

**THE MOSI-OA-TUNYA/VICTORIA FALLS WORLD HERITAGE
PROPERTY**



STATE OF CONSERVATION REPORT - 2021



ZAMBIA AND ZIMBABWE

MOSI-OA-TUNYA/VICTORIA FALLS WORLD HERITAGE PROPERTY

THE STATE OF CONSERVATION REPORT

ZAMBIA AND ZIMBABWE

2021

PROPERTY DETAILS

- a) **States Parties:** Zambia and Zimbabwe
- b) **Name of World Heritage Property:** Mosi-oa-Tunya/ Victoria Falls
- c) **Property Identification Number:** N509
- d) **Geographical coordinates to the nearest second:** 17°56" S and 25°55" E
- e) **Date of inscription on the World Heritage List:** 15th December 1989.
- f) **Organization or entity responsible for the preparation of the Report:** National Heritage Conservation Commission (Zambia) and Parks and Wildlife Management Authority (Zimbabwe) and National Museums and Monuments (Zimbabwe).
- g) **Reporting period:** 2021
- h) **Date of the Report -** December 2021

Signature on behalf of the States Parties

Hon. Rodney M. Sikumba (MP)
Minister
Ministry of Tourism

ZAMBIA

Date _____

Hon. Nqobizita Mangaliso Ndlovu (MP)
Minister
Ministry of Environment,
Climate Change, Tourism and
Hospitality Industry

ZIMBABWE

Date _____

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1 EXECUTIVE SUMMARY OF THE REPORT

The States Parties of Zambia and Zimbabwe continue to collaborate and join efforts to ensure the sustainable management and conservation of the transboundary Mosi-oa-Tunya/Victoria Falls World Heritage Property for the benefit of present and future generations. The last State of Conservation Report highlighting joint management efforts was submitted in November 2018. This report therefore covers the period 2019 and 2020 and addresses the responses to UNESCO decision 43 COM 7B. 34.

The current decision 43 COM 7B.34 on the property highlighted areas of success like the implementation of a concrete and time-bound action plan but also raised concern on the growing development pressure and the potential impacts of the Batoka Gorge Hydroelectric Scheme on the OUV of the property.

The States Parties have taken note of the concerns and provided appropriate responses to the same. The report has also described the amelioration conservation actions being employed to minimize any negative impacts to the immediate environment and adjacent areas with features of OUV, whilst promoting sustainability. Baseline studies and Environmental Impact Assessments are also ongoing to ensure that ecological processes and features of OUV in the property and buffer zone are minimally impacted.

Other conservation issues encompassed activities related to Research and Monitoring, Resource Protection and Site maintenance, Public Awareness Initiatives and Capacity Building. The States Parties have continued to undertake research and monitoring of wildlife, heritage resources and tourism management. The two States Parties have also identified areas to undertake joint monitoring and actions such as the control of invasive alien species in the property, disaster risk management and the implementation of a sustainable financing strategy for the site.

Workshops and training programmes were undertaken to build capacity in site staff. Notable among these are the UNESCO/AWHF training workshops for site managers and national focal point persons, which built capacity to complete the Third Cycle of Periodic Reporting for Africa, a process which the two States Parties jointly completed and submitted. Other trainings were in first aid, covid-19 surveillance and management and training in use of the SMART model for wildlife police officers.

In conformity with paragraph 172 of the Operational Guidelines, the proposed developments within and outside the property have been highlighted with reference to the proposed areas. Almost all the developments cited are still in their preliminary or scoping stages and this includes the Batoka Gorge Hydroelectric Scheme (BGHES).

An action plan and monitoring plan for the period 2021-2022 are attached to provide direction in the implementation of joint activities aimed at environmental sustainability, awareness creation, sustainable financing, conservation and the protection of the OUV of the property.

2 RESPONSE TO THE DECISION OF THE WORLD HERITAGE COMMITTEE

Responses to Decision 44 COM 7B.177 on the Mosi-oa-Tunya/Victoria Falls World Heritage Property are outlined below:

Decision: 44 COM 7B.177

Mosi-oa-Tunya / Victoria Falls (Zambia, Zimbabwe) (N 509)

The World Heritage Committee,

1. Having examined Document WHC/21/44.COM/7B,
2. Recalling Decisions **18 COM IX**, **41 COM 7B.22** and **43 COM 7B.34**, adopted respectively in its 18th (Phuket, 1994), 41st (Baku, 2019) and 43rd (Krakow, 2017) sessions,
3. Welcomes the further progress of the two States Parties in strengthening the joint management of the transboundary property, including the organisation of joint patrols and monitoring, and the continued efforts to control the invasive alien plant species;

The States Parties take note and appreciate the acknowledgment of its effort.

4. Notes its utmost concern over the increasing tourism infrastructure development pressure within and around the property, including the start of the construction of the Mosi-oa-Tunya Livingstone Resort Hotel within the buffer zone of the property, contrary to its request to abandon the proposal, urges the States Parties to halt further activities until further consultation with the World Heritage Centre and IUCN has taken place, all relevant Environmental and Social Impact Assessments (ESIAs) have been submitted to the World Heritage Centre and reviewed by IUCN, and the potential impacts of the infrastructure developments on the Outstanding Universal Value (OUV) of the property have been adequately assessed;

The States Parties take note of the concern of the World Heritage Centre and would be pleased to engage further on the item during the Reactive Monitoring Mission to the area.

5. Notes with concern the likely negative impacts of the Batoka Gorge Hydro Electric Scheme (BGHES) on the OUV, and urged the State Party to not proceed if the proposal will encroach on the property or has the potential to impact on the OUV, and reiterates its request to the States Parties to submit the completed ESIA to the World Heritage Centre for review by IUCN before making any decisions on the project;

The States Parties through its agencies including Zambezi River Authority(ZRA), National Heritage Conservation Commission, Department of National Parks and Wildlife, Zimbabwe National Parks, Zambia Environmental Management Agency and Environmental Management Agency of Zimbabwe have been reviewing the draft ESIA and the impact the Batoka Gorge Hydroelectric Scheme and all of its associated infrastructures would have on the property are ascertained to mitigate any possible detrimental impact on the Outstanding Universal Value (OUV) of the property. Consultations and reviews of the project are ongoing between the ZRA

and the Joint Site Management Committee before its implementation. The States Parties would appreciate if the draft ESIA of the hydroelectric scheme submitted on 15th September by ZRA was received by the WHC.

6. Requests the States Parties to provide details of the planned Strategic Environmental Assessment (SEA), including its scope, to the World Heritage Centre, and strongly encourages the States Parties to seek early inputs and technical guidance from IUCN in undertaking the SEA;

The States Parties took note of the concern raised and planned to undertake the SEA. Following the guidance of the World Heritage Centre and the Africa World Heritage Fund, the States Parties submitted a joint proposal for funding the SEA to the Africa World Heritage Fund (AWHF).

7. Also requests the States Parties to provide a summary of the key findings of the analysis undertaken earlier on the water flow, rainfall and upstream activity data in order to inform management, and the measures subsequently taken to ensure water abstraction from the Zambezi River continues to be adapted in the face of climate change;

The States Parties took note of the request and conducted a detailed study of the hydrology of the Zambezi River system. It is important to note that 2019/2020 season there was a significant decrease in rainfall in the central and southern parts of Africa. The Zambezi basin was not spared from climate variation. The reduction in rainfall negatively impacted the tourist destination and caused a decrease in the flow of tourists to the site. The study also conducted a water quality assessment with samples from the middle Zambezi River sub-catchment at Livingstone Pump House on the Zambezi River in March 2020. The samples were tested whose pH was 6.62; which is satisfactory.

8. Takes note that the joint World Heritage Centre/IUCN Reactive Monitoring mission could not take place due to the COVID-19 restrictions but that the States Parties have invited the mission, and further requests that the mission takes place as soon as possible in order to assess the potential threat posed to the property's OUV by the growing tourism development pressure in and around the property, the potential impacts of BGHES, to review the regulations to control this pressure and to make recommendations to the Committee on the proposed boundary modification;

The States Parties are in agreement and welcomes the Reactive Monitoring Mission by the World Heritage Centre/IUCN.

9. Requests furthermore the State Party to submit to the World Heritage Centre, by **1 February 2022**, an updated report on the state of conservation of the property and the implementation of the above, for examination by the World Heritage Committee at its 45th session.

This is noted

3 OTHER CURRENT CONSERVATION ISSUES IDENTIFIED BY THE STATE(S) PARTY (IES) WHICH MAY HAVE /AN IMPACT ON THE PROPERTY'S OUTSTANDING UNIVERSAL VALUE T

The States Parties identified and carried out sustainable conservation and management activities to uphold the Outstanding Universal Value of the property. Below are some of the activities undertaken by the two States Parties.

3.1 RESEARCH AND MONITORING

The importance of research and monitoring cannot be over emphasized as they remain vital to the conservation and protection of the OUV of the property. It is through research and monitoring that the States Parties are informed and identify areas requiring attention in upholding the OUV of the property.

3.2 STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT

The States Parties of Zambia and Zimbabwe received USD 20,000.00 from the Africa World Heritage Fund to undertake the Strategic Environmental and Social Assessment (SESA) of the Mosi-oa-Tunya/Victoria Falls World Heritage Property. The objective of the study was to carry out critical analysis and assess the likely cumulative impacts of tourism development, urbanization, energy demand, population dynamics, biodiversity loss, climate change and invasive alien species on the integrity of the Property and the society around the Area. Various studies were undertaken by experts in different fields including social economics, Land use, Hydrology, geology, ecology, history, anthropology, and archaeology and tourism development. The first phase report was submitted to Africa World Heritage Fund.



Part of the joint team of experts (Zambia/Zimbabwe) after a scoping meeting held in Victoria Falls town, Zimbabwe

3.3 ACTIVITIES PLANNED AND BEING UNDERTAKEN

A number of conservation activities were carried out to uphold the OUV of the property and document and monitor the state of the property.

- Tree planting and monitoring: Planting of indigenous tree species in the property was conducted at the beginning of the year. Different stakeholders were invited to participate in this important exercise. The property planted approximately 300 different indigenous tree species.



Tree planting and monitoring

- **Bird Counting:** This activity is conducted twice every year; in January and in the month of July. The activity attracted keen bird enthusiasts from both States Parties. In January 2019, the property recorded the highest number of birds totalling to 362 birds with 86 species while July 2020 recorded the lowest numbers of 303 with 50 species.



Bird counting exercise

- **Vulture Aerial Survey:** On an annual basis vulture survey in Zambezi National Park and adjacent protected areas was conducted. The Survey focused on vulture nesting site distribution and their success. The survey was conducted in collaboration with various stakeholders such as the Victoria Falls Wildlife Trust.



Joint team (Zimbabwe and Zambia) conducting a raptor survey along the Batoka gorge

- **Site Inspection:** The Joint Site Management Committee monitored and inspected the property to appreciate its state and identify areas requiring attention.



Joint Site Inspection Team

- **Boundary Verification and Up grading of site maps:** Following the request from the UNESCO World Heritage Centre to verify and update the site maps, the States Parties updated the site map and submitted to UNESCO World Heritage Centre.
- **Human wildlife Co existence and wildlife collaring:** Monitoring of wildlife elephants is on-going activity in the two States Parties. Various conflict mitigation strategies in and around the property were implemented including community sensitization on animal behavior.
- **Visitor Statistics:** Visitor statistics were collected to monitor the inflow of tourists through controlled entry points has been on going. Below are the collected visitors' statistics:

Year	2019	2020	2021
Total	493 700	198 023	213 277

#

In the period under review, the year 2019 recorded the highest visitor turn out followed by the year 2021. The year 2020 recorded the lowest visitor turn out because of the global COVID-19 pandemic which adversely affected the number of both resident and non-resident visitors. With the high prevalent COVID-19 cases, the property was closed to the public. The reduced number of resident and non-resident visitors had adversely affected the income generated in gate-takings in the two States Parties.

- **Monitoring of the flows of the Zambezi River upstream of the falls has been ongoing.** The average flows for the years 2018/19, 2019/20 and 2020/21 were 492.33, 1324.971 and 1328.876 cumecs respectively. In 2018 recorded the lowest water flow and this is attributed to climate variation. The river flows for the period under consideration are depicted below.

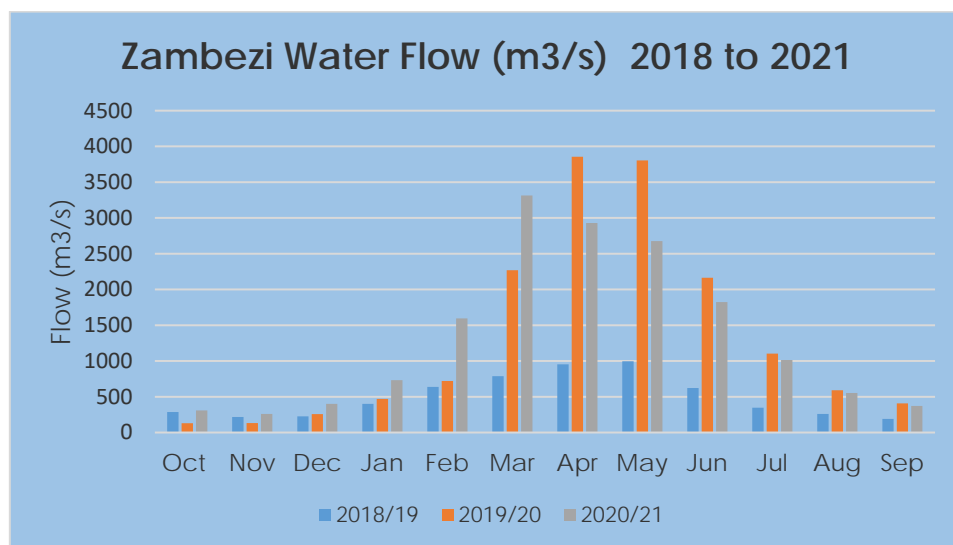


Figure 1: Zambezi Water flows 2018-2021

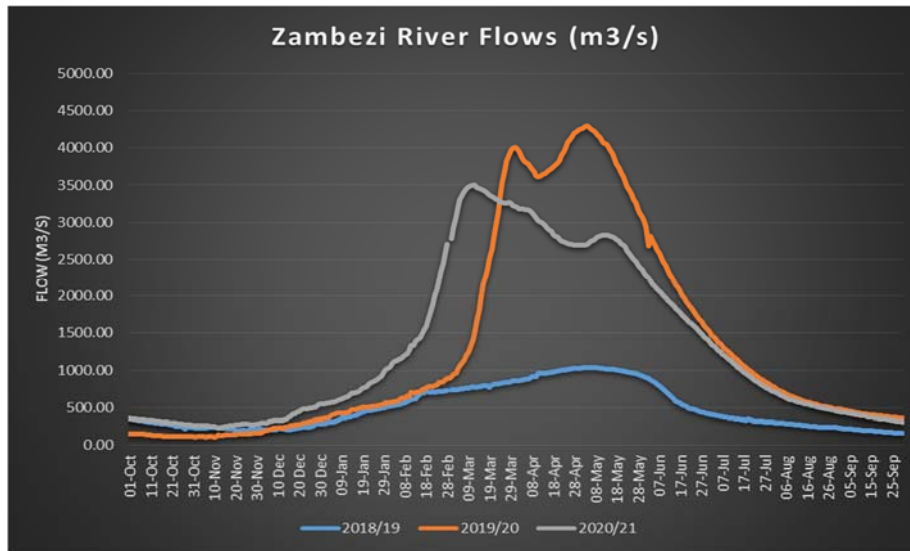


Figure 2: Zambezi Water flows trends 2018-2021

3.4 RESOURCE PROTECTION

The States Parties carried a number of activities aimed at safeguarding heritage resources and upholding the OUV of the property. These activities comprised of short, medium and long-term conservation activities. The following activities were undertaken:

- a) Control of Invasive alien species: The States Parties continued controlling invasive alien species such as the *lantana camara* using the mechanical and chemical control methods. This activity is ongoing.



Control of invasive alien species

- b) Preparation and implementation of Fire Management Plans (firebreaks and early burning in and around the property). Different stakeholders were engaged in the creation of fire breaks in identified fire sensitive spots.
- c) Maintenance of 2km length of rainforest barriers using *Terminalia* branches.
- d) National Monuments sites located within the property were maintained.
- e) Baboon proof bins were fabricated and mounted at strategic locations to control littering in the property.

3.5 SITE MAINTENANCE

The site management undertook activities aimed at protecting, conserving and presenting the property to the enjoyment of the tourists. The site maintenance activities undertaken included the following:

- a) **Litter management:** Clean-up operations were conducted with the support of various stakeholders
- b) **Protective barricades and maintenance of existing ones:** new barricades were constructed while the old ones were maintained.
- c) **Signage:** Directional signage and information panels were maintained in the property
- d) **Infrastructure maintenance:** Administrative buildings, the knife edge bridge, ablution blocks and drainages were maintained.



Refurbished Knife Edge Bridge



Maintaining the drainage canals

3.6 PUBLIC AWARENESS INITIATIVES

In an effort to improve appreciation of the property's values by a wider audience, the site managers participated in webinars hosted by the Africa World Heritage Fund. These were aimed at improving community understanding on the importance of the silence values embedded in the property, however, important to the narration of the property.

- Continued conservation activities aimed at teaching school going children the importance of conservation and heritage management.



Educational awareness programmes

- During the period under review, the States Parties of Zambia and Zimbabwe were among the pioneers to initiate the ICCROM/ICUN Panorama Solution. The Mosi-oa-Tunya/Victoria Falls World Heritage Property was recognised for its roles in critical stakeholder engagement: fostering community stewardship for the safe guiding of nature and culture heritage. The solution can be accessed at <https://panorama.solutions/en/solution/critical-stakeholder-engagement-fostering-community-stewardship-safeguarding-natural-and>

3.5. CAPACITY BUILDING

A number of capacity building training workshops were attended which included the following:

- a) The third Cycle Periodic Reporting programme.
- b) Effective management of transboundary properties
- c) Spatial Monitoring and Reporting Tool (SMART) Training

3.6. TRANSBOUNDARY COOPERATION BETWEEN ZAMBIA AND ZIMBABWE OVER THE MANAGEMENT OF THE VICTORIA FALLS WORLD HERITAGE SITE.

The States Parties of Zambia continued to exhibit high level of collaboration in the management of the property. The management structure, the Joint Site Management Committee has been meeting continually and interchangeably. The Joint Technical Committee met interchangeably between the two States Parties.

Due to COVID -19 movement restrictions, the States Parties continued holding virtual meetings.

3.7. IMPLEMENTATION OF THE WORLD HERITAGE CONVENTION

The States Parties of Zambia and Zimbabwe have been keenly implementing the World Heritage Convention through the respective government agents.

4 PROPOSED DEVELOPMENTS AND ACTIVITIES IN CONFORMITY WITH PARAGRAPH 172 OF THE OPERATIONAL GUIDELINES

4.1 PROPOSED DEVELOPMENTS WITHIN THE BUFFER

- 4.1.1 Tourism Photographic camps: Two photographic camps to be developed are proposed to be developed in the buffer zone. The structures will be semi- permanent. The projects have completed the Environmental Impact Assessments and development is yet to start.
- 4.1.2 The Mosi-oa-Tunya Livingstone Resort Hotel: The construction of the Mosi-Oa-Tunya Livingstone Resort Hotel has commenced. The Hotel is located in the buffer zone of the property, adjacent to the Maramba River, along the Mosi-Oa-Tunya road. An Environmental Impact Assessment for the project was undertaken and can be assessed on <http://www.zema.org.zm/index.php/download/eis-the-proposed-mosi-oa-tunya-livingstone-resort-on-lot-no-14734m-a-in-mosi-oa-tunya-national-park-livingstone-southern-province-zambia/>

4.2 PROPOSED DEVELOPMENTS WITHIN THE MUNICIPAL AREAS

- 4.2.1** Construction of Helipad – (relocation of the Elephant Hills helipad): Following recommendations in the Joint Integrated Management Plan of 2007, the Helipad which lies next to the Elephant Hills Hotel was proposed to be relocated to a Council land. This is yet to be done.
- 4.2.2** Construction of a Hotel – (former Caravan Park): A new Hotel was constructed on Council land where the former Caravan Park next to A ‘Zambezi River Lodge. Permit to construct were issued to the developer after meeting all the requirements. Among such include the Environment Impact Assessment and building permits from all relevant authorities.

Further details of proposed developments and activities are attached as Appendix 2.

5 PUBLIC ACCESS TO THE STATE OF CONSERVATION REPORT

The States Parties have **no objection** to having the Report uploaded for public access.

APPENDIX 1

JOINT SITE MANAGEMENT COMMITTEE ACTION PLAN FOR 2022

SN	ACTION	ACTIVITIES	TIMEFRAME	EXPECTED OUTPUTS
1.	Review of the Joint Integrated Management Plan (JIMP) for the MoT/VFWHP	<ul style="list-style-type: none"> • Collect data • Hold stakeholder consultations • Hold Joint Site Management Committee meetings • Review current JIMP 	Jan 2021 – Dec 2021	<ul style="list-style-type: none"> • A JIMP of the MoT/VFWHP for 2022 – 2027 produced.
2.	Undertake invasive alien species (IAS) control and management in the WHS	<ul style="list-style-type: none"> • Clearing of <i>lantana camara</i> and other IAS • Joint monitoring of cleared sites • Exchange visits 	On-going	<ul style="list-style-type: none"> • The growth and spread of invasive alien species controlled
3.	Carry out a Strategic Environmental and Social Assessment (SESA) of the Property	<ul style="list-style-type: none"> • Develop ToRs • Develop action plan for the SESA • Collect data • Engage consultant 	March 2021 – Feb 2022	<ul style="list-style-type: none"> • A SESA report of the MoT/VFWHP produced
4.	Develop and implement sustainable financing and fundraising plans	<ul style="list-style-type: none"> • Leverage synergies with donor institutions • Develop proposals (environmental education and human-wildlife conflict) • Request government funding for joint programs • Product development and diversification 	On-going	<ul style="list-style-type: none"> • External funds awarded • Internal funds being raised

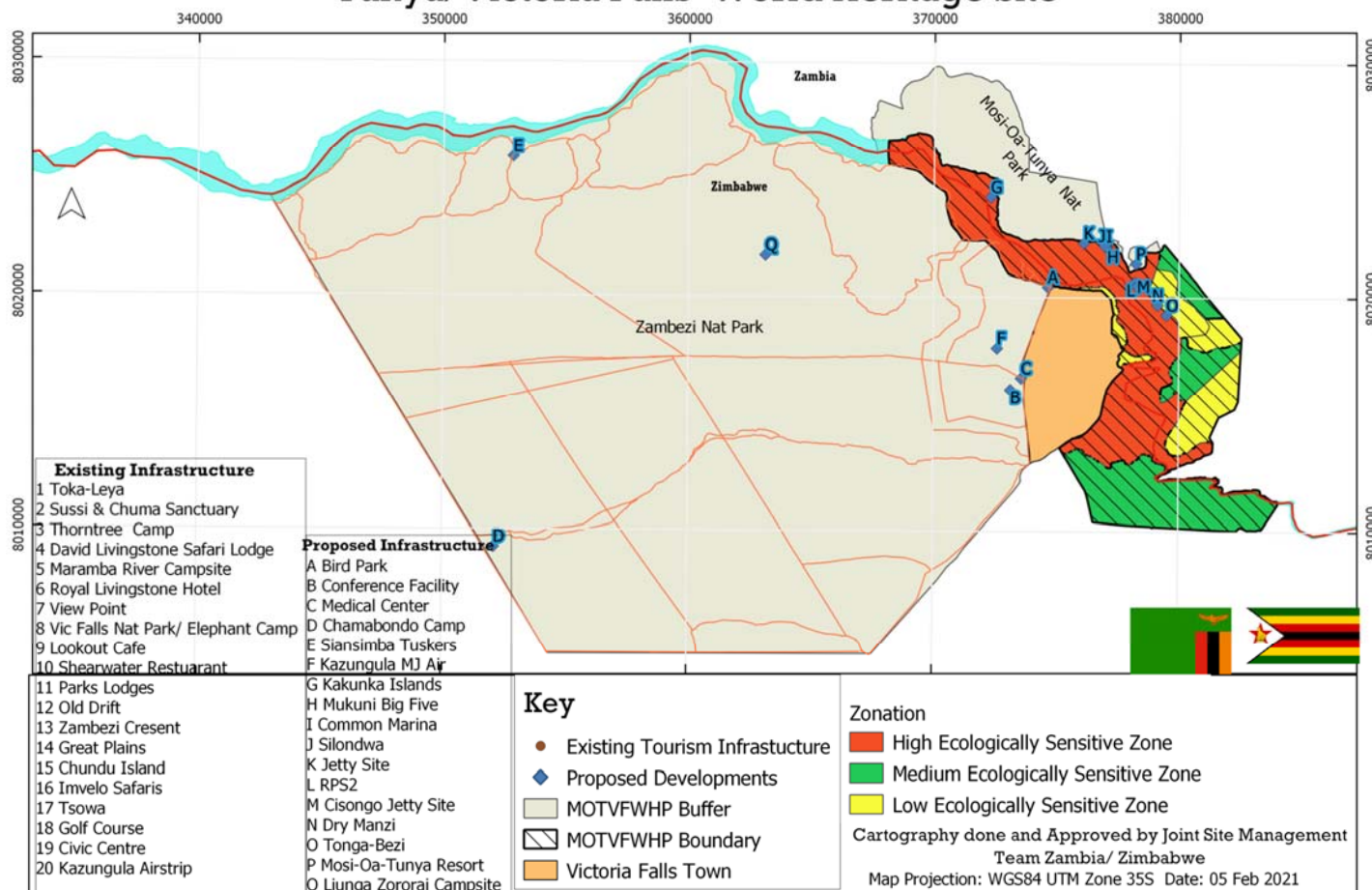
5.	Institute disaster risk reduction interventions	<ul style="list-style-type: none"> • Risk mapping • Develop tools and use of technology • Capacity building for risk preparedness (including COVID-19) • Develop and implement risk reduction and disaster mitigation plans 	Jan 2021 – Dec 2022	<ul style="list-style-type: none"> • Risk reduction and disaster mitigation plans developed and implemented • Site resilience improved
6.	Carry out site promotion and publicity	<ul style="list-style-type: none"> • Upgrade and update signage • Clean up campaigns with stakeholders • Awareness programs through media 	On-going	<ul style="list-style-type: none"> • Visible signage erected • Programs on print and electronic media • Site kept clean
7.	Encourage youth participation and empowerment in site conservation	<ul style="list-style-type: none"> • Support school heritage clubs • Mandatory inclusion of youth in site conservation and promotion activities 	On-going	<ul style="list-style-type: none"> • Youth participation visible
8.	Develop and enforce regulations and bylaws on the conservation of the WHS	<ul style="list-style-type: none"> • Site patrols and inspections • Carry out regular law enforcement patrols 	On-going	
9.	Hold JSMC meetings once every quarter or when need arises	<ul style="list-style-type: none"> • Source funds • Hold meetings 	Quarterly	<ul style="list-style-type: none"> • Minutes of meetings produced
10.	Improve site conservation and management	<ul style="list-style-type: none"> • Develop good practices of monitoring and evaluating the implementation of the JIMP and the WHC. • Build capacity in site staff 	On-going	<ul style="list-style-type: none"> • Improved state of conservation of the Property
11.	Develop a joint website	<ul style="list-style-type: none"> • Source for funds • Collect data • Engage consultant 	Jan 2021 – Dec 2021	<ul style="list-style-type: none"> • Functional website

APPENDIX 2(a)

MAP SHOWING EXISTING INFRASTRUCTURE AND PROPOSED TOURISM DEVELOPMENTS AND ACTIVITIES – MOSI-OA-TUNYA/VICTORIA FALLS WORLD HERITAGE PROPERTY

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Existing and Proposed Tourism Infrastructure within and around Mosi-Oa-Tunya/Victoria Falls World Heritage Site



APPENDIX 3

MONITORING PLAN FOR JOINT ACTIVITIES

Aspect	Objective	Activity	Time frame	Performance Indicator	Target	Resources Required	Cost	Responsibilities	Result
Environmental Aspects									
Water Monitoring									
<i>Quality</i>	To establish trends in water quality	Collection of water samples up and downstream.	April and November	Records of water quality produced	Ecosystem integrity	Portable laboratory equipment		ZEMA, EMA	Monthly water samples are collected. Results show trends in the environmentally friendly band of blue except during rainy season when they get to green due to higher tepidity.
<i>Flow</i>	To maintain minimum environmental flows	Monitor Water flows	Daily	Record of water flow Volume estimates	Daily flows Discharge maintained between 53m ³ /s (dry) and 117m ³ (rainy).	Hydrological equipment		ZESCO, ZINWA	Water abstraction from the Zambezi River is restricted to minimum levels, allowing enough water to flow over the lip of the Falls.
Vegetation Monitoring									
<i>Invasive alien species</i>	To monitor and control the spread of invasive alien species in the WHP	Removal of invasive alien species	Ongoing	% of Area cleared of invasive alien species.	- 70% of accessible areas - Natural vegetation regeneration	-Manpower, Chemicals, mattocks, machetes, Protective clothing		NHCC, ZPWMA, ZAWA, ZEMA, EMA,	70% of the 5.24Km ² invaded area cleared of the invasive weed.
Land degradation									

<i>Erosion</i>	To maintain Island and riverbank integrity	Monitor the effects of erosion on key areas of the WHP	Seasonally	Extent of erosion on key areas of the WHP	Minimize human induced erosion	-Manpower and equipment		NHCC, ZPWMA, ZAWA, VFM, LCC, ZEMA, EMA,	-Walking trails in the core area rehabilitated. -Barriers erected at some viewing points to prevent access to the river bank and gorges - maintenance of storm water drains and gully reclamation
<i>Sand Mining and stone extraction</i>	To curb land degradation	Enforce compliance	Daily	Extent of sand mining and stone extraction	Minimum sand mining and stone extraction	-Manpower, transport, financial		NHCC, ZPWMA, EMA, ZEMA, ZAWA, VFM, LCC	-Culprits arrested through night raids conducted.
Waste management									
<i>Solid waste</i>	To curb environmental pollution within the WHP	Monitor the management of solid waste within the WHP	Daily	Levels of pollution	Pollution free ecosystem	-Manpower, Statutory Instrument		ZEMA, EMA, LCC, VFM	-Most tourism properties were provided with receptacles -Distribution of refuse receptacles to some residents -Door to door campaigns - Adherence to scheduled waste collection times.
	To monitor landfill designs, commissioning, operations, and decommissioning		Bi-annually	Efficiency of landfill sites	-Number of consultative meetings on designs -Number of landfills				-Designs for new landfill done

					commissioned or decommissioned -Volume of litter disposed				
<i>Liquid waste</i>	To protect the aquatic environment	Monitor the discharge of industrial and sewerage waste in the open and aquatic environment	Daily	Open and aquatic environment	Pollution kept to minimal levels	Portable laboratory equipment		ZEMA, EMA, VFM, LCC	- A Water Sanitation and Hygiene program is being implemented. -Consultant hired and at final stages of producing designs - Removal of water hyacinth and desludging is on- going), -Monthly ambient monitoring and enforcement done to influence adherence to standards.
Wildlife									
<i>Human wildlife conflicts</i>	To promote co-existence	-Sensitisations and proactive actions -Fencing of wildlife	Ongoing	Number of human-wildlife conflicts	50% reduction in the number of incidences				-Fence maintained on the Southern part of the WHP.
<i>Poaching</i>	To maintain species diversity	Increase anti-poaching patrols -Awareness raising -Conduct	Daily	The number of anti-poaching patrols -Number of awareness meetings	Species diversity maintained -Number of snares retrieved	Manpower, transport,		ZAWA, ZPWMA, Security agencies	-Patrols were conducted on a daily basis. -Wire snares recovered have reduced by almost 50% in 3 years.

		compliance activities		-Number of activities conducted	-Reduction of animal numbers per specie poached				
<i>Wild fires</i>	To reduce incidents of uncontrolled fires	Develop and implement fire management strategies	Annually	Extent and distribution of wildfires	Area burnt	Maps, satellite images		ZPWMA, EMA, NHCC, ZAWA	-Fire management plan implemented. -Fire prevention programs conducted annually. -Implemented an integrated national fire strategy and enforcement programme - Satellite fire detection (near real time)
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	-Culprits are being apprehended
<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	GPS, Visual inspection, Acoustic calibrator		EMA, ZEMA, ZAWA, ZPWMA, NHCC,	

					queries				
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,	-Impacts of tourism being monitored and mitigated.
<i>Infrastructure 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	-All developments subjected to EIAs - Enforcement of urban development regulations and policies being done on new and old projects respectively
Education and Awareness Aspects									
<i>Awareness creation</i>	To create awareness among pupils, students and scholars on the values of the WHS		Quarterly	Schools mobilized/engaged	-Number of schools -Number of scholars visiting	Financial resources, information materials (ICEs)		NHCC, ZEMA, ZPWMA, ZAWA, EMA	-Education awareness campaigns and workshops on the WHP are being held.

APPENDIX 4

BIRD CENSUS – MOSI-OA-TUNYA/VICTORIA FALLS WORLD HERITAGE SITE FENCED AREA

SN	Species	Jan 2019	July 2019	Jan 2020	July 2020	Jan 2021	July 2021
1	African Black Swift	0	7	6	0		
2	African Emerald Cuckoo	0	0	3	0		
3	African Finfoot	0	0	9	0		
4	African Goshawk	0	0	1	0		
5	African Grey Hornbill	0	0	1	0		
6	African Palm-Swift	1	3	1	2		
7	African Pied Wagtail	0	6	3	1		
8	African Sacred Ibis	0	0	4	0		
9	Amethyst Sunbird	2	0	2	0		
10	Ashy Flycatcher	0	4	6	0		
11	Augur Buzzard	2	0	1	0		
12	Bearded Scrub-Robin	13	2	1	1		
13	Bearded Woodpecker	1	0	3	0		
14	Black-backed Puffback	0	6	1	6		
15	Black-collared Barbet	0	8	3	6		
16	Black-crowned Tchagra	9	0	8	0		
17	Black Eagle	19	1	7	0		
18	Black Stork	11	1	2	0		
19	Blue Waxbill	0	2	2	8		
20	Bronze Mannikin	0	0	1	2		
21	Brown Firefinch	1	1	4	0		
22	Brown Snake Eagle	0	0	5	0		
23	Brown-capped Tchagra	9	0	3	0		
24	Brown-hooded Kingfisher	0	2	2	0		

25	Cape Turtle-Dove	8	4	2	8		
26	Cattle Egret	0	0	5	0		
27	Chinspot Batis	0	0	3	3		
28	Collared Sunbird	0	17	1	2		
29	Comb Duck	0	0	1	0		
30	Common Sandpiper	1	0	5	0		
31	Crowned Hornbill	0	0	1	0		
32	Dark-capped Bulbul	65	40	64	74		
33	Emerald-spotted Wood-Dove	0	3	4	0		
34	Giant Kingfisher	1	0	4	0		
35	Golden Weaver	4	1	4	1		
36	Golden-tailed Woodpecker	0	0	3	0		
37	Green-backed Heron	0	1	0	2		
38	Green-winged Pytilia	0	0	5	0		
39	Grey-backed Camaroptera	11	6	2	7		
40	Grey-headed Bush-Shrike	3	0	2	0		
41	Hadedda Ibis	0	0	4	0		
42	African Pied Kingfisher	0	0	5	2		
43	Hammerkop	0	0	5	0		
44	Jameson's Firefinch	0	4	8	0		
45	Lappet-faced Vulture	0	0	1	0		
46	Lesser Striped Swallow	1	2	1	0		
47	Levaillant's Cuckoo	2	0	0	0		
48	Little bee-eater	4	3	6	0		
49	Little Egret	0	0	1	1		
50	Lizard Buzzard	1	0	4	0		
51	Long-billed Crombec	0	0	3	1		
52	Marabou Stork	4	0	2	7		
53	Mountain Wagtail	3	2	1	1		

54	Natal Francolin	0	4	7	0		
55	Orange-breasted Bush-Shrike	0	0	5	0		
56	Orange-winged Pytilia	0	0	2	0		
57	Paradise Flycatcher	0	0	5	0		
58	Pied Crow	0	1	0	0		
59	Red-billed Firefinch	0	15	2	1		
60	Red-billed Helmet Shrike	0	0	1	0		
61	Red-billed Hornbill	0	0	5	1		
62	Red-billed Quelea	1	0	2	0		
63	Red-chested Cuckoo	12	0	5	0		
64	Red-eyed Dove	2	8	10	1		
65	Red-faced Cisticola	0	1	2	0		
66	Red-faced Mousebird	4	2	0	2		
67	Red-billed Oxpecker	1	1	1	0		
68	Red-winged Starling	38	22	14	99		
69	Reed Cormorant	2	0	3	4		
70	Rock Martin	5	51	9	9		
71	Sacred Ibis	8	0	6	0		
72	Scarlet-chested Sunbird	11	0	5	0		
73	Schalow's Turaco	0	1	3	10		
74	Senegal Coucal	2	0	2	0		
75	Spectacled Weaver	0	4	0	0		
76	Spotted Flycatcher	0	0	4	0		
77	Tawny-flanked Prinia	7	2	3	0		
78	Terrestrial Brownbul	0	14	10	11		
79	Tropical Boubou	0	7	5	5		
80	Trumpeter Hornbill	0	2	1	11		
81	Village Indigobird	0	0	2	0		
82	Village Weaver	0	8	1	33		

83	White-backed Vulture	11	12	5	0		
84	White-bellied Sunbird	2	0	2	0		
85	White-browed Robin-Chat	0	11	5	5		
86	White-crowned Lapwing	1	0	1	0		
87	White-fronted Bee-eater	1	0	2	0		
88	Willow Warbler	1	0	1	1		
89	Wire-tailed Swallow	1	5	1	0		
90	Woodland Kingfisher	1	0	1	0		
91	Yellow-bellied Greenbul	2	5	3	2		
92	Yellow-breasted Apalis	4	8	0	3		
93	Fork-tailed Drongo	3	1	0	0		
94	African Yellow White-eye	2	1	0	0		
95	Namaqua Dove	1	1	0	0		
96	Hooded Vulture	1	1	0	0		
97	Deitrick's Cuckoo	2	0	0	0		
98	Laughing Dove	1	1	0	0		
	Totals	303	315	362	333		
	No. of Species	50	49	86	35		