VICTORIA FALLS / MOSI-OA-TUNYA

WORLD HERITAGE SITE

JOINT MANAGEMENT PLAN

July 2007 - June 2012

Approval Page

This plan has been approved for implementation by the appointed Ministers of the property owners, Zambia and Zimbabwe.

----------	**----------**
Hon. Michael Kaingu, MP	**Hon. F.D.C Nhema, MP**
Minister	**Minister**
Ministry of Tourism, Environment Natural Resources	**Ministry of Environment and and Tourism**
ZAMBIA	**ZIMBABWE**

Signed on this 27th day of November, 2007 at Livingstone, ZAMBIA

ACRONYMS AND ABBREVIATIONS

AFW	African Wildlife Foundation
CAAZ	Civil Aviation Authority of Zimbabwe
CAMPFIRE	Communal Areas Management Project for Indigenous Resources
CTA	Curio Traders Association
EA	Environment Africa
ECZ	Environmental Council of Zambia
EIA	Environmental Impact Assessment
EMA	Environmental Management Agency
FD	Forest Department
HAZ	Hotel Association of Zimbabwe
HRDC	Hwange Rural District Council
IUCN	World Conservation Union
IUCN-ROSA	The World Conservation Union Regional Office for Southern Africa
JMP	Joint Management Plan
JSMC	Joint Site Management Committee
JTC	Joint Technical Committee
LCC	Livingstone City Council
LM	Livingstone Museum
LTA	Livingstone Tourism Association
MOTNP	Mosi-oa-Tunya National Park
MOU	Mémorandum of Understanding
NGO	Non Government Organisation
NHCC	National Heritage Conservation Commission
NMMZ	National Museums and Monuments of Zimbabwe
PA	Protected Area
PWMA	Parks and Wildlife Management Authority
RDC	Rural District Council
RDL	Red Data List
SADC	Southern African Development Community
SEA	Strategic Environmental Assessment
SWASCO	Southern Water and Sewerage Company
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VFAPU	Victoria Falls Anti-Poaching Unit
VFM	Victoria Falls Municipality
VFWHS	Victoria Falls World Heritage Site
WCMC	World Conservation Monitoring Centre
WHC	World Heritage Centre
WHS	World Heritage Site
ZAWA	Zambia Wildlife Authority
ZESCO	Zambia Electricity and Supply Corporation
ZIMRA	Zimbabwe Revenue Authority
ZPWMA	Zimbabwe Parks and Wildlife Management Authority
ZRA	Zimbabwe Revenue Authority
ZRP	Zimbabwe Republic Police
ZTA	Zimbabwe Tourism Authority

EXECUTIVE SUMMARY

1. Introduction

The Victoria Falls/Mosi-o-Tunya area was managed as different protected areas by various conservation organizations until 1989 when it was jointly proposed by Zimbabwe and Zambia and inscribed as a World Heritage Site. The Victoria Falls/Mosi-o-Tunya WHS is of global significance as well as being a major tourist attraction on the continent of Africa in general, and the sub region, in particular.

Since inscription progress in conserving and protecting the site's integrity and values, both natural and cultural, have been of concern to the UNESCO World Heritage Committee, the governing body for cultural and natural World Heritage Sites. Inadequate co-ordination in the management of the management of the Victoria Falls/Mosi-o-Tunya Site by the property owners (Zimbabwe and Zambia) and the lack of an agreed upon Joint Management Plan have been high-lighted as the major constraints in achieving the results recommended by the various UNESCO and IUCN missions to assist in making progress possible.

This Joint Management Plan is a tool, to be used to guide the management of Victoria Falls/Mosi-o-Tunya (VF/MOT) WHS. The plan is thus a primary resource to be used in the subsequent preparation of annual operational plans and provides the basis for evaluating operational performance in achievement of management objectives.

The document is divided into two parts. Part one, covers background information while Part two deals with the zonation and management programmes.

2. Part One (Background Information)

The following aspects are of major importance in this section:

Significance and Vision of the VF/MoT WHS

The Victoria Falls/Mosi-o-Tunya WHS endowed with unique and special features and attributes of local, national , regional and international significance. Notable are the Victoria Falls, on the Zambezi River, which are an icon of Africa's heritage and an exhilarating visitor experience. Although the WHs was inscribed as such due to the unique geological phenomenon it also has a rich and unique fauna and flora. In addition the VF/MoT WHS has a rich cultural heritage manifested by the historical stone-age settlements. The site's values have been identified as:

(i) Geological values
(ii) Water/catchment values
(iii) Biological values
(iv) Cultural and historical values
(v) Tourism values

(vi) Other economic values
(vii) Employment values
(viii) Aesthetic values
(ix) World Heritage values

The vision for the VF/MoT WHS is stated as:

"To ensure the integrity and long-term survival of the physical, natural and cultural resources of the Victoria Falls/Mosi-o-Tunya World Heritage Site, and the water area around it, for the enjoyment and benefit of Zambia and Zimbabwe, the local urban and rural communities, and the national and international visitors".

Additional background information is covered as well as the run-up to the UNESCO/IUCN's mission to evaluate the threats to the integrity of the property and the mission's recommendations which *inter alia* urged the two State Parties to submit National Management Plans and to integrate these into a Joint Management Plan.

3. Part Two (Zonation and Management Programmes)

Zonation

The site has been divided into two main zones, namely the Core and Buffer Zones. The Core Zone is further divided into three sub-zones. The sub-zones established were: (i) Strictly Protected Zone; (ii) Rehabilitation Zone; and (iii) Sustainable Use Zone. These prescribe the priority uses and activities not to be allowed in each of the zones and sub-zones.

Programmes and Activities

Based on problems, issues, opportunities and threats raised in the various documents relating to the WHS, a number of objectives and activities have been proposed according to six management programmes. These are summarized below:

- **Institutional Framework and Regional Cooperation Programme**

Since its inscription in 1989, the VF/MoT WHS has been burdened by the lack of cooperation and consultation between the two property owners (Zimbabwe and Zambia). The plan addresses these problems and proposes an institutional Framework to resolve them. Paramount among these is the adoption of the Protocol, the establishment of the Joint Ministerial Committee, the Joint WHS Committee and the Joint Site Management Committee ((JSMC).

- **Resource Conservation Programme**

The WHS will seek to conserve and protect the spectacular geological phenomenon of the falls, the vegetation, wildlife, landscapes and cultural

resources. These resources are threatened by various factors mainly due to human impact. To mitigate the threats the WHS management will demarcate the Site's boundary as well as the sacred sites.

- **Community Collaboration Programme**

The rapid growth of human population in the areas surrounding the falls present a great challenge to Management of the WHS in promoting better community relations. The plan therefore prescribes working with the communities to increase awareness of the various environmental issues but particularly related to the conservation of the WHS ecosystem. Communities will be allowed to access sacred sites within the WHS as well as benefit from the benefits from tourism.

- **Tourism and Development Programme**

The Victoria Falls and its immediate environs is one of Southern Africa's most important tourism resources. Tourism is Zimbabwe is one its main revenue generators and in Zambia the Government wishes to make it the main revenue generator. However, there is a limit to the carrying capacity of the area and the integrity of the WHS is threatened by too much development. The plan aspires to reach a balance between maximizing tourism benefits while ensuring the conservation of the resources.

- **Operations and Maintenance Programme**

For the smooth running of all the site's operations the plan provides for adequate and appropriate equipment to be purchased.

- **Research and Monitoring Programme**

The plan proposes to carry out management oriented research and monitor and evaluate management interventions. Regular monitoring of the threats will also be undertaken including water extraction, water quality, pollution and waste disposal.

The management programmes, activities, responsibilities, timing and budgets are summarized and presented in a table.

4. Review and Amendment of the Plan

The joint Management Plan must be seen as a management tool and although the plan will be reviewed and amended every 5 years. If new circumstances or information require it, the plan may be amended at any time before this.

TABLE OF CONTENTS

PART ONE:

BACKGROUND INFORMATION

(This document is mainly a compilation of the information from the two documents[1] submitted at the Joint Technical Committee meeting held in Victoria Falls' Rainbow Hotel from 26th March to 1st April 2000)

[1] *Integrated Management Plan (Zimbabwe) 2007 – 2012* and *Victoria Falls (Mosi-oa-Tunya) Management Plan – Zambia 2007*

1 INTRODUCTION

The Victoria Falls/Mosi-oa-Tunya World Heritage Site is a transboundary property jointly owned by Zimbabwe and Zambia. The site was inscribed on the World Heritage List under the then criteria (ii) and (iii), now re-numbered (vii) and (viii) which reflect the World Heritage values. At the time of inscription, the evaluation report of IUCN noted that the focus of the site's values is clearly on the falls and the downstream gorges, and accordingly recommended that the limits of the property should be defined by all of the Victoria Falls National Park (Zimbabwe), the Southern half of Mosi-oa-Tunya National Park (Zambia), and a small portion of the riverine strip of Zambezi National Park (Zimbabwe). Accordingly, the World Heritage Committee agreed to the joint inscription of the property on the basis of the recommended boundaries and requested the two States Parties to consult with each other and with IUCN and report back to it on the agreed final boundaries.

On 15th December 1989 as a result of unique geomorphologic formation and exceptional natural beauty and aesthetic importance the falls was declared a World Heritage Site in terms of the World Heritage Convention (1972) of which both countries are signatories to. At this time it was not a requirement for inscription for the site owners to submit a Management Plan. However, in terms of the revised and new Operational Guidelines for the Implementation of the 1972 World Heritage Convention (2005) it has become mandatory for Zimbabwe and Zambia to submit a Joint Management Plan (JMP).

Since 1989 a number of concerns arose regarding pressure of developments on the property which led to the two governments to seek UNESCO assistance to undertake a Strategic Environment Assessment (SEA) of developments around the falls.

After the SEA was completed the two governments were to adopt the Report and put the recommendation to effect. However, this was not done. In 2002 a bi-national workshop was held in Livingstone as a follow up to the SEA. At the end of the workshop, recommendations on the sustainable management of the falls were made and protocol was formulated to be signed by the state parties. The recommendations were not adopted and the protocol, to date, has not been ratified.

Both the World Heritage Bureau and the World Heritage Committee have regularly examined the State of Conservation (SOC) of the site between 1992 and 2001 in relation to, the proposed construction of the Batoka dam in Zambia (1992 and 1994), the workshop on Strategic Environmental Assessment (SEA) of Tourism Development in the Victoria Falls Area, and development of the Joint Management Plan (1996), the proposed Mosi-oa-Tunya Hotel Complex development project in Zambia (1998 and 1999), and organisation of a bilateral meeting, preceded by national meetings in the two countries (1999, 2000 and 2001).

Following the examination of the State of Conservation of the Victoria Falls/ Mosi-oa-Tunya by the World Heritage Committee at its 30th session (Vilnius, Lithuania, 08-16 July 2006), the committee outlined its concerns under **Decision 30 COM 7B.8** outlining the concerns as follows:

"The World Heritage Committee,

Having examined Document WHC-06/30.COM/7B,

Notes with concern that the recommendations of the 2002 bi-lateral workshop have not been implemented;

Regrets that the integrity of the World Heritage property remains threatened by uncontrolled urban development, pollution and unplanned tourism development;

Urges both States Parties to urgently follow-up on the recommendations of the 2002 bi-lateral workshop *and in particular the preparation and implementation of an effective joint management framework to address the ongoing threats*; and *requests the States Parties to set a firm schedule for their follow-up;*

Also requests both States Parties to invite a joint World Heritage Centre/IUCN mission to assess the state of conservation and the factors affecting the Outstanding Universal Value of the property and progress made in implementing the recommendations of the 2002 bi-lateral workshop*;*

Further requests both States Parties to provide the World Heritage Centre before 1 February 2007 with reports on the state of conservation of the property and progress made in implementing an effective joint management framework and other recommendations of the 2002 bi-lateral workshop for examination by the Committee at its 31st session in 2007."

Both Zambia and Zimbabwe responded to the request to invite the joint WHC/IUCN mission. The meeting was held from the 20th to 23rd of November 2006. The meetings were being held in Victoria Falls town in Zimbabwe. On the 21st of November, the stakeholders from both state parties met to report to each other on the progress they had made regarding the implementation of the 2002 recommendations and to come up with a consensus on common approach and the way forward to implementing the recommendations.

The meeting proceeded further to discuss agreed recommendations on the way forward. It was agreed that both State Parties would come up with a National Integrated Management Plan for the site by March 2007, and also produce a Joint Management Plan (JMP) by 1st May 2007.

The WHC/IUCN 20 -25 November 2006 UNESCO/IUCN mission concluded in its report sent to the States Parties of Zimbabwe and Zambia that a series of urgent actions

need to be taken by the two States Parties to ensure that outstanding universal values of the site are not compromised and effective conservation is assured. The key recommendations of the mission were as follows:

i. *Establish a Joint Ministerial Committee (including appropriate technical sub-committees) for effective trans-boundary coordination.*

ii. *Develop a Joint / Integrated Management Plan for the World Heritage site by May 2007, and secure necessary approvals and funding for its implementation.*

iii. *All issues related to development of infrastructure, tourism facilities and services, eradication of invasive species, control of pollution, abstraction of water from the Zambezi, etc should be fully considered and addressed in the Joint Management Plan, consistent with the recommendations of the 2002 bilateral workshop.*

iv. *Pending action by the two States Parties on these points, there should be a complete moratorium on the construction and development of all tourism infrastructure, facilities or services within the World Heritage property.*

v. *Zambia should not proceed with the development of the Mosi-oa-Tunya Hotel and Country Club Estate project along the bank of the Zambezi River within the World Heritage site, as currently planned. The World Heritage Committee should consider inscribing the site on the World Heritage in Danger List, if the project is approved for implementation.*

vi. *Zambia should also reconsider the project under implementation to erect a tethered balloon as it will adversely impact the visual integrity of the site, because when raised the balloon is likely to appear within the viewing corridor of the falls.*

vii. *The two countries should develop specific benchmarks and indicators, with reference to the statement of significance of the site, which can be assessed during the process of monitoring its state of conservation and better address management and protection concerns of the site.*

After receiving the mission's report the Zambian Government instructed the developers of the Mosi-oa-Tunya Hotel and Country Club Estate project to re-submit their proposal and not to include any development in the World Heritage property (South of the Maramba River). Zambia thereby addressed the concern of the UNSECO/IUCN mission in **(v)** above.

The proposed erection of a tethered balloon project on the Zambian side of the falls has also been stopped due to an interdict being issued by the electrical company directly adjacent to the site being developed (See **(vi)** above).

Both countries submitted a draft 'Integrated Management Plan' at the Joint Technical Committee meeting held in Victoria Falls from 26th March to 1st April 2007 convened to reach consensus on the jointly owned property and to amalgamate the two National Management plans into a Joint Management Plan for the WHS.

2 BACKGROUND INFORMATION

2.1 STATEMENT OF SIGNIFICANCE

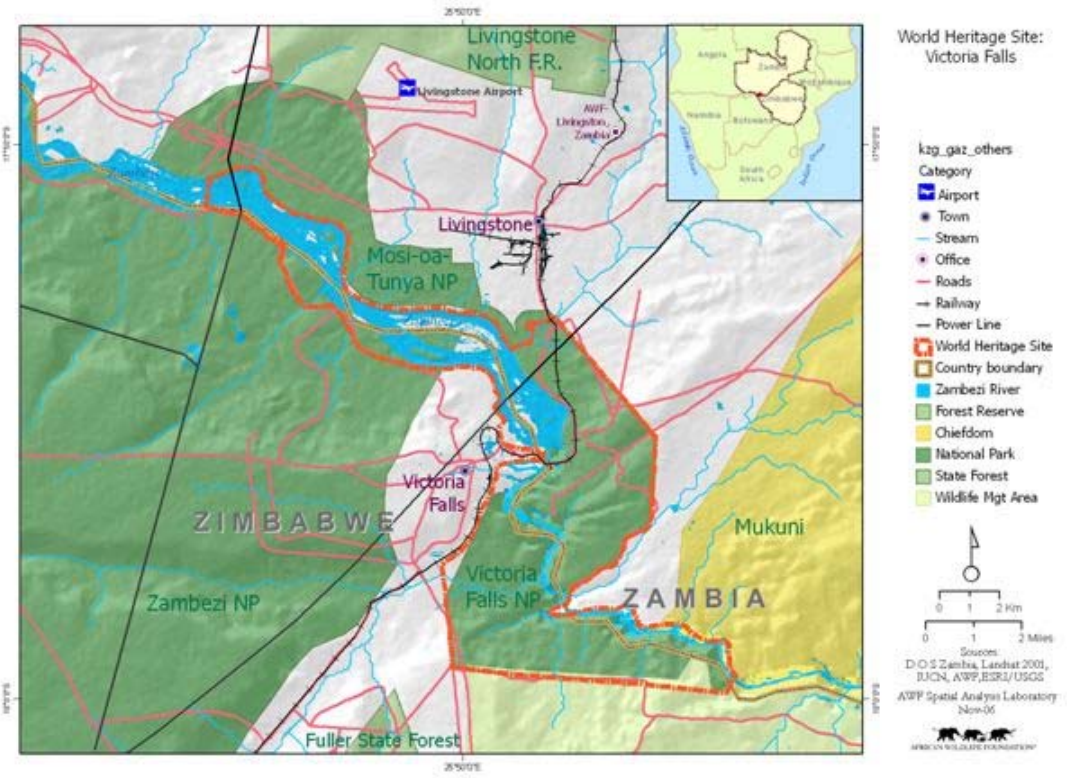
The Victoria Falls is significant worldwide for its unique geological and geomorphologic features and active land formation processes which are of outstanding universal values. The active land formation process portrays an ongoing geological process. In addition, the site has outstanding beauty attributed to the falls i.e. the spray, mist and rainbows. The site also has a large curtain of water of 1 708 meters giving it a special place in the world.

However, at national levels the WHS has archaeological resources which are evidence human interaction with the falls during the ancient times. Also of major significance in the area are the wildlife resources especially the migratory elephants.

2.2 LOCATION AND SIZE

The natural site data sheet of the World Conservation Monitoring Centre (WCMC) for this property gives the following specific details on its location and area:

> *"LOCATION: On either side of the Zambezi River in southern Zambia and northwestern Zimbabwe. Mosi-oaTunya National Park follows the left bank between the Sinde River and the Songwe Gorge, bounded on the north by Dambwa Forest Reserve and the town of Livingstone. On the right bank Victoria Falls National Park is bounded by the river from 6km above to 12km below the falls and by the town of Victoria Falls on the west. A riverine strip of Zambezi National Park extending 9km west along the right bank of the Zambezi and islands in the river are all within the Park as far as Palm and Kandahar Islands. 17°55'S, 25°50'E."*
>
> *"AREA: 6,860ha. Mosi-oa-Tunya National Park, (which was until 2006 December) 3779ha. Victoria Falls National Park, 2,340ha; a riverine strip of Zambezi National Park, 741ha."* The remaining area of these protected areas is considered as the buffer zone.
>
> The proposed buffer zone comprises a stretch of 500 m around the WHS on both sides of the site with the exception of boundary portions falling within the protected areas.



Map 1: The Victoria Falls/ Mosi-oa-Tunya WHS

2.3 VISION

One of the objectives of the 2002 workshop was to '*develop a common vision on the management of the World Heritage Site and its environs*'. The 2002 participants, as did those of the March 2007 meeting, reconfirmed the overall objective (vision) of the SEA report (Meynell *et. al.,* 1996), as stated below:

"*To ensure the integrity and long-term survival of the physical, natural and cultural resources of the Victoria Falls/Mosi-oa-Tunya World Heritage Site, and the water area around it, for the enjoyment and benefit of Zambia and Zimbabwe, the local urban and rural communities, and the national and international visitors".*

2.4 CONSERVATION VALUES OF THE VFWHS

The followings values were considered and adopted by the participants at the meetings of March and April 2007:

i) Geological values
ii) Water /catchment values
iii) Biological values

iv) Cultural and historical values
v) Tourism values
vi) Other economic values
vii) Employment values
viii) Aesthetic values
ix) Educational values
x) World Heritage values

3 BIOPHYSICAL AND CULTURAL RESOURCES

3.1 PHYSICAL ENVIRONMENT

3.1.1 Climate

The rainfall over the whole Zambezi basin is influenced by the Inter-Tropical Convergence Zone (ITCZ). The Victoria Falls area has a sub-tropical hot and arid climate, with a marked seasonal variation (Meynell *et. al.*, 1996).

The area enjoys three distinct seasons:

Wet/Warm season: November to April
Cool/Dry season: May to August 16 – 27°C
Hot/Dry season: September and October 27 - 32°C.

The wet season has an annual mean rainfall of ±750mm with the highest rainfall being from January to March. October is the hottest month, whereas June is the coldest with temperatures averaging 33.9°C and 6.4°C respectively. The months of April/May constitute the post rainy season, whereas the cool dry season is from May to August.

3.1.2 Geology

The geology of the Victoria Falls area is a product of volcanic action that characterized much of Southern Africa about 200 million years ago during the Karoo Period (Meynell *et. al.,* 1996, Bond, 1990). The lava flows produced during this period formed the basalt plate underlying the rocks. These basalts are subsequently overlain by a thin layer of arid and/or marine sandstones and the red Kalahari sands. Chalcedony and surface limestones are also found as isolated rocks or constituent minerals.

This geology has a major effect on the vegetation of the area (Fanshawe, 1975).

3.1.3 Geomorphology

The Victoria Falls World Heritage Site and surrounding area is the first order land mass called the African Plateau. The north-western part of the park has two third order forms slightly dissected further away from the river. The south-western portion, close to the Victoria Falls, is an undulating plateau interrupted in various places by hills, ridges and minor escarpment.

The relief of this whole region is dominated by the Zambezi River, the Falls and the downstream gorges. To a large extent these features are the basis for the UNESCO declaration of the area as a World Heritage Site. The Victoria Falls and gorges are the most important natural features of the park and of an exceptional significance internationally, hence the site where they are found was declared a WHS in 1989.

Some of the islands upstream of the Falls are a result of outcropping of the basalt rendering stable islands with thin soil and vegetation cover while others originated from alluvial deposits which result into islands which are often covered with thick vegetation including reeds, grasses and mature trees (Meynell *et al*., 1996).

The islands vary in size from a few square metres to a several square kilometres and are either sandbanks, sometimes with or without one or more central depressions, or basalt-based. Livingstone Island on the Zambian side and the Cataract Island on the Zimbabwean side are examples of basaltic islands whereas Palm and King George VI are sand islands.

3.1.4 Palaeontology

There is palaeontological evidence that the ecology of the falls has evolved through time and space through the fossil faunas which have been excavated from the study area. Fossils of an early form of elephant for instance were unearthed during the construction stage of the ZESCO canal deposited with the Livingstone Natural History Museum. These fossils tell an evolution story of the animal life of the study area. Some of the discoveries in the study area include a giraffe and several antelopes (Clark in Phillipson 1990).

The palaeoclimatic indicators as preserved in rocks and sand material show that the climate of the Victoria Falls area has been fluctuating between arid and wet conditions.

3.1.5 Hydrology

The Zambezi River with its Source at Kalene Hills is Africa's fourth largest river and gives rise to the Victoria Falls after forming another spectacular Sioma-Ngwezi Falls and the Barotse Cultural landscape on the upstream areas (Meynell *et al*., 1996).

There only two rivers of significance in the study area namely the Zambezi and Maramba River. There used to be Dambwa Stream which due to both climate change and human activity in town has disappeared.

The Victoria Falls and the Zambezi River have very interesting statistics. November-December the Victoria Falls are at their lowest level with the mean flow of less than 20,000 cubic meters per minute.

March-April is the peak season with water levels rising rapidly. At peak flood, water at the Victoria Falls flows thirty times its dry season volume, averaging 550,000 cubic metres per minute. In 1958 historic flows of 700,000 cubic metres per minute were recorded. At peak season, water is stained golden brown due to the sediment that it carries.

The curtain of falling water at the Victoria Falls is at its deepest point 108 metres, 1 708 metres in width combined with the Zimbabwean stretch though the greater part of the falls is on the Zambian side**.**

3.1.6 Soils

Three soil types have been identified:

a) Shallow gravel soils, underlain with basalt rock close to the Zambezi river channel and along its tributaries.
b) The upper valley slopes covered by alkaline sandy clay soils.
c) Higher altitudes on north-western section of the park mantled by Kalahari sands.

Together with lithosols, a soil type which lies above weathering rock and gravel and in depth not exceeding 25cm, the Kalahari sands form the regosols, which are one of the major soil groups in the area. These soils are extremely infertile and are of little value in terms of agricultural production (Meynell *et al*., 1996).

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Flora

The predominant natural habitat in the Victoria Falls/Mosi-oa-Tunya World Heritage Site is woodland (Meynell *et al*., 1996). Shalwindi (2000) states that according to LANDSAT imagery and the 1:500,000 vegetation map of Zambia, four main vegetation types are observed in the WHS namely Mopane, Mixed scrubland, Riparian and Swamp vegetation types. A closer analysis of these woodlands reveals six main vegetation types (Meynell *et al*., 1996) namely Riparian Forest, Kalahari woodland, (iii) Mopane, (iv) Mixed Scrub Vegetation, (v) Mukusi Woodland and (vi) Miombo Woodlands. The vegetation in the WHS is divided into six types based on biological features as described below:

3.2.1.1 Riparian Forest

The Zambezi River, in common with all rivers in tropical Africa, has a distinct fringing vegetation of gallery or riparian woodland. The Riverine Forest is found along the banks of the Zambezi, Songwe and Maramba Rivers and on some islands. On the riverbanks it is with a width rarely more than 20-100m wide from the high water mark (Fanshawe, 1975, Meynell *et al.*, 1996). At its best development, riparian forest is a three storeyed forest with a closed evergreen

canopy attaining 21m in height. Some common tree species that occur here are *Diospyros mespiliformis, Trichilia emetica, Syzyguim guineense ssp barotsense, Syzyguim cordatum, Mimusops zeyheri, Hyphaene coriacea, Hyphaene petersiana* and *Pheonix reclinata*. Also common are *Phragmites mauritianus* and *Cyperus papyrus*.

This habitat houses the highest concentration of animals and is the most sought and threatened by human developments. A small section of the riverine woodland is the 'Rainforest' found opposite the Victoria Falls. Species such as *Rotala cataractea* seem to favour the highly specialized conditions prevailing in the 'Rainforest'. Overally, the rainforest contains a highly specialized forest flora of an island character. Species such as *Sebea pentandra*, *Loberlia kirkii*, and *Gladiolus unguiculatus* are rare herbaceous species with very specialized habitat requirements. Another species of interest is the rare fern *Cheilanthes farinose*.

The central deep sandy ridges of some of the islands produce a non-riparian vegetation, with affinities to Kalahari woodland. *Dichrostachys cinerea*, *Acacia polyacantha* and *Terminalia sericea* are also to be found in these areas.

3.2.1.2 Kalahari Woodland

This woodland type mainly occurs on Kalahari sands (Meynell *et al*., 1996). The term Kalahari woodland therefore embraces all woodlands on Kalahari sand with the exception of the vegetation derived from the destruction of dry evergreen forest (Fanshawe, 1969).The Kalahari sands are deep and well-drained and are characterized by *Baikiae plurijuga, Guibortia coleospermum* and *Schinziophyton rauteneii*. This woodland type is of great economic importance because of its utilization in terms of the curio curving industry, furniture manufacture, firewood supply and ethnomedicology (Meynell *et al*., 1996). *B. plurijuga* produces a valuable timber commercially exploited in both Zambia and Zimbabwe for railway sleepers, mining timbers and parquet flooring (Fanshawe, 1975, Meynell *et al*., 1996). This woodland type is independent of the Zambezi. Other species of interest in this woodland are *Burkea africana, Erythrophleum africanum*, and the *Uapaca* spp.

3.2.1.3 Mopane Woodland

This one storeyed open woodland with a deciduous canopy of 6-18m high (Fanshawe, 1969, Chidumayo *et al*, 2004) is the second largest habitat in the Victoria Falls World Heritage Site on the Zambian side. It is found between the Riverine Forest and Mixed Scrubland. The dominant mopane is pure or almost pure (Fanshawe, 1969), thus frequently forming a near monoculture over considerable areas (Chidumayo *et al,* 2004). Scattered elements of Munga woodland occur in places mainly represented by *Acacia nigrescens*, *Adansonia digitata*, *Combretum imberbe*, *Kirkia acuminata* and *Lannea sthulmannii*. Mopane woodland thrives well in alkaline sandy soils. The physiognomy of

Mopane woodland on the alluvial flats is largely conditioned by the depth and duration of flooding during the rainy season. The most abundant tree that occurs in this area is *Colophospermum mopane,* a valuable browse species for domestic animals and wildlife.

3.2.1.4 Scrub Woodland

Scrub Vegetation extends over much of the MoNP and Victoria Falls WHS (Chidumayo *et al*, 2004) and occupies the largest part of this protected area. It is dominated by shrubs, with scattered tall trees on shallow stony basalt soils in the southeast and on shallow sandy soils in the northwest of the park. Notable woody species are *Colophospermum mopane, Kirkia acuminata, Commiphora Spp, Pterocarpus antunesii, Pterocarpus angolensis, Sclerocarya caffra, Acacia nigrescens, Sterculia quenquioloba, S.africana, Cassia abbreviata, Securidaca longependulata, Dichrostastachys cinerea, Burkea africana* and *Adansonia digitata.* Mixed scrubland thrives on shallow, strong soils underlain by basalt and its distribution is close to the Zambezi and its tributaries (Meynell *et al*., 1996).

The main value for this vegetation type is browse and grazing for wildlife and cattle in the area. It also provides good supplies of fuelwood and like the Kalahari woodland is exploited for curio making and poles for building (Meynell *et al*., 1996).

3.2.1.5 Baikiaea Woodland

This habitat occurs on the well-drained Kalahari sands on the plateau overlooking the Zambezi Valley at the Victoria Falls. It is separated from scrubland on the valley floor by a sand scarp. It occupies only 2% of the park and is relatively taller and floristically richer. The *Baikea plurijunga, Guibourtia coleosperma, Burkea africana,* and *Schinziophyton rautanenii* are the dominant trees.

3.2.1.6 Miombo Woodland

The Miombo Woodlands occupies the second smallest portion of the WHS and the MOTNP. It is found on the Kalahari sands in the north of the park. This vegetation type is dominated by *Brachystegia boehmii*, *Brachystegia spiciformis* and *Julbernadia globiflora.* Other dominant species are *Erythrophleum africana, Schinziophyton rautanenii*, *Pterocarpus angolensis* and *Combretum spp*.

Invasive alien species recorded in the WHS include L*antana camara*. The extent of its distribution and density is a threat to biodiversity of global significance and requires urgent attention. Other invasive alien species of interest in the area are *Eichhornia crassipes* and the *Opuntia* species. A three (3) year UNEP/GEF Project "Removing Barriers to Invasive Plant Management in Africa" is in its implementation phase within the World Heritage Site. Trial plots are to be established in the area where an integrated mechanical and chemical control method is proposed. Habitat recovery and other parameters will be monitored in these plots as a measure of success of the control method.

3.2.2 Fauna

The WHS is habitat to mammals, fish, amphibians and reptiles. The species diversity is 75% birds, 13% reptiles and 8% mammals. The WHS and surrounding area is home of the White Rhino and rare Taita Falcon. Others include the Elephant, Zebra, Kudu, Hippo, a number of birds, fish, reptile and amphibian species.

3.2.2.1 Mammals

Large mammals represent the most significant fauna. The WHS was initially prime wildlife habitat. Mammals found in the area include among others Elephant, Buffalo, Giraffe, Zebra, Wildebeest, Impala, Kudu, Warthog, Eland, Sable, Baboon, Velvet Monkey, Hippo, Bushbuck, Waterbuck and White Rhino.

3.2.2.2 Avi-fauna

The WHS area has 415 species (Pollard, 1989) of which 36 species are raptors, 13 species breed in the gorges, 16 species are protected and the rest are migratory birds. The islands and gorges are of special interest in relation to birdlife.

The islands and swamps are important refuge for the Coppery Tailed Coucal, Lesser Jacana, Night Herons and Pel's Fishing Owl.

The gorges are important for raptors. Among the 36-recorded species, 13 species use the area as breeding grounds and 16 are specially protected (Hartley, 1993). The concern is however, over the increasing disturbance of the Taita Falcon and Black Eagle breeding sites in the gorges.

3.3 CULTURAL RESOURCES

The WHS has a number of various cultural resources that tell the prehistory and cultural history of the Victoria Falls area.

The diverse cultural heritage in this area goes back to millions of years as evidenced by the existence of numerous Stone Age and Iron Age deposits and sites associated with living traditions that are very important to the Leya of Chief Mukuni and Sekute Chiefdoms.

3.3.1 Archaeological resources

Iron Age Sites that date to back to about seventh to the 12th centuries in the WHS are very important as they have been used to describe the area's cultural-history of the Leya of Chief Mukuni and Sekute. Some of the Iron Age Sites in the WHS include the Baobab Tree, Iron Age Site along Young Hubert Road and the Mubuyu Iron Age Site near the Palm Grove Siding.

3.3.2 Traditional /Anthropological

Besides the Victoria Falls region being occupied by the Bushmen (Kwengo) a hunting and gathering group who occupied the area during the Later Stone Age (10 000 AD to 2000 BP), the Victoria Falls has been occupied by the Leya under Chief Mukuni and Sekute, the Toka under Musokotwane whilst other minor groups included the Subiya under Liswani and Totela from the 15th century

According to the current Senior Chief Mukuni, there are a number of very important traditional/ritual sites in the WHS namely:

- Nsamba ndwazi (place for washing diseases)
- Katola Buseka/Bunji jumping point (offering site)
- Chipozyo (sacred place at Boiling Point) and
- Chisamu Cilikumbete (source for water used in the various rain and thanks giving ceremonies).
- Simukale Site marks the point at which the first Mukuni negotiated his entry into Gundu Village now Mukuni Village
- Siloka Island the first Royal Burial ground for Mukuni Siloka I

Similarly on the Zimbabwean side, according to Chiefs Mvutu, Shana and Hwange, there ritual sites mainly on islands along the Zambezi River, Chamapato Hills and the Big Tree (Victoria Falls town), Kazeruka (now Garden Island) and the Boaruka Island.

3.3.3 Historical National Monuments and Engineering Structures

There are about five historical structures in and close to the world heritage site namely the boat club monument, the Old drift national monument, Victoria Falls Railway Bridge, David Livingstone statue and the war memorial site in the eastern cataract.

- *The Boat Club Monument:*

This site which marks the 1947 Royal Visit of King George and her entourage is located on the edges of the Zambezi River.

- *Sekute Crossing Point*

This site is which marks the Crossing point and a Village Settlement of the Leya. Sekute is located about three kilometers from the Main Mosi-oa-Tunya National Park Main Gate.

- *Old Drift:*

The Old Drift Site is a cemetery of the earliest European settlers who died in the Old Livingstone Town established in 1898 by Mopane Clark.

- *Victoria Falls Railway Bridge:*

This bridge was constructed between 1904 and 1905 and is about a kilometre away from the Zambian Customs Offices along the road to the Zimbabwe

- *War Memorial Cenotaph:*

The statue was erected in memory of Northern Rhodesia Europeans killed in the First World War.

The protection of these resources is important as they provide information of the history of the site. Further these sites act as additional tourist attraction for the WHS.

3.4 STATE OF CONSERVATION

3.4.1 Introduction

The natural and cultural resources covered above, under **3.3**, are all being conserved but are being threatened by various factor and it is important that their conservation status be monitored and reported on.

The Victoria Falls/Mosi-oa-Tunya World Heritage Site lies entirely within protected areas (Zambezi and Victoria Falls National Parks on the Zimbabwean side and the Mosi-oa-Tunya National Park on the Zambian side), which has helped to maintain the vegetation, habitats and ecological processes in a relatively natural state, especially in the Rainforest and islands above the falls. This ecological zone is biologically diverse, and is also host to a number of endemic and /or rare plant and bird species. However, natural and human induced processes do pose a threat to the integrity of the site.

- The "rainforest" is threatened due to water abstraction and frequently recurring droughts due to climate change. Often the spray of the forest is replaced by dry spells. This results in the visual impact of dry falls on the Zambian side and the slowing down the natural process of the river.

Elephant pressure, especially in the riparian vegetation community is leading to loss of canopy cover, resulting in degradation of the landscape. This coupled with human induced vegetation clearing in the buffer zone and catchment area of the Zambezi can have long-term implications on flows of the Zambezi River. Invasion of habitats by *Lantana camara*, besides being a major threat to biodiversity, affects the aesthetic value of the natural environment, and is also affecting the stability of the gorges below the falls.

3.4.1.1 Flora

The riverine vegetation community, and its extension, the Rainforest, have a high diversity of plant species considering its size, with more than 800 species having been recorded. The variety of the plant species adds to the great

aesthetic value of the site, and the trees along the river are important for river bank stability. An important feature of the vegetation of the rainforest is the large number of herbaceous and climbing plant species.

Away from the river, vegetation species composition is mostly determined by edaphic factors, with the deep Kalahari sand vegetation dominated by teak (*Baikaiae plurijuga*), while the shallow basalt soils are predominantly mopane (*Colophospermum mopane*) woodlands. Vlei/grassland systems e.g. Chamabonda vlei, associated with soils of low drainage are an important component of the vegetation in the area. Species composition of the vleis varies with the moisture regime. Dominant species include *Digitaria milinjiana, Heteropogon contortus* and thatching grasses.

The major threats to the riparian vegetation community include the impacts of invasive alien species, of which five have been recorded in the rainforest area. *Lantana camara* is by far the most significant invasive alien plant in terms of extent and impact. This alien species has established itself in most of the habitats, within the site and its environs. *Lantana camara* invasion is resulting in the displacement of indigenous plant species, with concomitant loss of habitats for other life forms. Spread of *Lantana camara* is being aided by human and elephant disturbance to the environment.

Further pressure on the integrity of the vegetation both the Core and Buffer Zones emanates from elephant pressure. The elephant population has continued to rise to unsustainable levels and is a major threat to both plant species diversity and vegetation structure.

Human impact on vegetation is generally correlated with distance from the World Heritage Site, being highest in the surrounding communal lands, Fuller Forest and a section Victoria Falls National Park adjacent to the communal and town areas. Commercial logging in the forest area has traditionally targeted the following species in the Kalahari sand woodland, *Baikaea plurijuiga, Pterocarpus angolensis* and *Guibortia coleosperma*. The major conservation concern is inadequacy of concerted effort to replace harvested trees, since harvest rates are generally higher than regeneration rates of the trees.

Harvest of wood for the curio carving industry has had a negative impact on the state of the woody component of vegetation. Most of the harvest of wood by this sector is uncontrolled, and conducted without due regard to sustainability. Tree species currently targeted for the curio industry are mostly *P. angolensis, Combretum imberbe, Afzellia quanzesis and Kirkii acuminate. P. angolensis* is on the verge of local extinction. Of further concern is the fact that most of the nutrients in the Kalahari e.g. woodland are locked up in the woody vegetation, whose removal entails loss nutrients, thus affecting growth and regeneration of other trees. However, a moratorium on the harvest of the afore-mentioned species has been put in place by the Forestry Commission. Instead, curio

makers are being encouraged to utilise the more abundant White syringa (*K. acuminate*).

The *vleis* and grassland are important habitats for a number of game species, including reedbuck, sable, and impala. The major threat to the grasslands and vleis is the encroachment of woody species, of which *Terminalia sericea* and *Burkea africana* are the most common invaders. Indeed, shrinkage of the open grasslands is attributed to the decline in the populations of reedbuck and sable.

Degradation of habitats in the communal area is mostly due to human and domestic animal population pressure. The communal areas lie in agro ecological regions IV and V which are low rainfall areas, characterised by long dry spells. As a result these areas are characterized by poor agricultural productivity, resulting in an unsustainable dependency on natural resources by the communities. Added to that, the soils in the communal areas are generally fragile and easily degraded.

3.4.1.2 Fauna

3.4.1.2.5 Mammals

There are about 58 mammal species, in the Core and Buffer Zones, of which about 28 species are medium to large mammals. Elephants constitute more than 90% of the mammalian biomass. Other common species include buffalo, waterbuck, hippopotamus, sable and impala. Over the years populations of some species have been on the decline. These include wildebeest, sable, and bushbuck. The causes of decline may include habitat modification, and poaching. Of the carnivores, lions and leopards can be occasionally encountered, though their populations are on the decline. Wild dogs and cheetah populations have stabilized due to reduced persecution since these species are no longer regarded as vermin. Specially protected species include roan, wild dog, and cheetah.

3.4.1.2.6 Birds

The Victoria Falls and its environs host more than 400 bird species, of which about 25% are waterfowl. 15 of Zimbabwe's 23 specially protected bird species occur within this area. The gorge system below the falls is an important breeding habitat for raptors, having a wide range of these species, which has led to the Batoka gorges being, listed an 'Important Bird Area'. The gorges have one of the world's highest densities of Taita Falcon. The islands and riverine are also important habitats, hosting a number of rare and threatened species.

Other species of conservation interest apart from the raptors include the African Skimmer (*Rynchops flavirostris*) a globally threatened species, the sensitive Pel's Owl (*Scotopelia pel*), Brown Firefinch (*Podica senegalensis*) and Half-collared Kingfisher (*Alcedo semitorquata*). The survival of these species is conservation dependent, and their presence is a useful indicator on the state of the environment.

3.4.1.2.7 Fish

The falls are ecologically significant as far as fish species composition in the Zambezi River is concerned. As a result of the barrier effect of the falls, there are distinct fish communities in the Zambezi River above and below the falls. While there are about 84 species above the falls, there are only about 64 below the falls, of which only 30 species are common to both sections of the river.

Not much recent work has been directed to the fish communities of Victoria Falls World Heritage Site, on the Zimbabwean side to determine species population dynamics. Of concern is that a number of non-indigenous species of fish species have been introduced directly into the Zambezi, or its tributaries, and the impacts of the introductions on the native fish communities have not been thoroughly investigated.

3.4.2 Authenticity and Integrity

Before and since its inscription as a World Heritage Site, conservation efforts have largely maintained the natural settings of the immediate falls. Establishment of *Lantana camara* besides being a threat to local biodiversity throughout the World Heritage Site, there is potential threat to the stability of the walls of the gorges due to Lantana growth. Measures to control the weed have been initiated and have met with considerable success in controlling the invasive plant on the Zimbabwean side of the river. A new project on this species has now been initiated on the Zambian side of the river.

In general, developments within the site on the Zimbabwean side have been restricted. There are few developments which have taken place within the World Heritage Site, which on the whole do not affect the integrity of the site. These developments have all been preceded by comprehensive EIAs. It should be noted the Government of Zimbabwe has recently strengthened enforcement of the EIA policy. However, the past years have seen pressure to develop structures within the World Heritage Site increase, although these projects have not been approved.

On the Zambian side the core area is much larger and although the Legacy project was of much concern the Zambian Government has requested Legacy to re-submit their development proposal and not to develop in the Core Zone of the WHS i.e. South of the Maramba River.

In short the criteria on which the site was inscribed on the World Heritage list are still evident and valid. The criteria are:
Criteria (vii) superlative natural phenomenon or area of exceptional beauty and aesthetic importance; and
Criteria (viii) an exceptional example of significant ongoing geological and geomorphic processes.

The Site also has some cultural localities (sites) whose values are of national significance.

4 LEGAL AND ADMISTRATIVE FRAMEWORK

4.1 MANAGEMENT FRAMEWORK IN THE ZAMBIAN PORTION OF THE WHS

The management boundary and management regimes of Victoria Falls on the Zambian side have been changing in time and space. This section outlines the history of various management regimes that have been operational within the site in period shown below.

1934-1948

In 1934, the Victoria Falls Executive Committee was set up under the Victoria Falls Reserve Preservation Ordinance with the primary objective to foster tourism; allow the development of the Hydropower station, customs post and the rondavels at the defunct Rainbow Lodge.

In 1948, the National Monuments Commission (now National Heritage Conservation Commission) set up a Victoria Falls Conservancy Committee to manage the site and extended the protected area to the Songwe Gorge. Thus, in 1949 By –Laws were enacted to allow for this extension of the boundary.

1948-1953
The Victoria Falls Trust, a statutory body, whose members were from Livingstone and appointed by the Governor, was formed with fulltime staff being appointed for the first time in 1953

1953-1971
A statutory Trust was in place from 1953 to 1971 with the intention to improve the management of the site and boost tourism. The Tourism rondavels were increased to 36. The area was degazetted as a National Monument under the of National Monuments Commission but several prehistoric sites were declared National

Monuments under the Management of the National Monuments Commission. The Commission continued to provide the professional conservation of the falls and its features whilst the Trust concentrated on Tourism Management.

1972-1989
In 1972 the area was declared a National Park and managed by the ZAWA (formerly National Parks and Wildlife Services. The focus shifted from the management of features to that of the entire ecosystem. The need to specifically conserve wildlife rescued under Operation Noah during Kariba Dam Construction was seen in the year 1972**,** hence the Creation of Mosi-oa-Tunya National Park.

The National Monuments Commission, however, continued to manage the National Monuments and the ancient and historic heritage in the area. They also provided professional back up for the conservation of the unique features of the area.

1n 1980 the Livingstone District Council got "political" control over the entire National Park since the Decentralization Act made District Councils responsible for state land such that at one time the Zoological Park in the National Park was run by the Council.

In 1984 Zambia signed a protocol on World Heritage Convention joining other 87 other countries, which were committed to conserving the world's most outstanding natural and cultural properties.

In 1987/88 the Zambian Authorities (with the National Heritage Conservation Commission (NHCC) being the Lead institution) through the Assistance of IUCN prepared a Management Plan **–** Mosi-oa-Tunya National Park.

1989-1996
In 1989**,** National Monuments Commission was changed into National Heritage Conservation Commission through an Act of parliament CAP 23 of the Laws of Zambia which is now CAP 173. In the same year, Zambia and Zimbabwe jointly recommended the nomination of the Victoria Falls National Park and the Zambezi National Park in Zimbabwe and the Mosi-oa-Tunya National Park in Zambia to the UNESCO World Heritage Committee for inscription on the World List of Natural and Cultural wonders. Instead, the Committee assessing the recommendation, decided that only the area relating to the falls, gorges and islands were of universal natural scenic significance and hence only the area was inscribed on the World Heritage List as Natural Monument (not as a National Park). It was nominated the Victoria Falls as a World Heritage Site *for being an outstanding example representing major stages of the earth's history, significant ongoing geological processes in the development of land forms or significant geomorphic or physiographic features (formerly under Category (i) but now category (vii) and*

Secondly, for containing superlative natural phenomenon or areas of exceptional natural beauty and aesthetic importance features (formerly under Category (iii) but now category (vii)

It was at the time of its nomination that the National Monuments Commission now the NHCC assumed full responsibility over the World Heritage Site part but the National Parks and Wildlife Service continued to be responsible for the whole Park.

In 1994, The Ministry of Local Government and Housing published its reports of a Survey which constituted an examination of factors expected to effect the development of Livingstone. This was the first step in the preparation of the Livingstone Development plan.

In 1996 a joint management committee of the National Heritage Conservation Commission staff, National Parks and Wildlife Service management staff and Livingstone City Council was appointed to administer the WHS.

1996-2000
The World Heritage Natural Monument Site jointly managed by NHCC and ZAWA under the above arrangement.

The Eastern Cataract Public Land was jointly managed by NHCC, ZAWA and Sun International under another agreement.

The rest of the Mosi-oa-Tunya, i.e. Zoological Park and Northern part, was soley managed by ZAWA whereas all National Monuments in the entire Park were managed solely by the NHCC.

Organized under the Zimbabwe IUCN–ROSA office a Scoping Workshop to determine the scope and the contents of TORS and Institutional framework within which the SEA would be implemented was held in 1994. This was followed by a study where NHCC was again the Lead.

The Draft Livingstone Development plan was released in 1995.In the same year, a joint management committee comprising of NHCC and WNPS professionals formed by the Ministry of Tourism through IUCN –ROSA. The SEA report was published was then published in 1996.

2000 – 2007
In 2000, Ministry realized the failure of the Joint Management Committee comprising of NHCC, National Parks and Wildlife Services (now ZAWA), the Council and other stakeholders, collected revenue and never ploughed it back as agreed.

1n 2001 there was a separation of legal protection within the World Heritage Site. National Heritage was given the mandate by the Ministry to manage the World Heritage Site Area which encompasses the Victoria Falls.

In 2002 a stakeholders national workshop followed by a bi-national with Zimbabwe was held. An Evaluation Report on management of the Victoria Falls Area: *Which way forward for Zambia and Zimbabwe*? was produced as a preparation for this workshop. This was after a re-assessment study on new issues carried out in Zambia by a local consultant. It was learnt that the 1996 Strategic Environmental Assessment recommendations were not implemented.

A stakeholders' national workshop followed by a bi-national with Zimbabwe was held in 2002 to chart the way forward.

In 2006 UNESCO raised serious concerns over the failure to implement the protocol and urges the two state parties to resolve the outstanding issues. UNESCO promises that the Intergovernmental Committee would make a decision in New Zealand in July 2007.

The fact that there have been a many management regime changes clearly shows some weaknesses in the legal and institutional framework.

4.1.2 Relevant Zambian Legislation Governing the Site

i) National Heritage Conservation Commission Act

NHCC is mandated to manage the WHS through the NHCC Act though the Act has not yet been reviewed to embrace world heritage tenets. The lack of domestication of the World heritage convention into Zambian law seem to be one of the major reason for lack of commitment to the Convention and subsequent lack of follow ups on the issues pertaining to the site. There is need to domesticate the world heritage convention.

ii) Zambia Wildlife Authority Act

The Mosi-oa-Tunya national park was gazetted in 1972 and the title of the area is that of the national park. The WHS is essentially in the Mosi-oa-Tunya national park. The declaration of the Mosi-oa-Tunya falls as a WHS and subsequent control of the site by NHCC has brought out a dual kind of management. The two institutions having been working on a memorandum of understanding in an effort to try and harmonize their activities.

iii) Town and Country Planning Act

Land is administered by the Local government through the above Act. Also the Act provides for the approval of development structures. However there has been lack of

clear lines of communication and collaboration among various institutions. A joint institutions mechanism may help to improve the situation.

iv) Environmental Protection and Pollution Control Act

The Act provides for the protection of the environment and the control of pollution; and to provide for matters connected with or incidental to the foregoing. A developer shall not implement a project for which a project brief or an environmental impact statement is required under these Regulations, unless the project brief or the environmental impact statement has been concluded in accordance with these regulations and the Council has issued a decision letter on the project brief and environmental impact statement.

4.1.3 Institutional mechanism

There are currently seven institutions that have some form of mandate in the world heritage area namely NHCC, ZAWA, Livingstone City Council, ZESCO, Zambia Revenue Authority, Customs and Immigration, and the local community.

There is no formal institutional arrangement among these institutions and hence minimal collaboration. NHCC and ZAWA have signed a memorandum of understanding to collaborate in the management of the site. However the MOU has not yet been implemented. There is need to have an institutional mechanism encompass other institutions.

4.2 MANAGEMENT FRAMEWORK AND LEGAL STATUS IN THE ZIMBABWEAN PORTION OF THE WHS

Administration and management of the Victoria Falls World Heritage Site is the responsibility of the Parks and Wildlife Management Authority (PWMA). The different classes of land tenures in the buffer zone, and variety of land uses mean that management and administration falls under a number of agencies. To this end, different sets of legislation are applied in the management and utilisation of the World Heritage Site and its environs.

4.1.2 Relevant Zimbabwean legislation governing the site

i) Parks and Wildlife Act (Chapter 20:14)

The site was proclaimed a National Park in 1952 and its management is controlled by the Parks Wildlife Act. The major objective of the Act is the protection of wildlife, ecological processes and landscapes within the parks estate. The PWMA is a quasi government organization that is empowered by the Act to carry out ecological

management and research, law enforcement, provision of tourist accommodation and revenue collection within the Victoria Falls and Zambezi National Parks.

ii) Environmental Management Act (Chapter 20:27)

The Act came into being after the amalgamation of the following Acts which have since been repealed:

- Natural Resources Act (Chapter 20:13)
- Atmospheric Pollution Prevention Act (Chapter 20:03)
- Hazardous Substances and Articles Act (Chapter 15:05)
- Noxious Weeds Act (Chapter 19:07)

The Act's objective is to provide for sustainable management of natural resources and the environment, prevention of pollution and environmental degradation and the preparation of a National Environmental Plan and other plans for the management and protection of the environment. The management plan also priorities enforcement of environmental assessment policy, as well as the control of invasive alien species. Administration of this Act is done by the Environmental Agency.

iii) National Museums and Monuments Act (Chapter 25:11)

This Act requires the National Museums and Monuments (NMMZ) to establish and maintain records of all sites and monuments within the country. Some sites are accorded special status by gazetting them as national monuments. The NMMZ is expected to manage the inventories of all cultural sites within the Victoria Falls World Heritage Site.

iv) Tourism Act (Chapter 14:20)

The Act sets standards to facilitate implementation of tourist related Activities and developments. The Act regulates designation, registration and grading of tourist facilities and registration of persons providing services connected with tourism. The Zimbabwe Tourism Authority is the implementing agency.

v) Forestry Act (Chapter 19:05)

The forestry Act provides for the designation of forestry areas and the protection of forests, trees and natural produce. The Act regulates trade in forest produce and afforestation of private land. The Forest Commission is required to work with schools and Rural District Councils to establish reafforestation projects.

vi) Regional Town and Country Planning Act (Chapter 29:12)

The Act mandates the Victoria Falls Municipality to manage land and provide services within its area of jurisdiction. The management of land involves the subdivision of

land to create land for housing, commercial and tourist related developments as well as sustainability of the developments related Acts of Parliament dealing within the environment, pollution and control of development.

vii) Rural District Councils Act (Chapter 29:13)

This Act provides for the declaration of districts and establishment of rural district councils which fall under the Ministry of local government. Furthermore, the Act confers and imposes functions upon rural district councils and provides for administration of their areas. The Victoria Falls World Heritage Site falls in the Hwange District. The district council administers Hwange's CAMPFIRE programme which facilitates flow of benefits from the district's natural resources to the communities. Benefits are derived from safari hunting, rafting and photographic safaris.

viii) Zimbabwe National Water Authority Act

Zimbabwe National Water Authority Act governs the optimum development and utilization of water resources in Zimbabwe. Water quality management and abstraction, with the objective of prevention water pollution are the focal points of the Act.

ix) Traditional Leaders Act (Chapter 29:17)

This Act of 1998 provides for chiefs to promote and uphold cultural values among members of the community. It also recognizes them as legal custodians of traditional institutions as well as both tangible and intangible cultural heritage in their respective areas. The chief among his other duties has the responsibility to prevent any unauthorized settlement or use of any land. The chiefs also have the power to protect archaeological heritage that is threatened by development within their areas.

4.1.3 Management Framework

i) The Victoria Falls Combination Master Plan.

There are efforts underway to produce the Victoria Falls Combination Master Plan. This plan aims to harmonise developments within the Victoria Falls area.

ii) Zambezi/Victoria Falls Park Management Plan: 2005 to 2008

The plan was developed by the PWMA and stakeholders to direct park development and operations. It identifies and outlines strategies required in order to ensure that shared vision and goals of the park are realized. The purposes of the plan include:

- To identify define and analyse all key park management issues.

- To provide a framework for ensuring coordinated effort in designing and implementation of park policy and management programmes.

(iii) The Greater Livingstone/Integrated Plan

This is a Combination Town Plan whose aim is to harmonise town development within the area to ensure sustainability.

(iv) The 2002 Bi-national Recommendations[2]

The 2002 workshop brought several recommendations which are still relevant to the management of the falls. Among the recommendations was the requirement that the two state parties adopt a protocol of cooperation on the sustainable management and development of the WHS.

[2] Management of the Victoria Falls Area: Addendum to 1996 SEA Report. January 2002.

PART TWO

5 MANAGEMENT PLAN

This section looks at the management planning aspects which include, zonation, institutional and legal frameworks, objectivities and activities, proposed national and bi-national structures. It also provides a summary of programmes, objectives, activities and responsibilities. It further discusses the timing, priorities and budget for implementation of the plan.

5.1 ZONATION

This section outlines the rationale and criteria used for zoning the WHS and explain the basic management guidelines to be employed in each zone. Modifications can be made to the zones if necessary, or the guidelines for each zone, as required by further information gathered from research and monitoring programmes.

5.1.1 Rationale for Zoning

The zoning plan for the WHS is based on the idea that although various activities and management practices are more appropriate within certain areas of the WHS than others.

The zoning therefore allocates specified activities, facilities, and management practices to defined areas of the WHS based on the following criteria:

- Some biophysical features/elements are more sensitive than others. Thus the protection of different conservation values requires the application of different management approaches, if those values are to be maintained or enhanced.
- Certain activities, while acceptable individually, are mutually incompatible. They are therefore best confined to distinctly different areas.
- Even where uses are compatible, designation of a zone helps to establish the management priorities for that particular area.
- It is desirable to concentrate intensive facility development in certain relatively small and clearly defined areas, both to minimise the area of environmental disturbance, and to minimise the costs of provision of services, such as roads, electricity, water, and sewage facilities. All new developments should be preceded by EIAs.

The zones created provide guidelines for dealing with the management issues where they occur. These guidelines will be used in the implementation of the management activities proposed under each management programme.

The VF/MoT WHS shows that detailed work is needed for each zone to precisely define and to arrive at a comprehensive Zonation plan. Therefore it is recommended that the parties agree in principle to the proposed Zonation.

The WHS is subdivided into three zones namely (i) High ecologically sensitive (ii) Medium ecologically sensitive (iii) Low ecologically sensitive

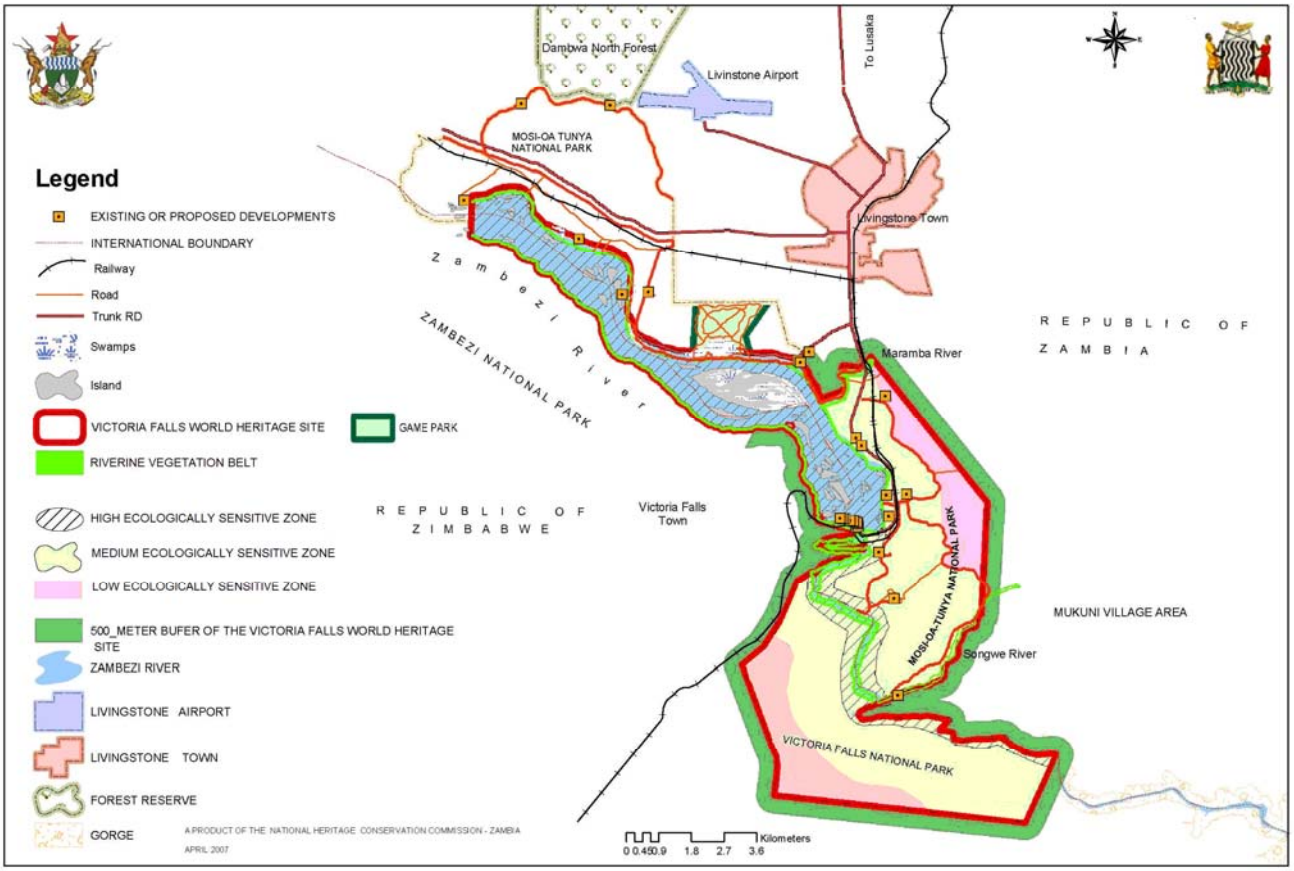


Fig. 1 ZONATION OF THE VICTORIA FALLS/MOSI-OA-TUNYA WHS

Class	Zone
i	High ecologically sensitive
ii	Medium ecologically sensitive
iii	Low ecologically sensitive

5.1.1.1 High Ecologically Sensitive Zone

i) Purpose:

To provide for the protection and sustainable utilisation of the core features and processes of the WHS.

Extent on Zambia: The Falls; Zambezi river; Maramba River; Islands; Gorges; Riparian vegetation

Extent on Zimbabwe: The Falls; Zambezi river and all Islands upstream of the Falls up to Kandahar Island; Gorges up to 16th cataract; Riparian vegetation and the Rain Forest

ii) Permitted Activities:

- Research and Monitoring
- Management operations
- Law enforcement
- Traditional rites
- Jetting (30 – 45 Hp)
- Existing water abstractions
- Bungi jumping
- Rap jumping
- River boarding
- Bush dinners
- Moonlight viewing
- Kayaking
- Abseiling
- Picnics
- Angling
- Tour guiding
- Photographic tourism
- Walking Safaris
- Canoeing

iii) Permitted Facilities / Infrastructure:

- Existing infrastructure
- Common Marina
- WHS management facilities (Toilets, garbage bins, signage, walking trails)
- Eco-lifts
- Hides
- Picnic sites

iv) Prohibited activities:

- Resource extraction except for research purposes
- No night drives
- Flight levels – low (SEA)
- Boating along river bank and islands
- Ballooning

v) Prohibited Facilities:

No further infrastructural developments except those under permitted facilities.

5.1.1.2 Medium Ecologically Sensitive Zone

i) Purpose:

To permit habitat recovery and reduce utilisation pressure on the core features of the WHS.

ii) Description:

Zambia: This is an area west of Hubert Young and Songwe Roads excluding the horse shoe portion of the Hubert Young Road. The area between Northeast of the Core zone of the Zambezi River but south of Maramba River and west of the Level 3 Protection Zone and parts of the south eastern boundary of the WHS.

Zimbabwe: Rain Forest entrance, car park, curio stalls, customs and immigration offices, Victoria Falls National Park

iii) Permitted Activities:

- Game viewing and sight seeing Game drives, nature walks and walking safaris, flights)
- Nature walks
- Research and Monitoring
- Management operations
- Photography and filming
- Bush dinners
- Controlled Picnics and camping
- Traditional rites

iv) Permitted Facilities / Infrastructure:

- Existing infrastructure
- Camping sites (1) / Picnic sites (2)
- Hides
- Picnic sites
- Signage

v) Prohibited activities:

- Resource extraction except for research

vii) Prohibited Facilities:

- No further permanent structures

5.1.1.4 Low Ecologically Sensitive Zone

i) Purpose:

This zone is meant to provide for low scale development and other activities compatible with conservation principles and objectives of the WHS.

5.2 PROGRAMMES

The management actions of the Victoria Falls / Mosi-oa-Tunya WHS are based on the following programmes:

1. Institutional Framework and Regional Cooperation
2. Resource Conservation
3. Community Collaboration
4. Tourism and Development
5. Operations and Management
6. Research and Monitoring

5.2.1 INSTITUTIONAL FRAMEWORK AND REGIONAL COOPERATION PROGRAMME

Guiding principles

- *To establish an Institutional Framework to enable the Joint Management Plan (JMP) for the Victoria Falls/Mosi-oa-Tunya World Heritage Site to be implemented*
- *To coordinate planning and management of natural and cultural resources in the Victoria Falls/Mosi-oa-Tunya World Heritage Site*
- *To implement an effective transboundary natural and cultural resources management programme for Victoria Falls/ Mosi-oa-Tunya World Heritage Site*
- *To mobilise resources for the effective implementation of the Joint Management Plan (JMP)*
- *To ensure regional cooperation at all levels to conserve the natural and cultural values of the Victoria Falls/Mosi-oa-Tunya World Heritage Site*

Issues and Rationale

On the **Zambian** side of the Falls, NHCC is the government agency tasked with the management of the VF/MoT World Heritage Site, while ZAWA is directly in charge of the wildlife resources of Mosi-oa-Tunya National Park (MOTNP). The Victoria Falls is also a declared National Monument. This has presented some challenges in the actual management of the site. A ministerial recommendation was made in 2002 for the two institutions to agree on a common position in management of the site. In 2006, an MOU was signed by NHCC and ZAWA to facilitate this collaborative approach. This MOU formed the basis of the establishment of a Joint Technical Committee comprising of staff from NHCC and ZAWA referred to as the Joint Management Committee (JMC). However the implementation of the MOU has faced some problems that need to be addressed.

On the **Zimbabwean** side, the WHS is currently managed by the ZPWMA. The Zambezi National Park was declared as a protected area in 1952. NMMZ also has a role in the management of the site since the area was declared a National Monument in 1937. However negotiations for joint management of the site between NMMZ and ZPWMA have been ongoing over the last two years. In the current situation both institutions are legally authorised to manage the site through different Statutory Instruments.

Given the current institutional framework, it is apparent that there are a number of commonalities on the Zambian and Zimbabwean side in terms of existing legislative and administrative frameworks. However, there are also a few differences, which are fundamental. The proposed institutional frameworks shall include the principal stakeholders, National Heritage Conservation Commission (NHCC) and Zambia Wildlife Authority (ZAWA) on the Zambian side, Zimbabwe Parks and Wildlife Management Authority (ZPMWA) and National Museums and Monuments of Zimbabwe (NMMZ) on the Zimbabwean side. On either side, various stakeholders with a bearing on the ecosystem integrity of the WHS as well as the broader socio-economic dynamics of the area shall be included in the overall management and planning for the WHS. It is against this background that the Institutional Framework needs to be synchronised at both national and bi-national level.

[i] Structure of VFWHS Committee-Zambia

Zambia Victoria Falls/Mosi-Oa-Tunya World Heritage Site Committee		
SUB-COMMITTEES		
Conservation	**Tourism**	**Socio-Cultural**

N.B.
The membership for the committee shall be drawn from the following: ZESCO, LTA, FD, ECZ, SWASCO, Local Chiefs, CTA ,LCC, KDC, NHCC, ZAWA, Livingstone National Museum, ZNTB, ZRA, AWF, etc)

The Chair and the Vice Chair shall be appointed by the Minister of Tourism Environment and Natural (None from ZAWA/NHCC).

Officers on the Committee shall be Chair, Vice Chair, Secretary, Vice Secretary and Committee members. NHCC and ZAWA to provide rotational secretariat.

[ii] Structure of the VFWHS Committee-Zimbabwe

Chairman (ZPWMA)

Vice Chairman (NMMZ)

Secretary (VFMS)

Vice Secretary (EMA)

Committee Members
(Local Chief; HRDC, Forestry Commission, HAZ-Victoria Falls, ZTA, Local community Representative, ZINWA, ZARA)

[iii] Proposed Bi-National Structure for VFWHS

The UNESCO verification mission of 2006 proposed a bi-national structure for the VFWHS. There should be a site management structure at national level to facilitate joint site management collaboration and consultation to be called the Joint Site Management Committee (JSMC). This shall directly fall beneath the Joint Technical Committee (JTC) which will in turn report to the Joint Ministerial Committee (JMC).

[iv] Structure of Bi-National Management Framework

Joint Ministerial Committee (JMC)

Joint Technical Committee (JTC)

Joint Site Management Committee (JSMC)

NOTES

- There will be sub-committees to focus on specific issues at JSMC and JTC level. Joint Site Management Committee is added to the structure.
- Chair and Secretary rotational annually.

The responsible Ministers from both Zimbabwe and Zambia to serve on the JMC (From the Zambian side the following Ministries shall be responsible: Tourism Environment and Natural Resources, Local Government and Housing, Education, Energy Water Development and Community Development) and from Zimbabwean side; Ministry of Environment and Tourism, Home Affairs, Local Government and Urban Development; Higher Education and Ministry of Water Resources.

[v] JOINT MINISTERIAL COMMITTEE (JMC)

- To meet at least twice a year

1.1 OBJECTIVE 1

To establish a JMC consisting of the responsible Ministers in each of the two countries

Activities

1.1.1 Provide policy guidelines and direction to the JTC

1.1.2 Hold two consultative meetings a year to review implementation progress and recommendations by the JTC

[vi] JOINT TECHNICAL COMMITTEE (JTC)

- To meet quarterly

1.2 OBJECTIVE 2

To establish a Joint Technical Committee (JTC) comprising of the two National WHS Committees

Activities

1.2.1 Agree on the composition and membership of the Joint Site Management Committee (JSMC)
1.2.2 Identify discrepancies and propose harmonisation of the existing legal instruments
1.2.3 Propose harmonisation of joint legal instruments
1.2.4 Propose domestication of World Heritage Convention into local laws
1.2.5 Propose formation of World Heritage Committees at national level
1.2.6 Preparation of consolidated bi-national conservation status reports
1.2.7 Review implementation progress of the JMP
1.2.8 Produce periodic reports to UNESCO
1.2.9 Identification of projects for implementation

Challenges

- Non-domestication of WHC
- Absence of National World Heritage Committees in both countries
- Inadequate financial resources
- Weak national collaborative structures

[vii] JOINT SITE MANAGEMENT COMMITTEE (JSMC)

- Meet once every two months

1.3 OBJECTIVE 3

To establish a JSMC consisting of the members as recommended by the JTC and for it to manage the WHS at the Site level

Activities

1.3.1 Hold meetings every two months or when need arises
1.3.2 Undertake invasive species control and management in the WHS
1.3.3 Develop bi-national guidelines for management of the WHS
1.3.4 Produce educational awareness materials
1.3.5 Undertake Site promotion and publicity campaigns
1.3.6 Address any local problems and make recommendations to the JTC

[viii] REGIONAL COOPERATION

Guiding Principle: To develop a coordinated approach to the management and conservation of the biophysical and cultural resources of the WHS into the Regional context.

Issues and Rationale
It is recognised that the VFWHS is an important tourist destination and natural asset to the whole region of southern Africa. Though Zambia and Zimbabwe should take the leading role in planning and management of the site, the entire Southern region is indirectly involved in this process.

Okavango Zambezi Transfontier Park: Its role in site management is included in the objectives for the Park.

1.4 OBJECTIVE 4:

To use diversity of tourism products and services in SADC/COMESA as a package in order to increase value of the WHS as a tourist destination

Activities

- **1.4.1** Integrate WHS into other major tourism products in the region
- **1.4.2** Stage exhibitions and fairs marketing regional tourism products
- **1.4.3** Develop regional natural and cultural museum(s)

1.5 OBJECTIVE 5:

To promote ecosystem management and biodiversity conservation at regional level

Activities

- **1.5.1** Promote collaboration in trans-frontier conservation areas
- **1.5.2** Develop and implement common guidelines in the management of shared natural resources
- **1.5.3** Identify, prioritise and address common problems as focal points of regional initiatives (e.g. Climate Change, Desertification, Biodiversity Conservation, Poaching and Pollution)

1.6 OBJECTIVE 6:

To promote regional cooperation and exchange of information in natural and cultural resource management

Activities

- **1.6.1** Build synergies in human and institutional capacity at regional scale in collaboration with universities and other tertiary institutions
- **1.6.2** Undertake exchange programmes
- **1.6.3** Establish regional register of scientific and cultural experts
- **1.6.4** Facilitate research projects at regional level

5.2.2 RESOURCE CONSERVATION PROGRAMME

Guiding Principle

Develop a sustainable and effective natural and cultural resource based management system that includes all stakeholders in WHS

Issues and Rationale

The conservation of protected areas and places of exceptional landscape or biological value is strengthened if these areas are given international recognition as a World Heritage Site. It is, however, incumbent on the property owners (Zimbabwe and Zambia) to conserve the natural and cultural resources of the site in as natural a state as possible. The Falls area conforms to the necessary criteria as a 'superlative natural phenomenon' and the 'most important and significant natural habitat' where threatened species of animals and plants of outstanding universal value survive'.

5.2.2.1 NATURAL RESOURCES RELATED IMPACTS/ISSUES

a. Lack of capacity in ecosystem management to manage the WHS leading to:

1. Flourishing of alien species;
2. Fast disappearance natural vegetation (reduction of wilderness values of Rainforest); and
3. Rock-falls and erosion

b. Uncontrolled Hotel and Lodge developments leading to:

1. Loss of riverbank (riparian) vegetation;
2. Loss of wilderness value;
3. Riverbank erosion;
4. Loss of habitats for avian, reptiles and other forms of wildlife and migration routes;
5. Reduction in river bank stability; and
6. Increased speed in average river flow rate and disturbance of geomorphological processes.

c. Increasing numbers of Jetties leading to:

1. Loss of riverbank (riparian) vegetation;
2. Loss of wilderness value;
3. Riverbank erosion;
4. Loss of habitats for avian, reptiles and other forms of wildlife and migration routes;
5. Reduction in river bank stability; and
6. Increased speed in river flow rate and disturbance of geomorphological processes.

d. Pressure on the River (High Number of Boats) Open Water and Boats on the River (especially on the Zimbabwean Side) leading to:

1. Visual impacts ;
2. Overcrowding of tourists/boats;
3. Poor water quality;

4. Negative impacts on the freshwater ecology; and
5. Disturbances of the spawning areas of fish from moving boats and their propellers.

e. Poor land use practices:

1. Deforestation of areas adjoining the WHS; and
2. Visual impact due to conflicting land uses.

f. Increased and unregulated tourist numbers leading to:

1. Disappearance of vegetation;
2. Desertification;
3. Loss of natural appearance attraction of the site;
4. Loss of wildlife habitat; and
5. Accelerated erosion

g. Water Abstraction leading to:

1. Reduced aesthetics;
2. Changes in active land formation processes; and
3. Siltation and reduced river bank sedimentation.

h. Pressure on Islands (Islands on the Zambezi River are on demand for Various tourism activities) leading to:

1. Loss of islands wilderness values ;
2. Disturbance of the island formation or normal geomorphic processes;
3. Accelerated soil erosion;
4. Disturbance of wildlife habitats such as nesting areas and animal corridors; and
5. Loss of cultural values of the islands.

i. Zambezi Gorges: These are ecologically and culturally sensitive which are threatened or affected by:

1. Disturbance to breeding sites of numerous bird species;
2. Disturbance of gorge ecology such as loss of vegetation ;
3. Disturbed geomorphic processes;
4. Visual Impacts due to developments on the cliff bottoms, tops and slopes; and
5. Removal of rocks (boulders) and other earth material for construction purposes.

j. Hospitality developments on the gorges leading to:

1. The gorges are threatened by demand for Lodge and hotel development;
2. Threat to breeding sites of numerous bird species;
3. Disturbance gorge ecology such as loss of vegetation;
4. Disturbance of the geological formations;
5. Litter problems; and
6. Visual impacts due to developments on the cliff bottoms, tops and slopes

k. White water rafting is a popular tourism sport in the gorges leading to:

1. Disturbance of the sensitive ecological sites;
2. Disturbance of geological features and processes;
3. Vegetation removal and associated soil erosion;
4. Visual impact; and
5. Waste management problems and poor water quality.

l. National Parks and Wildlife Areas: Protected areas are not for development however they are affected by:

1. Disturbance of vegetation/ wildlife ecology (habitat);
2. Disturbance of animal corridors;
3. Disturbance of fish spawning areas;
4. Loss of wilderness value;
5. High rate of animal road kills;
6. Inbreeding of animal species (Poor Gene Pool);
7. Littering in the park area;
8. Bush fires;
9. Soil erosion;
10. Poaching;
11. Pollution;
12. Shortage of food for grazers in parts of the park; and
13. Noise pollution

m. Deforestation and Poor forest husbandry resulting in:

1. Disappearance of vegetation;
2. Desertification;
3. Loss of natural appearance attraction of the site;
4. Loss of wildlife habitat; and
5. Accelerated erosion.

5.2.2.2 CULTURAL RESOURCES RELATED IMPACTS/ISSUES

a. Poor conservation, interpretation and management of cultural heritage resources resulting in:

1. Disintegration of excavation pit walls in the field museum;
2. Poor/inadequate interpretation and publicity of heritage sites;
3. High erosion of *in-situ* cultural heritage sites;
4. Vandalism of sites by human beings;
5. Destruction of sites by wildlife;
6. Lack of financial benefit to the local communities from heritage resources;
7. Deforestation of areas adjoining the WHS; and
8. Visual impact due to conflicting land uses.

2.1 OBJECTIVE 1:

To maintain ecosystem integrity in the WHS

Activities

- **2.1.1** Develop woodlots in rural areas to minimise pressure on vegetation
- **2.1.2** Remove existing exotic species and rehabilitate affected habitats with indigenous species
- **2.1.3** Develop guidelines for rafting pressure points in gorges
- **2.1.4** Rehabilitate pathways to prevent erosion in Eastern Cataract and other gorges
- **2.1.5** Develop standards, guidelines and procedures for river based operations in the WHS and enforce guidelines for riverbank development
- **2.1.6** Introduce artificial (man-made) water points in south eastern portion of WHS (Zambia) Chamabondo and Kalisosa vleis in the Zambezi National Park (Zimbabwe) as a measure to control elephant densities in the riverine habitats
- **2.1.7** Formulate integrated fire management plans
- **2.1.8** Promote collaboration in transfrontier conservation areas
- **2.1.9** Agree on water usage to protect the Rainforest and preserve wilderness values of the Site.

2.2 OBJECTIVE 2:

To conserve the geology of the gorges, river banks, islands and associated features and processes

Activities

- **2.2.1** Review NHCC Act (Zambia)to enforce or strengthen adequate punitive measures
- **2.2.2** Design and erect restrictive signage in appropriate areas
- **2.2.3** Undertake media campaign to increase awareness on the natural and cultural resources in the WHS
- **2.2.4** Investigate alternative sources of fuel, carving and construction materials

2.3 OBJECTIVE 3:

To control negative impacts in the WHS and surrounding buffer zone which result from incompatible land use in the buffer zone and surrounding areas

Activities

- **2.3.1** Prohibit the introduction of exotic fish species
- **2.3.2** Develop an integrated land use plan for the buffer zone and surrounding areas

2.4 OBJECTIVE 4:

To control noise from aircrafts and boats, water pollution from boats and waste disposal within the WHS

Activities

- **2.4.1** Determine and implement acceptable noise levels and number of flights at any given time over the falls
- **2.4.2** Carry out regular water quality tests to monitor pollution of the river from water vessels, and ensure operators are prosecuted and stopped operating
- **2.4.3** Collaborate with ECZ on standards and guidelines

2.5 OBJECTIVE 5:

To control illegal activities that threaten the integrity of the WHS

Activities

- **2.5.1** Carry out regular law enforcement patrols

2.6 OBJECTIVE 6:

To develop capacity through staff appointments, capacity building and facilitation of collaborative programmes to enhance effective conservation in the WHS

Activities

- **2.6.1** Carry out collaborative projects with other agencies to facilitate information sharing

2.7 OBJECTIVE 7:

To conserve and enhance the WHS's cultural resource values, which are of local, national and universal significance.

Activities

- **2.7.1** Arrest soil erosion at cultural resources sites
- **2.7.2** Erect signage that prohibits littering at cultural sites
- **2.7.3** Ensure that the cultural sites that are threatened, receive attention and are given adequate protection
- **2.7.4** Erect barriers at cultural resources that are damaged by motor vehicles
- **2.7.5** Protect/conserve the cultural resources that are threatened by wildlife

2.8 OBJECTIVE 8:

To develop and maintain synergy between the natural and cultural values of the WHS in order to sustain the authenticity and integrity of the resources

Activities

2.8.1 Integrate into the environmental management and biodiversity policies the protection, preservation, conservation and utilisation of the cultural resources

2.8.2 Utilise database information in liaison with appropriate stakeholders to conserve cultural resources in the WHS

2.9 OBJECTIVE 9:

To recognise and preserve the Site's diverse tangible and intangible cultural resources

Activities

2.9.1 Review by appropriate stakeholders any activity that may damage or change the authenticity or integrity of cultural resources in the WHS

2.9.2 Allow custodian of cultural traditions regulated access to sacred sites in the WHS

2.9.3 Allow tourism development that ensures the sustainability and integrity of cultural resources in the WHS

2.9.4 Hold regular consultative meetings with local community representatives.

2.9.5 Incooporate the Bene-Mukuni intangible and tangible aspects in the management, presentation and conservation of the Site.

5.2.3 COMMUNITY COLLABORATION PROGRAMME

Issues and Rationale

The Community Collaboration programme aims at environmental protection and awareness among the local communities. Under this programme the WHS staff will explain the WHS management policies to the communities bordering the WHS.

The rapid growth of human populations in areas surrounding the WHS presents great challenges to the managing organisations in promoting better community relations. The demands for use of the area's resources are intensifying.

As more people settle close to the boundary of the WHS, conflicts are escalating between local communities and the WHS due to issues arising including the following:

1. Loss of value to their traditional attachment/resources within the WHS.
2. Lack of community involvement in management, decision-making and benefit from natural resources in the WHS.
3. Human/wildlife conflicts caused by elephants, buffaloes, and monkeys straying into communal areas.
4. Inaccessibility of natural resources in the restricted area (for firewood, crafts, grazing land) by the community
5. Lack of alternative watering points for domestic animals, outside the WHS during the dry season.
6. Lack of alternative route between Mukuni village and Livingstone town, other than through WHS.

3.1 OBJECTIVE 1

To develop mutual understanding and respect between the local communities and the WHS management.

Activities

3.1.1 Establish a structure to hold 2 annual consultative meetings between the JSMC of the WHS and the local communities.

3.1.2 Devise lines of communication that promote smooth flow of information.

3.1.3 Encourage dialogue between policy makers and communities

3.2 OBJECTIVE 2

To create opportunities for local communities to benefit from the tourism and conservation activities of the WHS.

Activities

3.2.1 Initiate developmental projects in the WHS that will benefit the local communities

3.2.2 Promote and encourage village tours to encourage community empowerment.

3.2.3 Develop and implement income-generating projects to benefit local communities.

3.2.4 Develop intellectual property rights for the indigenous knowledge systems.

3.2.5 Encourage the tourism and hospitality industry to contribute towards infrastructural developments in the local communities

3.2.6 Encourage the tourism and hospitality industry to develop a sustainable marketing strategy and promotional programmes focussing on the values of the cultural resources.

3.2.7 Create a structure to ensure that communities benefit from tourism and conservation activities of the WHS.

3.3 OBJECTIVE 3

To promote interest and awareness of the outstanding values of the WHS among the local communities.

Activities

3.3.1 Design and implement heritage educational outreach programmes for schools, tertiary education institutions and the public.

3.3.2 Facilitate regulated access for educational tours for the local schools.

3.3.3 Establish voluntary heritage resource officers at local community level.

3.3.4 Train traditional custodians and local tour guides to inform the public with correct information.

3.3.5 Raise awareness on intellectual property rights for indigenous knowledge systems of the area.

3.4 OBJECTIVE 4

To promote and enhance the conservation of cultural resources of the local communities in the WHS and adjacent areas.

Activities

3.4.1 Research and document all the cultural resources in the WHS* move to research

3.4.2 Develop programmes to raise awareness on the importance of cultural resources and their conservation

3.4.3 Design, communicate and continually review local custodian access to sacred sites

5.2.4 TOURISM AND DEVELOPMENT PROGRAMME

Guiding Principle

To coordinate and support sustainable tourism development in order to make meaningful contribution to poverty alleviation at local and, regional levels

Issues and Rationale

Victoria Falls being one of the world's greatest wonders and a World Heritage Site is a major tourist attraction in southern Africa. The high tourist arrivals experienced during tourism peak season have increased the need for more hotel/lodge accommodation and demand for more tourism activities resulting in the following challenges within the World Heritage Site and surrounding areas.

- Pressure to put up more hotels and lodges and camping facilities.
- Developers tend to prefer sites in the core zone along the Zambezi River.
- This also leads to insularisation (blockage of the game corridors).
- Increased illegal activities like wood poaching for curio making and firewood.
- Waste management – litter, along roads and paths.
- Pollution – this includes water pollution from boats on the rivers, release of sewage into the river system, especially at Masue and noise pollution from the helicopters.
- Threats of loss of wilderness and ecosystems values due to overcrowding
- Limited space for tourism development within the Site and Livingstone
- High unemployment levels in Livingstone and Mukuni Village.
- Restrictions on tourism infrastructural designs and extent.
- Conflict of interests amongst operators
- Failure to fully meet visitor expectations
- Stiff competition with other attractions in the region
- Exclusion of local people from experiencing some of the WHS areas e.g. the Site, the Zambezi River and the Mosi-oa-Tunya Np.
- Low park patronage of the MoTNP
- Poor customer care services

4.1 OBJECTIVE 1:

To provide adequate safety and security to visitors to the WHS.

Activities

4.1.1 Enter into contract with Rescue Service Providers.
4.1.2 Promote tourism Insurance policies for Tour operators
4.1.3 Procure safety and first aid equipment
4.1.4 Train site personnel in first aid
4.1.5 Deploy adequate security personnel in the WHS.

4.2 OBJECTIVE 2:

To reduce vehicular traffic congestion and overcrowding within the WHS

Activities

4.2.1 Encourage relevant authorities (Customs and Immigration Departments) on fast track system of vehicle clearance at the border / entry points

4.3 OBJECTIVE 3:

To improve visitor service and standards within the WHS

Activities

- **4.3.1** Provide necessary accessories to visitors with special needs.
- **4.3.2** Upgrade visitor trails to accommodate those with special needs.
- **4.3.3** Upgrade curio shelters on the Eastern Cataract.
- **4.3.4** Construct, maintain and upgrade viewing points.
- **4.3.5** Establish and maintain animal proof waste disposal bins
- **4.3.6** Design and erect appropriate signage
- **4.3.7** Upgrade and maintain Visitor Information Centres
- **4.3.8** Regulate tour-guiding through licensing and accreditation.

4.4 OBJECTIVE 4:

To market and promote the WHS.

Activities

- **4.4.1** Conduct regular marketing and promotion of the WHS through various media
- **4.4.2** Establish a Website for the WHS (e-market place of SEED project).
- **4.4.3** Produce and distribute information materials
- **4.4.4** Participate in local and international tourism fairs
- **4.4.5** Promote partnerships with strategic Tourism institutions as regards packaging of tours

4.5 OBJECTIVE 5:

To regulate the number of tourists entering the WHS

Activities:

- **4.5.1** Carry out a study to review the carrying capacity of the Rainforest and Eastern Cataract which currently is set at 500 visitors for the Rainforest and 250 visitors for the Eastern Cataract per any given time.
- **4.5.2** Limit the number of students/pupils to 100 in the Rainforest and the Eastern Cataract at any given time.
- **4.5.3** Compile visitor statistics regularly.

4.6 OBJECTIVE 6:

To allow for appropriate tourism administrative development within the WHS

Activities:

- **4.6.1** Install electronic ticketing systems

4.6.2 Install electronic ticketing turn-stiles
4.6.3 Provide wheel chairs for physically challenged visitors and all those that may not complete the tour on foot
4.6.4 Build an ablution block for visitors and operators at the car park. Complete development pf car park. Extend/improve and maintain administration offices and ablution blocks
4.6.5 Place more warning signs at Horse Shoe, Rainbow and at other danger points.
4.6.6 Refurbish the twenty Zambezi camp lodges and three fishing camps (Kandahar, Mpalajena and Siansimba).
4.6.7 Improve Interpretation Centres of the WHS.
4.6.8 Ensure that brochures relating to the WHS are up to date.

5.2.5 OPERATIONS AND MAINTENANCE PROGRAMME

Issues and Rationale
The following issues and challenges were identified under operations and maintenance:

Operational and maintenance Issues:

1. Poor road infrastructure in the WHS
2. Inadequate coordination amongst stakeholders within the WHS.
3. Inadequate training opportunities and low staffing levels.

Disjointed management approaches leading to:

1. Differences in presentation and interpretation standards;
2. Reduced environmental standards;3.Littering of the Site.

The success of WHS to meet its vision will be greatly enhanced by well equipped and trained staff in the various management authorities. Recruit, train, develop, and motivate staff that has the knowledge, skills, abilities, and commitment, to achieve the WHS's goals in the areas of heritage protection and presentation, collaborative management, visitor use, tourism, and financial sustainability. This programme is designed to maintain the infrastructure of the WHS and to ensure that the regulations are adhered to through the various law-enforcement agents. In order to protect the important WHS ecosystem as well as the enjoyment of the visitors to the site the following activities require attention:

5.1 OBJECTIVE 1:

To improve the operational effectiveness and maintenance of services within the WHS

Activities:

5.1.1 Equip the implementing organisations with sufficient equipment, financial and human resources to effectively manage the site.
5.1.2 Assess training needs among staff and organise capacity building courses.
5.1.3 Appoint new qualified staff to fill the gaps within the organisations
5.1.4 Demarcate and maintain WHS boundary.
5.1.5 Demarcate the sacred sites within the WHS.
5.1.6 Carry out collaborative work with other agencies and bureau to facilitate information sharing.
5.1.7 Regulate activities on the Zambezi River.
5.1.8 Increase the security units to police the WHS
5.1.9 Provide relief services for visitors who may not complete the tour.
5.1.10 Train staff in the use of new equipment (electronic ticketing systems and turn-stiles).
5.1.11 Replace information signs with improved signs.
5.1.12 Ensure that trails do not cause erosion.**5.1.13** Ensure proper security in danger areas.
5.1.14 Establish and maintain fire breaks in the WHS
5.1.15 Maintain elephant trench at Big Tree in Zimbabwe
5.1.16 Develop guidelines and establish rafting, boats, canoes launching points. The number of operators on either side need to be established through a study.
5.1.17 Restrict picnics to designated areas.
5.1.18 Establish water level monitoring points along the Zambezi River within the WHS.
5.1.19 Ensure aircrafts (helicopters, micro-lights and fixed winged) fly within regulated space and height.
5.1.20 Enter into smart partnerships with stakeholders in recycling solid waste.
5.1.21 Continuously monitor quality of treated wastewater being discharged into the river.
5.1.22 Continuously monitor the effectiveness of the sewer reticulation infrastructure.
5.1.23 Maintain and improve roads, walkways and drainage in the WHS.
5.1.24 Upgrade the existing wastewater treatment to meet the increasing demand in both countries.
5.1.25 Install rain gauges and other metrological instruments within the WHS.

5.2.6 RESEARCH AND MONITORING PROGRAMME

Issues and Rationale

The conservation of natural and cultural resources in the WHS, and protection of the environment in general, is primarily a law-enforcement issue. The steps required to improve law-enforcement in the WHS are given in the **Operations and Maintenance Programme** of this Joint Management Plan. The programme outlined here provides for

monitoring of the natural and cultural resources and illegal activities, in order to determine the effectiveness of conservation and protection measures. The programme also defines research priorities for the WHS, as indicated by the Joint Technical Committee.

Management decisions taken in Protected Areas (PA) are often not properly researched and are based on managers understanding and intuition. Research in PAs should primarily be applied research into problems and issues underlying the threatened loss of biodiversity and ecological function.

Identified research priority areas:

1 Geomorphologic survey and mapping to monitor soil erosion, rock falls and the extraction of soil, gravel and rocks.
2 Vegetation mapping and survey
3 Identification and mapping of cultural sites
4 Hydrological studies related to water abstraction and pollution.
5 Research on the impacts of Human/ Tourism on the natural and cultural resources of the WHS
6 Studies on the aquatic fauna and flora
7 Long-term viability of the rainforest ecosystem
8 Exotic and invasive species
9 Sustainability indicators

Other important but non-prioritised areas of research (not in any order):

i. Sustainability of natural resource use systems
ii. Improving land use around the WHS
iii. Cultural values and practices that promote conservation
iv. Impact of gully formation on the ecosystem in the WHS
v. Studies to identify indicator species
vi. Economic valuation of ecosystems

(I) RESEARCH

6.1 OBJECTIVES

- To encourage the conduct of research that is consistent with the protection and understanding of the WHS's biophysical and cultural values.
- To facilitate the collection of traditional knowledge relevant to the Site and the integration of that knowledge into contemporary science-based approaches in management of the WHS.
- To facilitate documentation of information relating to the location, significance, and use of sites of cultural significance within the WHS.

Activities:

6.1.1 Determine key (indicator) species
6.1.2 Periodically carry out elephant censuses and movement patterns

6.1.3 Identify and implement ways of encouraging researchers to carry out management orientated research
6.1.4 Ensure management orientated research is carried out and properly supervised
6.1.5 Liaise with research institutions to ensure that prioritised research is given priority in their research work
6.1.6 Prepare guidelines for accessing information and research findings
6.1.7 Tap into indigenous knowledge of the local communities in areas of research and forestry resource inventories
6.1.8 Implement relevant research recommendations
6.1.9 Produce land-use maps in and around the WHS
6.1.10 Investigate appropriate methodology for the control of invasive alien species.
6.1.11 Initiate research to determine causes and impacts of habitat modification on sensitive and rare species of fauna and flora
6.1.12 Update the existing database of flora, fauna and cultural sites.
6.1.13 Carry out a comprehensive archaeological survey of the WHS.
6.1.14 Record oral history, myths and legends from local communities.
6.1.15 Study the effects of pollution on the ecosystem of the river.
6.1.16 Carry out a geological baseline study of the WHS.
6.1.17 Conduct soil erosion surveys.
6.1.18 Record sacred sites and other cultural sites in collaboration with local communities.
6.1.19 Undertake studies on the population dynamics of the Falcon species in the Batoka gorges as well as other endangered bird species in the WHS.
6.1.20 Consider listing endangered species on the RDL.
6.1.21 Create herbariums.
6.1.22 Undertake research on climate change and its impact o the WHS.
6.1.23 Conduct water quality tests.
6.1.24 Conduct hydrological studies to establish a number of water baseline conditions for monitoring.
6.1.25 Employ a consultant to study and recommend carrying capacity of vessels on the river.

(ii) Monitoring and Evaluation

Issues and Rationale

Over the years, management authorities have carried out various activities within and around the WHS in an attempt to protect and conserve the natural and cultural resources. These efforts have been most pronounced in the eradication of invasive alien species, notably *Lantana camara* on the Zimbabwean side. However, there has not been adequate collaboration and consultation between Zimbabwe and Zambia to evaluate the effectiveness of such activities and programmes. There is need to jointly monitor and evaluate the activities in a holistic manner.

Key areas for evaluation and monitoring:

1 Water quantity and quality
2 Vegetation cover
3 Key indicator species: fauna and flora
4 Human impacts (illegal activities: levels, frequency, types)
5 Resource off-takes (wood and fish)
7 Elephant population dynamics
8 Problem animals: impacts
9 Endangered species: fauna and flora

Apart from the above, other areas identified for monitoring are (not in priority order):

i. Effectiveness/impacts of conservation programmes
ii. Tourist numbers and characteristics
iii. Incidence and impacts of fire outbreaks in the WHS
iv. Climate
v. Benefits to local communities
vi. Community participation
vii. Impacts of tourism
viii. Information dissemination
ix. Problem animals: effectiveness of management interventions
x. Rain-forest dynamics
xi. Ranger patrol performance
xii. Large mammals
xiii. Large mammal movement out of WHS
xiv. Implementation of existing tourism regulations
xv. Tourist opinions

As implementation of this plan continues there will be need to review the list above.

6.2 OBJECTIVE 2:

To ensure effectiveness of management interventions are monitored and evaluated

Activities:

6.2.1 Regularly monitor water quality and quantity
6.2.2 Regularly monitor vegetation cover
6.2.3 Regularly monitor the impacts of humans on the WHS
6.2.4 Continue monitoring the *Lantana camara* project which has also started on the Zambian side of the WHS
6.2.5 Evaluate the effect of different management programmes
6.2.6 Implement recommendations of the evaluation carried out above
6.2.7 Prepare and implement a monitoring plan
6.2.8 Regularly review monitoring plan

6.2.9 Monitor invasive alien species as well as comparative evaluation of mechanical and biological control of these species
6.2.10 Monitor the fire management plans
6.2.11 Regularly monitor water quality for pollution of the river from vessels
6.2.12 Continue animal population monitoring
6.2.13 Monitor cultural sites for their protection
6.2.14 Monitor long-term effects of the removal of invasive alien species
6.2.15 Carry out geological monitoring
6.2.16 Monitor human activities along and on the river
6.2.17 Monitor ZESCO's water abstraction

6 REVIEW AND AMENDMENT OF MANAGEMENT PLAN

Preparation of a management plan is an essential step in the establishment and use of a sound approach to Protected Area management. However, the management plan should be considered to be an evolving document rather than one that is unchanging. As more information is obtained concerning PA resources and the ways in which those resources are used, and as more experience is gained in managing those resources, it is entirely appropriate that the management plan be modified and improved.

Under normal circumstances the plan will be reviewed and amended every 5 years. If new circumstances or information require it, the plan may be amended at any time before this.

TABLE 1

SUMMARY OF PROGRAMMES, OBJECTIVES, ACTIVITIES, RESPOSIBILITIES, TIMING, PRIORITY AND BUDGETS

1 INSTITUTIONAL FRAMEWORK AND REGIONAL COOPERATION PROGRAMME

1.1 OBJECTIVE 1: *To establish a JMC consisting of the responsible Ministers in each of the two countries*					
No	Activities	Responsibility	Timing	Priority	Budget US$
1.1.1	Provide policy guidelines and direction to the JTC	Permanent Secretaries and JTC	Sept. 2007	H	5 000
1.1.2	Hold two consultative meetings a year to review implementation progress and recommendations by the JTC	Ministers	Sept. 2007	H	10 000 x 2 per year

1.2 OBJECTIVE 2: *To establish a Joint Technical Committee (JTC) comprising of the two National WHS Committees*					
No	Activities	Responsibility	Timing	Priority	Budget US$
1.2.1	Agree on the composition and membership of the Joint Site Management Committee (JSMC)	Joint Technical Committee (JTC)	2007	H	None
1.2.3	Propose harmonisation of joint legal instruments	JTC	2007-2008	H	25 000
1.2.4	Propose domestication of World Heritage Convention into local laws	JTC	By year 3 or 4	M	10 000
1.2.5	Propose formation of World Heritage Committees at national level	JTC	At quarterly meetings	M	None
1.2.6	Preparation of consolidated bi-national conservation status reports	JTC	Every six months	H	2 500
1.2.7	Review implementation progress of the JMP	JTC	At quarterly meetings	H	None
1.2.8	Produce periodic reports to UNESCO	JTC	2007	H	2 500
1.2.9	Identification of projects for implementation	JTC	At quarterly meetings	H	None

1.3 OBJECTIVE 3: *To establish a JSMC consisting of the members as recommended by the JTC and for it to manage the WHS at the Site level*					
No	Activities	Responsibility	Timing	Priority	Budget US$
1.3.1	Hold meetings once every two months or when the need arises	JSMC	Once every two months	H	10 000
1.3.2	Undertake invasive species control and management in the WHS	JSMC	Ongoing	H	10 000
1.3.3	Develop bi-national guidelines for managing the WHS	JSMC	By 2008	H	20 000
1.3.4	Produce educational awareness materials	JSMC in collaboration with ZTA and ZNTB	Ongoing	M	15 000
1.3.5	Undertake Site promotion and publicity campaigns	JSMC	Ongoing	M	10 000
1.3.6	Address any local problems and make recommendations to the JTC	JSMC	Ongoing	H	None

1.4 OBJECTIVE 4: *To use diversity of the tourism product and services in SADC/COMESA as a package in order to increase value of the WHS as a tourist destination*					
No	Activities	Responsibility	Timing	Priority	Budget US$
1.4.1	Integrate WHS into other major tourism products in the region	JSMC	Ongoing	L	10 000
1.4.2	Stage exhibitions and fairs to market regional tourism products	JSMC	From time to time	M	10 000
1.4.3	Develop regional natural and cultural museum(s)	JSMC	By 2010	L	100 000

1.5 OBJECTIVE 5: *To promote ecosystem management and biodiversity conservation at regional level*					
No	Activities	Responsibility	Timing	Priority	Budget US$
1.5.1	Promote collaboration in trans-frontier conservation areas	JSMC, JTC	Ongoing	M	15 000
1.5.2	Develop and implement common guidelines in the management of shared natural resources	JSMC	Ongoing	M	10 000
1.5.3	Identify, prioritise and address common problems as focal points of regional initiatives (e.g. Climate Change, Desertification, Biodiversity Conservation, Poaching and Pollution)	JSMC, JTC	Ongoing	L	20 000

1.6 OBJECTIVE 6: *To promote regional cooperation and exchange of information in natural and cultural resource management*					
No	Activities	Responsibility	Timing	Priority	Budget US$
1.6.1	Build synergies in human and institutional capacity at regional scale in collaboration with universities and other tertiary institutions	JSMC	Ongoing	L	5 000
1.6.2	Undertake exchange programmes	JSMC	Ongoing	M	1 000
1.6.3	Establish regional register of scientific and cultural experts	JSMC	Ongoing	L	None
1.6.4	Facilitate research projects at regional level	JSMC	Ongoing	L	10 000

2 RESOURCE CONSERVATION PROGRAMME

2.1 OBJECTIVE 1: *To maintain ecosystem integrity in the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.1.1	Develop woodlots in rural areas to minimise pressure on vegetation	FC, FD, NHCC,	2008 - 2012	M	10 000
2.1.2	Remove existing exotic species and rehabilitate affected habitats with indigenous species	ZPWMA, NHCC, ZAWA	2007-2011	H	6 000
2.1.3	Review guidelines for rafting pressure points in gorges	ZPWMA, NHCC	2007	H	5 000
2.1.4	Rehabilitate pathways and their sides to prevent erosion in Eastern Cataract and other gorges	ZPWMA, NHCC, ZAWA, NMMZ	2008	H	2 000
2.1.5	Develop standards, guidelines and procedures for river based operations in the WHS and enforce guidelines for riverbank development	ZPWMA, NHCC, ZAWA, NMMZ	2007	H	5 000
2.1.6	Introduce and resuscitate artificial (man-made) water points in South eastern portion of WHS (Zambia) Chamabondo and Kalisosa vleis in the Zambezi National Park (Zimbabwe) as a measure to control elephant density in the riverine habitat	ZPWMA, NHCC, ZAWA	2007-2012	M	10 000
2.1.7	Integrate fire management plans	ZPWMA, NHCC, ZAWA, FC, NMMZ	2007	M	2000
2.1.9	Agree on water usage to protect the Rainforest and preserve wilderness values of the Site	ZPWMA, NHCC and ZAWA	2007	H	None

2.2 OBJECTIVE 2: *To conserve the geology of the gorges, river banks, islands and associated*

features/processes					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.2.1	Develop and enforce regulations and by-laws on the conservation of the WHS	ZPWMA, NMMZ, NHCC, ZAWA	2007-2008	M	5000
2.2.2	Design and erect restrictive signage in appropriate areas	ZPWMA, NHCC, ZAWA, NMMZ	2007	M	1500
2.2.3	Undertake media campaigns to increase awareness on the Natural and cultural resources in the WHS	ZPWMA, NHCC, ZAWA, NMMZ	2007-2012	M	2000
2.2.4	Investigate alternative sources of fuel, carving and construction material	ZPWMA, NHCC, ZAWA, FC, EMA	2008-2010	H	4000

2.3 OBJECTIVE 3: To c*ontrol negative impacts in the World Heritage Site and surrounding buffer zone which result from incompatible land use in the buffer zone and surrounding areas*					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.3.1	Prohibit the introduction of exotic fish species.	ZPWMA, ZAWA, NHCC, NMMZ	2007-2012	H	3000
2.3.2	Develop an integrated land use plan for the buffer zone and surrounding areas	ZPWMA, ZAWA, NHCC, NMMZ, FC	2008	M	10000

2.4 OBJECTIVE 4: *To control noise from aircraft and boats and water pollution from boats and waste disposal within the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.4.1	Determine and implement acceptable noise levels and number of flights at any given time over the falls.	CAAZ, ZA, ZPWMA	2007-2012	H	10000
2.4.2	Carry out regular water quality tests to monitor pollution of the river from water vessels, and ensuring defaulting operators are prosecuted and stopped from operating	ZPWMA, NHCC, EMA, SWASC, ECZ, ZAWA	2007-2012	M	10 000
2.4.3	2.4.3 Enforce environmental standards and guidelines	ZPWMA, EMA, NMMZ, NHCC, ZAWA	2007-2009	H	5 000

2.5 OBJECTIVE 5: To c*ontrol illegal activities that threaten the integrity of the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.5.1	Carry out regular area law enforcement patrols.	ZPWMA, NHCC, ZAWA	2007-2012	H	60 000

2.6 OBJECTIVE 6: *Develop capacity through staff appointments, capacity building and*

facilitation of collaborative programmes to enhance effective conservation in the WHS					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.6.1	Carry out collaborative projects with other agencies to facilitate information sharing	ZPWMA, NMMZ, NHCC, ZAWA, EMA, SWASC, ECZ	2007-2012	M	10 000

2.7 OBJECTIVE 7: To *conserve and enhance the WHS's cultural resource values, which are of local, national and international significance.*					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.7.1	Arrest soil erosion at cultural resources sites	ZPWMA, NMMZ, NHCC, ZAWA	2007-2012	M	5 000
2.7.2	Erect signage that prohibits littering at cultural sites	NHCC, ZPWMA, ZAWA, NMMZ	2007-2012	H	1 500
2.7.3	Ensure that the cultural sites that are threatened, receive attention and are given adequate protection	NMMZ, NHCC, ZPWMA, ZAWA	2008-2012	M	5 000
2.7.4	Erect barriers at cultural sites that are damaged by traffic	NMMZ, ZPWMA, NHCC, ZAWA	2007-2012	H	2 000
2.7.5	Protect/conserve the cultural resources that are threatened by wildlife	NMMZ, ZPWMA, NHCC, ZAWA	2007-2012	H	5 000

2.8 OBJECTIVE 8: *To develop and maintain synergy between the natural and cultural values of the site in order to sustain the authenticity and integrity of the resources.*					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.8.1	Integrate into the environmental management and biodiversity policies the protection, preservation, and utilisation of cultural resources	ZPWMA, NMMZ, NHCC, ZAWA,	2007-2012	H	10000
2.8.2	Utilise the information in the database and in liaison with appropriate stakeholders to conserve the cultural resources in the WHS	ZPWMA, NMMZ, NHCC, ZAWA,	2007-2012	H	5 000

2.9 OBJECTIVE 9: *To recognise and preserve the Site's diverse tangible and intangible cultural resources*					
No	Activities	Responsibility	Timing	Priority	Budget US$
2.9.1	Review by appropriate stakeholders any activities that may damage or change the authenticity or integrity of a cultural resource in the site	ZPWMA, NMMZ, NHCC, ZAWA, Other stakeholders	2007-2012	H	6 000
2.9.2	Allow custodians of cultural traditions regulated access to sacred sites in the WHS	ZPWMA, NMMZ, NHCC, ZAWA	2007-2012	H	None
2.9.3	Allow tourism development that	ZPWMA, NMMZ,	2007-	H	None

	ensures the sustainability and integrity of cultural resources in the WHS	NHCC, ZAWA	2012		
2.9.4	Hold regular consultative meetings with local community representatives	ZPWMA, NMMZ, NHCC, ZAWA	2007-2012	H	10 000

3 COMMUNITY COLLABORATION PROGRAMME

3.1 OBJECTIVE 1: *To develop mutual understanding and respect between the local communities and the WHS management.*					
No	Activities	Responsibility	Timing	Priority	Budget US$
3.1.1	Hold 2 annual consultative meetings between the JSMC of the WHS and the local community	JSMC	2007-2012	H	5 000

3.2 OBJECTIVE 2: *To create opportunities for the local communities to benefit from the tourism and conservation activities of the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
3.2.1	Initiate developmental projects in the WHS that will benefit the local communities	JSMC	2007-2012	M	10 000
3.2.2	Promote and encourage village tours	JSMC	2007-2012	H	500
3.2.3	Develop and implement income-generating projects to benefit local communities	JSMC	2007-2012	M	15 000
3.2.4	Develop intellectual property rights for the indigenous knowledge systems	JSMC	2007-2009	H	10 000
3.2.5	Encourage the tourism and hospitality industry to initiate and implement infrastructural development among the local communities	JSMC	2007-2012	H	None
3.2.6	Encourage the tourism and hospitality industry to develop a sustainable marketing strategy and promotional programmes focussing on the values of the cultural resources	JSMC	2007-2012	H	None
3.2.7		JSMC	2008	H	None

3.3 OBJECTIVE 3: *To promote interest and awareness of the outstanding values of the WHS among the local communities*					
No	Activities	Responsibility	Timing	Priority	Budget US$

3.3.1	Design and implement heritage educational outreach program for schools, tertiary education institutions and public	NHCC, NMMZ, ZPWMA, ZAWA	2007-2012	H	20 000
3.3.2	Facilitation of regular access of educational tours for local schools	NHCC, NMMZ, ZPWMA, ZAWA	2007-2012	M	800
3.3.3	Establish voluntary heritage resource officers at local community level	NHCC, NMMZ, ZPWMA, ZAWA	2008	M	1 000
3.3.4	Train traditional custodian and local tour guides to inform the public with correct information	JSMC	2007-2012	H	2 000
3.3.5	Raise awareness on intellectual property rights for indigenous knowledge systems of the area	JSMC	2007 - 2012	H	1 000

3.4 OBJECTIVE 4: *To promote and enhance the presentation and conservation of cultural resources of the local communities in the WHS and adjacent areas.*					
No	Activities	Responsibility	Timing	Priority	Budget US$
3.4.1	Research and document all the cultural resources in the WHS	NHCC,NMMZ	2007-2009	H	80 000
3.4.2	Develop environmental education programmes to raise awareness on the importance of cultural resources and their conservation	JSMC	2008-2012	H	20 000
3.4.3	continually review local custodian access to sacred sites	JSMC	2007-2012	H	None

4 TOURISM DEVELOPMENT PROGRAMME

4.1 OBJECTIVE 1: *To provide adequate safety and security to visitors to the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
4.1.1	Enter into contract with Rescue Service Providers	NHCC, ZPWMA	2007-2012	H	500
4.1.2	Promote tourism Insurance policies with Tour operators	JSMC	2007-2012	H	1 000
4.1.3	Procure safety and first aid equipment	NHCC, ZPWMA	2007	H	1 000
4.1.4	Train site personnel in first aid	NHCC, ZPWMA	2007-2012	H	1 000
4.1.5	Deploy adequate security personnel in the WHS	NHCC, ZPWMA	2007	H	None

4.2 OBJECTIVE 2: *To reduce vehicular traffic congestion and overcrowding within the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
4.2.1	Encourage relevant authorities (Customs and Immigration Departments) on fast track system of clearance at the border/entry	JMC	2007-2012	H	None

	points.				

4.3 OBJECTIVE 3: *To improve visitor services and standards within the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
4.3.1	Provide necessary accessories to visitors with special needs	NHCC, ZPWMA	2007	H	3 000
4.3.2					
4.3.3	Upgrade curio shelters on the Eastern Cataract area	NHCC	2007	H	50 000
4.3.4	Construct, maintain and upgrade viewing points	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	H	50 000
4.3.5	Establish and maintain animal proof waste disposal bins	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	H	6 000
4.3.6	Design, produce and erect appropriate signage	NHCC, ZPWMA, NMMZ, ZAWA	2007	M	500
4.3.7	Upgrade and maintain Visitor Information Centres	NHCC, ZPWMA, NMMZ	2007	M	30 000
4.3.8	Regulating tour-guiding through licensing and accreditation of tour guides	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	H	500

4.4 OBJECTIVE 4: *To market and promote the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
4.4.1	Conduct regular marketing and promotion of the WHS through various media	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	H	20 000
4.4.2	Establish a Website for the WHS ()	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	M	10 000
4.4.3	Produce and distribute information materials	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	M	20 000
4.4.4	Participate in local and international fairs	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	L	20 000
4.4.5	Promotional partnerships with strategic Tourism institutions as regards packaging-tours	NHCC, ZPWMA, NMMZ, ZAWA	2007-2012	L	500

4.5 OBJECTIVE 5: *To regulate the number of tourists entering the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
4.5.1	Establish and review the carrying capacity of the Rainforest and Eastern Cataract.	NHCC, ZPWMA	2007-2012	M	None

4.5.2	Limit students to 100 in the Rainforest and the Eastern Cataract at any given time	NHCC, ZPWMA, NMMZ	2007-2012	M	None
4.5.3	Compile visitor statistics regularly	NHCC, ZPWMA, NMMZ	2007-2012	H	None

4.6 OBJECTIVE 6: *To allow for appropriate tourism administrative development within the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
4.6.1	Install electronic ticketing system	NHCC, NMMZ ZAWA, & ZPWMA	2007-2008	H	10 000
4.6.2	Install electronic ticketing turn-stile	NHCC, NMMZ ZAWA, & ZPWMA	2007-2008	H	5 000
4.6.4	Build an ablution block for visitors and operators at the car park. Complete development of car park. Extend/improve and maintain administration offices and ablution blocks.	NHCC, NMMZ ZAWA, & ZPWMA	2008	H	10 000
4.6.5	Improve signage within the WHS	NHCC, NMMZ ZAWA, & ZPWMA	2007	H	None

5 OPERATIONS AND MAINTENANCE PROGRAMME

5.1 OBJECTIVE 1: *To improve operational effectiveness and maintenance of services within the WHS*					
No	Activities	Responsibility	Timing	Priority	Budget US$
5.1.1	Equip the implementing organisations with sufficient equipment, financial and human resources to effectively manage the WHS.	NHCC, NMMZ ZAWA, & ZPWMA	2008-2012	H	200 000
5.1.2	Assess training needs among staff and organise capacity building courses	NHCC, NMMZ ZAWA, & ZPWMA	Ongoing	H	60 000
5.1.3	Appoint new qualified staff to fill the gaps within the organisations	NHCC, NMMZ ZAWA, & ZPWMA,	Ongoing	H	40 000
5.1.5	Record sacred sites within the WHS	NHCC, NMMZ ZAWA, & ZPWMA	2008/9	H	3 000
5.1.10	Train staff in use of new equipment (electronic ticketing systems and turn-stiles)	NHCC, NMMZ ZAWA, & ZPWMA	Ongoing	H	2 000
5.1.16	Maintain elephant trenches within the WHS	NHCC, NMMZ ZAWA, & ZPWMA	Annually	H	2 000
5.1.17	Review guidelines and establish rafting, boats, canoes, launching points.	NHCC, NMMZ ZAWA, & ZPWMA	2008	M	2 000
5.1.19	Treatment of water bodies to remove pollutants with use of	NHCC, NMMZ ZAWA, & ZPWMA	2007 - 2012	H	1 000

	harmless chemicals or biological cleaners				
5.1.21	Ensure aircrafts (helicopters, micro-lights and fixed-winged) fly within regulated space and height	NHCC, NMMZ ZAWA, & ZPWMA	Ongoing	H	None
5.1.23	composting of biodegradable solid waste to minimise accumulation of solid waste	NHCC, NMMZ ZAWA, & ZPWMA + local authorities	Ongoing	H	None
5.1.24	Enter into smart partnerships with stakeholders in recycling solid waste	NHCC, NMMZ ZAWA, & ZPWMA and stakeholders	Ongoing	L	None
5.1.25	Continuously monitor quality of treated waste water being discharged into the river.	EMA, ECZ, VFM, LCC	Ongoing	H	None
5.1.26	Continuously monitor the effectiveness of the sewer reticulation infrastructure.	LCC & VFM	Ongoing	H	None
5.1.27	Maintain and improve roads, walkways and drainage in the WHS	NHCC, NMMZ ZAWA, & ZPWMA	2008-2012	H	30 000
5.1.29	Install rain gauges and other meteorological instruments within the WHS	NHCC, NMMZ ZAWA, & ZPWMA	2007-2008	H	1 000

6 RESEARCH AND MONITORING PROGRAMME

6.1 OBJECTIVE 1: *To encourage the conduct of research that is consistent with the protection and undertaking of the WHS's biophysical and cultural values.*					
No	Activities	Responsibility	Timing	Priority	Budget US$
6.1.1	Determine key (indicator) species	ZPWMA and ZAWA	Ongoing	H	1 000
6.1.2	Periodically carry out elephant census and movement patterns	ZPWMA and ZAWA	Once a year	H	None
6.1.6	Prepare guidelines for accessing information and research findings	ZPWMA, ZAWA, NHCC and NMMZ	2007 - 2009	H	5 000
6.1.7	Tap into indigenous knowledge of local communities in areas of research and forest resource inventories	ZPWMA, NHCC and NMMZ	Ongoing	M	1 000
6.1.8	Implement relevant research recommendations	Joint Bi-lateral Committee	Ongoing	H	None
6.1.9	Produce land-use maps in and around the WHS	NHCC, NMMZ, ZAWA and ZPWMA	Ongoing	H	5 000
6.1.10	Investigating appropriate methodology for the control of invasive alien species	NHCC, NMMZ, ZAWA and ZPWMA	2008-2011	H	1 000

6.1.11	Initiate research to determine causes and impacts of habitat modification on sensitive and rare species of fauna and flora	NHCC, NMMZ, ZAWA and ZPWMA	2008-2012	H	5 000
6.1.12	Update the existing database of flora, fauna and cultural sites	ZPWMA and NMMZ, ZAWA, NHCC	Ongoing	M	1 000
6.1.13	Carry out a comprehensive archaeological survey of the WHS	NHCC, NMMZ, ZAWA and ZPWMA	2008-20011	H	10 000
6.1.14	Record oral history, myths and legends from local communities	NHCC, NMMZ, ZAWA and ZPWMA	Ongoing	H	None
6.1.16	Carry out a geological baseline study of the WHS	JTC	2008 – 2012	H	5 000
6.1.17	Conduct erosion surveys within the site	NHCC, NMMZ, ZAWA and ZPWMA	Ongoing	H	1 000
6.1.19	Undertake studies on the species population dynamics	NHCC, NMMZ, ZAWA and ZPWMA	2007/08	H	1 000
6.1.20	Update RDL database to include WHS species	JTC	Ongoing	M	None
6.1.21	Create herbariums	NHCC, NMMZ, ZAWA and ZPWMA	2008-20010	M	None
6.1.25	Commissioning study to determine the carrying capacity of vessels on the river	ZPWMA, ZAWA	2008 - 2012	H	5 000

6.2 OBJECTIVE 2: *To ensure effectiveness of management interventions are monitored and evaluated*					
No	Activities	Responsibility	Timing	Priority	Budget US$
6.2.2	Regularly monitor vegetation cover	NMMZ, ZAWA and ZPWMA	Ongoing	H	1 000 per year
6.2.3	Regularly monitor the impacts of human on the WHS	NMMZ, ZAWA and ZPWMA, NHCC	Ongoing	H	500 per year
6.2.4	Continue monitoring the *Lantana camara* project and extend it on the Zambian side of the WHS	ZPWMA, ZAWA,	Ongoing	H	1 000 per year
6.2.7	Prepare and implement a monitoring plan	JSMC	Yr 1, ongoing	H	5 000
6.2.8	Regularly review monitoring plan	JSMC	Yr 3, 5	H	None
6.2.18	Monitor ZESCO water abstraction	JTC	Ongoing	H	ZESCO

ANNEX 1: LIST OF JOINT TECHNICAL COMMITTEE AND FACILITATOR THAT PARTICIPATED IN THE MEETINGS TO DRAFT THE JOINT MANAGEMENT PLAN FOR THE VICTORIA FALLS / MOSI-OA-TUNYA WHS (26 APRIL – 4 MAY 2007)

No.	NAME	TITLE	INSTITUTION	CONTACT DETAILS
1	Kagosi Mwamulowe	Acting Director Conservation Services	NHCC	P.O. Box 50619 Livingstone Zambia Tel: 260 - 3- 320481 Mobile: 260 – 97500243/ 95880065 mwamulowek@netscape.net mwamsprog@mail.com
2	Michael Nangalelwa	Acting Planner	NHCC	P.O. Box 60124 Livingstone Zambia Mobile :260-97233136 nangamic@yahoo.com
3	Billiard B Lishiko	Senior Conservation Officer - Cultural	NHCC	P.O. Box 60124 Livingstone Zambia Office: 260-3 323662 Mobile:+260-97619999 blishiko@yahoo.com blishiko@uwc.ac.za
4	Mercy Mulenga	Physical Planner	Livingstone City Council	P.O Box 60029 Livingstone Zambia Mobile:+260 97528430 mwambagabby@yahoo.com
5	Jones Masonde	Wildlife Ecologist	Zambia Wildlife Authority	P.O.Box 60086 Livingstone Zambia Tel:260-3-321396 Mobile:+260 97258901 jkmasonde@yahoo.co.uk
6	Ndiyoi Muyumbwa	Senior Conservation Officer	NHCC	P.O.Box 60124 Livingstone Zambia Tel:260 3 323662

				Mobile:+260 958832433 ndiyoi@yahoo.co.uk
7	Hilda Sinywibulula	Senior Programme Officer - Culture	Zambia National Commission for UNESCO	P.O. Box 50619 Lusaka Zambia Tel: 260-1- 254340 Mobile: 263-97438412 hsinywibulula@yahoo.com
8	Farai M Chabata	Curator of Ethnography	National Museums & Monuments of Zimbabwe	P.O. Box CY 33 Causeway Tel:263- 4- 751797/8 fmchabata@yahoo.com natmus@utande.co.zw
9	Tabani Mhlanga	Director of Housing & Community Services	Victoria Falls Municipality	P.O.Box 41 Victoria Falls Zimbabwe Tel:263-13-44311 Mobile: 263-11-217338/ 912477800
10	Serah Nyondo	Tourism Development Officer	Ministry of Tourism Environment & Natural Resources - Zambia	P.O.Box 60563 Livingstone, Zambia: Tel/Fax:260-3321630/321297 Mobile:260-9775634 S_nyondo@yahoo.com serahnyondo@yahoo.com
11	Trumber Jura	Senior Park Manager	Zimbabwe Parks & Wildlife Management Authority	Zambezi Camp P.Bag 5920 Victoria Falls Tel:263-13-44566 Mobile:263-11-875723 tsjura@yahoo.com
12	Daphne Mukaronda	Principal Programme-Officer	Zimbabwe National Commission for UNESCO	P.O. Box CY 7732 Causeway Harare Zimbabwe 263-4-702150/737407 Mobile: 263-912-833261 dmukaronda@metacrawler.com unesco@mhet.ac.zw
13	Hillary Madzikanda	Chief Ecologist	ZPWMA	Box CY 140 Causeway Harare Tel:263-912 220 330

				parksres@mweb.co.zw
14	Tawanda N Gotosa	Regional Manager	ZPWMA	P.O.Box 2283 Bulawayo Zimbabwe Tel:263-9-65394 Mobile: 263-11-871151 tngotosa@hotmail.com
15	Chrispen Chauke	Regional Director	NMMZ	Great Zimbabwe World Heritage Site P.O. Box 1060 Masvingo Zimbabwe 263-39-262080/265084 Mobile: 263-11-875633 chrispenchauke@yahoo.com natmus@utande.co.zw
16	Arnold Moyo	GIS Technician	ZPWMA	Box CY 140 Causeway Harare Zimbabwe Mobile:263-23-326096 arnomoyo@yahoo.co.uk
17	Gilbert H. Moyo	Senior Park Manager	ZPWMA	P.O. Box 75 Kariba 263 -61- 2936 ghmoyo3@yahoo.co.uk
18	Diana Chimhanda	Chief Planning Officer	Department of Physical Planning	P.O. Box CY 968 Causeway Harare Tel:263 4 707066-7 /700989 Mobile:263-912-266034 dpp@zarnet.ac.zw
19	Isaac Kanguya	Manager Information and Public Relations.	NHCC H/Q Zambia	P.O. Box 60124 Livingstone Zambia Tel:260-3-322853 Mobile:260 97499350 kanguyaisaac@yahoo.com
20	Pascall Taruvinga	Director Research and Development	NMMZ	P.O. Box CY 1485 Causeway Harare Tel: 263-4-774208 Fax:263- 4-753085 Mobile:263-11-886678

				263-912-206 637 Pastar143@yahoo.com natmus@utande.co.zw
21	Mulekeni Ngulube	Programme Specialist (Culture)	UNESCO-Harare Cluster Office	P.O Box HG435 Highlands Tel:263-4-776115 Mobile:263-912-232780 md.ngulube@unesco.org
22	Felicitas Chinanda	Secretary-General	Zambia National Commission for UNESCO	P.0 Box 50619 Lusaka Zambia Tel/Fax:260-1- 254340 Mobile:260-97369075 grace1msambachinanda@yahoo.co.uk ncunesco@zamnet.zm
23	Mennas S. Machawira	Deputy Secretary General	Zimbabwe National Commission for UNESCO	P.O. Box CY 7732 Causeway Harare Tel: 263-4-794580/737407 Mobile: 263-4-11-400953 machawira@mhet.ac.zw unesco@mhet.ac.zw
24	Dr. Robbie Robinson	Private International Protected Areas Consultant	Appointed by UNESCO/WHC	P.O. Box 470 Plettenberg Bay 6600 South Africa drrobbie@icon.co.za