

Mosi-oa-Tunya / Victoria Falls

2020 Conservation Outlook Assessment

SITE INFORMATION

Country: Zambia, Zimbabwe

Inscribed in: 1989

Criteria: (vii) (viii)



These are among the most spectacular waterfalls in the world. The Zambezi River, which is more than 2 km wide at this point, plunges noisily down a series of basalt gorges and raises an iridescent mist that can be seen more than 20 km away. © UNESCO

SUMMARY

2020 Conservation Outlook

Finalised on 01 Dec 2020

GOOD WITH SOME CONCERNS

The Mosi-oa-Tunya / Victoria Falls is one of Africa's greatest natural spectacles and already receives a correspondingly large number of visitors from around the world. Compared with similar sites elsewhere in the world, the Mosi-oa-Tunya / Victoria Falls park complex retains its sense of nature's raw power, its aesthetic values and wilderness qualities remarkably well. The immediate vicinity of the falls is protected within three adjoining national parks which ensure that visitors can appreciate its natural values in a relatively pristine, un-spoilt setting. These remarkable qualities, which distinguish this site from some of the world's other major waterfalls, will be challenged as visitor numbers and development pressures increase. Effective regulation and control of tourism development pressures, especially the development of physical infrastructure too close to the falls, will be the single greatest challenge for site managers. The proposed Batoka Gorge Hydroelectric Scheme would alter flow regime in part of the property, posing direct and indirect threats to the OUV.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► **Largest curtain of falling water**

Criterion:(vii)

At peak flow, this is the world's largest curtain of falling water. It is 1708m wide, with up to 500 million litres per minute of descending water, creating a plume of spray that rises 500m into the air and which can be seen 20km away. The site comprises several islands upstream of the Falls and eight spectacular gorges (World Heritage Committee, 2012).

► **Outstanding natural phenomenon supporting important species and ecosystems**

Criterion:(vii)

The downstream gorges serve as breeding habitat for the globally threatened Taita Falcon. Other breeding species of interest include black stork, Verreaux's eagle and African black swift. Along the river above the falls, white-backed night heron, African finfoot, African skimmer and rock pratincole breed (BirdLife International, 2020). The riverine 'rainforest' within the waterfall splash zone is a fragile ecosystem of discontinuous forest on sandy alluvium, dependent upon maintenance of abundant water and high humidity resulting from the spray plume (World Heritage Committee, 2012).

► **Ongoing geological process**

Criterion:(viii)

The falls represent a stage in a geological process that has been ongoing for some two million years, involving the Zambezi River cutting through east-west fissures in the basalt plateau, forming a series of retreating falls. The zig-zag series of gorges below the present falls testify to the location of seven previous waterfalls, and the Devil's Cataract (at the western end of the present falls) represents the start of the cutting back to an eighth location. The gorge system below the falls continues for some 110 km, with 16 km of this included within the World Heritage property (UNEP-WCMC, 2012; World Heritage Committee, 2012).

Other important biodiversity values

► **Diversity of megafauna**

Above the falls the Zambezi flows relatively slowly, creating a series of wide channels and islands, with woodlands along its banks inhabited by a diversity of typical African megafauna including elephant, hippopotamus, buffalo and several antelope species.

Assessment information

Threats

Current Threats

High Threat

The main current threats are related to the development of inappropriate tourism facilities and services in and around the property. These are progressively eroding the site's pristine natural wilderness qualities and creating noise and water pollution which may have adverse impacts on the site's values. Abstraction of water by a hydro-electric power station is a critical factor during low-flow months, diverting at least half the water from the falls for 3-4 months each year. A major rail and road corridor passes through the

middle of the property, crossing the gorge just below the falls. Significant further threats include the spread of invasive alien species, the impacts of fire on remnant forests, poaching, and local use of resources within the property.

► **Livestock Farming / Grazing**

(Cattle grazing and cultivation)

Data Deficient

Inside site, extent of threat not known
Outside site

Cattle grazing and crop cultivation have been reported to be well established within the property (UNEP-WCMC, 2012), but no further information is available.

► **Housing/ Urban Areas**

(Urban growth and development in adjoining areas)

High Threat

Outside site

The population and infrastructure of the towns of Victoria Falls (Zimbabwe) and Livingstone (Zambia), bordering the property, are expanding rapidly without adequate planning (States Parties of Zambia/Zimbabwe, 2012). The population of nearby Livingstone, Zambia, increased for example, 103,288 in 2000 to 139,509 in 2010 (Zambia Central Statistical Office, 2015). That States Parties have also reported that "the Victoria Falls Municipality is looking into developing its current stand measuring 7.86 ha located within the centre of the town into mixed use developments that will have a state of the art Civic Centre, Theme park, Conference Centre, Shopping mall and a 5 star hotel." (States Parties of Zambia/Zimbabwe, 2018, Section 4.4.1, p.12). The suitability of such developments, particularly a theme park immediately adjacent to the property is questionable. It is unclear whether these projects have undergone full and proper impact assessments, which fully consider the values of the site and their potential negative impact upon them.

► **Tourism/ visitors/ recreation**

(Tourism activities)

High Threat

Inside site, widespread(15-50%)
Outside site

The destination has a reputation for tourist 'adventure activities' with white-water rafting, bungee-jumping, abseiling and a gorge swing all in operation (UNEP-WCMC, 2012). More than a decade ago, around 40 river cruise boats were estimated to be operating from the Zimbabwean shore above the falls (UNESCO and IUCN, 2006), which can be assumed to have increased further today. There are also jet-boats, micro-light aircraft and many helicopters operating tourism flights overhead. In addition to associated infrastructure developments many of these activities cause direct disturbance to wildlife and sensitive habitats above and below the Falls, as well as creating excessive noise pollution (and other pollution concerns) and generally impinging on the aesthetic values of the property (UNESCO and IUCN, 2006). A study conducted in 2013/2014 found no signs of taita falcon at Batoka Gorge, where signs were previously common (Jenkins et al., 2019). Although the reasons for the decline are unknown, speculative explanations include excessive disturbance from adventure tourism and helicopter, as well as growth in rural human population (ibid.) and invasive species (AWHF, 2015).

► **Roads/ Railroads**

(Road, rail and infrastructure corridor)

Low Threat

Inside site, localised(<5%)
Outside site

The site is bisected by a road and rail transport corridor which crosses the gorge immediately below the Falls over the Victoria Falls Bridge (built 1904-5). Whilst the Bridge has become a tourist attraction in its own right, associated with this corridor is an unsightly collection of fences and buildings, including the Zambian customs and immigration services (UNEP-WCMC, 2012). Further infrastructure within the site includes the power station and its ancillary buildings on the north bank (built late 1930s, significantly expanded in 1960s and '70s).

► **Dams/ Water Management or Use**

(Reduced water flows over the falls due to abstraction for hydro-power generation)

High Threat

Inside site, extent of threat not known

A 60MW hydro-electric power station on the Zambian side of the falls requires 175 m³/s to operate at full capacity, representing a considerable proportion of the Zambezi's total flow during the drier months

(flow rates below 400m³/s are usual from early September to mid-December) (States Parties of Zambia/Zimbabwe, 2012). Ongoing monitoring of water flow of the Zambezi River upstream of the fall showed a decline over recent years, with climate change attributed as a causative factor (States Parties of Zambia/ Zimbabwe, 2016; 2018).

► **Tourism/ visitors/ recreation, Other Activities**

(Noise pollution)

High Threat

Inside site, throughout(>50%)
Outside site

Noise pollution from sightseeing helicopter tours and micro-light aircraft carrying visitors to view the Falls from above significantly impact across the whole site and the surrounding area, compromising the wilderness qualities of the site and its aesthetic value. Sunset party boats operating on the upper river also cause localised noise pollution and disturbance issues. As many as 40 river cruise boats operate from the Zimbabwean shore above the falls (UNESCO and IUCN, 2006) and nine helicopters were reported to be operating at the site in 2007 (UNESCO, 2010), with updated information not readily available. An increasing number of lodges upstream of the Falls reportedly now have helipads and operators offering increasing number of services including flying through sections of the gorge creation huge noise disturbances (IUCN Consultation, 2020).

► **Water Pollution, Household Sewage/ Urban Waste Water**

(Water Pollution)

Low Threat

Inside site, scattered(5-15%)
Outside site

Tourist and municipal wastes, including sewage, are polluting both land and water (UNEP-WCMC, 2012). The main sewage ponds for the municipality of Livingstone require rehabilitation and are leaking untreated sewage into the property (States Parties of Zambia/Zimbabwe, 2012). The power station complex within the property is reported to collect and dispose of all domestic and facility wastes (including oil) outside the property, but there is clearly a risk of leakages (States Parties of Zambia/Zimbabwe, 2012). Articles from 2010 report of the Victoria Falls municipality dumping raw sewage into the Zambezi River (Newsday, 2010). There must also be a risk of small-scale but regular pollution incidents from the many tourism operations and motor-launches operational on the river.

► **Hunting and trapping, Logging/ Wood Harvesting, Fishing / Harvesting Aquatic Resources**

(Illegal poaching, fishing and logging)

Data Deficient

Inside site, extent of threat not known
Outside site

Poaching has been reported as a threat in the past (States Parties of Zambia/Zimbabwe, 2012). There is a lack of detailed data on current poaching activities affecting large megafauna and other species in the site at present. It is possible that the closure of tourism and therefore loss of employment in 2020 due to the COVID-19 pandemic has led to increased poaching, but no data are available at present. Illegal fishing from the river reportedly occurs on both sides of the river above and below the Falls (IUCN Consultation, 2020). Illegal removal of trees for wood is notable across the whole site, driven by economic issues (and regular power outages) with residents collecting for firewood as well as for carving curios (idem).

► **Invasive Non-Native/ Alien Species**

(Spread of invasive species)

High Threat

Inside site, extent of threat not known

Lantana camara is spreading aggressively and has colonized the cliff faces in the Falls and gorges (States Parties of Zambia/Zimbabwe, 2012). In addition to the visual intrusion of this invasive species, Lantana camara has also been reported to be impacting on the nesting sites of taita falcon (AWHF, 2015). Water hyacinth is also present and may be obstructing water channels above the falls. The States Parties, with the support of local environmental charities and tourism operators, have been continuing efforts to control these species (States Parties of Zambia/Zimbabwe, 2016, 2018). For example, both the chemical and mechanical methods have been used to control the spread of Lantana camara, with more than 70%, out of the 5.24km² trans-boundary invaded area cleared to date (States Parties of Zambia/Zimbabwe, 2016; 2018).

► **Housing/ Urban Areas, Tourism/ Recreation Areas**

High Threat

(Tourism infrastructure development)

Inside site, scattered(5-15%)
Outside site

There are several hotels, restaurants, visitor centres, camps, boat moorings and other tourism facilities within the property (UNEP-WCMC, 2012), and a controversial new 160-room 5-star hotel and conference facility within the property was at an advanced stage of planning in 2006 (UNESCO and IUCN, 2006). A tethered balloon project was also under consideration at the same time. A short-term moratorium on such developments was imposed in 2007, but had been lifted by 2008 (UNESCO, 2008). In 2017 a proposal for a Ferris wheel on Eastern Cataract Island and a hotel in the development zone was communicated by Zambia. These were confirmed not to have materialized in the 2018 report, however, pressure from tourism is clearly on the increase. In 2020, media articles reported of land within the WH site being sold off to Chinese developer for the construction of a separate Ferris Wheel (The Mast, 2020). The Committee has urged the States Parties to abandon proposals from the outset, which are clearly incompatible with the conservation of the property's OUV and the approved Joint Integrated Management Plan 2016-2021, such as a cable car within the property or a tourism resort and a golf course within the buffer zone of the Mosi-oa-Tunya National Park (WH Committee, 2019). No official updates from the States Parties are available on the status of these developments, but any indication to proceed would be cause for great concern and would be contrary to the WH Committee's Decisions.

► **Droughts**

Data Deficient

(Periodic drought)

Inside site, extent of threat not known
Outside site

Severe drought in 2001/2 decimated the park's fauna (UNEP-WCMC, 2012). 2019/2020 also saw significantly lower than average dry season river flow levels linked to lower rainfall across the wider catchment.

Potential Threats

High Threat

Visitor numbers are likely to grow dramatically, creating enormous challenges to ensure proper regulation of infrastructure development and service provision. Any major use or abstraction of water from the upstream catchment area would clearly have an impact on the spectacle of the falls, particularly during the dry season. Irrigation schemes in Botswana, which would abstract an additional 495 million cubic meters of water per annum, representing 5-10% of dry season flow at the falls, could potentially have a negative impact on the property's OUV. A possible new dam in the Batoka Gorge would flood parts of the property below the falls, affecting rare cliff-nesting birds such as the Taita falcon.

► **Tourism/ visitors/ recreation**

High Threat

(Excessive tourist use)

Inside site, extent of threat not known
Outside site

Tourism infrastructures are already posing a threat at present, and there are concerns over the visitor carrying capacity (UNESCO and IUCN, 2006; UNESCO, 2007; States Parties of Zambia/Zimbabwe, 2012). According to third party sources, the south-bank rainforest (Zimbabwe) recorded a total of 279,786 international visitors and 77,766 national visitors in 2019. This compares with 263,381 and 75,091 respectively in 2018 (IUCN Consultation, 2020). In Zambia, the Victoria Falls received over 200,000 visitors in 2018 compared with 133,364 in 2017 (idem).

► **Dams/ Water Management or Use**

High Threat

(Batoka Gorge Hydroelectric Scheme)

Inside site, localised(<5%)
Outside site

A 181m-high dam proposed for the Batoka Gorge is located 54km downstream of the property and is reported will flood the gorges to within 650m of the property, flooding a significant section of the gorges, with the loss of habitat for cliff-nesting birds as well as significant altering the hydrology and sediment flow, affecting the natural aquatic species and systems (UNEP-WCMC, 2012; power-technology.com). The Committee has expressed its concern for the potential impacts of the project on the OUV of the property and requested the States Parties to submit an EIA to the World Heritage Centre

for review by IUCN before a final decision on the project is taken (WH Committee, 2019).

► **Dams/ Water Management or Use**

Data Deficient

(Upstream water abstraction and use)

Inside site, extent of threat not known

The Zambezi catchment covers a large part of western Zambia and south-west Angola, much of which may be suitable for irrigation, leading to water abstraction. As reported in the 2010 feasibility study, an irrigation scheme in Botswana, which would abstract an additional 495 million cubic meters of water per annum, representing 5-10% of dry season flow at the falls, could potentially have a negative impact on the property's OUV (UNESCO, 2014). However no further updated information is available. The State Party of Zambia has reduced water abstraction from the Zambezi River in recent years (States Parties of Zambia/Zimbabwe, 2016).

► **Fire/ Fire Suppression**

Low Threat

(Wildfire)

Inside site, extent of threat not known
Outside site

Fire had been previously reported to be damaging vulnerable forest habitats and preventing forest regeneration in some areas (UNEP-WCMC, 2012). Since the development and implementation of a fire management plan (prescribed burning and installation of fireguards) there have been reports of a reduction in wildfire incidences. The potential threat of wildfire on both sides of the river is higher in drought years.

Overall assessment of threats

High Threat

The aesthetic values of this great natural wonder are threatened by the need to provide infrastructure and services to increasing numbers of visitors. To date, tourism development has been effectively regulated and the most potentially damaging developments have been stopped at the planning stage. There is need for continued vigilance to ensure that the quality of the visitor experience is maintained by protecting the spectacular views, reducing noise and water pollution and avoiding overcrowding. Significant further threats include the spread of invasive alien species, the impacts of fire on remnant forests, poaching, and local use of resources within the property. The proposal for the Batoka Gorge Hydroelectric Scheme appears to be proceeding, which raises concerns for the potential impacts on the OUV of the property in terms of direct flooding and damages to the cliffs and hence bird habitat, but also any changes to sediment and water flow. Abstraction of water by a hydro-electric power station is a critical factor during low-flow months, diverting at least half the water from the falls for 3-4 months each year. Irrigation schemes in Botswana, which would abstract an additional 495 million cubic meters of water per annum, representing 5-10% of dry season flow at the falls, could potentially have a negative impact on the property's OUV.

Protection and management

Assessing Protection and Management

► **Management system**

Some Concern

The World Heritage site comprises parts of three adjoining national parks, with the remainder of these three parks serving as a buffer zone. A Joint Integrated Management Plan (JIMP) 2016-2021 is currently in place. It is important that the JIMP is used and implemented effectively, ensuring that any development proposals that are clearly incompatible with the JIMP are cancelled at the early outset.

► **Effectiveness of management system**

Mostly Effective

Management was reported to be severely constrained by budget and staffing inadequacies in the past. There was reported to be high staff turnover, prolonged staff vacancies and 'economic meltdown' in one

State Party (States Parties of Zambia/Zimbabwe, 2012). In recent years the States Parties have continued to implement the concrete and time-bound Action Plan, which improves monitoring and informs management activities and effectiveness in the property. The States Parties have also taken note of the Committee's request to use hydrological data to inform management.

► **Boundaries**

Serious Concern

The site is relatively long and narrow with a high boundary:area ratio. Incursions by poachers, cattle keepers and even cultivators are reported (States Parties of Zambia/Zimbabwe, 2012; UNEP-WCMC, 2012). The property is buffered by the surrounding national parks and protected areas enabling the persistence of a much more diverse large mammal fauna than could be sustained if the property were managed in isolation. The 2018 state of conservation report submitted by the States Parties included a boundary clarification, which proposed a boundary reduction, mainly by removing the northernmost part, reducing the property from 6,860ha to approx. 6,562ha. This notable reduction would have significantly weakened the integrity of the site by allowing further developments in the high ecologically sensitive zone (WH Committee, 2019). Subsequently, this proposal was put on hold by and maps of the site boundaries as originally inscribed are being finalised and upheld (IUCN Consultation, 2020).

► **Integration into regional and national planning systems**

Some Concern

Various initiatives have been undertaken to foster effective management integration at different administrative levels, but none of these has been fully implemented. A detailed Strategic Environmental Assessment (SEA) was carried out in 1996 to consider integrated development planning within a radius of 30km of the falls, recommending agency coordination within this zone through development of Combination Area Plans. This has not happened. A bilateral workshop was held to discuss issues and develop recommendations for effective management of the property in 2002, but the Committee was still urging implementation of its recommendations at its Session in 2007. A much larger area (including the World Heritage site) is covered by a KAZA Trans Frontier Conservation Area Agreement between the five countries which share common borders upstream of the falls, but the benefits of this cooperation are not yet clear (UNESCO and IUCN, 2006). In 2014 the States Parties reported that a new SEA was underway and scheduled for completion that same year. In 2017 the States Parties shared a funding proposal for an SEA (UNESCO, 2017). In 2020, the State Party received US\$ 19,000 from the AWHF to undertake the SEA (IUCN Consultation, 2020).

► **Relationships with local people**

Mostly Effective

Many of the economic benefits derived from the property accrue to local people employed in tourism-related services and activities outside the site. The States Parties of Zambia and Zimbabwe have employed the Public Private Partnership (PPP) principle to promote stakeholder participation for the effective management of the property. To attain the desired outcome, tourist infrastructures such as gift shops and restaurants within the property have been leased out to the public sector to provide tourists' goods and services to visiting tourists (IUCN Consultation, 2020). Management has also engaged the private sector to partner in funding conservation works and support management initiatives which also benefit their businesses. The deliberate inclusion of the private sector in the management of the property has fostered mutual trust and confidence between the private and the public in managing the property (IUCN Consultation, 2020).

► **Legal framework**

Some Concern

Mosi-Oa-Tunya/Victoria Falls has been protected as a National Monument by the States parties of Zambia and Zimbabwe using respective legal instruments since the 1930s. By 1937, the Victoria Falls National Park on the Southern Rhodesian side (now Zimbabwe) was established and administered by the Forestry Commission at this time; the falls were divided into the Southern Bank (Zimbabwean side) and the Northern Bank (Zambian side) (Zulu 2020:2). On the Zimbabwean side, protection of the site is provided under Zimbabwe's Parks and Wildlife Act, National Museums and Monuments Act, Environmental Management Act, Tourism Act and Forestry Act. In Zambia the National Heritage Conservation Act and the Wildlife Act, the Zambia Environmental Agency Act, Town and Country Planning Acts; Public Health Acts; the Forests Act; the Energy Regulation Acts are used in the management of the

property. Other legal documents developed by the two States Parties is the Joint Integrated Management Plan (2016-2022), the Joint Sustainable Tourism Plan (JSTP) 2017 and the Joint Sustainable Financing and Business Plan (JSFBP) 2019 being developed (IUCN Consultation, 2020).

► **Law enforcement**

Some Concern

In order to enforce the law in the site, the States Parties have been conducting joint site monitoring patrols to curb illegal activities. The States Parties have collectively utilised policy tools and legal instruments in order to uphold site values among which include the Joint Integrated Management Plan (2016-2022), the 1972 World Heritage Convention and its Operation Guidelines. The two States Parties have developed an effective law enforcement module by involving several stakeholders to monitor and enforcing law and order within and around the site. Challenges in enforcing laws and regulations in a number of areas including poaching and cattle herding inside the parks, and difficulties over enforcement of municipal pollution control have been noted in the past (IUCN Consultation, 2020).

► **Implementation of Committee decisions and recommendations**

Some Concern

Although implementation is often slow, key Committee decisions and recommendations have generally been addressed to some extent. In the past, the States Parties developed a Joint Integrated Management Plan and imposed a moratorium on tourism infrastructure following Committee Decision and mission recommendations. Invasive alien species continue to be a threat to the property but the States Parties have reported continued efforts to control their spread. The proposed construction of a Ferris Wheel on Eastern Cataract discussed by the Committee in 2017 was in its subsequent report in 2019 noted to not have proceeded. However, new proposals for a Ferris Wheel on the left and right banks have since been reported in the media, which indicates problems at the governance level. With the threat from tourism numbers, activities and infrastructures being a key threat to this property, much needs to be done to regulate this development and ensure long term sustainability.

► **Sustainable use**

Serious Concern

The main uses of the property are hydro-electric power generation and tourism. The critical issue is water abstraction by the power station during the dry season when river flow rates are low and the amount required is often more than half the total. An arbitrary decision to limit water abstraction for five hours daily during the dry season, aimed at allowing water to pass over the western cataract during peak visitor hours, has been taken (States Parties of Zambia/Zimbabwe, 2012). Regarding visitor carrying capacity, an attempt has been made to establish an upper limit (6,000 visitors/day, States Parties of Zambia/Zimbabwe, 2012), but this is based on questionable assumptions such as a one-hour duration for each visit.

► **Sustainable finance**

Serious Concern

There is no information on budget allocations, but they are clearly inadequate. Nevertheless, there would appear to be considerable scope for self-financing from park entry fees and other retained revenues if a proper pricing and revenue retention scheme were developed as part of a sustainable financing strategy. A draft sustainable financing strategy has been developed but a revised version that addresses some of IUCN's concerns has not yet been finalized.

► **Staff capacity, training, and development**

Data Deficient

Serious staffing problems have been reported in the past, including high staff turnover, political appointments, and prolonged staff vacancies (States Parties of Zambia/Zimbabwe, 2012). More recently, the States Parties have reported that extensive staff capacity training, public awareness and education activities have been undertaken (States Parties of Zambia/Zimbabwe, 2018). It is not clear whether this is now sufficient or further efforts are still required.

► **Education and interpretation programs**

Data Deficient

There are visitor interpretation centres on both sides of the property, but these were considered 'very basic and poor' by the 2006 mission (UNESCO and IUCN, 2006). The one on the Zambian side was

focused on early settlement in the area, rather than the values of the World Heritage site. Subsequently, both visitor centres have been upgraded, and the one on the Zimbabwe side now showcases the Outstanding Universal Values of the property (States Parties of Zambia/Zimbabwe, 2012). The States Parties have reported that extensive public awareness and education activities have been undertaken in recent years (States Parties of Zambia/Zimbabwe, 2018).

► **Tourism and visitation management**

Serious Concern

This is one of the most intensively visited sites in Africa, with past annual visitor totals varying between 351,646 (2007) and 218,926 (2009). The site is a major focus of each State Party's tourism development policy, and the primary economic driver for the adjacent towns and regions. A draft sustainable tourism strategy was developed in 2019 but it focussed on tourism development rather than on sustainable tourism. A revised version has not yet been submitted to UNESCO/IUCN.

► **Monitoring**

Some Concern

The States Parties have produced a concrete and time-bound Action Plan for joint activities for the 2019-2020 period, which improves monitoring and informs management activities (UNESCO, 2019). Monitoring of water flow of the Zambezi River upstream of the fall is also continuing. The States Party of Zambia has additionally strengthened automated monitoring of the water level towards further reducing water abstraction from the property (UNESCO, 2017).

► **Research**

Data Deficient

No formal research programme is known. A few specific research needs are identified in the list of 'benchmarks and indicators' developed by the State Parties (States Parties of Zambia/Zimbabwe, 2012), including research on noise pollution from aircraft, and eradication of the invasive weed, *Lantana camara*.

Overall assessment of protection and management

Some Concern

Protection and management programmes have been constrained by budget and staffing limitations in the past, but much effort appears to have been invested in strengthening staff training in recent times. Tourism revenues do not appear to be retained and re-invested at the site. Improvement to management has been reported since the development of a Joint Integrated Management Plan, but there is much scope for further improvements. There appears to be limited influence by site management authorities over threats from outside of the property, in particular from the growing threats of tourism infrastructures and urban development close to the boundaries, and past reporting of leakage of municipal sewage into the property. Some positive progress has been seen in the past years in initiating the development of key documents such as a sustainable tourism strategy, and a sustainable financing strategy, however, these require greater refinement and emphasis on the sustainability before they are finalized and implemented.

► **Assessment of the effectiveness of protection and management in addressing threats outside the site**

Some Concern

There appears to be limited influence by site management authorities over threats from outside the site which include leakage of municipal sewage into the property, unplanned urban and tourism development close to the boundaries and use of the road and railway corridor through the property.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► Largest curtain of falling water

Low Concern
Trend:Stable

The falls and their immediate environment remain essentially intact, but there are concerns over reduced flows over the falls at critical times of the year due to continued abstraction of water for hydro-electric power generation, though efforts have been increased in recent years to reduce abstraction.

► Outstanding natural phenomenon supporting important species and ecosystems

Low Concern
Trend:Deteriorating

There are increasing concerns over loss of wilderness and aesthetic values due to inappropriate tourism developments. These include construction of hotels and lodges on the riverbanks; spoiling the visual integrity of the property with tall structures nearby; noise pollution, especially from light aircraft, and motor boats; and expanding urban settlements adjoining the property (UNESCO/IUCN, 2006; UNESCO, 2017, 2019).

► Ongoing geological process

Good
Trend:Stable

The erosive forces of the river and ongoing geological processes have not been significantly altered and are considered essentially intact.

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Low Concern
Trend: Deteriorating

The aesthetic values of this spectacular natural wonder are being maintained for now despite increasing tourism development pressures. However, this may change rapidly if development is not closely monitored and strictly regulated. There has been some recent deterioration in aesthetic values due to infrastructure developments in and around the property, and increasing pressure and disturbance from tourism activities - especially noise pollution from helicopters. On the other hand, there has been an improvement in dry-season water flows over the falls as a result of States Parties' efforts and water companies. The ongoing geological processes have not been significantly altered and are considered essentially intact.

► Assessment of the current state and trend of other important biodiversity values

High Concern
Trend: Deteriorating

Threats to the conservation of wildlife continue to increase, including disturbance from tourism activities (especially on the river above and below the Falls), tourism and urban development around the site, river water quality, invasive species and illegal poaching. The proposed Batoka Gorge Hydroelectric Scheme poses a significant threat to the characteristic fauna and flora of the gorges below the Falls. There are concerns over the impact of tourism activities, with a lack of research, monitoring and reporting on key conservation species.

Additional information

Benefits

Understanding Benefits

► Sacred natural sites or landscapes

The Mosi-Oa-Tunya/Victoria Falls is considered a place to spiritual encounter and access the

supernatural. The waterfall is a sacred place, the abode of the river god known as leza and a holy place used for ancestral worship (Zulu 2008:47).

Summary of benefits

Indigenous communities have a close cultural and spiritual tie with the Mosi-oa-Tunya. At different times of the year, local people perform rituals at three shrines for respective purposes in the quest for abundant rainfall, cleansing, good harvest, purity and fertility (McGregor 2003:719, Zulu 2008:59). The World Heritage site has received visitors from different parts of the World to uphold their respective beliefs and practices.

Projects

Compilation of active conservation projects

No	Organization	Brief description of Active Projects	Website
1	Angola, Botswana, Namibia, Zambia, Zimbabwe	KAZA Trans Frontier Conservancy Area	

REFERENCES

No References

- 1 AWHF (2015). World Heritage Sites and Sustainable Tourism. Situational Analysis: Victoria Falls World Heritage Site, Report 2. African World Heritage Fund. [online] <<https://awhf.net/wp-content/uploads/2015/11/Tourism-Report-...>>; Accessed 22 September 2020.
- 2 BirdLife International (2017). Important Bird Areas factsheet: Batoka Gorge. Downloaded from <http://www.birdlife.org>.
- 3 BirdLife International (2020). Important Bird Areas factsheet: Mosi-Oa-Tunya National Park and Batoka Gorge. Downloaded from <http://www.birdlife.org> on 21/09/202.
- 4 IUCN Consultation. (2020). IUCN Confidential consultation, Mosi-oa-Tunya / Victoria Falls, Zambia and Zimbabwe.
- 5 Jenkins AR, van Zyl AJ, Magunje I, Matsvimbo F, Rodrigues L, Robinson L, Sebele L, Tiran D, and Smit-Robinson H. (2019). Status of the Taita Falcon (*Falco fasciinucha*) and Other Cliff-Nesting Raptors in Batoka Gorge, Zimbabwe. *Journal of Raptor Research* 53(1), 46-55. <<https://doi.org/10.3356/JRR-18-36>>; Accessed 22 September 2020.
- 6 Newsday (2010). Vic Falls municipality dumps raw sewage into Zambezi. 12 November 2010. [online] <<https://www.newsday.co.zw/2010/11/2010-11-12-vic-falls-muni...>>; Accessed 22 September 2020.
- 7 Power-Technology. Batoka Gorge Hydropower Station. <https://www.power-technology.com/projects/batoka-gorge-hydr...>
- 8 States Parties of Zambia/Zimbabwe (2012). Report of the States Parties to the World Heritage Committee on the state of conservation of Mosi-oa-Tunya / Victoria Falls.
- 9 States Parties of Zambia/Zimbabwe (2014). Report of the States Parties to the World Heritage Committee on the state of conservation of Mosi-oa-Tunya / Victoria Falls. [online] Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
- 10 States Parties of Zambia/Zimbabwe (2016). Report of the States Parties to the World Heritage Committee on the state of conservation of Mosi-oa-Tunya / Victoria Falls.
- 11 States Parties of Zambia/Zimbabwe (2016). Report of the States Parties to the World Heritage Committee on the state of conservation of Mosi-oa-Tunya / Victoria Falls. [online] Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
- 12 States Parties of Zambia/Zimbabwe (2018). Report of the States Parties to the World Heritage Committee on the state of conservation of Mosi-oa-Tunya / Victoria Falls.
- 13 The Mast (2020). Zesco sells Vic Falls land to Ju Wenbin. By Edwin Mbulo, 17 June 2020. [online] <<https://www.themastonline.com/2020/06/17/zesco-sells-vic-fa...>>; Accessed 22 September 2020.
- 14 UNEP-WCMC (2012). Mosi-oa-Tunya / Victoria Falls, Zambia and Zimbabwe. UNEP-WCMC World Heritage Information Sheets. [online] Cambridge, UK: UNEP-WCMC. Available at: <https://yichuans.github.io/datasheet/output/site/mosi-oa-tu...> [Accessed 30 November 2020].
- 15 UNESCO (2007) Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/967> [Accessed 30 November 2020].
- 16 UNESCO (2008). Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/808> [Accessed 30 November 2020].

No **References**

- 17 UNESCO (2010). Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/481> [Accessed 30 November 2020].
-
- 18 UNESCO (2012). Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/137> [Accessed 30 November 2020].
-
- 19 UNESCO (2014). Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/2899> [Accessed 30 November 2020].
-
- 20 UNESCO (2017). Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/3562> [Accessed 30 November 2020].
-
- 21 UNESCO (2017). Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
-
- 22 UNESCO (2019). Report on the State of Conservation of Mosi-oa-Tunya / Victoria Falls. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
-
- 23 UNESCO and IUCN (2006) Reactive Monitoring mission report Mosi-oa-Tunya / Victoria Falls (Zambia, Zimbabwe). [online] Paris, France and Gland, Switzerland: UNESCO World Heritage Centre and IUCN. Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
-
- 24 World Heritage Committee (2012). Decision 36 COM 8E Mosi-oa-Tunya / Victoria Falls (Zambia, Zimbabwe) Adoption of retrospective Statements of Outstanding Universal Value. In: Report of decisions of the 36th session of the World Heritage Committee. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
-
- 25 World Heritage Committee (2017). Decision 41 COM 7B.22 Mosi-oa-Tunya / Victoria Falls (Zambia, Zimbabwe). In: Report of decisions of the 41st session of the World Heritage Committee. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
-
- 26 World Heritage Committee (2019). Decision 43 COM 7B.34 Mosi-oa-Tunya / Victoria Falls (Zambia, Zimbabwe). In: Report of decisions of the 36th session of the World Heritage Committee. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/list/509/documents/> [Accessed 30 November 2020].
-
- 27 Zulu, J. (2008). Challenges of conserving the invisible dimension of Cultural heritage: Case study of the Toka Leya people of Chief Mukuni of the Victoria Falls. University of the Witwatersrand, Braamfontein, Johannesburg. Unpublished
-
- 28 Zulu, J. (2020). Decolonize the Mosi-Oa-Tunya/Victoria Falls World Heritage Property: Engaging the unspoken truths. in press.