this unit and Hwange. Hunting in the Communal Lands is important as it accrues benefits to communities; however, accurate data is required on wildlife to ensure proper quota settings.
Buffer areas, corridors and connectivity	Hwange has natural linkages to other wildlife areas both in Zimbabwe and Botswana. The assessment and monitoring of these corridors is important, as is linkages into other initiatives as the HSBC corridor project. The park is fortunate in having areas with a conservation focus along most of its boundary. The maintenance of these areas is important for the park. In addition this component needs to consider the possible effect of the Gwayi-Shangani dam on the movement of wildlife and corridors in the area.

Table E.1: Key components of the Collaborative Management Programme	
Component	**Brief Description**
Transfrontier Park Integration	The Kavango Zambezi Transfrontier Park has been approved at the country leadership level and Integrated Development Plans have been prepared for all partner countries (Zimbabwe in 2010). Aspects of this conservation integration initiative touch on all parts of the other three programmes - but its part in the management plan is formalised in the Collaborative Management Programme.
PAC/Anti-poaching coordination	Anti-poaching falls under the Park Operations programme but an aspect that needs to be considered is the co-ordination of this activity on land outside and bordering the park.
Partner agencies (Donors, NGOs)	Dealing with partner agencies who are assisting with management and development of the park is another important facet of this programme. Several NGOs are involved with research but also are concerned with other aspects of park management. In addition, some tour operators are also now partner agencies. Relationships with these and other organisations are dealt with here.

E.2 THREATS, ISSUES AND CONCERNS

There are a number of issues and concerns specific to the Collaborative Management Programme. These are briefly outlined below (Table E.2), prior to being described in more detail in the tables that follow. Broad categories are used to help simply the approach and assist with the development of the objectives (section E.4).

Table E.2: Summary of threats, issues and concerns Collaborative Management Programme			
Communities	o Human Wildlife Conflict o Poaching o Poor cultural site information o Urban Drain	**Communications**	o Inadequate communication o Social Responsibility
Benefits	o Limited community participation and involvement o Few Benefits o Little tourism in Community Areas o Water Access	Others	o Poorly defined PPCP concept o Waste management
TFCA	o TFCA a top-down approach o Inadequate linkages with Botswana		

Table E.3: COMMUNITY issues and concerns facing the Collaborative Management Programme	
Issue/Concern	**Brief Description**
Poor cultural site information	Although there are a significant number of archaeological sites within the park, little is known about the value of these sites to the communities by park management. In fact, there is next to no knowledge about cultural sites, both inside and outside the park. This leads to poor recognition or protection of these sites. Communities feel that the local culture is not respected by tourists and operators, or by parks. Consequently promotion of the cultural aspects of the surrounding communities is low. Parks, or operators, do not use the traditional knowledge that exists in the communities. The general lack of knowledge and interest means that there is poor access and exposure to park and cultural sites for communities. Essentially there is no easy access to sites
Human Wildlife Conflict	Human-Wildlife Conflict is a major concern in the Hwange area, especially along the southern and parts of the western boundary. The main area is the 140 km long boundary with the Tsholotsho Communal Land. At present there is no compensation for depredation and crop raiding, or for human fatalities.
Poaching	Poaching is a perennial problem for protected areas, especially if they have large numbers of people living on their boundaries. In 2014 there was a well publicised case of elephant poisoning in the Dzivanini area.
Urban Drain	It is a well known fact that when people in the communities get access to education they will leave in search of jobs. This “urban drain” leads to a poor capacity in the communities. If jobs were available perhaps this drain could be avoided.

Table E.4: BENEFITS issues and concerns facing the Collaborative Management Programme	
Issue/Concern	**Brief Description**
Limited community participation and involvement	The modalities of CAMPFIRE are unclear to the communities and they feel that they are not sufficiently involved in the administration of funds. Some believe that income from CAMPFIRE is used to fund the RDCs rather than being used in the communities who have to live with wildlife. Part of the problem may be centralised governance and decision making. Although this is not directly a ZPWMA problem it is an important issue that needs to be addressed as communities without benefits may resort to poaching. Likewise, Zimbabwe was once a leader in CBNRM. However, more decentralized community conservation approaches have been adopted across Africa that result in more revenue to communities and direct revenue. These need to be explored around Hwange. There is no representation for the community at park level. Generally communities have no information or involvement in planning (current process excepted). There is no collaboration on fire management between the communities and parks.

Table E.4: BENEFITS issues and concerns facing the Collaborative Management Programme	
Issue/Concern	**Brief Description**
Few Benefits	There is no profit sharing between stakeholders – communities receive no benefits from the park. For example there is no community owned concession in the park. It was suggested that sharing a percentage of the park entry fees may be a way of showing good faith. It was also indicated that perhaps there is little understanding of what constitutes a benefit. For example, communities are allowed limited grazing or cutting of grass in parts of the park. In addition the park supplies the trophies that spill over into the Communal Land hunting concessions.
Little Tourism in Community Areas	Currently there is a single photographic tourist facility in the community areas – Camelthorn Lodge in Tsholotsho. Although wildlife in the community areas is probably not enough to sustain tourism operations at present they can work if they are allowed to access the park. Currently the operator of the Camelthorn facility is in negotiations with the community for a second site further south along the park boundary.
Water Access	Although much money has been spent on drilling boreholes inside the park communities feel that they are being ignored in this process. They also need access to water. However, some operators believe that considerable money has been invested in establishing boreholes for community water access in the communal lands.

Table E.5: COMMUNICATION issues and concerns facing the Collaborative Management Programme	
Issue/Concern	**Brief Description**
Inadequate communication	Communities complained that there is no regular contact with communities on any of the main issues. In fact it appears that parks will only interact with communities when there is a crisis (e.g. elephant poisoning in 2013). There needs to be more regular contact with communities, especially at the committee level.
Social Responsibility	Community members complained that parks takes no role in social responsibilities towards communities. It needs to be aware that life in these rural areas can be harsh and that concessions towards sustainable utilisation of resources need to be considered as a strategy.

Table E.6: TFCA issues and concerns facing the Collaborative Management Programme	
Issue/Concern	**Brief Description**
TFCA a top-down approach	The KAZA TFCA is touted as being the largest network of protected areas in Africa but the approach is very much top-down, starting with Ministerial approval and then moving downwards. The KAZA planning process was perceived to have been very broad-brushed in approach and this may result in unrealistic prescriptions for the individual protected areas, including Hwange.
Inadequate linkages with Botswana	The Botswana border with the park is 203 km long and represents 36% of the park boundary. The land immediately adjacent to the park in Botswana has a conservation focus but with the cessation of safari hunting in Botswana the viability of these areas may be questionable. There appear to be few linkages with either the Botswana Defence Force or the Wildlife Authority regarding protection and utilisation issues.

Table E.7: OTHER issues and concerns facing the Collaborative Management Programme	
Issue/Concern	**Brief Description**
Poorly defined PPCP concept	The concept of a private-public conservation partnership with ZPWMA participation is not clearly defined. This makes it difficult to establish a working model within the parks and wildlife estate. Allowing the establishment of community owned tourism concessions in the park needs to be considered in the context of the concession issue as a whole.
Waste management	Waste management for tourism and management facilities is a problem but this concern is more about the littering problem in areas adjacent to the park. This was expressed as a concern as tourists and the general public drive through areas with litter adjacent to the park.

E.3 GUIDING PRINCIPLES

The following guiding principles were elaborated for the Collaborative Management Programme. They are listed below before being described in more detail.

1. Communications with stakeholders need to be open and transparent
2. Community involvement and participation will be encouraged
3. Cultural and archaeological sites will be documented, protected and access permitted
4. The educational aspect of the park will be promoted
5. The park is part of a regional ecological and sociological framework and must not be viewed in isolation
6. Citizen and educational access will be facilitated

1 Communications with stakeholders need to be open and transparent

Open communications with stakeholders in the Hwange ecosystem is vital so that the park can endure as a viable protected area. Accountability, integrity and transparency in communications builds trust and this is important to ensure that the relationships between the park and its neighbours and stakeholders are strong and benefit the wider ecosystem..

2 Community involvement and participation will be encouraged

Community members indicate that they feel marginalised from the affairs of the park and contact is limited to issues regarding poaching and problem animal control. There is a need to engage more fully with the adjacent communities and to this end they have been participants during the current planning process.

3 Cultural and archaeological sites will be documented, protected and access permitted

The park has a wealth of archaeological and cultural sites. These range from early stone age sites up to far more recent walled structures which were occupied by ancestors of people who were resettled during the establishment of the park. This is largely an ignored aspect of the park and the current plan seeks to redress this situation. Sites will be identified, researched and protected. In addition, access for people for whom these sites have significance will be permitted.

4 The educational aspect of the park will be promoted

Although people on the periphery of the park know Hwange as a protected area they may not appreciate its importance to the wider ecosystem. Hwange is Zimbabwe's largest national park and a key component of the KAZA Transfrontier Conservation Area. It has immense value to the nation and efforts should be made to spread awareness of this value. It also has significant value for environmental education and this aspect should be pursued, especially with local schools.

5 The park is part of a regional ecological and sociological framework and must not be viewed in isolation

Hwange is an integral park of the KAZA Transfrontier Conservation Area but is also embedded into a local ecological and sociological framework. This includes a mix of land types with different uses, ranging from communal areas given over to agriculture and pastoral activities to photographic and hunting areas bordering the park. It is recognised that park cannot be viewed in isolation and that cognisance needs to be taken of events taking place beyond its boundaries.

5 Citizen and educational access will be facilitated

In keeping with the Wildlife Policy, citizen and educational access to Hwange will be facilitated where possible.

E.4 OBJECTIVES, TARGETS AND ACTIVITIES

Four management objectives have been described for the Collaborative Management Programme. The objectives, their targets, actions and activities (objectives and targets summarised below) were defined after a detailed analysis of the current management systems and an analysis of the threats, issues and concerns facing the programme. The programme Purpose and the guiding principles also played a major role during the process.

There is a text description of the objectives and their subsequent activities prior to the tabular presentation of the three year action plan, which represents the heart of the programme. Numbering in the text provides the linkage to the action plan.

Objective 1: Human-wildlife coexistence improved

Targets

1.1: Continued response to problem animal reports
1.2: Research into alternative PAC methodologies
1.3: Improved community outreach from ZPWMA
1.4: Improved collaborative law enforcement
1.5: Land use planning improved
1.6: Appropriate fences are established and maintained

Objective 2: Communities and other relevant stakeholders benefit from Hwange

Targets

2.1: Management of safari hunting improved
2.2: Innovative ways for tourism to benefit communities explored
2.3: Cultural site protection and access
2.4 Community access for natural resources in special circumstances
2.5: Rational meat distribution from PAC
2.6: Cultural quotas investigated

Objective 3: Stakeholder awareness of Hwange and the environment raised significantly

Targets

3.1: Stakeholders properly identified
3.2: Improved information about park made available to stakeholders
3.3: Outreach and education improved
3.4: Integration of traditional knowledge systems to ZPWMA

Objective 4: Collaborative management of Hwange sociological system improved and facilitated

Targets

4.1: Joint activity plans developed and implemented at the local level
4.2: Participation in TFCA and HSBC projects
4.3: Improve coordination with Botswana

Objective 1: Human-Wildlife co-existence improved

Human wildlife conflict occurs along the boundaries of Hwange, especially where they abut onto communal land areas. This is mainly the eastern (Hwange) and southern (Tsholotsho) boundaries.

Target 1.1: Continued response to problem animal reports

Effective and prompt responses to problem animal reports can go a long way to improving the relationship between the Authority and the surrounding communities. Crop destruction by elephants and other large and small herbivores ranks very high on the list of complaints as does livestock destruction by lions, hyenas and other predators. The threats to humans by predators also need to be taken seriously by ZPWMA.

Action: 1.1.1: Routine PAC carried out

Routine PAC work needs to continue and be scaled up if required. People need to believe that their issues are taken seriously by the Authorities.

Action: 1.1.2: Improved linkages between ZPWMA and RDCs on PAC response

There need to be improved linkages between the different authorities responsible for PAC. In the first instance this includes ZPWMA and the RDCs (Hwange and Tsholotsho).

Action: 1.1.3: Cohesive dataset on incidents

Data on incidents, PAC reports and the actions undertaken in response need to centrally coordinated so that an evolving picture of human wildlife conflict can be built up. This action relates to Action 1.6.1 in the Biodiversity Programme.

Target 1.2: Research into alternative PAC methodologies

Human-wildlife conflict can be about perception. Generally speaking the large and dangerous animals are perceived to be more of a threat that the smaller animals that also raid the crops and food stores.

Action: 1.2.1: Participatory research into non-lethal methods

Participatory research is needed into non-lethal methods of controlling problem animals. These include deterrents, chasing etc. The most promising appear to be olfactory deterrents such as chilli peppers or auditory deterrents such as bees. It should be noted that these are aimed mainly at elephants but can work for other species.

Action: 1.2.2: Boma research continued and promoted

It has been demonstrated that most livestock is taken at night when they are out of bomas. If cattle and goats are secured inside predator-proof bomas at night the incidence of attacks is greatly reduced.

Action: 1.2.3: Early warning system development continued

An early warning system has been developed by WildCru in conjunction with the communities. This system relies on knowing the movements of collared lions and communicating these movements to people via cell phones. As the cell network expands, and as more lions (especially those with a habit of livestock attacks) are collared the system will become more effective.

Target 1.3: **Improved community outreach from ZPWMA**

Community outreach is an important part of community liaison. This aspect of the linkages between ZPWMA and the communities in Tsholotsho and Hwange needs to be strengthened.

Action: 1.3.1: Collaborative community outreach meetings

It appears that ZPWMA has limited contact with the communities. Most of the contact is in response to PAC and therefore takes place when communities are aggrieved. A proactive approach should followed so that communities see ZPWMA personnel, not only when something negative has happened to them, their livestock or their crops, but also at times when things are good.

Action: 1.3.2: Communities as stakeholders invited to participate in annual plan formulation

Community members and other stakeholders have been part of the participatory process followed during the preparation of the General Management Plan. It is recommended that this process be taken further and that community and RDC representatives should be consulted during the preparation of the annual plan for the park. There is budget for this activity in the HSBC project.

Target 1.4: **Improved Collaborative law enforcement with communities**

Ideally one should reach a point where the communities themselves collaborate with the authorities over law enforcement. This requires that the communities feel they are benefitting from the protected area and it is in their interest to ensure that the wildlife laws are upheld.

Action: 1.4.1: Community policing

The ZPWMA should actively engage and advise communities about community policing activities. These activities can take several forms, including an information network and active removal of snares in community and along the boundaries of protected areas. It is expected that buy-in to this self policing will be slow at first but then will become accepted as communities are more aware of the benefits from the park.

Action: 1.4.3: Environmental sub-committee liaison

Environmental committees are established through local government structures. Sub-committees are the devolved level and these will form an important liaison body for linkages with the ZPWMA and other stakeholders involved in anti-poaching and resource protection. These linkages should be established and maintained.

Target 1.5: **Land use planning improved**

Many of problems associated with the community park interface could be resolved with proper land-use planning. This would help to avoid conflicts and to keep essential corridors open and delineate appropriate area for mix-use and development.

Action: 1.5.1: Corridor identification and protection

There is some information available about corridors linking Hwange to other areas. However, this is often postulated on movements of large mammals as recorded with radio collars. The corridors need to be properly identified and demarcated (at least on maps in the first instance). The viability of the corridors also needs to be assessed to determine the cost and possibility of implementation.

Once the corridors are identified then steps need to be taken for their protection. A first step would be the education and engagement of communities about the location and importance of these corridors.

Action: 1.5.2: PAC Hotspots

Identification of conflict hotspots from PAC data has been mentioned elsewhere. This is important information as it allows targeting of areas for interventions to help mitigate HWC and PAC.

Target 1.6: Appropriate fences are established and maintained

Fencing is an accepted method to reduce conflict between protected areas and communities. Many of the fences established in north-west Matabeleland for veterinary reasons no longer fulfil their functions. Some have disappeared completely while others are in a state of disrepair. However, the veterinary fence along the Tsholotsho/Hwange park interface is still relatively intact. The use of fencing as a method of controlling HWC needs to be assessed and actions taken if deemed necessary.

Action: 1.2.1: Tsholotsho fence status ascertained and upgraded

The Tsholotsho fence was established as a veterinary fence stretching from the Bulawayo-Victoria Falls Road to the Botswana border. It was part of a wider network of veterinary fences through the region. In the 1990s a buffer area was established adjacent to the fence in the communal land with the idea being that the space between the veterinary fence and the buffer fence was the “community wildlife area” and would be used for hunting and other wildlife based activities. This fence has not survived, even though the cutline is still visible.

The current fence, though of variable quality, remains and is and important separator of wildlife and rural agricultural and pastoral activities. It should be repaired and maintained, at least in the short- to mid-term.

The first step would be to conduct a fence status assessment. The quality is variable with it being in reasonable condition in the Ngamo area (four strands) but going down to a single strand in other areas.

The cost of refurbishing the fence needs to be evaluated and funds sought for the exercise.

Action: 1.2.1: Hwange fence feasibility

The KAZA funded Zimbabwean IDP recommends an “elephant restraining fence” between Mbala gate and the Main Victoria Falls-Bulawayo road. The fence would reach the main road between the Kamativi and Main Camp turnoffs. Should such a fence be considered, a feasibility study needs to be carried out prior to construction.

Action: 1.2.1: Fence maintenance

A critical part of any fence project in rural Africa is its maintenance. There are many stories of the fencing wire being used to kill wildlife (and the Tsholotsho buffer fence is one of these). Prior to any work on the fence the Authority and other players (Veterinary and the community) need to be committed to proper maintenance and to seek ways to stop the fence materials being used in ways that are detrimental to wildlife. A proper maintenance plan needs to be put in place in advance of any development.

Objective 2: Communities and other stakeholders benefit from Hwange

The contribution of the park to the surrounding areas should not be underestimated. There are hunting areas, all receiving a quota from ZPWMA, along the northern. eastern and southern boundaries of Hwange and the park is the source of many of the drawcard species for hunting in these areas. The park and the hunting along its boundaries benefits the communities through the CAMPFIRE structures, the private sector, the Forestry Commission and the ZPWMA itself. In addition, especially to the east of the park a secondary game viewing industry has grown up outside the park.

The challenge for this plan will be to ensure that those benefits are at a minimum maintained and ideally increased, that they are sustainable, and that they are reaching the right people. It should be remembered that there are people in both the Hwange and Tsholotsho Communal Lands who were evicted to make way for the park.

Target 2.1: Money from hunting benefits the "frontline" communities

A major way in which communities are able to benefit from the park is through safari hunting. The park is effectively the source of most animals hunted in the surrounding areas with elephant and lion being the main contributors.

Action 2.1.1: CAMPFIRE benefits and methodologies assessed

There appear to be two different interpretations of the effectiveness of the CAMPFIRE programme. The RDCs and council employees involved in the programme believe that it is working effectively and that proceeds from hunting on community lands gets to the intended recipients. However, many community members tell a different story. They believe that the CAMPFIRE money is used to fund the RDCs and money does not get to those who have to live with wildlife – the "frontline" communities.

This needs to be investigated so that there is agreement on the importance of CAMPFIRE to the communities and as a valid way of providing benefits to people from resource utilisation. This may not be a task for the ZPWMA but they may need to act as a facilitator for any process that is initiated through this action. Revenue from hunting must reach the community otherwise they will not be incentivised to support conservation and the park.

Target 2.2: **Innovative ways for tourism to benefit communities explored**

The photographic tourism industry is well developed both inside Hwange and parts of the area outside, adjacent to Main Camp. However, tourism within the community areas is very poorly developed, with only a single camp having been established recently (2013). Communities do receive benefits from hunting in their areas but have yet to benefit significantly from photographic tourism over most of the Hwange area. Photographic tourism presents an opportunity for communities to benefit; however, arrangements must be structured in a way that derives direct benefits to communities and engages them in a meaningful way. Arrangements whereby communities have equity in a facility or receive a percentage of top line revenue and a lease fee should be explored.

Action 2.2.1: Explore the Hwange CL/Park/Forestry Interface

Although many of the communities and settlements within the Hwange Communal Land originated from settlements within the park, the CL does not have a direct boundary with the national park. The geology of the Hwange Communal Land means that the area is stony and not well wooded. Agriculture and settlement have cleared significant parts of it, making it not very attractive for the siting of photographic tourism camps.

The Deteema Safari Lodge was established on titled land but this burnt down recently. The site is still viable and presents an opportunity for the Hwange community to partner with an established operator to resuscitate this camp. Negotiations would need to be held with the current landholder. Joint-ventures with other titled land holders in the area should also be investigated,

A horse safari operation has been established in the Dete area and they intend to offer trails into the community areas, as well as into the park.

Action 2.2.2: Promotion of camps in Tsholotsho CL

The Tsholotsho Communal Land/Hwange boundary interface is 140 km long and this represents the longest such park/community interface in KAZA. A photographic camp has been established in the Tsholotsho Communal Land in the Ngamo area and the operator has started negotiations for a second site further to the west. This represents a significant step forward for community land based photographic tourism in the Hwange area.

The ZPWMA should support such ventures by allowing access to the park through established gates.

The Dzivanini area is a special case. The area was identified as an area of special biodiversity interest because there is a high habitat diversity with a number of unusual plant species This is believed to be because it is a meeting place of the Zambezian and Kalahari floras. The land is poorly drained and most of it becomes waterlogged in the rains making access almost impossible. The tourism component of the plan proposed two seasonal camps in this section and ways of linking these into the Tsholotsho area need to be investigated. This area can host significant elephant populations during the dry season as the Maitengwe dam is nearby.

Action 2.2.3: Local craft markets supported

Local crafts and produce that can be marketed and supplied sustainably and with limited environmental impact must be investigated. Craft groups that can enter an agreement with ZPWMA with regards to provision of products should be identified, trained and mentored. Outlets can be established at the reception facilities to market crafts and produce, and tour operators encouraged to participate in the marketing scheme. Other sites where outlets could be established should be discussed with the relevant communities.

In addition, operators should take the lead and encourage communities to produce crafts for sale to their clients. This type of initiative has already been started in areas surrounding the park (e.g. Ngamo).

Action 2.2.4: Local employment in the photographic tourism industry

Although not “innovative” employment within the photographic tourism industry is a way that communities can benefit from tourism. Operators should be encouraged to give preference to people from local communities where possible. Capacity building and skills training should also be a part of this which will allow community members to move up in the company structures and not be continually relegated to menial tasks.

Action 2.2.5: Local employment in the ZPWMA

The Authority employs a significant number of casuals on a seasonal basis to assist with firebreak and road maintenance. In addition, consideration should be given to taking community members on as permanent members of staff, should circumstances permit.

Target 2.3: Cultural site protection and access

The park contains a considerable number of cultural and archaeological sites. Two have listings as National Monuments (Bumboosi and Mtoa) but the vast majority are unknown and unrecorded. The Deteema fossil forest is another site that falls within this classification (albeit marginally).

Action 2.3.1: Site assessment

It is urgent that the stone and iron age sites, along with other more recent places of occupation, be investigated and properly recorded before they are lost forever. An initial investigation was carried out over 20 years ago but it is doubtful that anyone is aware of the sites on the ground. This situation needs to rectified and the National Museums and Monuments needs to take the lead role in this initiative.

Action 2.3.2: Protection and access

Once the sites have been identified they need to be marked on the ground for future reference with detailed GPS readings stored in an accessible database.

Where sites are close to tourist routes the possibility of opening up access should be considered. With access comes the problems associated with degradation of the site and all access possibilities should be considered on a case-by-case basis, in close association with National Museums and Monuments.

The Bumboosi sites (wallings and petrogyphs), the Mtoa site and the Deteema fossil forest site require urgent attention regarding access and protection. Protection from wildlife should also be factored in as the walling at Mtoa has been affected by elephants (for example).

Target 2.4: Community access for natural resources in special circumstances

In the past “fortress” models of conservation have been the norm which effectively means the complete exclusion of local people from the protected area. However, more recent thinking allows limited access and use of resources within national parks so long as such activities do not have a negative impact on the ecological integrity of the park and if circumstances permit. Hwange management should investigate the possibility of communities accessing resources in the park. Control of this could be problematic and care needs to be taken to ensure that the privilege of access does not get abused

Action 2.4.1: Grass collection

The collection of thatching grass has been allowed in selected areas of the park, particularly along the Tsholotsho boundary. Where possible this access should continue to be permitted - areas should be properly designated for such use during certain times of the year and communities well informed about the procedures.

Action 2.4.2: Cultural ceremonies

There is little documentation on the use of sites with the park by the surrounding communities for cultural ceremonies. Relevant communities should be interviewed to find out their genuine desires in this regard and requests for access for cultural ceremonies should be considered favourably.

Target 2.5: **Rational meat distribution from PAC**

PAC can involve killing suspected animals and these are usually elephant. The killing of such a large animal will result in a localised windfall of meat. It is important that people realise that a complaint will not automatically result in the destruction of the animal.

Action 2.5.1: Protocols for meat distribution

If it is necessary to shoot an elephant for crop or human life protection then the meat should be distributed so that it does not go to waste. The ZPWMA should draw up protocols to ensure that the distribution of this meat is effective and fair and that it does not go to waste.

Target 2.6: **Cultural quotas permitted**

Action 2.6.1: Quota possibilities discussed

The *isiphala sentasi* ceremony was defined as being an important tradition for the Hwange area communities. There was a request that the possibility of a quota for this and other ceremonies and traditions be considered. The species, timings and modalities of allowing such a quota from within a national park need to be thought through fully before permitting such an activity.

Objective 3: Stakeholder awareness of Hwange and the environment raised significantly

In the absence of clear information, many rumours about the park and its management will surface. In addition, it is important to ensure that the profile of the park is raised both locally and further afield. This will require both print and electronic media items and, if necessary, these should targeted towards important stakeholders.

Target 3.1: Community stakeholders properly identified

Knowing details about who the stakeholders are is an important step. Once this is clear then an engagement strategy needs to be formulated.

Action 3.1.1: Community structures evaluated

Although many people generally know who the stakeholder groups and individuals are there is a need for more detail such as names, contact numbers etc to be recorded and kept on stations.

The existing community structures are in place but these need be evaluated properly so that ways to improve their effectiveness can be sought. The importance of the role of the chiefs and headmen is recognised. The links to the RDCs will also be evaluated.

Information on existing structures will be obtained through interviews and consultations with communities. The information will be documented and made available for review. The general attitudes of the communities towards Hwange and the ZPWMA will also be established.

Action: 3.1.2: Engagement strategy for community stakeholders

Based on the information above, a general strategy for community engagement will be devised. This strategy will address all stakeholders and not be confined to communities. If al all feasible, committees for each relevant area will be established and regular meetings held.

Target 3.2: Other local stakeholders properly identified

In addition to the community stakeholders it will be important to initiate, pursue and solidify contacts with other stakeholder around the park.

Action: 3.2.1: Local stakeholder contacts initiated, solidified and database established

There needs to be a complete inventory of local stakeholders. This should include, names, contact numbers, emails etc. There should also be a short note outlining their activities and the reasons for including them in the listing. The table below provides an indication of the types of stakeholders to be included.

Group	**Stakeholders**
Government related	Rural District Councils Town authorities – Dete, Hwange and Gwayi Veterinary Police Customs and Immigration Environmental Management Authority Physical Planning

Group	Stakeholders
Parastatals	Forestry Commission Railways ZINWA National Museums
Private sector	Mining companies Hunting companies

In addition, to the stakeholders listed above there are a number of park related NGOs and their input into the process will be valuable. They are briefly listed below.

NGO Group	Stakeholders
Biodiversity related	o CIRAD – Long running herbivore research project o WildCru – Long running predator research project (specifically lions) o Painted Dog – Long running wild dog research and education project o WWF – Currently implementing the Hwange-Sanyati Biological Corridor o AWF – Support for General Management Plan o Dart o Save the Rhino, o Cheetah Project
Support related	o Bhejane Trust, o WEZ
Community related	o Many of the conservation NGOs listed above have educational and community related components

Target 3.3: Improved information about the park made available to stakeholders

Updated information needs to be made available about the park to stakeholders and to a wider audience.

Action: 3.3.1: Website established and maintained

A dedicated Hwange website is an ideal tool to provide information about the park to stakeholders and to a wider audience. The ZPWMA maintains a website and there is a page on this site for Hwange. However, the information is limited and, in some cases, incorrect. Websites need to be compiled and this is usually done professionally and therefore has a cost component. They also need to be updated and thought should be given to establishing a system that can be updated at station level, rather than having to go through HQ.

Action: 3.3.2: Other media used to promote the park

A printed newsletter is a good way to disseminate information to rural communities without access to internet. The possibility of establishing a regular “Hwange Park Newsletter” should be investigated. There will be commitments in terms of personnel (material to be written etc) and in terms of costs (printing etc).

Radio and TV are other popular mediums for the dissemination of information and ideas, especially in rural areas. They have the potential to reach a significant number of people and the possibility of using them needs to be investigated.

Target 3.4: **Outreach and education improved**

The ZPWMA has an outreach section but it is currently under-developed and under-funded. Outreach and community education are an important part of defining how a protected area fits into its socio-ecological system. Generally speaking community liaison in the Hwange area is focussed on PAC work and anti-poaching, both being times when the community probably feels aggrieved. It will be important to ensure that the community also feels that they are consulted because they are important neighbours.

Action: 3.4.1: Community person employed for Hwange (Main Camp based)

An outreach programme cannot be successful without people to drive it. Currently the park does not have a person dedicated to outreach. A vital first step will be the employment of someone based in the park (probably Main Camp) whose task will be to engage primarily with communities, but also with other stakeholders.

Action: 3.4.2: Outreach strategy developed

Outreach and education are long-term activities and they need to be guided by an evolving strategy. It is important that a strategy for outreach and education is developed at the earliest opportunity. This will provide a framework and roadmap for the activities to guide the community people on station.

Action: 3.4.2: Conservation and awareness programmes developed

The development of conservation and awareness programmes is linked to the outreach plan and these need to be developed by ZPWMA in consultation with the communities. The extent of these activities is likely to be very dependant on funding availability.

Target 3.5: **Integration of traditional knowledge systems to ZPWMA**

Action: 3.5.1: Documentation of traditional knowledge systems

Any attempt to integrate traditional knowledge systems into the mainstream conservation consciousness of the park will need to start with a description of these areas of knowledge. This is probably beyond the remit of the ZPWMA staff and this work may best be through an NGO. An appropriate NGO should be sought.

Action: 3.5.2: Integration into mainstream conservation systems

Once the extent and value of the knowledge is known then it is possible to investigate ways to integrate it into park management and research systems.

Objective 4: Collaborative management of Hwange sociological system improved and facilitated

Hwange National Park does not exist in isolation. It is embedded in an area which has a diverse range of stakeholders. Some of its neighbours pursue conservation and wildlife-utilisation related agendas while others are more focussed on development and social upliftment goals. There are also a number of conservation and research related NGOs working in and around Hwange.

In addition, Hwange is part of two larger conservation related initiatives. These are the Kavango-Zambezi Transfrontier Conservation Area, an ambitious project involving five countries, and the Hwange-Sanyati Biological Corridor project, an internal Zimbabwean project.

Dealing successfully with the full range of stakeholders is a challenge for the Collaborative Management Programme.

Target 4.1: Joint activity plans developed and implemented at the local level

There are a number of activities that are carried out within the park boundaries that will also need to be carried out across park boundaries for them to be effective. The key to collaborative management will be the development of joint activity plans that span the wider Hwange ecological and sociological system. Apart from defining the way forward the development of the plans will be an important point of contact for players to know each other and also to know what the situation is in adjacent areas. They will be important information dissemination documents.

- Fire
- Water
- Anti-poaching
- Infrastructure
- Disaster management
- Disease control
- Wildlife offtakes/movements
- PAC
- Invasive species management

Action 4.1.1: Local stakeholders properly identified

This relates directly to Targets 3.1 and 3.2 above and the information gathered in pursuit of that target will be used here.

Action 4.1.2: Park to complete its own plans

To be the central driver of a series of activity plans it is vital that the park complete its own plans (fire, water, anti-poaching etc). These can then be modified in the light of incoming information.

Action 4.1.3: Development of joint management plans

The ZPWMA is expected to be the driver of the process. In this regard it will organise meetings to be held to develop and update the joint management plans. This will be an ongoing process. The meetings will also review implementation.

The Environment sub-committees will be important in this process. These consist of community members with a passion for the environment, opinion leaders, and the local traditional leadership. They will be chaired by a local ward Councillor who also sits on the RDC Environment Committee.

Target 4.2: Participation in TFCA and HSBC projects

Hwange is a key component of the Zimbabwean part of KAZA. KAZA extends over five countries and is an ambitious conservation initiative.

The Hwange-Sanyati Biological Corridor has an identified project area of 57,000 km2 and extends from Hwange to Matusadona

Action 4.2.1: Full participation in the KAZA initiative

The KAZA initiative has already prepared an Integrated Development Plan (IDP) for part of the Zimbabwean component of the project. These have also been prepared for the four other participating countries and the five IDPs will be merged into a KAZA IDP. There are some ideas in the KAZA IDP regarding infrastructure in Hwange that may not be compatible with this management plan. One of the main ones is the opening of an all weather road through the Southern Wilderness Zone. Such a road would be largely incompatible with the prescribed use of the area. The plan also proposes an "elephant restraining fence" from Mbala gate, along the northern boundary of the Deka Safari Area, through part of the Hwange Communal Land and along the northern boundary of the Sikumi Forest Reserve to the point where it meets the Main Victoria Falls to Bulawayo main road. A game fence is proposed between the Botswana border and the Main road following selected ward boundaries. A park extension into the Tsholotsho Communal Land is proposed, following the boundary of a similar wildlife area fenced in the 1990s.

It is important that park management is fully aware of and consulted on the activities undertaken under the KAZA initiative and how they may affect day-to-day management activities.

Action 4.2.1: Strong links developed with the HSBC project

The Hwange-Sanyati Biological Corridor is a GEF funded project which aims to develop land use and resource management capacity of managers and communities between Hwange and Matusadona. Of direct relevance to Hwange are the outcomes dealing with improved park management which include planning, training and equipment for anti-poaching, communications, coordination of national and regional anti-poaching initiatives, groundwater studies, improvement of water supplies, vegetation monitoring, fire ecology and wildlife surveys.

Target 4.3: Improved coordination with Botswana

Hwange abuts the Central and Chobe Districts in Botswana. A large portion of the boundary is formed by conservation orientated land areas. These include two wildlife management areas (CT3 and CT5) and the Sibuya Forest Reserve. The Pandamatenga irrigation scheme, a vast agricultural enterprise based on irrigated crops, lies adjacent to the Robins area.

Action 4.3.1: Improved understanding of Botswana situation

The first step towards working with the authorities in Botswana will be an **improved knowledge base.** Both CT 3 and CT 5 were multiple use concessions which allowed for hunting and photographic safaris. These areas are similar to the wilderness areas of Hwange – little water in the dry season and scenically unimpressive and the general belief was that their use by only seasonal photographic camp or camps would be economically unviable and that they needed the hunting income (particularly from elephants) to make any meaningful contribution to the communities.

It is well known that there is cross border movement of elephants but the full extent of this needs more research. Are there any pumped pans in the border area? Are any likely to be established as part of a tourism concession?

The extent of policing on the Botswana side also needs to be known. The main Nata to Kasane road is sometimes less than 20 km from Hwange, making access to the remote southern wilderness area relatively easy (from the Zimbabwean perspective anyway). What kind of policing is carried out in these areas in Botswana?

More information on the biological and sociological baseline is needed for these areas.

Action 4.3.1: Engagement of Authorities

The next step will be **the engagement of the relevant authorities** and this needs to be formalised and also to be an ongoing process. At present, there appears to be very little cross-border interaction and the first step would be to engage the relevant authorities. These would include the District Council Authorities, based in Kasane and Serowe. Central District is large and it will be worth targeting the particular sub-district adjacent to Hwange. This is likely to be in Nata. Control of wildlife in Botswana falls under the Ministry of Wildlife, Environment and Tourism and the Department of Wildlife and National Parks (DWNP) but a significant amount of anti-poaching work is carried out by the Botswana Defence Force who have a large centre near Pandamatenga. The control of forestry areas falls under the Department of Forestry and Range Resources (DFRR). The Land Boards are also players, especially with regard to tourism leases in their areas.

Table E.7: Summary and Three Year Activity Plan – Collaborative Management Programme							
OBJECTIVE 1: HUMAN-WILDLIFE COEXISTENCE IMPROVED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
1.1: Continued response to problem animal reports	*1.1.1: Routine PAC carried out*	Timely responses to complaints		Ongoing in response to problems	Mgmt	Sunk	**1**
	1.1.2: Improved linkages between ZPWMA and RDCs on PAC response	Linkage meetings and communications		Ongoing	Mgmt	1,000 for meetings	
	1.1.3: Cohesive dataset on incidents	Centralised database established at Main Camp	Relates to Biodiversity Programme 1.6.1	Database by mid 2016	Mgmt, Ecologist	Sunk	
		Continual updating of this		Ongoing			
1.2: Research into alternative PAC methodologies	*1.2.1: Participatory research into non-lethal methods*	Work with selected communities to trial non-lethal deterrent methods. NGO involvement and funding?	Bees, olfactory deterrents. Mainly for elephants but could work with other species		Ecologist, Mgmt		**1**
	1.2.2: Boma research continued and promoted	Continual promotion of bomas in communities	In liaison with WildCru	Ongoing	Ecologist. Ext. Researchers	Sunk (In NGO funding)	
	1.2.3: Early warning system development continued	Early warning system expanded into more areas		Ongoing			
1.3: Improved community outreach from ZPWMA	*1.3.1: Collaborative community outreach meetings*	Proactive approach to visit communities before problems develop	Important to build trust	Ongoing	Outreach	2,000 for meetings	**1**
	1.3.2: Communities as stakeholders invited to participate in annual plan formulation	Communities invited to meetings where annual plans are discussed	Part of the HSBC project activities	Annually	Mgmt	1,000 for meetings	
1.4: Improved Collaborative law enforcement with communities	*1.4.1: Community policing and de-snaring*	ZPWMA to encourage communities to start self-policing	Outreach visits from parks	Ongoing	Mgmt, Outreach, Ext. Research	Sunk	**1**
	1.4.2: Environmental sub-committee liaison	Environmental sub-committee details stored on Station	Needs to be regular contact	Database established mid 2016	Mgmt, Ecologist, Outreach		
		Active engagement and meeting attendance	Meetings need to be organised	Regular meeting schedule		1,000 for meetings	

High priority = 1; Low priority =3

Table E.7: Summary and Three Year Activity Plan – Collaborative Management Programme							
OBJECTIVE 1: HUMAN-WILDLIFE COEXISTENCE IMPROVED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
1.5: Land use planning	*1.5.1: Corridor identification and protection*	Liaison with research institutions about corridor knowledge	Part of the HSBC project activities	Corridor status report by end 2016	Ecologist, Ext Researchers, HSBC	Sunk	**1**
		Detailed corridor assessment	Also to highlight knowledge gaps			5,000 for corridor assessments	
	1.5.2: PAC hotspots	Identified out of incident dataset	See 1.3.1 above	Hotspot database formalised by mid 2016	Outreach, Mgmt, Ecologist	Sunk	
1.6: Appropriate fences are established and maintained	*1.6.1: Tsholotsho fence status ascertained and upgraded*	Fence status assessment; To include cost estimates for repair	To be undertaken in conjunction with Veterinary Services	Fence assessment by end 2016	Mgmt	1,000 for assessment	**1**
	1.6.2: Hwange fence feasibility	Revisit the elephant restraining fence concept	Liaison with HSBC?	Fence assessment by end 2016	Mgmt, Ecologist	1,000 for assessment	**2**
		If positive then detailed assessment	EIA may be required	Depends on assessment	Ecologist, EMA	Budget as part of feasibility	
	1.6.3: Fence maintenance	Maintenance plan developed	To involve affected communities. For Tsholotsho fence in first instance	Dependant on fence assessments and on funding for fence repair	Mgmt, Communities		**1**

High priority = 1; Low priority =3

Table E.8: Summary and Three Year Activity Plan – Collaborative Management Programme							
OBJECTIVE 2: COMMUNITIES AND OTHER RELEVANT STAKEHOLDERS BENEFIT FROM HWANGE							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
2.1: Money from hunting benefits the "frontline" communities	*2.1.1: CAMPFIRE benefits and methodologies assessed*	ZPWMA to facilitate meetings between RDCs and communities re the importance of CAMPFIRE	Agreement and community support needed. External assessment? Bigger than Hwange alone		Mgmt, RDCs, CAMPFIRE, Communities		**1**
2.2: Innovative ways for tourism to benefit communities explored	*2.2.1: Explore the Hwange CL/Park/Forestry Interface*	Investigation of partnerships to establish camps in the Hwange CL and surrounds	Dete Safari Lodge site; Other possibilities investigated		Pvt Sector, Operators	0 to ZPWMA	**3**
		Horse safari facilitation	Perhaps trails crossing from CL to park for a diverse experience		Pvt Sector	0 to ZPWMA	
	2.2.2: Promotion of camps in Tsholotsho CL	Facilitation of park access for camps in Tsholotsho area	Use of existing gates and possibility of new ones	Depends on demand from camps	Tourism, Mgmt	Sunk	**2**
		Investigation of linkages between annual camp operators and communities in Dzivanini area	Involve dedicated operators	To tie in with Annual Camp tenders and allocation	Tourism, HQ	Sunk	
	2.2.3: Local craft markets supported	Craft group identification		Initial by mid 2016, then ongoing	Outreach	Sunk	**2**
		Training and mentoring of identified groups		Ongoing	Outreach, Tour Operators	1,000	
		Use of ZPWMA reception facilities/shops to sell crafts		Ongoing	Tourism	Sunk	
		Operators encouraged to support	Already happening		Tour Operators	Sunk	
		Sites for other craft outlets investigated		Ongoing			
	2.2.4: Local employment in the photographic tourism industry	Encourage operators to employ locally as far as possible	Skills training	Ongoing	Tourism	Sunk	**1**
	2.2.5: Local employment in the ZPWMA	Continued employment of casuals	Payments on time to these workers	Ongoing	Mgmt	Sunk	**1**
		Casuals to be taken on as permanent staff when possible		Ongoing	Mgmt	Sunk	

High priority = 1; Low priority =3

Table E.8: Summary and Three Year Activity Plan – Collaborative Management Programme							
OBJECTIVE 2: COMMUNITIES AND OTHER RELEVANT STAKEHOLDERS BENEFIT FROM HWANGE							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
2.3: Cultural site protection and access	*2.3.1: Site assessment*	Full and ongoing investigation and mapping of sites in conjunction with National Museums	Clear records and photographs of locations so they can be found again	Database "complete" by mid 2017	NMMZ, Ecologist, Communities	10,000	**1**
	2.3.2: Protection and access	Identification of sites where limited access will be permitted	See also 3.2 in Tourism Programme	By end 2016	Mgmt, Tourism, NMMZ	Dependant on identified measures	
		Protection for Mtoa and Bumboosi sites		See 3.2 in Tourism			
2.4: Community access for natural resources in special circumstances	*2.4.1: Grass collection*	Protocols for grass collection formalised		Protocols by mid 2016	Mgmt, Communities	Sunk	**2**
		Access permitted in designated areas and times		Ongoing			
	2.4.2: Cultural ceremonies	Review of cultural ceremonies that may request access to the park	This is important to communities	Ongoing and dependant on requests	Mgmt, Outreach, Communities	Sunk	**1**
		Ceremonies permitted, if appropriate					
2.5: Rational meat distribution from PAC	*2.5.1: Protocols for meat distribution defined*	PAC meat distribution protocols defined	Communities to be aware that killing animals is a last resort in PAC	Formal protocols by mid 2016	Mgmt, Communities	Sunk	**1**
2.6: Cultural quotas investigated	*2.6.1: Quota possibilities discussed*	Cultural quota requests considered	This is important to communities	Ongoing	Ecologist, Mgmt	Sunk	**1**

High priority = 1; Low priority =3

Table E.9: Summary and Three Year Activity Plan – Collaborative Management Programme

OBJECTIVE 3: STAKEHOLDER AWARENESS OF HWANGE AND THE ENVIRONMENT RAISED SIGNIFICANTLY

Target	Action	Activity	Notes	Implementation Schedule	Resp.	Ind. Cost. US$	Priority
3.1: Community stakeholders properly identified	*3.1.1: Community structures evaluated*	Interviews and consultations to formalise knowledge of community structures	Needs to be well documented	By end 2016	Outreach		**1**
	3.1.2: Engagement strategy	Strategy devised based on results of above investigations.		By end 2016	Mgmt, HQ		
3.2: Other local stakeholders properly identified	*3.1.3: Local stakeholder contacts initiated, solidified and database established*	Stakeholders contacted and database established		By end 2016 and ongoing	Mgmt	Sunk	**1**
3.3: improved information about park made available to stakeholders	*3.3.1: Website established and maintained*	Funding secured for website establishment and update protocols investigated	The site must be updatable from the station level. See also Tourism 3.1.5	By mid 2016		3,000	**2**
	3.3.2: Other media used to promote the park	Newsletter possibilities investigated	Personnel and cost commitments			3,000 if deemed appropriate	
		Radio and TV possibilities pursued	Interviews, talk shows etc				
3.4: Outreach and education improved	*3.4.1: Community person employed for Hwange (Main Camp based)*	Post created and filled with dedicated person	Funding options for post?	Post filled ASAP		Sunk	**1**
	3.4.2: Outreach strategy developed	Draft strategy prepared		By end 2016	Outreach	Sunk	**2**
		Implementation of recommendations		Ongoing			
	3.4.3: Conservation and awareness programmes developed	Programme strategy prepared in conjunction with HQ	Long-term activity dependant on funding and materials			Sunk	
3.5: Integration of traditional knowledge systems to ZPWMA	*3.5.1: Documentation of traditional knowledge systems*	Appropriate NGO sought to carry out this work	Funding dependant	Complete by mid 2017	Consultant	5,000 (or via NGO?)	**1**
	3.5.2: Integration into mainstream conservation systems	Strategy devised to feed this information into park management systems, if appropriate		Ongoing	Mgmt, Outreach	Sunk	**2**

High priority = 1; Low priority =3

Table E.10: Summary and Three Year Activity Plan – Collaborative Management Programme							
OBJECTIVE 4: COLLABORATIVE MANAGEMENT OF HWANGE SOCIOLOGICAL SYSTEM IMPROVED AND FACILITATED							
Target	**Action**	**Activity**	**Notes**	**Implementation Schedule**	**Resp.**	**Ind. Cost. US$**	**Priority**
4.1: Joint activity plans developed and implemented at the local level	*4.1.1: Local stakeholders properly identified*	See 3.2 above.		Documentation by end 2016	Mgmt	Sunk	**1**
	4.1.2: Park to complete its own plans	As ZPWMA is expected to be the focal point for this target it is important that their own plans regarding these activities are finalised	Fire, water, anti-poaching, infrastructure, disaster management, disease control, wildlife offtakes, PAC, invasive species etc.	Ongoing	Mgmt, Ecologist	Sunk	
	4.1.3: Development of joint management plans	Meetings for all topics organised and joint action plans developed	ZPWMA will be the driver of the process	Ongoing	Mgmt, Ecologist	5,000 for meetings	
4.2: Participation in TFCA and HSBC projects	*4.2.1: Full participation in the KAZA initiative*	Park level personnel to attend and report on KAZA meetings		Ongoing	Cross-Cutting	1,000 for meetings	**2**
	4.2.1: Strong links developed with the HSBC project	This project has components directly related to park management and strong links need to be developed with it	There will be HSBC staff from several disciplines employed for liaison	Ongoing	Cross-Cutting	Sunk	
4.3: Improved coordination with Botswana	*4.3.1: Improved understanding of Botswana situation*	Document prepared pulling together current state of knowledge of the Botswana side		Document by mid 2016	?	3,000 for travel	**1**
	4.3.2: Engagement of Authorities	Visits to relevant authorities	Information will feed into the document under 4.3.1	Ongoing	Mgmt		

High priority = 1; Low priority =3

The following table summarises the "deliverables" that can be expected to ensure that the Collaborative Management Programme is implemented. It focuses on things that can be can be "ticked off" and is expected to act as a guide to help with the implementation of this programme.

Table E.11: Plan "deliverables" summary – Collaborative Management Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
OBJECTIVE 1: Human-wildlife coexistence improved			
PAC database	PAC Reports coordinated	Bomas used in many areas	Trials of non-lethal deterrents
	Non-lethal PAC documentation	Plastic boma programme rolled out	Early warning network extended
	Corridor documentation	Tsholotsho fence repair	Meetings between ZPWMA and communities
	PAC Hotspot documentation		Annual planning meetings with community participation
	Tsholotsho fence assessment		Environmental sub-committee liaison
	Elephant restraining fence feasibility		Community engagement on corridors
OBJECTIVE 2: Communities and other relevant stakeholders benefit from Hwange			
	CAMPFIRE assessment	Tsholotsho entrance gate if required	Meetings ZPWMA, RDCs, Communities
	Cultural site assessments	Community linked camp in Hwange CL area	More community members in tourism operations
	Cultural ceremony documentation	Craft markets at station shops	More community members in ZPWMA
	PAC meat distribution protocols	Mtoa and Bumboosi protection	Grass collection
	Grass collection regulations		Cultural quotas
OBJECTIVE 3: Stakeholder awareness of Hwange and the environment raised significantly			
Hwange website	Community stakeholders documentation		TV and radio exposure
	Other stakeholders documentation		Dedicated community person employed
	Community engagement strategy and evaluation		
	Hwange newsletter		
	Community outreach strategy		
	Traditional knowledge systems documentation		

Table E.11: Plan "deliverables" summary – Collaborative Management Programme			
Electronic	**Documents**	**Infrastructure**	**Other**
OBJECTIVE 4: Collaborative management of Hwange sociological system improved and facilitated			
	Hwange park plans on Fire, water, anti-poaching, infrastructure, disaster management, disease control, wildlife offtakes, PAC, invasive species etc.		HSBC project outcomes relevant to Hwange being achieved
	Joint management plans on Fire, water, anti-poaching, infrastructure, disaster management, disease control, wildlife offtakes, PAC, invasive species etc.		Annual meetings with Botswana key players
	KAZA, HSBC meeting minutes		
	Botswana "state of play" documentation, including minutes of meetings		

F Plan Monitoring

Management Effectiveness Monitoring

Progress towards achieving the Purposes devised in each Management Programme, which essentially are a part of measuring management effectiveness, can be monitored in a number of ways. Recently initiatives to develop a number of management effectiveness assessment tools have been undertaken. The World Bank/WWF Alliance for Forest Conservation and Sustainable Use ('the Alliance') was formed in April 1998, in response to the continued depletion of the world's forest biodiversity and of forest-based goods and services essential for sustainable development. The Alliance has developed a simple site-level tracking tool to facilitate reporting on management effectiveness of protected areas within WWF and World Bank projects that is appropriate for Hwange. The tracking tool has been built around the application of a World Commission for Protected Areas (WCPA) Framework for assessing protected area management effectiveness (Hockings *et al*., 2000).

The Alliance has designed the Management Effectiveness Tracking Tool (METT) to be:

- Capable of providing a harmonised reporting system for protected area assessment within donor organisations
- Suitable for replication
- Able to supply consistent data to allow tracking of progress over time
- Relatively quick and easy to complete by protected area staff, so as not to be reliant on high levels of funding or other resources
- Capable of providing a "score" if required
- Based around a system that provides four alternative text answers to each question, strengthening the scoring system
- Easily understood by non-specialists
- Nested within existing reporting systems to avoid duplication of effort.

The tracking tool has been developed to provide a quick overview of progress in improving the effectiveness of management in individual protected areas, to be filled in by the protected area manager or other relevant site staff. It is ***not*** an independent assessment, nor should it be used as the sole basis for adaptive management. Moreover, the tracking tool is too limited to allow a detailed evaluation of *outcomes* and is really aimed at providing a quick overview of the management steps identified in the WCPA Framework up to and including *outputs*. Thus, even if management is excellent, but biodiversity is continuing to decline, then protected area objectives are not being met. Therefore the Ecological Monitoring Programme is the key component that will inform managers of Hwange on whether the condition of the biodiversity and ecological processes through the Priority Ecosystem Components.

In 2012 a METT analysis was conducted for Hwange (Mtare, 2012). This set a baseline for Hwange management monitoring and is included below. On completion of the General Management Plan, a new METT analysis will be conducted for future comparison. Thereafter annual assessments will be conducted.

In the table (next page; Mtare, 2012), the scores represent stakeholder perception of the degree to which Issues are being addressed. They are as follows:

- 1 = no progress,
- 2 = limited progress,
- 3 = quite good progress but there is room for improvement, and
- 4 = approaching optimum progress.

Green highlighting indicates all stakeholders completely agree, yellow highlighting indicates important issues where there is disagreement between different stakeholder groups

Table F.1: Hwange METT analysis, 2012						
ISSUE	**Researchers**	**Safari Operators**	**Rangers**	**Local communities**	**Park Manager**	**Combined group**
1. Legal status	3	3	3	3	3	3
2. Protected area	2	2	3	2	3	2
3. Law enforcement	1	2	2	2	1	2
4. Protected area	2	3	2	2	2	2
5. Protected area design	3	2	2	2	2	3
6. PA boundary	3	3	3	3	3	3
7. Management plan	2	2	2	2	2	2
8. Planning process	0	2	2	1	3	2
9. Regular work plan	2	1	1	1	3	1
10. Resource inventory	1	3	1	3	2	2
11. Protection systems	2	3	2	3	2	2
12. Research	2	3	3	3	2	2
13. Resource management	0	2	2	2	2	1
14. Staff numbers	2	3	2	2	1	2
15. Staff training	2	3	2	2	2	2
16. Current budget	1	2	1	2	1	1
17. Security of budget	0	1	1	2	2	2
18. Management of budget	0	2	0	2	1	1
18. Equipment	1	1	1	2	1	1
19. Equipment Maint.	2	1	1	2	1	1
20. Education and	1	2	2	1	3	2
21. Planning land water	0	3	3	2	1	1
22. State/commercial neighbours	1	3	3	2	3	3
23. Indigenous people	0	1	1	1	2	2
24. Local communities	0	1	1	1	2	1
25. Economic benefit	2	2	2	1	2	2
26. Monitoring and	0	3	1	1	3	2
27. Visitor facilities	2	2	2	2	2	2
28. Tourism operators	2	1	1	3	3	3
29. Fees	2	2	2	1	3	2
30. Condition of values	0	2	1	2	2	1

METT format for the HWANGE National Park including comments and 'next steps'

(Shaded boxes reflect score in the 2012 METT)

Table F.2: METT format for the Hwange National Park including comments and the next steps

Issue	Criteria	Score	Comments/Next steps
1. Legal status Does the protected area have legal status? *Context*	The protected area is not gazetted	0	Few boundary issues but people were moved to create the park.
	The government has agreed that the protected area should be gazetted but the process has not yet begun	1	
	The protected area is in the process of being gazetted but the process is still incomplete	2	
	The protected area has been legally gazetted (or in the case of private reserves is owned by a trust or similar)	3	
2. Protected area regulations Are inappropriate land uses and activities (e.g. poaching) controlled? *Context*	There are no mechanisms for controlling inappropriate land use and activities in the protected area	0	Continue negotiate and implement agreements with local communities for regulated access to and use of natural resources
	Mechanisms for controlling inappropriate land use and activities in the protected area exist but there are major problems in implementing them effectively	1	
	Mechanisms for controlling inappropriate land use and activities in the protected area exist but there are some problems in effectively implementing them	2	
	Mechanisms for controlling inappropriate land use and activities in the protected area exist and are being effectively implemented	3	
3. Law enforcement Can staff enforce protected area rules well enough? *Context*	The staff have no effective capacity/resources to enforce protected area legislation and regulations	0	Establish linkages with local law enforcement agencies, including Forestry, judiciary, police, etc. Train local law enforcement agencies. Also joint patrolling systems. Linkages with enforcement agencies in Botswana
	There are major deficiencies in staff capacity/resources to enforce protected area legislation and regulations (e.g. lack of skills, no patrol budget)	1	
	The staff have acceptable capacity/resources to enforce protected area legislation and regulations but some deficiencies remain	2	
	The staff have excellent capacity/resources to enforce protected area legislation and regulations	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
4. Protected area objectives Have objectives been agreed? *Planning*	No firm objectives have been agreed for the protected area	0	Objectives have been set through the current planning process
	The protected area has agreed objectives, but is not managed according to these objectives	1	
	The protected area has agreed objectives, but these are only partially implemented	2	
	The protected area has agreed objectives and is managed to meet these objectives	3	
5. Protected area design Does the protected area need enlarging, corridors etc to meet its objectives? *Planning*	Inadequacies in design mean achieving the protected areas major management objectives of the protected area is impossible	0	Further planning processes are necessary, especially with regard to use of adjacent areas
	Inadequacies in design mean that achievement of major objectives are constrained to some extent	1	
	Design is not significantly constraining achievement of major objectives, but could be improved	2	
	Reserve design features are particularly aiding achievement of major objectives of the protected area	3	
6. Protected area boundary demarcation Is the boundary known and demarcated? *Context*	The boundary of the protected area is not known by the management authority or local residents/neighbouring land users	0	The boundary is known and marked. One part is an international boundary, one part is fenced, one part is a railway line. The Northern boundary is not as well defined but abuts land under the control of ZPWMA.
	The boundary of the protected area is known by the management authority but is not known by local residents/neighbouring land users	1	
	The boundary of the protected area is known by both the management authority and local residents but is not appropriately demarcated	2	
	The boundary of the protected area is known by the management authority and local residents and is appropriately demarcated	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
7. Management plan Is there a management plan and is it being implemented? *Planning*	There is no management plan for the protected area	0	There have been several management plans with the last one being for 1998-2003. This management plan is a revision and an implementation plan is being developed.
	A management plan is being prepared or has been prepared but is not being implemented	1	
	An approved management plan exists but it is only being partially implemented because of funding constraints or other problems	2	
	An approved management plan exists and is being implemented	3	
Additional points *Planning*	The planning process allows adequate opportunity for key stakeholders to influence the management plan	+1	The planning processes at present now consider the role of stakeholders in planning. The plan should be designed to be adaptive and updateable. A monitoring and evaluation plan needs to be constantly developed. There are plans to include local communities during annual plan updates.
	There is an established schedule and process for periodic review and updating of the management plan	+1	
	The results of monitoring, research and evaluation are routinely incorporated into planning	+1	
8. Regular work plan Is there an annual work plan? *Planning/Outputs*	No regular work plan exists	0	The M&E framework needs to be developed for the annually produced workplan.
	A regular work plan exists but activities are not monitored against the plan's targets	1	
	A regular work plan exists and actions are monitored against the plan's targets, but many activities are not completed	2	
	A regular work plan exists, actions are monitored against the plan's targets and most or all prescribed activities are completed	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
9. Resource inventory Do you have enough information to manage the area? *Context*	There is little or no information available on the critical habitats, species and cultural values of the protected area	0	There is a significant and growing body of research for Hwange. The current planning process focussed this information and identifies gaps.
	Information on the critical habitats, species and cultural values of the protected area is not sufficient to support planning and decision making	1	
	Information on the critical habitats, species and cultural values of the protected area is sufficient for key areas of planning/decision making but the necessary survey work is not being maintained	2	
	Information concerning on the critical habitats, species and cultural values of the protected area is sufficient to support planning and decision making and is being maintained	3	
10. Research Is there a programme of management-orientated survey and research work? *Inputs*	There is no survey or research work taking place in the protected area	0	There is a significant and growing body of research for Hwange. The current planning process focussed this information and identifies gaps.
	There is some *ad hoc* survey and research work	1	
	There is considerable survey and research work but it is not directed towards the needs of protected area management	2	
	There is a comprehensive, integrated programme of survey and research work, which is relevant to management needs	3	
11. Resource management Is the protected area adequately managed (e.g. for fire, invasive species, poaching)? *Process*	Requirements for active management of critical ecosystems, species and cultural values have not been assessed	0	Further information regarding active management is necessary. Most importantly, the effect of invasive species and disease in wildlife is not well known. The elephant problem and the related water provision issues need urgent attention and resolution.
	Requirements for active management of critical ecosystems, species and cultural values are known but are not being addressed	1	
	Requirements for active management of critical ecosystems, species and cultural values are only being partially addressed	2	
	Requirements for active management of critical ecosystems, species and cultural values are being substantially or fully addressed	3	
12. Staff numbers Are there enough people employed to manage the protected area? *Inputs*	There are no staff	0	Staff numbers need to be increased
	Staff numbers are inadequate for critical management activities	1	
	Staff numbers are below optimum level for critical management activities	2	
	Staff numbers are adequate for the management needs of the site	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
13. Personnel management Are the staff managed well enough? *Process*	Problems with personnel management constrain the achievement of major management objectives	0	There need to be incentives to ensure that the staff carry out their duties optimally. There is a need to ensure that existing staff carry out their duties effectively.
	Problems with personnel management partially constrain the achievement of major management objectives	1	
	Personnel management is adequate to the achievement of major management objectives but could be improved	2	
	Personnel management is excellent and aids the achievement major management objectives	3	
14. Staff training Is there enough training for staff? *Inputs/Process*	Staff are untrained	0	Refreshment of training would be worthwhile but staff management is a more important issue. Training could, however, be provided as an incentive for the staff.
	Staff training and skills are low relative to the needs of the protected area	1	
	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2	
	Staff training and skills are in tune with the management needs of the protected area, and with anticipated future needs	3	
15. Current budget Is the current budget sufficient? *Inputs*	There is no budget for the protected area	0	Budget needs to be increased.
	The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage	1	
	The available budget is acceptable, but could be further improved to fully achieve effective management	2	
	The available budget is sufficient and meets the full management needs of the protected area	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
16. Security of budget Is the budget secure? *Inputs*	There is no secure budget for the protected area and management is wholly reliant on outside or year by year funding	0	The budget from the regional government is relatively secure (although it has declined in the past years) but external funding is necessary to build the capacity of the protected area.
	There is very little secure budget and the protected area could not function adequately without outside funding	1	
	There is a reasonably secure core budget for the protected area but many innovations and initiatives are reliant on outside funding	2	
	There is a secure budget for the protected area and its management needs on a multi-year cycle	3	
17. Management of budget Is the budget managed to meet critical management needs? *Process*	Budget management is poor and significantly undermines effectiveness	0	Budget management needs to be fully strengthened.
	Budget management is poor and constrains effectiveness	1	
	Budget management is adequate but could be improved	2	
	Budget management is excellent and aids effectiveness	3	
18. Equipment Is equipment adequately maintained? *Process*	There is little or no equipment and facilities	0	Equipment and facilities are present, but these require improvement.
	There is some equipment and facilities but these are wholly inadequate	1	
	There is equipment and facilities, but still some major gaps that constrain management	2	
	There is adequate equipment and facilities	3	
19. Maintenance of equipment Is equipment adequately maintained? *Process*	There is little or no maintenance of equipment and facilities	0	Recurrent budget for maintenance and replacement is inadequate and needs to be improved.
	There is some *ad hoc* maintenance of equipment and facilities	1	
	There is maintenance of equipment and facilities, but there are some important gaps in maintenance	2	
	Equipment and facilities are well maintained	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
20. Education and awareness programme Is there a planned education programme? *Process*	There is no education and awareness programme	0	There is limited education and awareness programmes from the ZPWMA. However, several NGOs in the area are very active in this field. There needs to be more collaboration with regard to this important aspect.
	There is a limited and *ad hoc* education and awareness programme, but no overall planning for this	1	
	There is a planned education and awareness programme but there are still serious gaps	2	
	There is a planned and effective education and awareness programme fully linked to the objectives and needs of the protected area	3	
21. State and commercial neighbours Is there co-operation with adjacent land users? *Process*	There is no contact between managers and neighbouring official or corporate land users	0	There is need to continue strengthening the linkages (through active participation in the joint management committee) dealing with land-use and conservation in the area. KAZA and the HSBC project are important vehicles in this regard.
	There is limited contact between managers and neighbouring official or corporate land users	1	
	There is regular contact between managers and neighbouring official or corporate land users, but only limited co-operation	2	
	There is regular contact between managers and neighbouring official or corporate land users, and substantial co-operation on management	3	
22. Indigenous people Do indigenous and traditional peoples resident or regularly using the PA have input to management decisions? *Process*	Indigenous and traditional peoples have no input into decisions relating to the management of the protected area	0	Collaboration with indigenous peoples needs to be improved (through joint management committees on which representative(s) will sit).
	Indigenous and traditional peoples have some input into discussions relating to management but no direct involvement in the resulting decisions	1	
	Indigenous and traditional peoples directly contribute to some decisions relating to management	2	
	Indigenous and traditional peoples directly participate in making decisions relating to management	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
23. Local communities Do local communities resident or near the protected area have input to management decisions? *Process*	Local communities have no input into decisions relating to the management of the protected area	0	Collaboration with local people needs to be improved (through joint management committee on which representative(s) will sit).
	Local communities have some input into discussions relating to management but no direct involvement in the resulting decisions	1	
	Local communities directly contribute to some decisions relating to management	2	
	Local communities directly participate in making decisions relating to management	3	
Additional points *Outputs*	There is open communication and trust between local stakeholders and protected area managers	+1	Trust needs to be improved (through joint management committee).
	Programmes to enhance local community welfare, while conserving protected area resources, are being implemented	+1	
24. Visitor facilities Are visitor facilities (for tourists, pilgrims etc) good enough? *Outputs*	There are no visitor facilities and services	0	The quality of service at the campsites, picnic sites, bush camps and lodges needs improvement; further facilities are necessary.
	Visitor facilities and services are inappropriate for current levels of visitation or are under construction	1	
	Visitor facilities and services are adequate for current levels of visitation but could be improved	2	
	Visitor facilities and services are excellent for current levels of visitation	3	
25. Commercial tourism Do commercial tour operators contribute to protected area management? *Process*	There is little or no contact between managers and tourism operators using the protected area	0	Cooperation needs to be improved (through the joint management committee). A marketing plan is necessary which should be done with tour operators. Most operators contribute to the effective management and upkeep of the park.
	There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters	1	
	There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain protected area values	2	
	There is excellent co-operation between managers and tourism operators to enhance visitor experiences, protect values and resolve conflicts	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
26. Fees If fees (tourism, fines) are applied, do they help protected area management? *Outputs*	Although fees are theoretically applied, they are not collected	0	The revenue generated by Hwange currently does not cover recurrent costs. However, the expected revenue growth should mean that Hwange can become self-sustaining financially. But these revenues are also needed to fund the ZPWMA country-wide.
	The fee is collected, but it goes straight to central government and is not returned to the protected area or its environs	1	
	The fee is collected, but is disbursed to the local authority rather than the protected area	2	
	There is a fee for visiting the protected area that helps to support this and/or other protected areas	3	
27. Condition assessment Is the protected area being managed consistent to its objectives? *Outcomes*	Important biodiversity, ecological and cultural values are being severely degraded	0	There is need for continued strengthening of conservation in Hwange for key biodiversity and ecological processes.
	Some biodiversity, ecological and cultural values are being severely degraded	1	
	Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted	2	
	Biodiversity, ecological and cultural values are predominantly intact	3	
Additional points *Outputs*	There are active programmes for restoration of degraded areas within the protected area and/or the protected area buffer zone	+1	There is no habitat restoration underway; this should take place in severely degraded and prioritised areas.
28. Access assessment Are the available management mechanisms working to control access or use? *Outcomes*	Protection systems (patrols, permits etc) are ineffective in controlling access or use of the reserve in accordance with designated objectives	0	The coverage of the protected systems needs to be extended to priority areas (through mapping the highly threatened or used areas).
	Protection systems are only partially effective in controlling access or use of the reserve in accordance with designated objectives	1	
	Protection systems are moderately effective in controlling access or use of the reserve in accordance with designated objectives	2	
	Protection systems are largely or wholly effective in controlling access or use of the reserve in accordance with designated objectives	3	

Table F.2: METT format for the Hwange National Park including comments and the next steps			
Issue	**Criteria**	**Score**	**Comments/Next steps**
29. Economic benefit assessment Is the protected area providing economic benefits to local communities? *Outcomes*	The existence of the protected area has reduced the options for economic development of the local communities	0	The flow of benefits to local communities is significant but the linkage needs to be made with the protected area and the wildlife. The benefits could be increased with planning. Given that the area is now part of the KAZA, there is need to develop innovative ways to incorporate the local communities.
	The existence of the protected area has neither damaged nor benefited the local economy	1	
	There is some flow of economic benefits to local communities from the existence of the protected area but this is of minor significance to the regional economy	2	
	There is a significant or major flow of economic benefits to local communities from activities in and around the protected area (e.g. employment of locals, locally operated commercial tours etc)	3	
30. Monitoring and evaluation *Planning/Process*	There is no monitoring and evaluation in the protected area	0	M&E framework needs to be planned and implemented.
	There is some *ad hoc* monitoring and evaluation, but no overall strategy and/or no regular collection of results	1	
	There is an agreed and implemented monitoring and evaluation system but results are not systematically used for management	2	
	A good monitoring and evaluation system exists, is well implemented and used in adaptive management	3	

ANNEX 1: HWANGE PLANNING PARTICIPANTS

Composition of the Hwange planning teams and consultations are listed in the following Tables.

Surname	First Name	Organisation	Stake1	Biodiv	Tourism	Mgmt	Comm	Stake2
Ailloud	Jennifer	CIRAD	■					
Allward	Roy	WildWalks			■			
Banda	Esinta	ZPWMA						■
Benhilda	Antonio	ZPWMA						■
Beta	Farai	Frog Safaris					■	■
Blinston	Peter	Painted Dog	■		■	■	■	■
Bourgarel	Mathieu	CIRAD						■
Brebner	John	WEZ	■					
Brookstein	Julian	Camp Hwange	■					
Burger-Prinsloo	Sulet	Elephants Eye	■					
Butcher	Mark	Imvelo	■					■
Cantle	Gary	Friends Hwange	■			■		
Carson	Dave	Camp Hwange			■			■
Chalibamba	Blessed	Elephant Eye			■			■
Chamaille	Simon	CIRAD	■					
Che	Henrietta	AWF						■
Chiedza	Ngumba	Wilderness					■	
Chigonzo	Tawanda	President Office						■
Chinoputsa	Nesbert	President Office						■
Coid	Craig	CIRAD						■
Cronje	Sarah	Nehimba	■		■			
de Montille	Paul	DART	■					
Dell	Dave	Friends Hwange						■
Dell	Paula	Friends Hwange						■
Dlodlo	Mthokosizi	Tsholotsho RDC						■
Dube	Joseph	ZPWMA	■			■	■	■
Dzoro	Kwashirai	ZPWMA						■
Fritz	Herve	CNRS/CIRAD		■		■	■	
Games	Ian	AWF	■	■	■	■	■	■
Gilles	Colin	WEZ	■		■			■
Godfrey	Ian	The Hide	■		■			
Gomwe	Moses	ZPWMA	■	■	■	■	■	■
Gonese	Nicolas	President Office						■
Gotora	Penelope	ZPWMA						■
Grant	Caro	Wilderness						■
Green	Agatha	Malindi Lodge			■			
Guerbois	Chloe	CNRS/CIRAD		■			■	
Gwizo	Sharon	ZPWMA	■					
Hoare	Richard	Somalisa					■	■
Hoztokozto	Shelter	ZPWMA						■
Hunt	Jane	WildCru	■	■				■

Surname	First Name	Organisation	Stake1	Biodiv	Tourism	Mgmt	Comm	Stake2
Johnson	Courtney	Wilderness	■		■			
Jones	Masonde	AWF	■					
Jura	Trumber	ZPWMA	■		■		■	■
Kapesa	Midwell	ZPWMA	■	■	■	■	■	■
Katende	Chuma	Waterbuck			■			
Katiza	Edward	ZPWMA		■				
Kuvawoga	Phillip	ZPWMA	■	■	■		■	
Kuvawoga	David	Painted Dog						■
Lane	Trevor	Bhejane Trust	■					■
Larrieu	Ms. S.	DART	■					
Long	Stephan	Bhejane Trust		■				
Long	Sue	Bhejane Trust		■				
Mabika	Innocent							■
Madiri	Hilary	ZPWMA	■	■	■	■	■	■
Madora	Peace	ZPWMA _			■			
Madzikanda	Hillary	Painted Dog	■	■				■
Magumula	Renias	Elephant Sands			■			■
Makuwe	Edwin	ZPWMA	■	■	■		■	
Mangwana	Owen	ZPWMA	■					■
Mapfuwa	Siphiwe	Hwange RDC			■			
Marunya	Edmore	Kapula Camp			■			■
Masendu		Trad. Leader	■					
Mathiya	Zuzani	ZPWMA						■
Matupula		Trad. Leader	■				■	
McBrearity	Brian	AWF			■		■	
Meer van der	Esther	Cheetah	■	■				■
Mius	Warren	Ivory Lodge	■					
Mkhwebu	Victor	ZPWMA	■					
Moyo	Mehluli	Tsholotsho RDC	■					
Mpwakaira	Kudzai	ZPWMA						■
Mpala	Dumisani	Trad. Leader	■					
Mpofu Zuze	Chipo	EMA	■					■
Msebele	M	Forestry	■	■				
Msimango	Wilton	Painted Dog			■		■	■
Msindazi	A	RDC	■					
Msonza		ZPWMA	■					
Mtare	Godfrey	KAZA	■					■
Mthembo	Wellington	Hwange RDC	■					
Mudenda	Alic	Hwange RDC	■					■
Mufute	Olivia	ZPWMA	■					
Mugwidi	Paul	ZPWMA	■		■			■
Mukumbiri	Andrew	Forestry					■	■
Mukuya	Givemore	ZPWMA	■					
Mukwende	Tawanda	NHMZ		■				
Musakwa	Arthur	ZPWMA	■					

Surname	First Name	Organisation	Stake1	Biodiv	Tourism	Mgmt	Comm	Stake2
Mushongahande	Member	Forestry	■	■				
Musiringofa	Edith	Environment Af.	■					
Musiringofa	Douglas	UNICA	■					
Mvuthu		Trad. Leader					■	
Ncube	Ben							■
Ndlovu	Bright	Tsholotsho RDC	■					
Ndlovu	Beks	African B. Camp						■
Ndlovu	Sophia	Somalisa		■			■	
Nekatambe		Trad. Leader	■				■	
Nel	Sharon	Horseback			■			■
Nel	Dennis	Horseback			■			■
Nelukoba	Dingani	Trad, Leader	■				■	
Nemashame	Paradzai	Lodzi Hunters	■					
Ngosi	Edmore	ZPWMA	■					■
Ngwenya	Sipilisiwe	Ngamo Safaris			■			■
Nkomo	W.P.	Gwaai Valley	■	■				
Nyoni	Masimba	ZPWMA	■		■	■		
Pasalk	Elizabeth	Gwango	■		■			
Pasalk	Dan	Gwango			■			
Perrotton	Arthur	CIRAD	■				■	
Pole	Alistair	AWF						■
Polenakis	Nic	Somalisa	■		■			■
Posi	Marleen	Sable Sands						■
Sabeta	Brian	Sable Sands						■
Samuel	George	ZPWMA			■			
Sebele	Lovelater	ZPWMA	■				■	■
Serima	Tendai	Forestry	■				■	
Shana		Trad. Leader					■	
Sherran	Mike	Miombo	■		■			■
Shiri	Katherine							■
Sibanda	Simelisizwe	TRDC	■	■	■		■	
Sibanda	Patrick							■
Siphoso		Trad. Leader	■				■	
Staplekamp	Brent	WildCru					■	
Tambara	Edwin	AWF	■	■	■	■	■	■
Tembo		Forestry	■					
Tshipa	Arnold	Wilderness	■	■	■		■	■
Valiex	Marion	CIRAD	■					
Wange		Trad. Leader	■				■	
Zondo	Njabulo	Imvelo	■		■			
Numbers			**70**	**22**	**36**	**10**	**32**	**61**

Approval Page

The Management, Board of the Zimbabwe Parks and Wildlife Management Authority and the Minister of Environment and Natural Resources Management, Government of Zimbabwe have approved the implementation of this General Management Plan for Hwange National Park.

Signature: _____ Date: 20/1/16
Mr. Edson Chidziya
Director-General - Zimbabwe Parks and Wildlife Management Authority

Signature: _____ Date: _____

Board Chairman - Zimbabwe Parks and Wildlife Management Authority

Signature: _____ Date: 26/1/16
Prince Mupazviriho
Secretary, Ministry of Environment, Water and Climate

Approved by the Minister, Ministry of Environment, Water and Climate

Signature: _____ Date: 21/1/16
Hon. Oppah Muchinguri-Kashiri