World Heritage Centre/IUCN Reactive Monitoring mission to Mosi-oa-Tunya / Victoria Falls (Zambia / Zimbabwe)

9 – 13 February 2022



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The mission also thanks all the stakeholders who met and shared valuable information: DH Engineering Consultants Ltd, Livingstone Tourism Association (LTA), Zambian Tourism Association (ZTA), taxi associations, tourism companies, environmental organisations and societies, and representatives of the local communities. Appreciation also goes to the hotels and lodges that gave a tour and presentations to the mission on the operation of their businesses.

The list of people consulted during the mission are listed in the annexes, and possible omissions are unintentional and exclusively the authors' responsibility.

Acronyms and Abbreviations

BGHES	Batoka Gorge Hydro-Electric Scheme
DNPW	Department of National Parks and Wildlife (Zambia)
EMA	Environmental Management Agency (Zimbabwe)
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FSL	Full supply level
IHA	International Hydropower Association
IUCN	International Union for Conservation of Nature
JIMP	Joint Integrated Management Plan
JSMC	Joint Site Management Committee
KAZA TFCA	Kavango Zambezi trans-frontier conservation area
MoTNP	Mosi-oa-Tunya National Park (Zambia)
NHCC	National Heritage Conservation Commission (Zambia)
OUV	Outstanding Universal Value
SEA	Strategic Environmental Assessment
SESA	Strategic Environmental and Social Assessment
SOC	State of conservation
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VFNP	Victoria Falls National Park (Zimbabwe)
WH	World Heritage
ZAMCOM	Zambezi Watercourse Commission
ZEMA	Zambian Environmental Management Authority
ZESCO	Zambia Electricity Supply Corporation Limited
ZRA	Zambezi River Authority
ZPWMA	Zimbabwean Parks and Wildlife Management Authority

Executive Summary and List of Recommendations

The World Heritage Centre/IUCN Reactive Monitoring mission visited Zambia and Zimbabwe from 9 to 13 February 2022, at the invitation of the States Parties, and in accordance with World Heritage Committee Decisions 43 COM 7B.34 and 44 COM 7B.177. The objective of the mission was 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 [the Batoka Gorge Hydro Electric Scheme (BGHES)], to review the regulations to control this pressure and to make recommendations to the Committee on the proposed boundary modification".

The mission undertook field visits and discussed the above matters with the States Parties and other stakeholders. In summary, the mission welcomes the firm commitment by both States Parties to protect the property, and the strong collaboration that exists between the States Parties. Positive actions have been taken by the States Parties in recent years to address the Committee's Decisions such as developing a Joint Integrated Management Plan, establishing a Joint Management Committee at the site, technical and ministerial levels, as well as taking decisions to not proceed with some tourism projects that may negatively impact the property.

At the same time, the mission also observed that the property is facing increasing threats from individual and cumulative infrastructure developments, whose footprints are inside the property, its buffer zone or in its wider setting. The inconsistency in the use of precise boundaries and buffer zones of the property in varying documents and plans makes this a particularly challenging task. The mission noticed a great focus by the States Parties on the preservation of the Falls i.e. the spectacular curtain of falling water, and whilst this is undoubtedly an iconic and important feature of the property, the full Statement of Outstanding Universal Value (OUV) under criteria (vii) and (viii) and the conditions of integrity are all explicitly correlated to the natural setting of the property. This includes the biological and ecological values of the eight gorges that support endangered and migratory species as well as the geological and geomorphological values of the gorges. Loss of any of these values would constitute a loss of OUV and therefore it is vital to comprehensively assess and understand the impacts of each project on the attributes of the property.

The mission concludes that the OUV is maintained at present but large concerns remain. If the proposed and future developments proceed without the appropriate level of consideration for the environment in which the property is located and for which it is inscribed, as well the cumulative impacts from the different individual developments, the OUV could be considered to be in danger in the near future.

The mission reviewed the state of conservation of the property in line with the Terms of Reference and makes the following recommendations to the World Heritage Committee and the States Parties of Zambia and Zimbabwe.

R1: Suspend the construction and operation of the Mosi-oa-Tunya Livingstone Resort, located within the buffer zone of the property in Zambia, until the legality of the project is verified in line with the conditions of approval issued by the Zambian Environmental Management Authority (ZEMA), which: a) does not permit any construction within the World Heritage site buffer zone; and b) requires a guaranteed minimum distance of 70 metres between the resort and the highest flood line of the Zambezi and Maramba Rivers.

R2: Continue the suspension of the Mosi-oa-Tunya Livingstone Resort development as a follow on from Recommendation 1 (R1) until the Environmental and Social Impact Assessment (ESIA) for the project has been revised to adequately demonstrate that there will be no impact on the Outstanding Universal Value (OUV) of the property including its conditions of integrity, in line with Committee Decision 44 COM 7B.177, and a comprehensive Environmental and Social Management Plan (ESMP) for the implementation of mitigation measures has been developed. Both the revised ESIA and ESMP should be submitted to the World Heritage Centre for review by IUCN before the project resumes, in the case that the legal suspension according to the compliance with the ZEMA conditions of approval is lifted.

R3: Ensure that tourism infrastructure development within the property and its buffer zone is consistent with the aim to enhance the protection of the OUV of the property, and in line with the Joint Integrated Management Plan (JIMP) and past WH Committee decisions. Proposals that are clearly incompatible with the conservation of the property's OUV must not be permitted in line with Committee Decision 7B.34, such as a Ferris wheel within the property or its buffer zone.

R4: Develop a blueprint for infrastructure development in and around the property, either through revision of the existing Sustainable Tourism Strategy or revisiting the Joint Development Masterplan, which prescribes where, what and how constructions can take place in, and looks equally across the environmental, social and economic pillars. In clearly defined areas where construction is deemed possible, strict guidance shall be given that specifies the nature of appropriate developments and carrying capacities that could be considered.

R5: Harmonise the roles and responsibilities of the National Heritage Conservation Commission (NHCC) and the Department of National Parks and Wildlife (DNPW) for the management of the World Heritage property in Zambia to prevent any ambiguity in the roles and spatial remit of their management responsibilities. The management plan for the National Parks that overlap with the World Heritage buffer zone should replicate the conditions in the JIMP to prevent contradicting policies on permitted and prohibited activities.

R6: Considers that the proposal for the Batoka Gorge Hydro-Electric Scheme (BGHES), which will affect 4 out of the 8 gorges by flooding approximately a 10km stretch of the Zambezi River inside the property, should not proceed as currently proposed. The ESIA for BGHES should be revised to include:

a) Alternative scenarios including an analysis of the scenario where the dam wall is reduced to a level where the headwaters do not impact the property, and thereby its OUV.
b) The correct boundaries of the property as confirmed by the States Parties and in line with R8.
c) A thorough assessment of the consequences on the gorge ecosystem, including fauna and flora and ecosystem functions.

The revised ESIA should be submitted to the World Heritage Centre for review by IUCN before any decision is taken.

R7: Seek early inputs and technical guidance from the World Heritage Centre and IUCN, preferably at the scoping stage, in undertaking phase II of the Strategic Environmental Assessment.

R8: In line with the *Operational Guidelines*, provide a map indicating the precise boundaries of the property and its buffer zone, agreed upon by both States Parties and aligned with the recommendations in the IUCN evaluation and past WH Committee requests, to be used in all future planning, strategy and policy documents. This should include the proposed internal zoning in high,

medium and low ecologically sensitive zones and its rationale, and the management implications of this zoning. A clear explanation of how the buffer zone protects the property should also be provided.

R9: Request the States Parties of Zambia and Zimbabwe, in consultation with the other riparian States Parties of Angola, Botswana, Malawi, Mozambique, Namibia and Tanzania, to incorporate the long-term integrity of World Heritage properties in the Zambezi basin in the basin planning, particularly to inform essential criteria for decision-making by the regional bodies, i.e. the Zambezi River Authority and the Zambezi River Commission.

R10: Establish a baseline and trends since the nomination for the annual transit of heavy vehicles (trucks) crossing the property and continue monitoring and exploring options to further encourage trucks to avoid the property taking into account the potential benefits to the tourism experience.

1. The property

1.1. Statement of OUV

Mosi-oa-Tunya / Victoria Falls World Heritage property is a transboundary property shared between Zambia and Zimbabwe, inscribed in 1989 under what is now criteria (vii) and (viii). The key attributes of the property's OUV are associated with the scale of the Falls, the ecological values of the eight gorges supporting endangered and migratory species, as well as the geological and geomorphological story told by the erosive force of water. The statement of OUV for the property also includes the intact nature of the property that is protected by its surrounding buffer zone to ensure that the natural processes, functions and interactions are maintained. The full statement of OUV is available online[1].

1.2. Boundaries

The States Parties originally nominated an area much larger than is currently inscribed on the World Heritage List. The area that was nominated covered all of Mosi-oa-Tunya National Park (Zambia), Zambezi National Park (Zimbabwe), and Victoria Falls National Park (Zimbabwe), totalling 65,180 ha. The 1989 IUCN Evaluation however noted that while the larger area is important for the protection of the property and its watershed, it bears little functional relationship to the Falls itself and the downstream gorges, and recommended that the limits of the property be defined by the southern half of Mosi-oa-Tunya, a small riverine section of Zambezi National Park, and all of Victoria Falls National Park. The World Heritage Committee approved the inscription of the property on the basis that the States Parties reach agreement on final boundaries and report back to the Committee the subsequent year (Decision CONF 004 XV.A).

Available records show that the final boundaries were not submitted and finalised as per the 1989 Committee Decision, and it was only in 2012 through the Retrospective Inventory report that the boundaries were next discussed. Subsequent submissions of the property boundary maps by the States Parties for state of conservation reporting and Joint Integrated Management Plans (JIMP) during the period from 2012 to 2021 revealed multiple variations of the property and buffer zone boundaries being used in different documentations.

1.3. State of conservation issues

The property has been subject to regular state of conservation (SOC) reporting to the World Heritage Committee since 2006, but some of the current threats go back to matters examined by the Committee 30 years ago.

The Batoka Gorge Hydro-Electric Scheme (BGHES) for example, was first brought to the Committee's attention in 1992 as a potential threat to the integrity of the property if it will flood parts of the property, but in 1994 the Committee commended the States Parties for their statement to drop the proposal. In 2017 however, the States Parties reported that an ESIA for BGHES was being undertaken, re-raising the concerns for the proposal.

Tourism infrastructure development has also been a long-discussed matter, with recent concerns focussing on individual and cumulative impacts from the tourism infrastructure development in and around the property on water quality, noise pollution, visual disturbance, disruption and displacement of wildlife etc.

[1] http://whc.unesco.org/en/list/509/

Other threats examined by the Committee include the management of invasive alien species (specifically *Lantana camara* and *Pontederia crassipes* (water hyacinth)) and reduced water flow over the Falls due to upstream water abstraction and the impacts of climate change.

As a result of past Committee Decisions, the States Parties have made considerable improvements and introduced positive changes to strengthen the protection of the property, such as the development of JIMP, establishment of a Joint Site Management Committee (JSMC), a Joint Technical Committee, and a Joint Ministerial Committee, as well as decisions to not proceed with some tourism projects.

2. Summary of the national management system for the preservation and management of the World Heritage property

Mosi-oa-Tunya National Park (MoTNP) was established under Zambia's National Parks and Wildlife Act of 1969. The areas of the park that fall within the World Heritage boundaries are managed by the National Heritage Conservation Commission (NHCC) in line with the provisions in the JIMP. The remaining areas of the park are managed by the Department of National Parks and Wildlife (DNPW) according to a separate National Park management plan. Both NHCC and DNPW are a part of the Ministry of Tourism and Arts. Any development or activity proposals fall under the responsibility of the Zambian Environmental Management Authority (ZEMA) under the Environmental Management Act no. 12 of 2011.

The Zambezi National Park and the Victoria Falls National Park (VFNP) in Zimbabwe were established under the Parks and Wildlife Act of 1975, and are both managed by the Zimbabwe Parks and Wildlife Management Authority (ZPWMA) under the Ministry of Environment, Climate, Tourism and Hospitality. Development or activity proposals fall under the responsibility of the Environmental Management Agency (EMA) in line with Environmental Management Act Chapter 20/27 of 2002.

3. The mission

The joint World Heritage Centre/IUCN Reactive Monitoring mission visited Zambia and Zimbabwe from 9 to 13 February 2022, at the invitation of the States Parties, and in accordance with Decisions 43 COM 7B.34 and 44 COM 7B.177. The objective of the mission was 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 [the Batoka Gorge Hydro Electric Scheme (BGHES)], to review the regulations to control this pressure and to make recommendations to the Committee on the proposed boundary modification". The World Heritage Centre was represented by Guy Broucke, and IUCN by Mizuki Murai.

The mission met with key stakeholders including the management authorities of the property and its buffer zones, the JSMC and the joint technical committee members, as well as representatives from the tourism associations who are also local residents, and environmental NGOs.

The mission visited selected locations in and around the property, including the proposed location of the BGHES dam wall, the proposed reservoir full supply level (FSL) mark and several tourist accommodations including the Mosi-oa-Tunya Livingstone resort. The mission examined the

different components of the property on foot, from a boat for a clear view of the shores from the waterway, and a helicopter for an aerial overview of the property.

4. Assessment of the state of conservation of the property

The mission was tasked with assessing concerns relating to tourism infrastructure developments, the BGHES, progress made with the SEA and reviewing the property boundaries. In addition, in line with paragraph 173 of the Operational Guidelines, the mission reviewed additional pressing matters that relate to the state of conservation of the property.

4.1. Tourism infrastructure development

In recent years the WH Committee has raised concerns for a number of tourism infrastructure development proposals in and around the property as well as their cumulative impacts on the OUV. In 2014 for example, the Committee considered that the proposals for a tethered balloon, cableway or other tall structure in the vicinity of the property would pose a visual threat to the property. Since 2019, additional proposals have been brought to the attention of the Committee, and have been followed closely.

4.1.1. Mosi-oa-Tunya Livingstone Resort

One development that has raised the concerns of the WH Committee is the Mosi-oa-Tunya Livingstone resort located in the buffer zone of the property adjacent to the Maramba River mouth in Zambia. This project and similar proposals have been examined by the Committee and these are recalled as follows:

a) In 2006 a World Heritage Centre/IUCN Reactive Monitoring mission assessed the 'Mosi-oa-Tunya hotel and Club Estate' proposal located on the Maramba River mouth. This development was reported to consist of "a 5 star hotel (160 rooms) with a 250 delegate conference facility, a golf course/clubhouse and another 1000 delegate conference facility, an 18 hole international golf course with 400 luxury villas, a 4 star hotel (200 rooms), a second conference centre, and a marina, over a 200 ha site along the banks of the Zambezi River"[2]. The 2006 mission recommended that "the site should be considered for inscription on the World Heritage in Danger List, if the project is approved for implementation" based on the mission's assessment that the project will have adverse impact on the biophysical processes, riparian vegetation, catchment function and river quality. At its subsequent session in 2007, the Committee commended the State Party of Zambia for the immediate cessation of the project (Decision 31 COM 7B.4)[3].
b) In 2019 the Committee examined the state of conservation of the property, including the threat from a resort and golf course by the Maramba River, and therefore urged the States Parties to "abandon the proposals, which are clearly incompatible with the conservation of the property's Outstanding Universal Value (OUV) and the approved Joint Integrated Management Plan 2016-2021, such as […] a tourism resort along with a gold course within the buffer zone inside the Mosi-oa-Tunya National Park" (Decision 43 COM 7B.34)[4].
c) In 2021 the Committee was informed that the now named Mosi-oa-Tunya Livingstone Resort Hotel had been scaled down in size and would no longer include a golf course. The Committee expressed its utmost concern that the construction of this resort had reportedly

[2] http://whc.unesco.org/document/8887
[3] http://whc.unesco.org/en/decisions/1384
[4] http://whc.unesco.org/en/soc/3923

already begun and "urge[d] 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 Assessment (ESIAs) have been submitted to the World Heritage Centre and reviewed by IUCN […] (Decision 44 COM 7B.177)"[5].

The present mission was informed that the original proposal for the Mosi-oa-Tunya Livingstone Resort which included a golf course was for it to be built over 80 ha, whereas the scaled down proposal omitting the golf course will be 16.85 ha.

The mission was able to visit the project site on the ground, view from a boat on the Zambezi River and from a helicopter (figure 1). Presentations and discussions were also held with DH Engineering Consultants Ltd, who undertook the ESIA for the project as well as the park management authorities and ZEMA. The mission was informed that a decision letter with conditions from ZEMA was obtained in December 2019, based on reviews of the ESIA by relevant stakeholders including NHCC and DNPW.

The mission took note that construction started in July 2020, and the structural works are now nearing completion, located 50 m from the river edge (figure 1). The resort is located within the development zone of the MoTNP, at the confluence between the right bank of the Maramba River and the Zambezi River. This zone is also a part of the buffer zone of the property.



Figure 1. *(top) Mosi-oa-Tunya Livingstone resort under construction as of 9 February 2022 adjacent to the Zambezi River; (bottom) aerial view of the resort development taken on 13 February 2022. ©IUCN/Mizuki Murai.*

Following the field visit the mission received a copy of the ZEMA decision letter which raises a number of concerns:

[5] http://whc.unesco.org/en/decisions/7880

Firstly, the ESIA states that "the proposed project site is in a World Heritage Site which has to be protected". The ZEMA decision letter however states that the "project site is located near the Victoria Falls World Heritage Property buffer zone" (point 3.1.2) and that "no construction shall be undertaken in the buffer area of the Victoria Falls World Heritage Site area" (point 3.1.4). This on the outset raises concerns as to what boundaries were used in the assessments by all stakeholders in the decision-making, and why confusions on the property boundaries exist. During the mission it became clear that there were some confusions with regards to the exact boundaries of the property but there was a consensual understanding that the proposal was within the property buffer zone. Moreover, the Committee decision adopted in July 2019 before the decision letter from ZEMA was issued, specifically noted concern that the proposal is "within the buffer zone inside the Mosi-oa-Tunya National Park". The factual error in the ZEMA decision letter with regards to the location of the proposal should trigger a reassessment of the suitability and the conditions that are applied to this project development and operation.

Secondly, the decision letter specifies that the structures shall be constructed "at least 70 metres from the highest flood line of the Zambezi and Maramba Rivers" (point 3.1.7). However, the construction appears to have been undertaken only in line with the ESIA that "the developer will leave 50m from the edge of the river". Data on the highest flood line was not made available to the mission and it is unclear whether such data have been collected. The mission determines however, based on presented information that the developer has not complied with this condition of approval.

Thirdly, the letter states that "site selection shall take the movement of animals into consideration and wildlife/animal corridors shall be avoided at all times, throughout the project cycle" (point 3.1.26). At the same time the letter also acknowledges that the site is an active wildlife area frequented by elephant and hippos, and that "one of the corners of the project site is the confluence of the Zambezi and Maramba Rivers. Confluences are said to provide unique habitats which support important ecosystem functions and may even be biodiversity hotspots" (point 3.1.2). While noting that the project proposal has already been amended to reflect the condition of ZEMA that no fencing will be erected around the resort, the site selection would appear to be in contradiction to the aim to ensure the natural movement of wildlife, especially the area around the Maramba River, which is a known elephant corridor[6].

Fourthly, the ZEMA authorisation is given on the basis of the proposal in the ESIA that the "hotel will have three floors that are: ground floor, first floor and second floor" and a building will have a height of 16.15m. However, the mission observed that the middle section of the building comprises four floors (see aerial image in figure 1). There is therefore a need to clarify whether the building, as constructed, is still within the approved height limit.

Fifthly it requires that "Mukuba Property Development Company Limited shall restrict construction activities to the dry season throughout the project cycle" (point 3.1.45). The mission visited the project site during the wet season in February 2022 and observed that the construction activities were actively taking place. Noting that the dry season is generally between July and December, it would appear that the developer has not complied with this condition of approval.

Taking note of the provision in the ZEMA decision letter that the "Agency may suspend or cancel the Decision Letter without notice should Mukuba Property Development Company Limited fail to

[6] Schulte B et al. (2017) Patch-occupancy survey of elephant (*Loxodonta africana*) surrounding Livingstone Zambia. Koedoe - African Protected Area Conservation and Science 59(1). DOI:10.4102/koedoe.v59i1.1372

comply with any condition of approval" (point 3.6), the mission considers that there are important gaps that should trigger at least the suspension of the project until the matters above are addressed.

The mission additionally observed other ecological modifications including artificial reinforcement of the embankment thereby altering the natural processes of erosion and deposition of the riverine system, but it appears that the impact of such alterations has not been considered. This further supports the mission's view for the need to strengthen the environmental considerations through a revised ESIA.

R1: Suspend the construction and operation of the Mosi-oa-Tunya Livingston Resort, located within the buffer zone of the property in Zambia, until the legality of the project is verified in line with the conditions of approval issued by the Zambian Environmental Management Authority (ZEMA), which: a) does not permit any construction within the World Heritage site buffer zone; and b) requires a guaranteed minimum distance of 70 metres between the resort and the highest flood line of the Zambezi and Maramba Rivers.

R2: Continue the suspension of the Mosi-oa-Tunya Livingstone Resort development as a follow on from R1 until the Environmental and Social Impact Assessment (ESIA) for the project has been revised to adequately demonstrate that there will be no impact on the Outstanding Universal Value (OUV) of the property including its conditions of integrity, in line with Committee Decision 44 COM 7B.177, and a comprehensive Environmental and Social Management Plan (ESMP) for the implementation of mitigation measures has been developed. Both the revised ESIA and ESMP should be submitted to the World Heritage Centre for review by IUCN before the project resumes, in the case that the legal suspension according to the compliance with the ZEMA conditions of approval is lifted.

4.1.2. Other tourism projects

As recorded in the 2021 SOC report, there were reports of a sale of land for the construction of a Ferris wheel within the Zambian component of the property to which no response was received from the State Party. This followed a Committee decision in 2017 that a Ferris wheel proposed on the Eastern Cataract at the time, would be incompatible and likely to have a significant detrimental impact on the OUV of the property (Decision 41 COM 7B.22).

According to the information received from various stakeholders during the mission, there has been no update on the proposal since June 2021. The status of the proposal could therefore not be verified by the mission. Nevertheless, considering the outline contained within the JIMP of prescribed activities within the property, past Committee decisions on similar proposals, and the property's values under criterion (vii) and its conditions of integrity, the mission considers that a Ferris wheel within the property or its buffer zone would undoubtedly pose considerable threat to the OUV due to its visual disturbance. The JIMP defines the purpose of the buffer zone to be for the conservation of the WH property, and permitting only lodges, camps, roads and signage in terms of infrastructures. When revising the JIMP (which expired in 2021), this definition should be further strengthened to help guide management decisions, and be in line with Paragraph 104 of the Operational Guidelines, which defines buffer zone as "an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development".

R3: Ensure that tourism infrastructure development within the property and its buffer zone is consistent with the aim to enhance the protection of the OUV of the property, and in line with the JIMP and past WH Committee decisions. Proposals that are clearly incompatible with the conservation of the property's OUV must not be permitted in line with Committee Decision 7B.34, such as a Ferris wheel within the property or its buffer zone.

4.1.3. Sustainable Tourism Strategy and Joint Development Masterplan

In March 2019, the States Parties submitted a draft 2017 Sustainable Tourism Strategy for the property, which was reportedly still undergoing review. IUCN provided a technical review that was submitted to the State Parties within the same month, noting with concern that the strategy focuses on tourism development rather than on sustainable tourism, and that therefore it required revision to address how tourism can be managed and monitored to protect the OUV of the property. In the 2019 Committee decision, the States Parties were requested to finalise the strategy as soon as possible in consultation with the World Heritage Centre and IUCN (Decision 43 COM 7B.34). In the state of conservation report submitted by the States Parties in March 2021, it was reported that the finalisation of the Sustainable Tourism Strategy was still pending.

The mission was informed that the Sustainable Tourism Strategy has since been finalised and approved by both States Parties. Following review of the final Strategy, the mission unfortunately could not identify any changes since the 2017 draft that was reviewed by IUCN in 2019. Therefore there continues to be an absence of a strategic oversight and plan to guide how tourism can develop sustainably in the short and longer term.

As a separate initiative, the mission was informed that a Joint Development Masterplan was created in the late 1990s but never formally ratified by the two States Parties. According to the representatives from the Municipality of Victoria Falls, a Masterplan only for the Zimbabwean side is currently under development. However there was no mention of a Joint Development Masterplan. Such a joint plan would be a valuable tool in determining development areas and criteria that looks across the whole property and ensure alignment between the two countries.

The mission therefore strongly recommends that either through a revision of the Sustainable Tourism Strategy or a revival of the Joint Development Masterplan, the States Parties produce a detailed plan that prescribes where, what and how constructions can take place in and around the property, and looks equally across the environmental, social and economic pillars. The plan, which would become the blueprint for development, would map out the areas where construction could take place and areas that should be considered free from development based on ecological and visual values. In clearly defined areas where construction could take place, the plan should detail the carrying capacity and nature of developments that could be considered, that will not impact on the OUV of the property including its conditions of integrity. Such a plan must be aligned with the permitted/prohibited activities as laid out in the JIMP.

Context should additionally be given to the location of the property within the larger Kavango Zambezi trans-frontier conservation area (KAZA TFCA) centred on the Kavango and Zambezi river basins that are shared between Angola, Botswana, Namibia, Zambia and Zimbabwe. KAZA TFCA aims to protect the connectivity for wildlife movement and migration across the landscape, which is categorised into six wildlife dispersal areas (figure 2), one of which is the Zambezi-Mosi Oa Tunya. The Zambezi-Mosi Oa Tunya Wildlife Dispersal Area (WDA) represents some of the smaller national parks within the broader landscape with higher concentrations of human activities but it is

considered to be an important wildlife corridor due to the access to the Zambezi River, especially in the dry season. The situational analysis for this WDA within the 2015-2020 Master Integrated Development Plan for KAZA TFCA summarises that "wildlife migration routes are impeded because of poorly planned infrastructure and human settlements". Strategic planning of infrastructure development in and around the property should therefore be harmonised with this broader objective.



***Figure 2**: Wildlife dispersal areas within the Kavango Zambezi trans-frontier conservation area (KAZA TFCA), source: https://www.peaceparks.org/tfcas/kavango-zambezi/*

R4: Develop a blueprint for infrastructure development in and around the property, either through revision of the existing Sustainable Tourism Strategy or revisiting the Joint Development Masterplan, which prescribes where, what and how constructions can take place in, and looks equally across the environmental, social and economic pillars. In clearly defined areas where construction is deemed possible, strict guidance shall be given that specifies the nature of appropriate developments and carrying capacities that could be considered.

4.1.4. Regulations concerning tourism development

The regulations and processes for reviewing infrastructure development proposals in Zambia and Zimbabwe are relatively similar. An Environmental Management Act, implemented by the respective agencies (ZEMA/EMA) guides the legal processes. In both countries the Act determines at the screening stage, the type of assessment that would be required and identifies the land ownership. For any proposals within the World Heritage property, an ESIA would be triggered, but for proposals outside of the property, it may be deemed that an Environmental Project Brief/Prospectus would be suitable depending on its specific details. At the early proposal stage and for the ESIA consultation, the park authorities, as the landowner, will review and provide feedback to ZEMA/EMA.

While these similarities exist, the different management structures of the property lead to important differences. As outlined in chapter 2, the World Heritage property and its buffer zones in Zimbabwe are both managed by ZPWMA. In Zambia however, the World Heritage property is managed by NHCC but the management of the buffer zone and national parks broadly-speaking fall under the responsibility of DNPW. The roles and the geographical remit of the two institutions appear not to be clearly defined, with some sources pointing to the NHCC's remit being restricted to the gated and fenced area around the waterfalls. The mission was therefore informed that this can lead to confusion as to who is the responsible authority. Furthermore, it appears that the permitted and prohibited activities and developments as outlined in the management plan for national parks do not necessarily align with that of the JIMP. This challenge was particularly magnified upon learning that the exact boundaries of the property and its buffer zone are not universally understood.

The Mosi-oa-Tunya Livingstone Resort was presented as an example of where this confusion poses challenges. According to the 2016-2021 JIMP, permitted facilities and infrastructures in the buffer zone of the property are "lodges, camps, roads and signage". A large tourism resort therefore does not fit into the permitted development. The mission could not obtain a copy of the management plan for the MoTNP, in which the resort is located, but it was explained to the mission that the definition of the zone within the park management plan permits the construction of a resort. According to ZEMA, the ESIA consultation was sent to both NHCC and DNPW, but permission was only required from one of these institutions. The mission was informed that NHCC rejected the project on the basis of the JIMP, but that DNPW approved the project due to its compliance with the national park management plan.

In the view of the mission, there is a need for harmonisation of the roles and responsibilities of NHCC and DNPW for the management of the Zambian part of the World Heritage property. Furthermore, the management plan for the National Parks that overlap with the World Heritage buffer zone should replicate the conditions in the JIMP.

R5: Harmonise the roles and responsibilities of NHCC and DNPW for the management of the World Heritage property in Zambia to prevent any ambiguity in the roles and spatial remit of their management responsibilities. The management plan for the National Parks that overlap with the World Heritage buffer zone should replicate the conditions in the JIMP to prevent contradicting policies on permitted and prohibited activities.

4.2. Batoka Gorge Hydro-Electric Scheme (BGHES)

The Governments of Zambia and Zimbabwe have considered developing a hydro-electric power generating scheme in the Batoka gorge, downstream from the property for several decades. The initial concept was developed in 1972 by the Central African Power Corporation. The most recent proposal has been under development by the Zambezi River Authority (ZRA) since 2014.

In its 41st session, the WH Committee had requested the States Parties to ensure that a specific assessment of the impacts of the dam and all of its associated infrastructures on the OUV of the property be included in the ESIA; in its 43rd session the WH Committee reiterated its concern about the potential impacts on the OUV of the property, and whilst welcoming the States Parties' commitment to review its ESIA in accordance with the *IUCN WH Advice Note on Environmental Assessment*, reiterated its request to the States Parties to submit the completed ESIA to the World Heritage Centre for review by IUCN before a final decision on the project is taken; and in its 44th session noted with concern the likely negative impacts on the OUV, urging the States Parties to not

proceed if the proposal will encroach on the property or has the potential to impact on the OUV, and reiterated 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.

In 2017, at an investor conference, Ministers of Energy and Finance from both countries, expressed support for the proposal to install a 181 m high dam situated 47 km downstream from the Victoria Falls, to supply two 1200 MW power stations, one in each country[7]. The mission was informed by the ZRA that feasibility studies have been completed, ESIA is being reviewed and financing for implementation is being sought.

The mission was informed that the planned dam height has been reduced to 175 m (757 metre above sea level (masl)). The draft ESIA is available online and was shared by the States Parties during the mission. The mission was informed that it has not yet been submitted to the mandated agencies to review/approve: EMA (Zimbabwe) and ZEMA (Zambia).

The Batoka gorge is a canyon situated downstream from the Victoria Falls, part of which is included within the property, consisting of a series of rapids in a narrow canyon formed in a wide area of plateau basalt. The plateau is topographically horizontal, remaining at the level upstream of the Falls, around 850-900 masl (figure 3). The depth of the river within the gorge is therefore defined by its gradual sinking in the rock surface, from around 100 m at the level of the Falls to over 150 m at the Zimbabwe edge of the property, and 300 m at the level of the proposed dam, which is planned approximately 44 km downstream from the Falls.

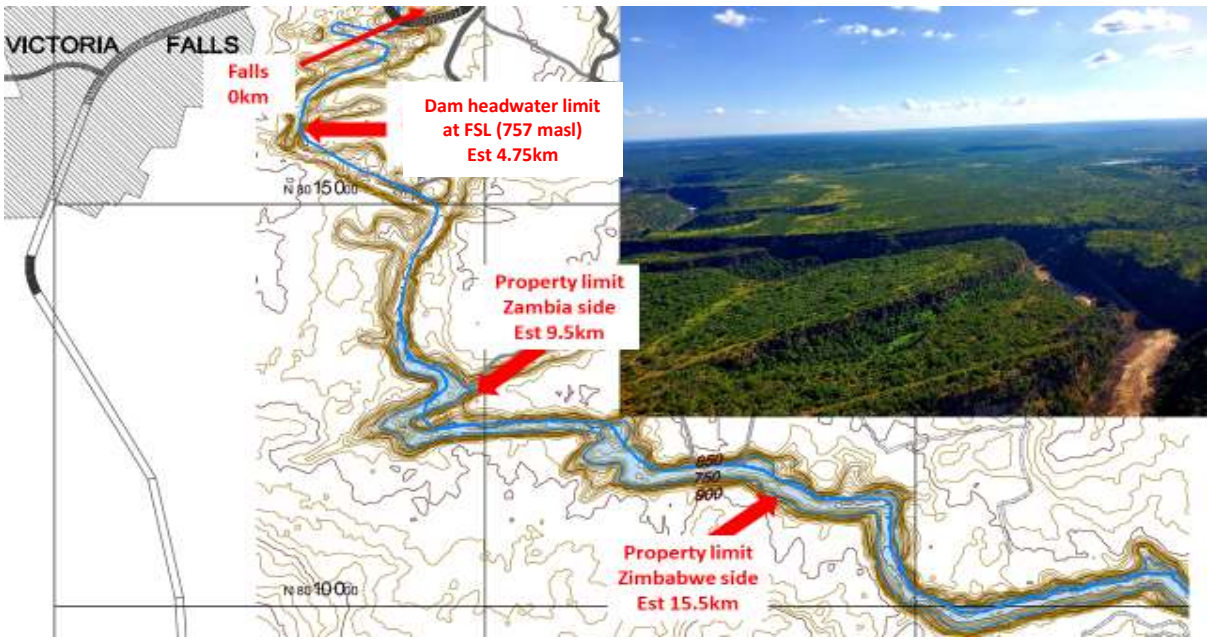


***Figure 3**: Topographic map & aerial view of the plateau in which the river sinks at around 4m/km, distance estimates using Google Earth.*

The mission was informed by the developer that the dam headwater will overlap with the property from 4 km downstream from the Falls curtain to the edge of the property at 12-13 km downstream. The mission notes that the distance estimated in the ESIA and other boundary information (figure 4) require verification. An estimated path measurement with Google Earth indicates that the headwater would start around 4.75 km from the Falls, and that the distance from the Falls to the

[7] Investor Conference speeches consulted on www.zambezira.org/hydro-electric-schemes/batoka-hes-project

edge of the property on the Zimbabwe side, formed by the boundary of VFNP, would be approx. 15.5 km (figure 3) rather than 12-13 km as indicated in reference documents. So the mission estimates that approx. 10.75 km of the river inside the property would be flooded. It is recommended that the JSMC provides confirmation on boundaries of the property to the developer.

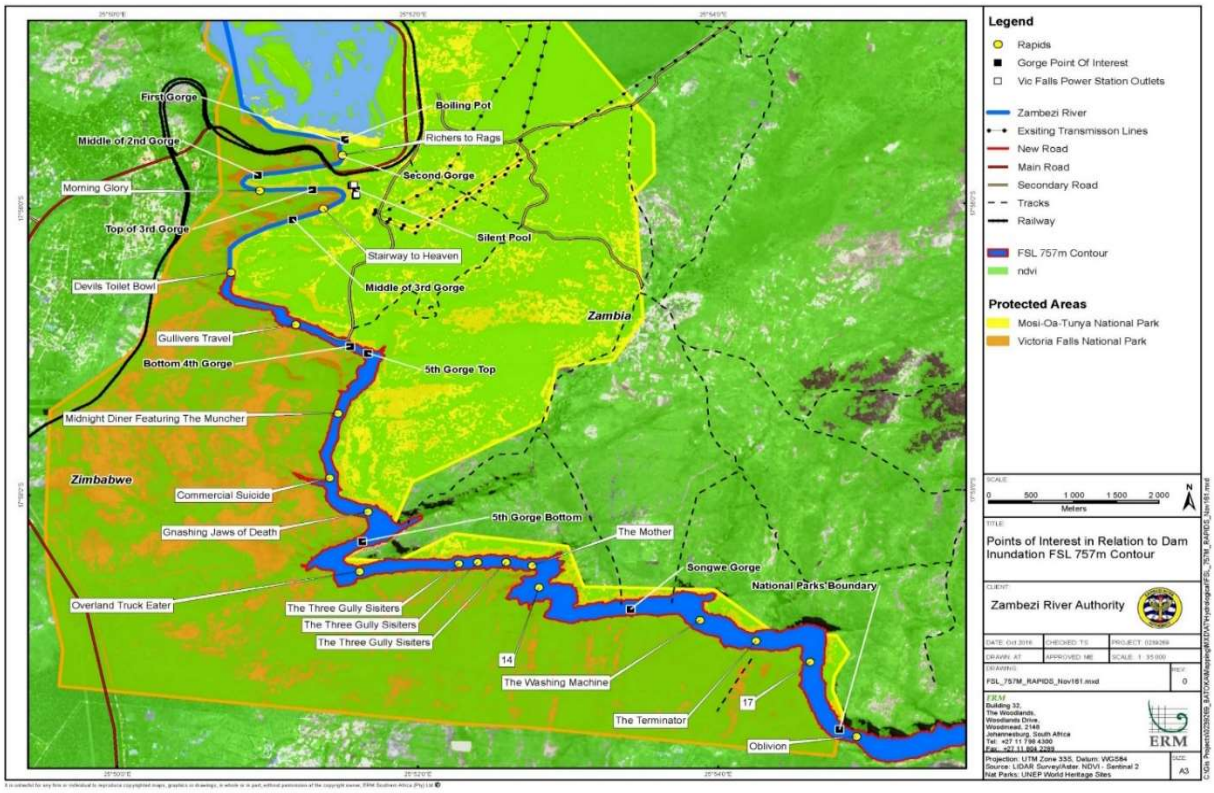


Figure 4*: Planned extent of the headwater within the property boundary as described in the BGHES ESIA (source: ZRA)*

On average, the mission was informed by ZRA that the increase in water level will be 4 m per km. Based on this calculation, the water level rise in the gorges at the edge of the property formed by VFNP will be 32-36m if using the reference document figures of flooding from 4 to 12-13 km; and around 43m increase in water level if using the Google Earth measurements of 4.75 to 15.5 km. Since the corresponding gorge depths are estimated at 100 m and 150 m, the maximum raised water level near the edge of the property is considerable. The water level would be raised to nearly one third of the gorge height at the boundary of the property.

The developer pointed out to the mission that in the dry season the dam is scheduled to fill up to a maximum of 730 masl, which reduces the flooded area by 5 km, and that hydropower installations regularly operate below maximum capacity. With exception of the headwater, due to the topology, neither the dam nor the artificial lake can be seen from the property.

The mission took note of efforts made to limit the direct impact on the property in the planning of this project. In terms of criterion (vii), there is no impact on the Falls, on the rainforest, nor would the infrastructure be visible. There will be an impact on criterion (viii), since 4 out of the 8 gorges that form part of the property would be permanently affected, thereby impacting the “exceptional example of geological processes”.

Concerning the ecological values of the property as defined in the Statement of OUV, the supplementary chapter of the ESIA on impacts to the WH site makes explicit reference to the likely

significant impact on important species. The ESIA recognises the importance of the Batoka gorge as a significant habitat for the conservation of species such as the Rock Pratincole (*Glareola nuchalis*) and that "[d]evelopment of the BGHES reservoir will destroy an important nesting and foraging area, which could therefore cause this species to be recognised as threatened with extinction during future assessments of the IUCN Red List". A similar analysis is presented for the Crowned Eagles (*Stephanoaetus coronatus*) which "nest and feed in the riparian forest along the river edge, and this habitat will be lost entirely within the reservoir extent". The ESIA does not provide mitigation measures and instead recommends investigating options to offset, concluding that: "Until the feasibility of offsetting impacts to the OUV can be investigated, no mitigation to protect or compensate for the impacts can be presented and the residual impact presented here therefore remains unchanged from the **"Major Negative"** pre-mitigated impact". While this latter part of the conclusion alone is highly noteworthy, it is also important to clarify that OUV is irreplaceable and cannot be offset, and therefore the mission emphasises strongly that the impacts on the OUV of the property must be assessed based on the mitigation hierarchy of avoidance and minimising impacts to a level acceptable for World Heritage.

Beyond the bird species, there is limited data regarding the ecology of the Batoka gorge, it is known that terrestrial deep river gorges form complex prime habitat mosaics that also function as downstream and upstream corridors through higher elevation terrain, and contain an array of refugial habitats[8]. It would be recommended to undertake a comprehensive ecological survey before making irreversible changes to this ecosystem.

The mission also noted that the project would have a major socio-economic impact on the community within the property, specifically the rafting industry, and the wider tourism industry, as a result of the disappearance of what is known globally as a unique one-day white water rafting trip and a unique drawcard for the area. The Economic Assessment provided as annex to the ESIA estimates that around 12,000 people in the area are employed in the tourism industry, which is considerable with a total population of around 220,000 for Victoria Falls and Livingstone. Tourists specifically participating in gorge activities are estimated to spend approximately US$74 million annually, excluding the non-use value (loss from future economic options that are eliminated) which was not assessed; and it is concluded that a "significant portion" will be lost as a result of loss of attractiveness of the destination.

In the ESIA, impacts on the white water rafting industry; and on birding and hiking tours are rated 'major'; on accommodation as 'moderate' and the overall socio-economic impact on the area is rated as 'moderate to major'. This is without calculation of indirect impacts such as loss to National Parks fees. Tourism in Victoria Falls is indicated to contribute 29% of the value added by tourism in Zimbabwe, and indirectly contributing approximately 0.9% of the country's GDP. In Livingstone the corresponding figure represents 11% of the value added by tourism in Zambia, contributing approximately 0.4% to total GDP. In addition, one should also consider the potential national impact of damage to this flagship tourism destination, and the reputational risk. The mission was informed that the economic benefits of the power station would outweigh these losses, but these national benefits are likely to be marginal for the community depending on the property.

The mission also wishes to reiterate the WH Committee's position that dams with large reservoirs within the boundaries of World Heritage properties is incompatible with their World Heritage status (Decision 40 COM 7). Furthermore, the mission highlights the findings of the World Commission on

[8] Stevens, Lawrence. (2012). The Biogeographic Significance of a Large, Deep Canyon: Grand Canyon of the Colorado River, USA.

Dams' authoritative report on large dams[9] and particularly its conclusion that "it is clear that the positive contribution of large dams to development has, in many cases, been marred by significant social and environmental impacts which are unacceptable when viewed from today's values"; as well as its 7 recommended strategic priorities, in particular the "comprehensive options assessment", which should encompass all existing and projected options for power generation. Moreover, in September 2021, the International Hydropower Association (IHA), of which ZESCO is a member, published a set of principles for sustainable hydropower, including that "New hydropower projects should not be developed in World Heritage Sites"[10]. IHA's announcement also included a commitment by all IHA members to "implement high standards of performance and transparency when affecting protected areas"[11].

Therefore with all of the above considered, the mission considers it necessary for the ESIA for BGHES to be revised to assess alternative scenarios, including lower dam wall options. The proposal as presented in the ESIA does not give confidence that the foreseen impacts on the OUV of the property can be sufficiently mitigated or avoided, and therefore should not proceed in the currently proposed design.

The ESIA furthermore points to the possibility of more dams in future along the Zambezi. One justification that is given in the ESIA for the location of BGHES is that "moving the dam downstream would reduce the capacity of any future development at Devil's Gorge". The mission raised this concern but did not receive any information regarding the Devil's Gorge or any other potential developments along the Zambezi.

R6: Considers that the proposal for the Batoka Gorge Hydro-Electric Scheme (BGHES), which will affect 4 out of the 8 gorges by flooding approximately a 10km stretch of the Zambezi River inside the property, should not proceed as currently proposed. The ESIA for BGHES should be revised to include:

a) Alternative scenarios including an analysis of the scenario where the dam wall is reduced to a level where the headwaters do not impact the property, and thereby its OUV.
b) The correct boundaries of the property as confirmed by the States Parties and in line with R8.
c) A thorough assessment of the consequences on the gorge ecosystem, including fauna

4.3. Strategic Environmental Assessment (SEA)

While some threats to the property have existed for some time, there has been a growing pressure from within and around the property in recent times. Such threats arise from multiple tourism infrastructure projects and proposals that modify the natural river flow as covered above. A Strategic Environmental Assessment (SEA) is an important tool that is widely used to take a strategic view across the landscape and consider the cumulative effects on the people and environment to inform long term landscape-scale planning.

[9] World Commission on Dams (WCD; 2000). Dams and Development: A New Framework for Decision-Making. London, UK and Sterling, USA: Earthscan.
[10] International Hydropower Association (2021). San Jose Declaration on Sustainable Hydropower. https://assets-global.website-files.com/5f749e4b9399c80b5e421384/614ccf9eb51fe5dfbef667f2_San_Jos%C3%A9_Declaration_Consultation_20210924_ENG.pdf
[11] IHA (2021) Hydropower in Protected Areas and World Heritage Sites. www.hydropower.org/factsheets/hydropower-in-protected-areas-and-world-heritage-sites

Through the support of the African World Heritage Fund, the States Parties completed phase I of a Strategic Environmental and Social Assessment (SESA) in August 2021. For the purpose of this report to maintain consistency with Committee decisions and standardised language in the wider impact assessment space, this study will be referred to as an SEA, acknowledging that this terminology is in no way a reflection of placing any less importance on the social elements, but rather a reflection that it should by default be a fundamental component of such assessments.

The last SEA for the property was undertaken in 1995, covering the period to 2006. Due to the time elapsed since the last study, it was considered necessary to restart the study from scratch and firstly reflect on the changes that had occurred during the last 25 years. The States Parties noted that due to funding restrictions, only phase I of the SEA has so far been achieved. It is the States Parties' intention to commission a phase II as soon as external funding can be secured so that the core elements of an SEA can be undertaken.

The mission considers that the SEA should become a guiding document that feeds into the management of the property, and that the World Heritage Centre and IUCN should be consulted at the scoping stage to allow for technical advice to be offered to the States Parties in designing the content of the SEA. This includes providing guidance on the geographical scope of the SEA to ensure that there is an ecological and hydrological rationale for the spatial area selected for the study.

R7: Seek early inputs and technical guidance from the World Heritage Centre and IUCN, preferably at the scoping stage, in undertaking phase II of the Strategic Environmental Assessment.

4.4. Boundaries of the property

The mission reviewed boundaries and potential changes to these, including a number of apparent discrepancies between various maps that could be detrimental to effective management of the property.

In the 1989 IUCN evaluation of the property nomination, a recommendation was made to review the proposed boundaries, i.e. "to reduce the limits of the nominated property to include the Victoria Falls National Park, the southern half of Mosi-oa-Tunya National Park, and a small portion of the riverine strip of Zambesi National Park in order to better concentrate on core features of the Falls area and the downstream gorges."

The States Parties have provided a number of maps in the JIMPs and their state of conservation reports, without fully addressing this recommendation, and with inconsistencies between the maps.

The JIMP 2007 – 2012 provides a map based on the original nomination, and a section on zonation into low, medium and high-sensitive zones, with a map without the northern part of MoTNP and without Zambezi NP, but with a 500 m buffer zone around the VFNP and MoTNP southern edges. In the 2012 Retrospective Inventory report, a map with buffer areas around the entire site and internal zoning was included. The JIMP 2016-2021 provides a map with the entire northern MoTNP and part of Zambezi NP included as buffers, but without the previously suggested 500 m buffer zone around the southern part. Some additional localised discrepancies were also noted.

Additionally, since MoTNP does not extend as far downstream as VFNP, the most eastern section of the property includes only the Zimbabwean half of the river. This is a likely challenge to effective management.

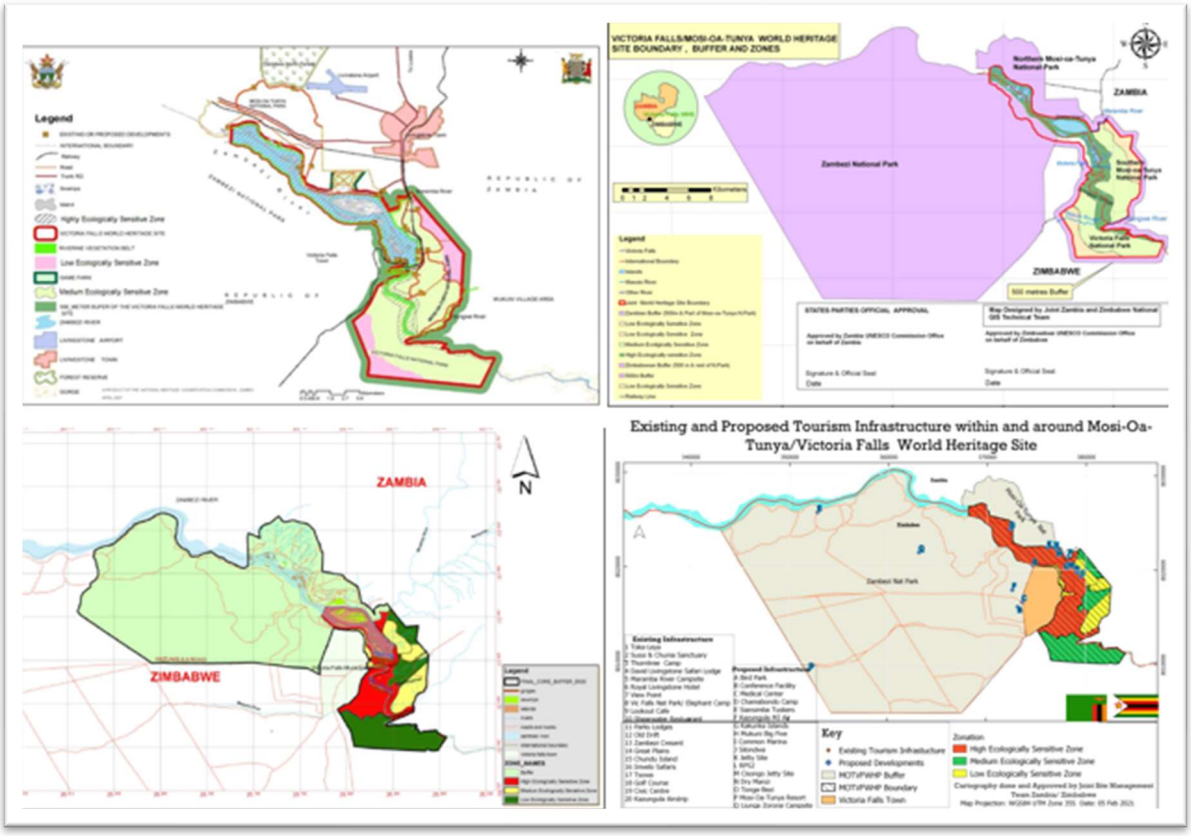


***Figure 5**: Boundaries as shown in 2007-2012 JIMP (top-L); 2012 Retrospective Inventory (top-R); 2016-2021 JIMP (bottom-L); States Parties' report 2021 (bottom-R). (Larger maps in Annex 6.5).*

The mission commends the States Parties and stakeholders for the significant efforts and constructive debate invested in determining effective boundaries and zoning over the past decade, and observes that clarity regarding boundaries and possible internal zoning is essential to conserve the integrity of a property that is under very high development pressure. As shown by the issues examined during this mission, potential developers, decision-makers and the general public require a clear understanding regarding boundaries, possible zoning and implications; allowing these to also be reflected in a consistent manner in relevant policy documents such as municipal plans, and tourism plans.

The buffer zones should also be clarified. The mission recommends that particular attention be given to the following areas.

For the area upstream from the Falls, the mission observed that the rationale for the 1989 recommendation to focus on the riverine strip of the National Parks remains justified, with most pressure actually felt by the NP areas near the river that are most relevant to the integrity of the site. While MoTNP and ZNP have been identified as buffer zones, the tourism developments have shown that the status of National Park has not provided the envisaged protection. It is therefore recommended that for both MoTNP and ZNP, limits to developments in the area adjacent to the Zambezi River are specifically included in the infrastructure blueprint referred in section 4.1 and recommendation R4.

The mission further recommends that in consultation with stakeholders, development criteria be established for the buffer zone of 500 m, indicated between the property and Victoria Falls Town.

The status of the eastern part of the property where only half the river is currently protected, should also be clarified. The mission recommends consulting with stakeholders in view of extending the 500 m buffer on the Zambian side to the corresponding eastern limit of VFNP.

For each part of the buffer zone, it is imperative that the relevant governing authority of the buffer area integrates the same criteria in its development plans.

R8: In line with the *Operational Guidelines*, provide a map indicating the precise boundaries of the property and its buffer zone, agreed upon by both States Parties and aligned with the recommendations in the IUCN evaluation and past WH Committee requests, to be used in all future planning, strategy and policy documents. This should include the proposed internal zoning in high, medium and low ecologically sensitive zones and its rationale, and the management implications of this zoning. A clear explanation of how the buffer zone protects the property should also be provided.

4.5. Other

4.5.1. Water flow

Continued water flow is a prerequisite for the integrity of the property. Given the pressures on the Zambezi water resources, and the relatively low flow rate (e.g. around half of Niagara Falls), this requires continued monitoring. The IUCN evaluation of the property nomination (1989) mentions the power station on the Zambian side, where in 1936 a channel has been cut into the river bed of the Zambezi to supply water for electricity generation (figure 6); diverting around 10% of the water flow. In its 38th session, the WH Committee had also noted with concern the intention of the State Party of Botswana to abstract 495 million cubic metres of water per annum from the Zambezi River, representing 5-10 % of dry season water flow at the falls, and strongly urged the States Parties of Zambia and Zimbabwe, in consultation with the State Party of Botswana and the Zambezi Watercourse Commission (ZAMCOM), to include a full evaluation of this project and its impacts on the OUV of the property. In its 44th session, the WH Committee further requested "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 2021 State of Conservation report confirms that the study was conducted but does not provide the requested summary of key findings.

In its strategic plan for 2018-2040, the ZAMCOM projects a doubling of water use based on current national plans of riparian states; and additionally confirms that current climate change predictions forecast profound implications for the Zambezi River Basin with the IPCC categorising the Zambezi as the river basin exhibiting the "worst" potential effects of climate change among 11 major African basins, due to the resonating and far-reaching effects of increases in temperature and decreases in rainfall. ZAMCOM indicates that "future runoff is expected to increase by about four to twelve percent by 2020, ten to 20 percent in the 2050s, and 16 to twenty three percent by the 2080s depending on emission scenario"[12]. The ZAMCOM Strategic Plan analyses 7 different development scenarios but does not include impact on the WH site(s) as an indicator for decision-making.

[12] ZAMCOM (2016) Factsheet Climate Variability and Change in the Zambezi River Basin.

While the mission noted that historical daily flow data shows a natural flow variation between 1908 and 2021, without any specific downward trend (figure 7), the abovementioned existing and potential pressures should be considered a long-term risk for the OUV of the property.



***Figure 6**: Aerial view of the Falls. The ZESCO power station intake channel can be seen on the left bank just before the falls; the power station on the right edge of the picture, and a row of trucks waiting at the border. ©UNESCO/Guy Broucke.*

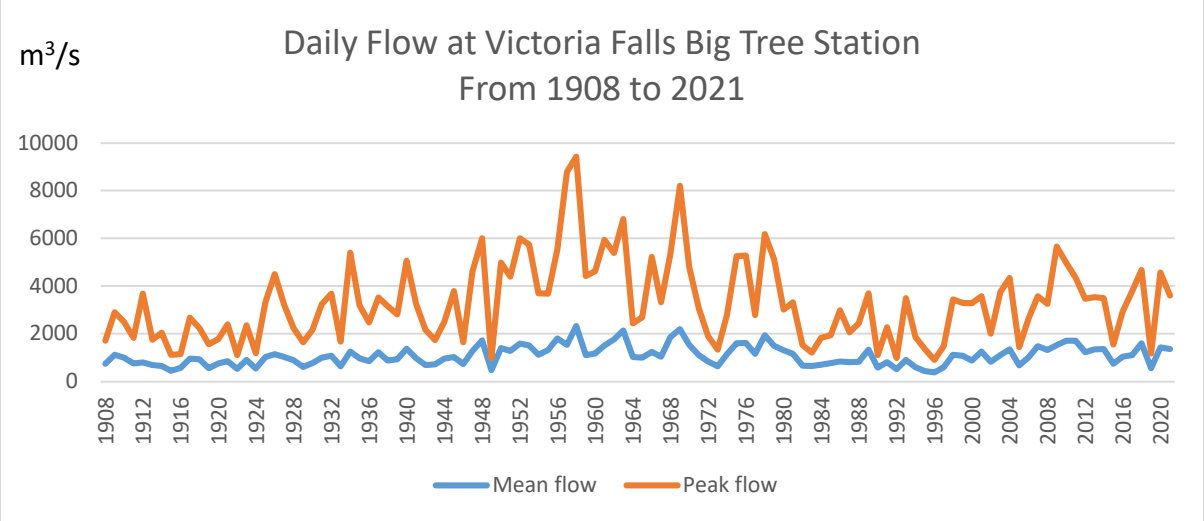


Figure 7: Historical peak and mean Zambezi flows at Victoria Falls between 1908 and 2021 – graph derived from annual flow data received from ZRA.

R9: Request the States Parties of Zambia and Zimbabwe, in consultation with the other riparian States Parties of Angola, Botswana, Malawi, Mozambique, Namibia and Tanzania, to incorporate the long-term integrity of World Heritage properties in the Zambezi basin in the basin planning, particularly to inform essential criteria for decision-making by the regional bodies, i.e. the Zambezi River Authority and the Zambezi River Commission.

4.5.2. Freight transport

The property includes one of only 2 road border crossings between Zambia and Zimbabwe. The mission observed that the border permanently has a significant line of trucks waiting to cross, as can also be seen in figure 6. Data obtained from 2015 to 2021 indicates that around 20,000 trucks cross annually. It was not clear from available data as to what extent this number has increased since the inscription of the property in 1989.

The opening of the new Kazungula Bridge in 2021 between Botswana and Zambia, around 75 km upstream from the property, may create an opportunity to reduce truck traffic, which would benefit the integrity of the property in terms of visual impact, air quality, and littering.

R10: Establish a baseline and trends since the nomination for the annual transit of heavy vehicles (trucks) crossing the property and continue monitoring and exploring options to further encourage trucks to avoid the property taking into account the potential benefits to the tourism experience.

5. Conclusions and Recommendations

The mission welcomes the firm commitment by both States Parties to protect the property, and the strong collaboration that exists between the States Parties. Positive actions have been taken by the States Parties in recent years to address the Committee's Decisions such as developing a Joint Integrated Management Plan, establishing a Joint Management Committee at the site, technical and ministerial levels, as well as taking decisions to not proceed with some tourism projects that may negatively impact the property.

At the same time, the mission also observed that the property is facing increasing threats from individual and cumulative infrastructure developments, whose footprints are inside the property, its buffer zone or in its wider setting. The inconsistency in the use of precise boundaries and buffer zones of the property in varying documents and plans makes this a particularly challenging task. The mission noticed a great focus by the States Parties on the preservation of the Falls i.e. the spectacular curtain of falling water, and whilst this is undoubtedly an iconic and important feature of the property, the OUV of the property that require protection is much broader and includes the ecological values of the eight gorges that support endangered and migratory species as well as the geological and geomorphological values of the gorges. Loss of any of these values would constitute a loss of OUV and therefore it is vital to comprehensively assess and understand the impacts of each project on the attributes of the property.

The mission concludes that the OUV is maintained at present but large concerns remain. If the proposed and future developments proceed without the appropriate level of consideration for the environment in which the property is located and for which it is inscribed, as well the cumulative

impacts from the different individual developments, the OUV could be considered to be in danger in the near future.

The mission reviewed the state of conservation of the property in line with the ToR and makes the following recommendations to the World Heritage Committee and the States Parties of Zambia and Zimbabwe.

R1: Suspend the construction and operation of the Mosi-oa-Tunya Livingstone Resort, located within the buffer zone of the property in Zambia, until the legality of the project is verified in line with the conditions of approval issued by the Zambian Environmental Management Authority (ZEMA), which: a) does not permit any construction within the World Heritage site buffer zone; and b) requires a guaranteed minimum distance of 70 metres between the resort and the highest flood line of the Zambezi and Maramba Rivers.

R2: Continue the suspension of the Mosi-oa-Tunya Livingstone Resort development as a follow on from Recommendation 1 (R1) until the Environmental and Social Impact Assessment (ESIA) for the project has been revised to adequately demonstrate that there will be no impact on the Outstanding Universal Value (OUV) of the property including its conditions of integrity, in line with Committee Decision 44 COM 7B.177, and a comprehensive Environmental and Social Management Plan (ESMP) for the implementation of mitigation measures has been developed. Both the revised ESIA and ESMP should be submitted to the World Heritage Centre for review by IUCN before the project resumes, in the case that the legal suspension according to the compliance with the ZEMA conditions of approval is lifted.

R3: Ensure that tourism infrastructure development within the property and its buffer zone is consistent with the aim to enhance the protection of the OUV of the property, and in line with the JIMP and past WH Committee decisions. Proposals that are clearly incompatible with the conservation of the property's OUV must not be permitted in line with Committee Decision 7B.34, such as a Ferris wheel within the property or its buffer zone.

R4: Develop a blueprint for infrastructure development in and around the property, either through revision of the existing Sustainable Tourism Strategy or revisiting the Joint Development Masterplan, which prescribes where, what and how constructions can take place in, and looks equally across the environmental, social and economic pillars. In clearly defined areas where construction is deemed possible, strict guidance shall be given that specifies the nature of appropriate developments and carrying capacities that could be considered.

R5: Harmonise the roles and responsibilities of NHCC and DNPW for the management of the World Heritage property in Zambia to prevent any ambiguity in the roles and spatial remit of their management responsibilities. The management plan for the National Parks that overlap with the World Heritage buffer zone should replicate the conditions in the JIMP to prevent contradicting policies on permitted and prohibited activities.

R6: Considers that the proposal for the Batoka Gorge Hydro-Electric Scheme (BGHES), which will affect 4 out of the 8 gorges by flooding approximately a 10km stretch of the Zambezi River inside the property, should not proceed as currently proposed. The ESIA for BGHES should be revised to include:

a) Alternative scenarios including an analysis of the scenario where the dam wall is reduced to a level where the headwaters do not impact the property, and thereby its OUV.

b) The correct boundaries of the property as confirmed by the States Parties and in line with R8.
c) A thorough assessment of the consequences on the gorge ecosystem, including fauna and flora and ecosystem functions.

The revised ESIA should be submitted to the World Heritage Centre for review by IUCN before any decision is taken.

R7: Seek early inputs and technical guidance from the World Heritage Centre and IUCN, preferably at the scoping stage, in undertaking phase II of the Strategic Environmental Assessment.

R8: In line with the *Operational Guidelines*, provide a map indicating the precise boundaries of the property and its buffer zone, agreed upon by both States Parties and aligned with the recommendations in the IUCN evaluation and past WH Committee requests, to be used in all future planning, strategy and policy documents. This should include the proposed internal zoning in high, medium and low ecologically sensitive zones and its rationale, and the management implications of this zoning. A clear explanation of how the buffer zone protects the property should also be provided.

R9: Request the States Parties of Zambia and Zimbabwe, in consultation with the other riparian States Parties of Angola, Botswana, Malawi, Mozambique, Namibia and Tanzania, to incorporate the long-term integrity of World Heritage properties in the Zambezi basin in the basin planning, particularly to inform essential criteria for decision-making by the regional bodies, i.e. the Zambezi River Authority and the Zambezi River Commission.

R10: Establish a baseline and trends since the nomination for the annual transit of heavy vehicles (trucks) crossing the property and continue monitoring and exploring options to further encourage trucks to avoid the property taking into account the potential benefits to the tourism experience.

6. Annexes

6.1. Terms of Reference (ToR)

At its 43rd session in Baku, Azerbaijan (June/July 2019), the World Heritage Committee requested the States Parties of Zambia and Zimbabwe to invite a joint World Heritage Centre/IUCN Reactive Monitoring mission to Mosi-oa-Tunya / Victoria Falls World Heritage property "to assess the potential threat posed to the property's OUV [Outstanding Unviersal Value] by the growing tourism development pressure in and around the property, to review the regulations to control this pressure and to make recommendations to the Committee on the proposed boundary modification".

The COVID-19 restrictions delayed the invitation of the mission but on 16 March 2021, the States Parties invited the mission to the property for October 2021.

At the extended 44th session in Fuzhou, China (July 2021), the World Heritage Committee took note of the invitation for the mission, and requested 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 [the Batoka Gorge Hydro Electric Scheme (BGHES)], to review the regulations to control this pressure and to make recommendations to the Committee on the proposed boundary modification".

The joint World Heritage Centre/IUCN Reactive Monitoring mission to the property is planned to be carried out from 9 to 13 February 2022.

The mission will review the state of conservation of the property by carrying out the following tasks:

1. Review the development projects including the tourism infrastructures currently present and proposed within the property, its buffer zone and its wider setting to assess the possible individual and cumulative threats that may be presented to the OUV of the property;

2. Review the plans and policies that regulate tourism development pressure in and around the property, including the new Sustainable Tourism Strategy, with the aim of protecting the property's OUV;

3. Review the progress made to develop a Strategic Environmental Assessment (SEA) and provide technical inputs to ensure its applicability to the conservation of World Heritage;

4. Review the impacts of the proposed BGHES and assess the potential threats that would be posed by the development on the OUV of the property;

5. Review the current property boundaries and examine any boundary changes that are being considered by the States Parties;

6. In line with paragraph 173 of the *Operational Guidelines*, assess any other relevant conservation issues that may have an impact on the OUV of the property, including the conditions of integrity and protection and management.

The States Parties should facilitate necessary field visits to key locations in relation to the above objectives. The mission should hold consultation meetings with representatives of the States Parties of Zambia and Zimbabwe. The mission should hold consultations with a range of relevant stakeholders, including representatives of the site management authorities, the Zambia-Zimbabwe Joint Site Management Committee (JSMC) and other relevant government bodies (including the corresponding ministries responsible for energy, agriculture, tourism and environment), non-governmental

organizations (including BirdLife regarding the BGHES), and relevant national and international scientists and experts.

In order to ensure adequate preparation of the mission, the States Parties should provide the following items to the World Heritage Centre as soon as possible:

a) Current version of the Joint Integrated Management Plan of the property;

b) ESIAs for all tourism infrastructure developments that have been recently completed, are currently underway and those that are proposed, which are located within the property, its buffer zone and its wider setting;

c) ESIA and any other available details for the BGHES;

d) Detailed maps of the property indicating the boundaries as inscribed, boundaries of the buffer zone and any boundary changes that are being considered;

e) Any other material related to the property's state of conservation, which would facilitate the mission's work.

Please note that additional information may be requested from the States Parties and key stakeholders during the mission.

Based on the assessment of available information and discussions with the States Parties and stakeholders, the mission will develop recommendations to the World Heritage Committee regarding the status of the property in line with the Committee Decisions and provide guidance on further recommended actions for the conservation of the property's OUV, including its conditions of integrity. It should be noted that recommendations will be provided in the mission report, and not during the course of the mission.

The mission will prepare a report on the findings and recommendations of this Reactive Monitoring mission as soon as possible after the completion of the mission, following the standard format, for review by the World Heritage Committee at its 45th session in Kazan (Russia).

6.2. Composition of mission team

UNESCO World Heritage Centre representative: Guy Broucke

IUCN representative: Mizuki Murai

6.3. Itinerary and programme of mission

DATE	ACTIVITY	LOCATION	TIME	RESPONSIBLE
8th February	**Arrival and transfer to the hotel**	HMN Inter. Airport/ hotel		NHCC
9th February	Breakfast at the hotel	Livingstone	7am – 8am	RMM/ NHCC
	Welcome and planning meeting:	David Livingstone Safari	8am–11am	NATCOM
	Introduction to the purpose of the mission	Lodge (DLSLS), Zambia		RMM

	Implementation strategy			ALL
	Tea break			
	Tour of the Rainforest	Mosi-oa-Tunya/Victoria Falls WHS - Zambia	11am – 1pm	NHCC
	Lunch	DLSLS	1pm – 2pm	
	Project Briefing and Site Visit - Mosi-oa-Tunya Resort and conference centre	DLSLS/Mosi-oa-Tunya Resort and conference centre - Zambia	2pm -5pm	NHCC/DNPW/ NAPSA
	Discussion of programme		5-6pm	
10th February	Project Briefing and Site Visit - Proposed BGHES	DLSLS/Proposed BGHES dam site - Zambia	8am-2pm	NHCC/ZRA/ZESCO/
	Lunch	DLSLS - Zambia	2pm-3pm	
	Project Briefing and Site Visit - Tour ZESCO intakes and generation plant	Zambia	3pm- 5pm	NHCC/ZPWMA/ZESCO/ZRA
	Boat cruise	Livingstone - Zambia	5pm-7pm	NHCC/DNPW
	Back to lodge	Hotel	7 pm	
11th February	Stakeholder workshop/assessment and reviews	TBC	9am – 1pm	NHCC/ZPWMA Management Team/NATCOMs, DNPW, MoT, LTA, Taxi Association, Rafting Association
	Lunch	TBC	1pm-2pm	ALL
	Drive to view Kakunka Island		2-3pm	
	2-3pm Cross to Victoria Falls Town - Zimbabwe		3-4pm	
	Hotel check in	TBC		ZPWMA
	Welcome and introductory meeting:	TBC	4pm - 5pm	NATCOM
12th February	Visit to the proposed BGHES dam site	Zimbabwe	8 – 12pm	ZPWMA/ZRA
	Visit Palm River Hotel		12 – 1pm	
	Lunch		1pm – 2pm	ZPWMA

	Zambezi NP visit (proposed and existing developments)		2pm – 6pm	NHCC/ZPWMA
13th February	Stakeholder workshop/assessment and reviews		8am – 10pm	ZPWMA, Rafting Association
	Discussion on SESA		10 – 11pm	
	Visit Falls and Victoria Falls NP		11am -2pm	
	Lunch		2pm- 3pm	RMM/NATCOM
	Helicopter ride		3-5pm	ZPWMA
	Meeting on BGHES	Hotel	5-6 pm	
	Exit Dinner for all		6pm	ZPWMA
14th February	**Departure -** Transfer to the Airport		9am -	NHCC/ ZPWMA

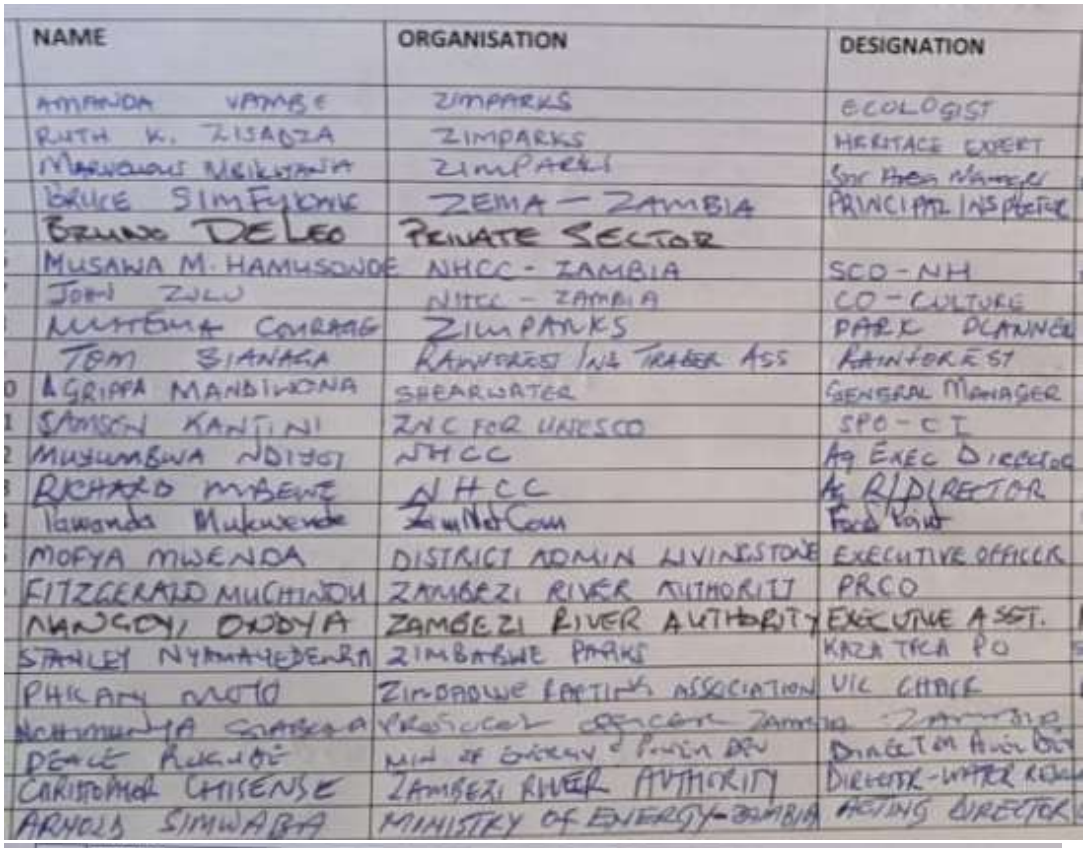
6.4. List of people met

NAME	ORGANISATION
Rugube Peace	Min of Energy and Power Dev_Zim
Munodawafa M. C.	Zambezi River Auth
Mundoga T	Zimbabwe Min of Env
Zidiche Phillip	ZRA
Fitzgerald Muchindu	ZRA
Chilaza M. Habasimbi	Ministry Tour
Ruth K. Zisadza	Zimparks
Tawanda Mukwende	Zim Natcom
Musawa M Hamusonde	NHCC
Nangoji D.S. Ondya	ZRA
Christopher Chisense	ZRA

NAME	ORGANISATION
Bernadette Chola	DHEC
Chiho Mpofu-Zulu	EMA
Mangasi Phanuel -K.	EMA
Nothani Ndlovu	EMA
Arnold Simwaba	Ministry of Energy Zambia
Nkweendaula Avita	ZRA
Charles Mdakala	ZNC-UNESCO
Mr. Margaret J. Chirapa	Zimnatcom for UNESCO
Pinnoty Chabala	DC's office
Ntombizami Ncube	UFCC
John Zulu	NHCC

D. Holmes	DHEC
Abbey Kayumba Jnr	DHEC
Samson Kaunini	ZNC UNESCO
Mutema Courage	Zimparks
Mbikiyana Marvellous	Zimparks
Godfrey Seremwe	Zimnatcom UNESCO
Nchimunya Siatwonga	Practical officer
Mofia Mwenya	DC's office
Richard Mubewe	NHCC
Mwangantami Nolony	UFCC

Stakeholder meeting on 13 February:



	NAME	ORGANISATION	DESIGNATION
	AMANDA VAMBE	ZIMPARKS	ECOLOGIST
	RUTH K. ZISAZA	ZIMPARKS	HERITAGE EXPERT
	[illegible] NGEKWANA	ZIMPARKS	Snr Area Manager
	BRUCE SIMFUKWE	ZEMA – ZAMBIA	PRINCIPAL INSPECTOR
	BRUNO DELEO	PRIVATE SECTOR	
	MUSAWA M. HAMUSONDE	NHCC - ZAMBIA	SCO - NH
	JOHN ZULU	NHCC - ZAMBIA	CO - CULTURE
	MUTEMA CHIRIMO	ZIMPARKS	PARK PLANNER
	TOM SIANGA	RAINFOREST INT TRADER ASS	RAINFOREST
10	AGRIPPA MANDIVONA	SHEARWATER	GENERAL MANAGER
11	SAMSON KANJINI	ZNC FOR UNESCO	SPO - CT
12	MUYUMBWA NDIYOI	NHCC	Ag EXEC DIRECTOR
13	RICHARD MBENE	NHCC	Ag R/DIRECTOR
	Tawanda Mukuvare	ZimNatCom	Focal Point
	MOFYA MWENDA	DISTRICT ADMIN LIVINGSTONE	EXECUTIVE OFFICER
	FITZGERALD MUCHINJOH	ZAMBEZI RIVER AUTHORITY	PRCO
	NANGOYI OKOYA	ZAMBEZI RIVER AUTHORITY	EXECUTIVE ASST.
	STANLEY NYAMAHEDERA	ZIMBABWE PARKS	KAZA TFCA PO
	PHIRARY MOTO	ZIMBABWE TOURISM ASSOCIATION	VIC CHAIR
	NCHIMUNYA CHABALA	PROFESSIONAL [illegible] ZAMBIA	ZAWA
	PEACE MUKUBI	MIN OF GREEN & ENVIR DEV	DIRECTOR Anim Dev
	CHRISTOPHER CHISENSE	ZAMBEZI RIVER AUTHORITY	DIRECTR-WATER RESO
	ARNOLD SIMWABA	MINISTRY OF ENERGY - ZAMBIA	ACTING DIRECTOR

	NAME	COMPANY	DESIGNATION
24	MIKE DAVI	PRIVATE SECTOR/[illegible]	CEO
25	Tawanda Mudzoga Murdoga	Min of Environment Zim	Dir
26	BRIAN MELISI NYAMBE	VICTORIA FALLS ENVIRO KIMTECH	TRUST MANAGER
27	GODFREY SEREMWE	ZIMNATCOM FOR UNESCO	PROG OFFICER
28	Elizabeth Chrigei	PURE AFRICA	CM + OLIOS
29	MARGARET CHIRIMA	ZIMNATCOM for UNESCO	S. G.
30	CHARLES MOAKALA	ZAMNATCOM - UNESCO	SECRETARY GENERAL
31	Patiance Gandiwa	ZIMPARKS	Director ICA
32	Sithembiso Dube	Zimbabwe Defence Forces	Officer Commanding
33	Patrick N Mukando	Zimbabwe Defence Force	Warrant Officer
34	TAURAI MUSHONATILLA	Zimbabwe Republic Police	PI
35	ANDREW LANG	VICTORIA FALLS INVESTMENTS	MANAGING DIRECTOR
36	TREVOR LANG	BHEJANE TRUST	CEO
37	Nkwendanda Avitol	Zambezi River Authority	Senior Manage Hydrol
38	SAMSON CHIRIMA	ZIMPARKS	Regional Manager
39	CHRISTINE SATA	ZAMBIA – FOREIGN AFFAIRS	[illegible]
40	TENDAI P MUDOMBI	MOSI OA TUNYA DEVELOPMENT COMPANY	PLANNING OFFICER
41	Kinnoty Chelele	D/C Livingstone	Administrative Offi
42	Chitah mayamda Habasinda	MINISTRY OF TOURISM - ZAMBIA	A RTDC
43	Munyaradzi C Muradzikwa	Zambezi River Authority	Chief Executive
44	Phanuel K. Magezi	EMA	MANAGER
45	[illegible] MPOFU-PURE	EMA	PEM
	Notham Ndlovu	EMA	District Office
	Guy Brackx	UNESCO	
	MIZUKI MURAI	IUCN	
	Hendrix Kapaip	Embassy/Permanent Delegation	UNESCO First Se
	Clement Mukwasi	[illegible]@gmail.com	

6.5. Maps and photographs

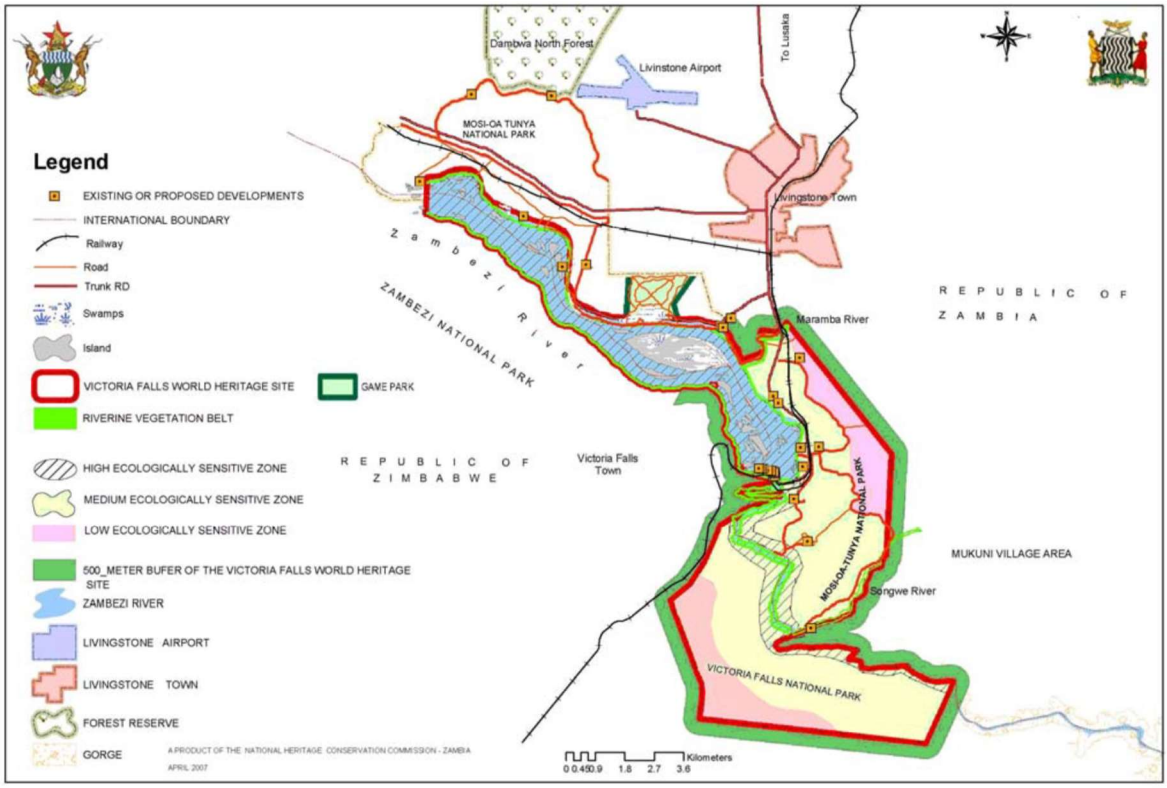


Fig 1. Boundaries as shown in the 2007-2012 JIMP

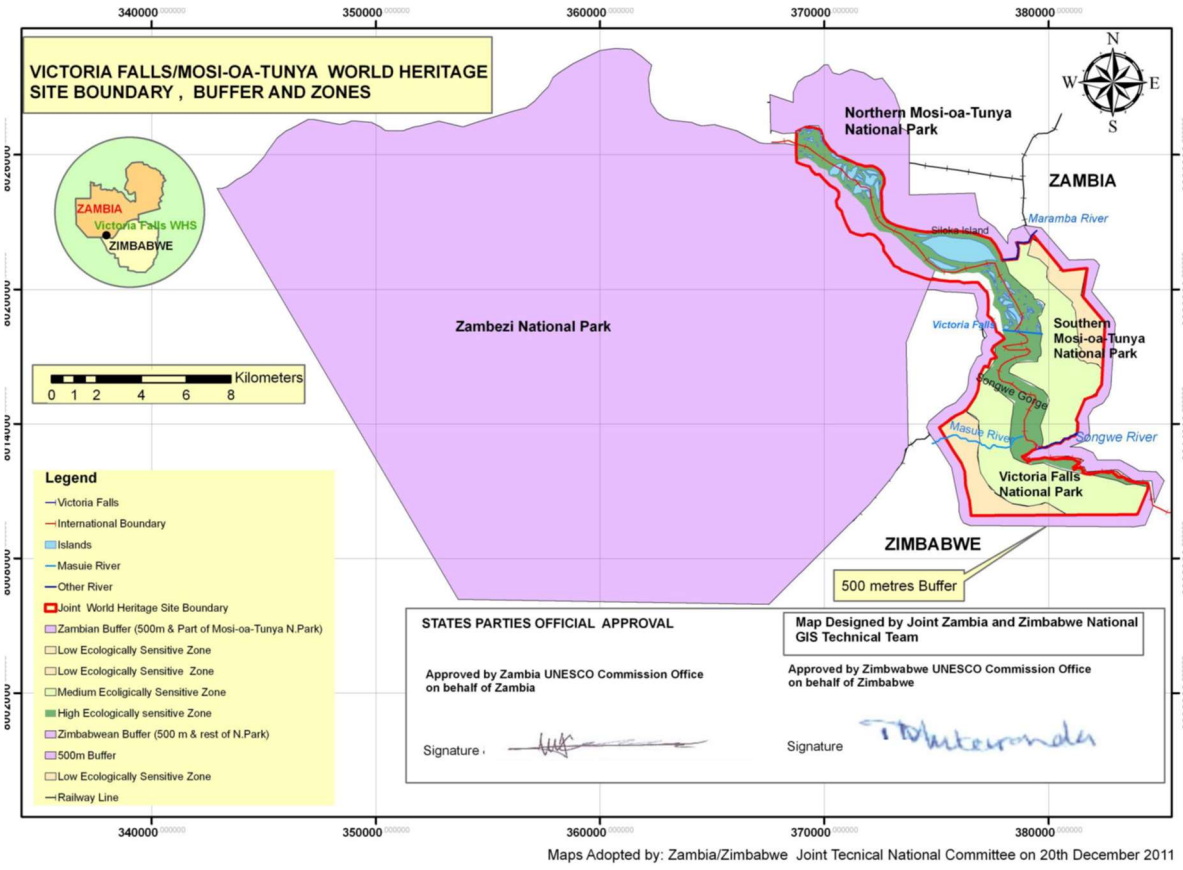


Fig 2. Boundaries as shown in the Retrospective Inventory (2012)

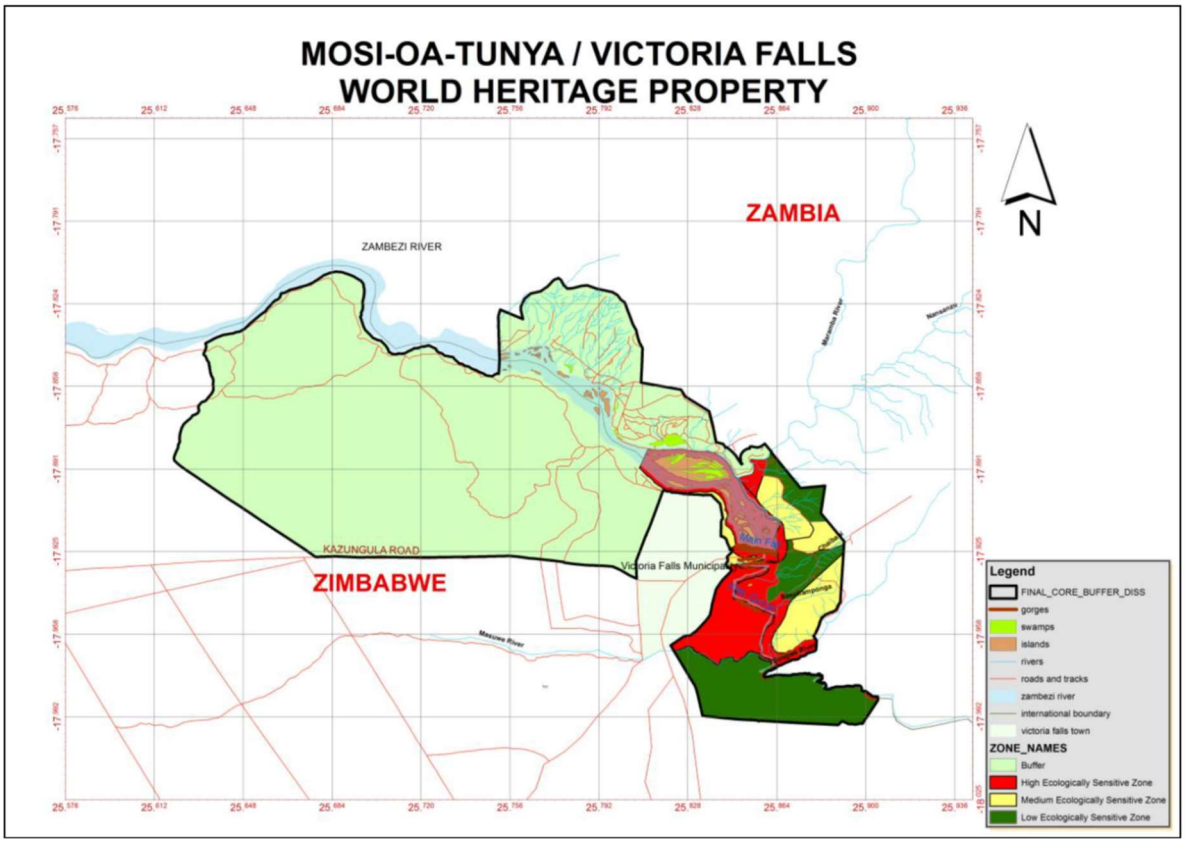


Fig 3. Boundaries as shown in the 2016-2021 Joint Integrated Management Plan.

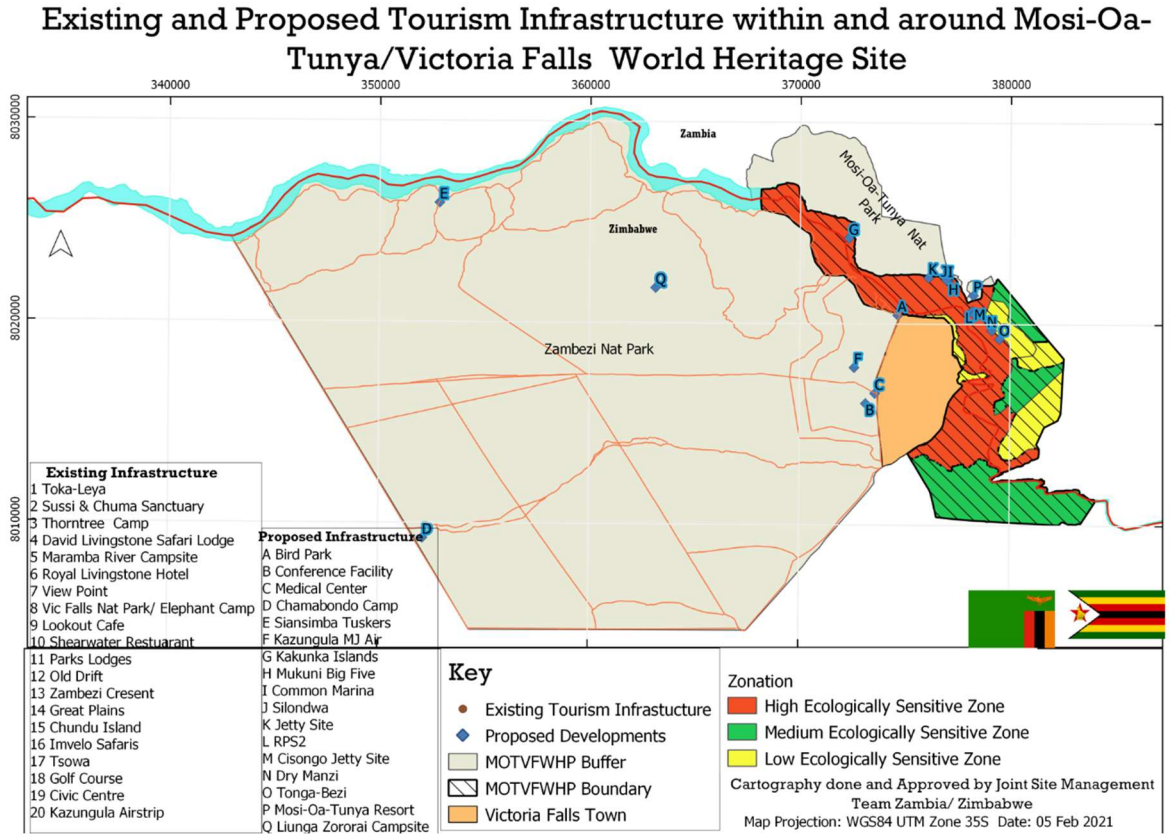
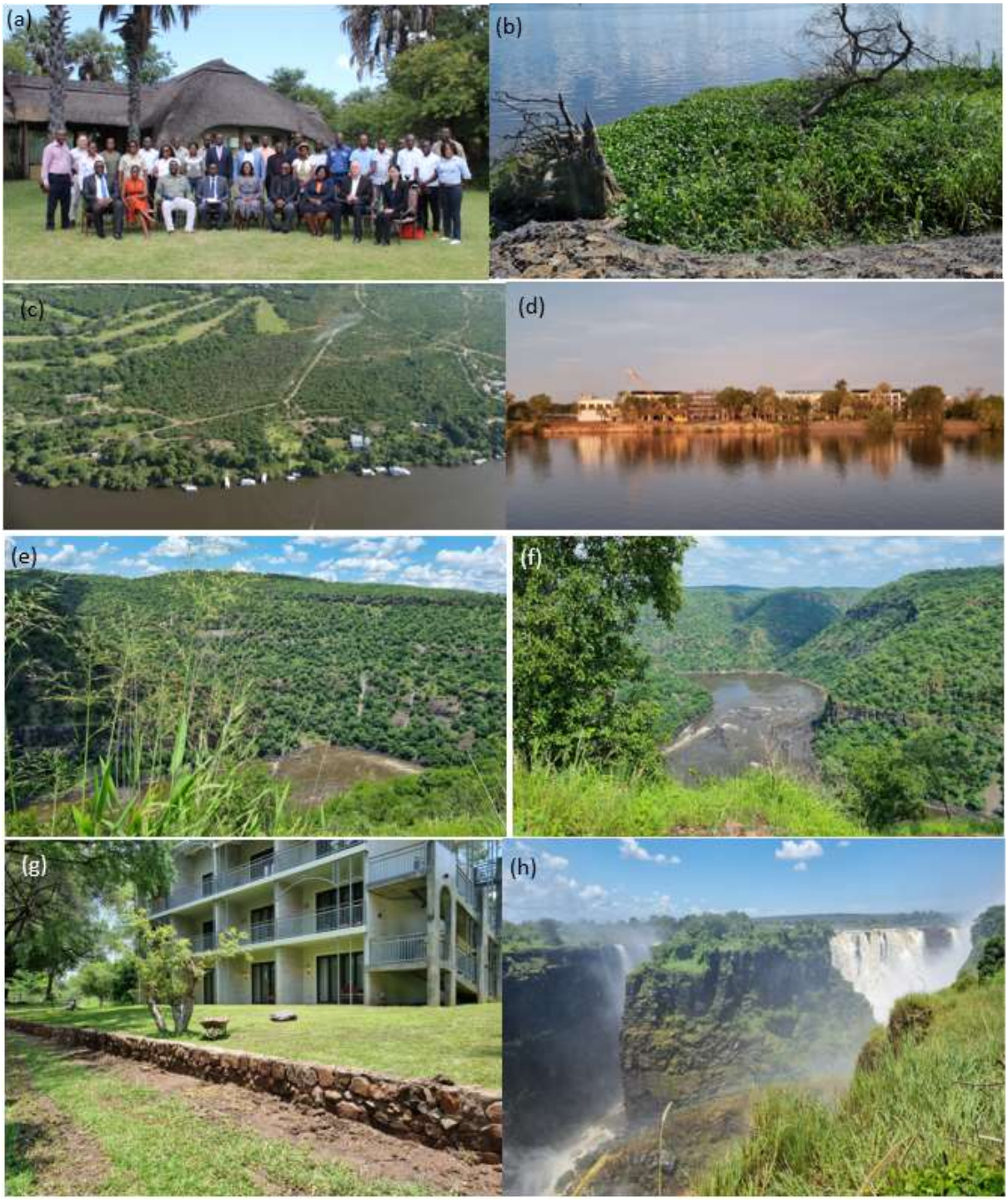


Fig 4. Boundaries as shown in the 2021 States Parties' state of conservation report.



Photos: (a) Mission team with participants from the States Parties of Zambia and Zimbabwe; (b) artificially reinforced embankments with metal gabions at the Mosi-oa-Tunya Livingstone Resort and the invasive water hyacinth; (c) jetties and boats along the Zambezi River; (d) Mosi-oa-Tunya Livingstone Resort viewed from the Zambezi River; (e) location of the proposed BGHES dam wall from the Zambian bank; (f) location of the proposed BGHES from the Zimbabwean bank; (g) boundary between the Victoria Falls municipality (Palm Hotel) and the National Park; (h) Cataract Island. ©IUCN/Mizuki Murai.