

**STATE OF CONSERVATION REPORT
MOSI-OA-TUNYA/VICTORIA FALLS WORLD HERITAGE PROPERTY**



2013



1. PROPERTY DETAILS

- (i) **States Parties:** *Zambia and Zimbabwe*
- (ii) **Name of World Heritage Property:** *Mosi-oa-Tunya/ Victoria Falls (N509)*
- (iii) **Geographical coordinates to the nearest second:** *Latitude 17°56" S; Longitude 25°55"E*
- (iv) **Date of inscription on the World Heritage List:** *15th December 1989*
- (v) **Organisation or entity responsible for the preparation of the Report:**
a. *National Heritage Conservation Commission (Zambia)*
b. *Zambia Wildlife Authority*
c. *Parks and Wildlife Management Authority (Zimbabwe)*
- (vi) **Date of the Report:** *31st January 2014*

Signature of behalf of the States Parties

Honorable Professor Nkandu Luo
Minister
Ministry of Chiefs and Traditional Affairs
ZAMBIA

Honorable S. Kasukuwere
Minister
Ministry of Environment, Water & Climate
ZIMBABWE

2. Introduction

The World Heritage Centre in its Decision **36 COM 7B.7** requested the two States Parties of Zambia and Zimbabwe to submit a Joint State of Conservation report that will be evaluated during the 38th Session of the World Heritage Committee in 2014.

This report outlines the activities that have been undertaken by both States Parties during the period 2012 and 2013, towards strengthening the joint management of the Property.

3.0 STATE OF OUTSTANDING UNIVERSAL VALUES

3.1 Protection and management requirements

The property is protected under the Zambia National Heritage Conservation Act (1998), Zambia Wildlife Act, and the Zimbabwe Parks and Wildlife Act (CAP20:14), 2008 (revised). These principal legislations provide for the legal protection of the resources contained therein. The property has well-defined boundaries. The 2007 to 2012 Joint Integrated Management Plan (JIMP) is being reviewed.

Developmental pressure if not sustainably managed, may negatively impact on the State Of Outstanding Universal Values (SOUVs) of the property. In this regard, there is need to review the 2002 Strategic Environment Assessment (SEA) in line with the WHC recommendation (Decision 36 COM 7B.7 para. 8) in order to determine the current and future management strategies. Benchmarks and Indicators are in place to ensure effective conservation and protection of the property.

4.0 STATE OF AUTHENTICITY/INTEGRITY

The integrity of the site has not been altered over the years.

5.0 RESPONSE TO THE WORLD HERITAGE COMMITTEE'S DECISION; 36 COM 7B.7

Paragraph 3: *Welcomes the further progress of the two States Parties in strengthening the joint management of the trans-boundary property through the work of the Joint Technical and Site Management Committees, and the measures taken to promote sustainable tourism by halting construction of hotels and lodges on the river banks and islands, reducing noise and water pollution, and upgrading visitor facilities at the property;*

The two States Parties continue to conduct collaborative efforts in various activities such as law enforcement, eradication of invasive alien plant species, combating noise pollution, improving visual appeal of the property and sustainable tourism development.

Paragraph 4: *Encourages the two States Parties to develop a sustainable financing strategy and business plan for the property, recognizing that implementation of the Joint Integrated Management Plan may be largely financed from park entry fees and other internally-generated sources;*

The two States Parties are in the process of developing a sustainable financing strategy and business plan for the property.

Paragraph 5: *Also welcomes the voluntary agreement of the State Party of Zambia to introduce a limit on the dry-season diversion of water from the falls for hydro-electric power generation, which would significantly restore a major attribute of the Outstanding Universal Value of the property, and requests the State Party of Zambia to implement this new water abstraction regime as soon as possible, and consider further reductions in water abstraction by the power station;*

The State Party of Zambia has continued to observe the water abstraction regime wherein power generation is reduced to a maximum of 40% during periods of low flows below 400 cumecs. As the Zambezi river flows approach the 400 cumecs threshold, Zambia Electricity Supply Company (ZESCO) calls for a meeting with the stake holders to discuss implementation of the reduction scheme.

To ensure the reduction scheme is carried out at the right time, ZESCO continuously monitors Zambezi River water flow and level at the Victoria Falls.

The automated gates and level measurement sensors installed at all the settling ponds as a way to ensure only enough water for generation is abstracted from the river and the rest goes to the lip of the waterfall. This helps to avoid overspills that would arise from the power station drawing more than is necessary for generation.

Paragraph 6: *Notes that the State Party of Zambia submitted three environmental project briefs, including for a tethered balloon project adjacent to the property, reiterates its previous conclusion at its 34th session (Brasilia, 2010) that any tethered balloons close to the property will adversely impact its visual integrity, and urges the States Parties not to authorize any tethered balloon or other tall structures within the vicinity of the falls;*

The States Party of Zambia is considering appealing to the WHC for the consideration of the tethered balloon due to some modifications that have been made to the proposed project. However, consultations between the two States Parties are still ongoing.

Paragraph 7: *Also requests that the State Party of Zambia to address IUCN's comments regarding the proposed Amphicoach and SPA lodge projects, before considering whether to proceed with the two proposed projects;*

The State Party of Zambia will not implement the two proposed projects.

Paragraph 8: *Recommends the States Parties to conduct a joint Strategic Environmental Assessment of developments within the property and in its vicinity, in order to protect the Outstanding Universal Value of the property, including its aesthetic value and the related conditions of integrity;*

The two States Parties are in the process of mobilizing funds to conduct a joint Strategic Environmental Assessment towards effective protection of the Outstanding Universal Values of the property (**Appendix 1**).

Paragraph 9: *Also recognizes the progress made in developing benchmarks and indicators to monitor the State of Conservation of the property and also requests the States Parties to develop a comprehensive monitoring plan for the property and submit a copy to the World Heritage Centre by 1 December 2012;*

The two States Parties have since developed the 2014/2015 comprehensive monitoring plan for the property (**Appendix 2**).

Paragraph 10: *Reiterates its request to the two States Parties to continue their on-going efforts to control invasive species;*



The States Parties have continued to use both the chemical and mechanical methods to control the spread of *Lantana camara*. A total of ten classified daily employees have been employed for the sole purpose of invasive species control. *Lantana camara* control has been ongoing. About **787 hectares** of the infested area (1524 hectares) has been cleared during the period under review.

Figure 1: Mechanical clearing of *Lantana camara*

Paragraph 11: *Further requests the two States Parties to submit to the World Heritage Centre by 1 February 2014 a jointly prepared report on the state of conservation of the property, including details of progress made in the implementation of measures to address the recommendations of the 2006 mission and the issues mentioned above, for examination by the World Heritage Committee at its 38th session in 2014 (Produced and submitted this report).*

6.0 OTHER CONSERVATION ISSUES

6.1 Wildlife restocking

New wildlife species (Zebra, Blue wildebeests and Eland) have been introduced into the property during the period under review. This has increased siting of wildlife species to date.

6.2 Habitat restoration

The States Parties are strengthening their re-vegetation efforts through tree planting. More than 500 indigenous tree species have been planted in the property, especially in areas where *Lantana camara* has been cleared. Habitat restoration is an on-going programme.



The above figure shows the Minister of Chiefs and Traditional Affairs and Dr. Kenneth Kaunda (former Zambian president) and Dr Rafai (UNWTO Secretary General) planting trees in the World Heritage property.

6.3 Name tagging of tree species



During the period under review, most of the prominent tree species in the fenced area of the property have been name tagged. The initial phase of identification and inventorying of the tree species was done in the year 2012. The tagging of the trees will allow for identification, education and appreciation of the site by property visitors.

6.4 Field patrols

As a way of enhancing management and monitoring of the state of conservation of the World Heritage property, bi-monthly intense patrols were carried out with relevant stakeholders during the period under review. Both the bio-physical and socio- economic environments were taken into consideration and any identified negative impacts or actions were mitigated or punitive actions taken where necessary.

6.5 Noise pollution



Noise levels from aircrafts were also monitored at regular intervals to ascertain the extent of noise pollution, using an acoustic calibrator (sound level meter). It was found that the noise levels from aircrafts that flew over the falls were generally within acceptable limits (**Figure 3**).

6.6 Management of wild fires



To counter the negative effects of wild fires, the States Parties developed comprehensive fire control plans. The two States Parties have constructed firebreaks among other fire management and suppression measures.

6.7 Litter disposal

On one hand a new initiative **(Carry-in-Carry out)** has been introduced where visitors to the property are given a refuse bag on their way in and are encouraged to return it as they exit the property, in line with waste management strategies of the local authority. This management measure has reduced the littering within the site.

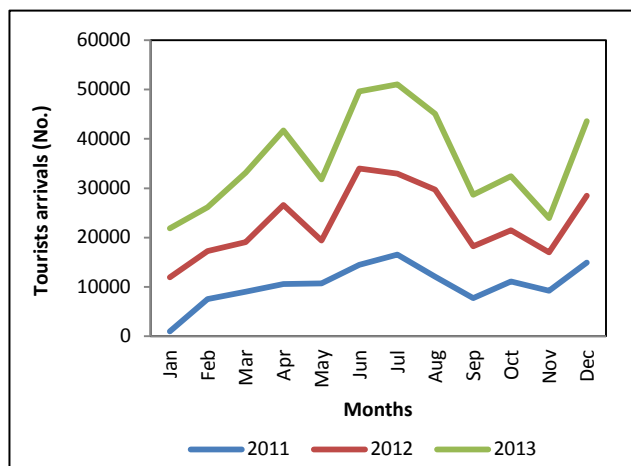
On the other hand, the use of color coded bins has been introduced within the site as a strategy of waste separation. These bins are labeled in such a way that cans, organic material, plastic and paper are placed in different bins accordingly. In light of the above, a recycling plant for the cans has been established. The cans are crushed and then baled for exportation.

6.8 Decommissioning of old dump site

An old eyesore waste dumpsite that was located on the periphery of the property in Livingstone was decommissioned. An Environmental Impact Assessment for a new dump site has since been conducted for a new landfill site.

7.0 TOURISM DEVELOPMENT

7.1 Tourist arrivals



Following the successful co-hosting of the United Nations World Tourism General Assembly by Zambia and Zimbabwe in July/August 2013, there has been an upsurge in the number of tourists visiting the heritage site. Between 2012 and 2013, arrivals have increased by approximately **5%**. Since the UNWTO General Assembly was held in the second half of 2013, it is envisaged that the impact on arrivals will further increase in the ensuing years. Despite the increase in numbers, the carrying capacity of 750 visitors at any given time is being adhered to so as not to exert pressure on the property.

Monitoring of visitors entering the site is done on a daily basis through the entry control points where tickets are issued. A total of **195 000** and **252 800** tourists visited the site in 2012 and 2013 respectively. This relates to approximately 12,583 people per month and 419 people per

day. Visitation to the site is generally spread out throughout the day beginning from 07:00hrs to 18:00hrs implying that at any one time, the levels are within the acceptable levels.

7.2 Infrastructure development

In an effort to improve conservation, service delivery and presentation within the property, the existing buildings were refurbished and or upgraded. These structures include the offices, toilets and the information centre (**Figures 4 to 6**).

A new ablution block, taxi parking shelter, palisade fence, ticket office and curio market were built while the walk ways were rehabilitated. A bigger soak-away has been constructed to mitigate the problem of sewage disposal. Also erected were reservoir tanks for 2 toilets as back up in cases of water cuts and faults. Signage within the property has also been upgraded (**Figures 7 to 9**).

The curio market was rehabilitated and extended so as to do away with the previous makeshift structures that were unsightly.



Figure 4: Zambia ticket office



Figure 5: Zambia curio shop

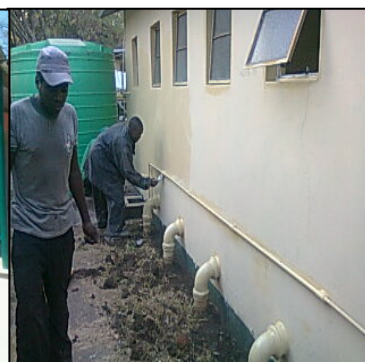


Figure 6: Refurbishment



Figure 7: Palisade fence



Figure 8: Rehabilitated pathways



Figure 9: Signage

8.0 TRANS-BOUNDARY MANAGEMENT CO-ORDINATION

During the period under review, a number of interstate activities were carried out. These included holding of two Joint Site Management Committee meetings and one Joint Technical Committee meeting. A total of five joint patrols were carried out. A revision of the Joint Integrated Management Plan is in progress whilst joint action and monitoring plans have been prepared.

9.0 OTHER DEVELOPMENTS

9.1 Human-wildlife conflict management



Baboon proof bins have been introduced in the property to arrest the problem of littering and human-wildlife conflicts.

9.2 Staff training

Prior to the United Nations World Tourism Organisation (UNWTO) General Assembly co-hosted by the two States Parties, staff working within the property was trained in different aspects of conservation and service delivery in order to enhance efficiency and effectiveness of operations and site management.

10. MONITORING

10.1 Water abstraction

Zambezi River hydrological data available shows that the mean annual discharge at Livingstone for the period 1924-1964 is 1,198 m³/s. Analysis of the frequency of the unregulated low and peak discharge volumes have been carried out. The lowest recorded discharge of 170 cubic meters per second (cumecs) occurred in the hydrographic year 1959/60 while the recorded maximum flood flow of approximately 9,340 cubic meters per second (cumecs) occurred in the year 1957/58. Analysis of the forty year records show that the annual peak flow generally occurs during late March, April or early May.

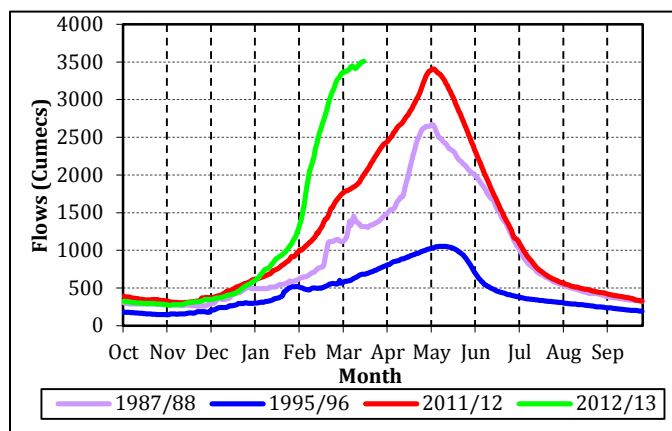


Figure 10: Zambezi River hydrograph within the property

The 2012/2013 readings, though up March, tends to follow historical pattern. This implies that there isn't much change in the climatic factors and general channel dynamics and environment. Zambezi River water level measurements are carried out by ZESCO using analogue level measurement sensors for real time monitoring and trends stored on the SCADA system in the Power Station control room.

10.0 CONCLUSION

The property is one of Africa's greatest natural spectacles and already receives a correspondingly large number of visitors from around the world. The immediate vicinity of the Falls is protected within three adjoining national parks which ensure that visitors can appreciate its natural values in a pristine, un-spoilt setting. These remarkable qualities, which distinguish this site from some of the world's other major waterfalls, will be challenged as visitor numbers and development pressures may increase. Effective regulation and control of tourism development pressures, especially the development of physical infrastructure and facilities remains the single greatest challenge for the States Parties.

The property is generally intact and the outstanding universal values are being preserved. There has not been any major developments in the property except the ones mentioned above which relate to the administration and management of the site prior to the hosting of the UNWTO. Hosting of the UNWTO by the two States Parties has strengthened collaboration ties in the management of the property.

While the management framework adopted for the property is effective, there is need for it to be strengthened through funding to ensure more regular consultations between the structures.

Funding remains the major challenge to effectively conduct major conservation initiatives such as eradication of invasive alien plant species and research.

Despite these challenges, the two States Parties are reviewing the Joint Integrated Management Plan and are seriously intending to conduct a Strategic Environmental Assessment in 2014.

Appendix 1: PLAN OF ACTION FOR 2014

	Activity	Date	Responsibility	Venue
1	Production of a new Joint Management Plan	27-28 March 2014	JTC	Zimbabwe
	Distribution of the draft document	31.1.2014	NHCC and Zambia Natcom	
	Stakeholders Consultation on sustainable Financing Strategy and business plan for the property.	27-28 March 2014	Subcommittee (NHCC, ZPWMA) and Natcom	
	Presentation of maps	27-28 March 2014	National Contact points	
	Circulation and feedback on Draft JMP	April 2014	NatComs	
2.	Joint Ministerial Committee Meeting	12-13 June 2014	JMC/ JTC	Zambia
	Signing ceremony for the final JMP	12-13 June 2014	Ministers	Zambia
3	Engagement of consultants to produce the Strategic Environmental Assessment Report of developments within the property and its vicinity	By 30 April 2014	Zambia and Zimbabwe	Zambia and Zimbabwe
	Mobilization funds for the SEA consultancy	By 31 March 2014	Zambia and Zimbabwe	Zambia and Zimbabwe
	Research work on the SEA	1 April-30 May 2014	Consultants	Zambia and Zimbabwe
	Presentation of 1 st Draft SEA	12-13 June 2014	Consultants	Zambia
	Presentation of Final Draft	4-5 September 2014	Consultants	Zimbabwe
4	Control of invasive species	Ongoing	JSMC	World Heritage property

*NB: State Parties are required to mobilize funds (U\$10,000) to produce a revised SEA report.

Appendix 2: MONITORING PLAN FOR 2014-2015

ASPECT	OBJECTIVE	TIME FRAME	PROJECT MEASURE	MEASURE	RESOURCES REQUIRED	RESPONSIBILITY
Environmental Aspects						
Water monitoring						
<i>Quality</i>	To establish trends in water quality	Twice a year	Samples collected and analysed	Set parameters	Water pot lab	ZEMA, EMA
<i>Flow</i>	To monitor river flows	Daily	Volume estimated	Daily flows (Discharge)	Hydrological equipment	ZESCO, VFM,
Vegetation monitoring						
<i>Invasive alien species</i>	To monitor and control the spread of invasive alien species in the WHS	Annually	Distribution of invasive alien species in WHS	Area cleared and % regeneration of native vegetation over a period	Manpower, Chemicals, mattocks, machetes	NHCC, ZPWMA, ZAWA, ZEMA, EMA,
Land degradation						
<i>Erosion</i>	To monitor the effects of erosion on key areas of the WHS	annually	Nature of erosion on key areas of the WHS	Bank erosion Island deposition Areas eroded Number of cultural sites eroded and extent of erosion	Water gauge	NHCC, ZPWMA, ZAWA, VFM, LCC, ZEMA, EMA,
<i>Sand abstraction</i>	To monitor illegal abstraction activities in and around the WHS	Quarterly	Nature of abstraction distribution and extent	<ul style="list-style-type: none"> •Area disturbed •Number of arrests Extent of abstraction 	Manpower, transport, financial	NHCC, ZPWMA, EMA, ZEMA, ZAWA, VFM, LCC
Waste management						
<i>Solid waste</i>	To monitor the management of solid waste within the WHS	Quarterly	Methods of waste disposal	<ul style="list-style-type: none"> •Quantity of waste generated •Number of waste management companies contracted •compliance 	Manpower, Statutory Instrument	ZEMA, EMA, LCC, VFM
	To monitor landfill designs, commissioning, operations, and decommissioning	Bi-annually	Efficiency of landfill sites	<ul style="list-style-type: none"> •Number of consultative meetings on designs •Number of landfills commissioned or decommissioned •Volume of litter disposed 		

<i>Liquid waste</i>	To monitor the discharge of industrial and sewerage in the open and aquatic environment	Quarterly	Types of effluent	•Number of incidences and quantity of discharges into the aquatic bodies	Water Pot lab	ZEMA, EMA, VFM, LCC
Wildlife						
<i>Human wildlife conflicts</i>	To prevent	Monthly		Number of incidences		
<i>Poaching</i>	To monitor anti-poaching activities	Monthly	Illegal activity trends and distribution	No of arrests -Number of animals killed -Number of snares	Manpower, transport,	ZAWA, ZPWMA, Security agencies
<i>Wild fires</i>	To measure the extent and distribution of wild fires	Annually	Areas disturbed	Area burnt	Maps, satellite images	ZPWMA, EMA, NHCC, ZAWA
Pollution						
<i>Air pollution</i>	To monitor the extent and distribution of Air pollution	Quarterly	List effects and affected areas	Check lists of major points sources Non-point sources (wild fires)	Visual inspection; Air pollution measuring equipment	ZEMA, EMA, NHCC, ZPWMA, LCC, VFM
<i>Noise pollution</i>	To monitor the extent and distribution of noise pollution	Quarterly	List effects and affected areas	•Taita falcon nesting and distribution •Helicopter flying height and direction; •helicopter activities expansion •visitor queries	GPS, Visual inspection, Acoustic calibrator	EMA, ZEMA, ZAWA, ZPWMA, NHCC,
Tourism and Development Aspects						
<i>Visitation/Tourism pressure</i>	To measure the impact of Tourism on World Heritage site	Quarterly	Visitor statistics Environmental degradation	Arrivals Area disturbed	Records Maps/Satellite images	NHCC, ZPWMA, MOTA, ZTA, ZTB, ZDA, ZAWA,
<i>Infrastructural Developments</i>	To monitor tourism developments within and around the WHS	Annually	Distribution of semi-& permanent infrastructure within and around the WHS	Number of developments	Development approvals Inspections Checklist of developments	LCC, VFM, ZEMA, EMA, ZAWA, ZPWMA
Education and Awareness Aspects	To create awareness among pupils, students and scholars on the values of the WHS	Quarterly	Schools mobilized/engaged	•Number of schools •Number scholars visiting	Financial resources, information materials (ICES)	NHCC, ZEMA, ZPWMA, ZAWA, EMA