

# Exploring cultural values of African wetlands for sustainable conservation: Okavango Delta World Heritage Site, Botswana

Cultural values  
of African  
wetlands

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Susan Osireditse Keitumetse, Katlego Pleasure Mwale,  
Gakemotho Satau, Kgosietsile Velempini,  
Vasco Ompabaletse Baitsiseng,  
Onalethuso Petruss Buyile Mambo Ntema, Jobe Manga and  
Stephen Thapelo Mogotsi  
(Information about the authors can be found at the end of this article.)

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## Abstract

**Purpose** – This study applied the Heritage Place Lab (HPL) research-practice teams methodology to identify missing cultural values and/or oversubscribed natural values and assess impacts on sustainable conservation of the Okavango Delta World Heritage Site. The authors found that cultural elements are often overlooked owing to limited inputs from trans-disciplinary and cross-stakeholder perspectives to conservation. This may explain why the majority of African sites on the List of World Heritage in Danger are of “natural” designations, as an absence of cultural values is linked to the exclusion of people and, therefore, gives rise to conflicts of access and use.

**Design/methodology/approach** – World Heritage Site statistics, published and non-published documents/literature, site maps, site registers, consultancy reports and archival materials were used to assess whether existing as well as potential natural and cultural site values were considered for the contemporary management of the Okavango Delta site in a way that leads to a sustainable conservation approach. The composition of the research-practice team as suggested by the HPL methodology constituted a ready-made diverse team of academics, policy makers and community members that could apply its diverse expertise to fully assess whether all values necessary for a sustainable conservation approach are accounted for.

**Findings** – Using expertise of trans-disciplinary team populated during the HPL, the authors found that cultural values of the OD-WHS are not highlighted in the OUVs dossier but are significantly expressed on site by locals, leading to potential conflicts of conservation. The research alerts conservationists to embrace an approach that includes all values on the site in order move towards sustainable conservation.

**Research limitations/implications** – More research that require funding is needed to cover a wider area of the site, as well as enable work in adjoining countries to compare experiences per country - The Okavango waterbody starts in Angola and go through Namibia, and finally to Botswana.

**Practical implications** – Conservation indicators of African nature world heritage sites constitute of, and border on, diverse stakeholders. An all-encompassing approach such as the Heritage Place Lab (HPL) methodology approach always needs to be factored in.

**Social implications** – Including cultural aspects of world heritage sites designated as ‘natural’ is important to allow for socio-cultural inclusion in conservation management. This allows for local communities to become visible and active participants in the management of the site as they contribute their socio-cultural qualities to landscape conservation and management, a process that has potential to enhance sustainable conservation of the Okavango Delta site landscape, as well as other wetlands across the world.

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**Originality/value** – The adopted approach to values assessment has somehow not conformed to the OUVs emphasis or other dichotomies of the World Heritage criteria but instead assessed on-the-ground management practice against key sustainable conservation indicators. Using the ICCROM HPL trans-disciplinary research-practice team approach, the focus was on a holistic values assessment of the site. The authors found that cultural values are currently under recognised, under-acknowledged and less expressed; creating potential conflicts that may hinder achievement of sustainable conservation and management of the site towards 2030 SDG agenda.

**Keywords** Okavango Delta, World heritage, Cultural values, Local values, Outstanding universal value, SDGs, Heritage Place Lab (HPL), ICCROM-IUCN

**Paper type** Research paper

## Introduction

Africa hosts a variety of globally important wetlands. One such wetland is the Okavango Delta in northern Botswana (Figures 1 and 2), which is one of the world's few inland deltas, with its waters terminating in the desert rather than the ocean. The Okavango Delta is listed by UNESCO as a "natural" World Heritage Site. As a wetland, this site represents a highly significant biophysical environment consisting of permanent marshlands and seasonally flooded plains that attract an abundance of wildlife. The delta also supports the living heritage of its contemporary human occupants and their agricultural practices, with archaeological remains, a diversity of land-use patterns and a long history of human-environment interactions.

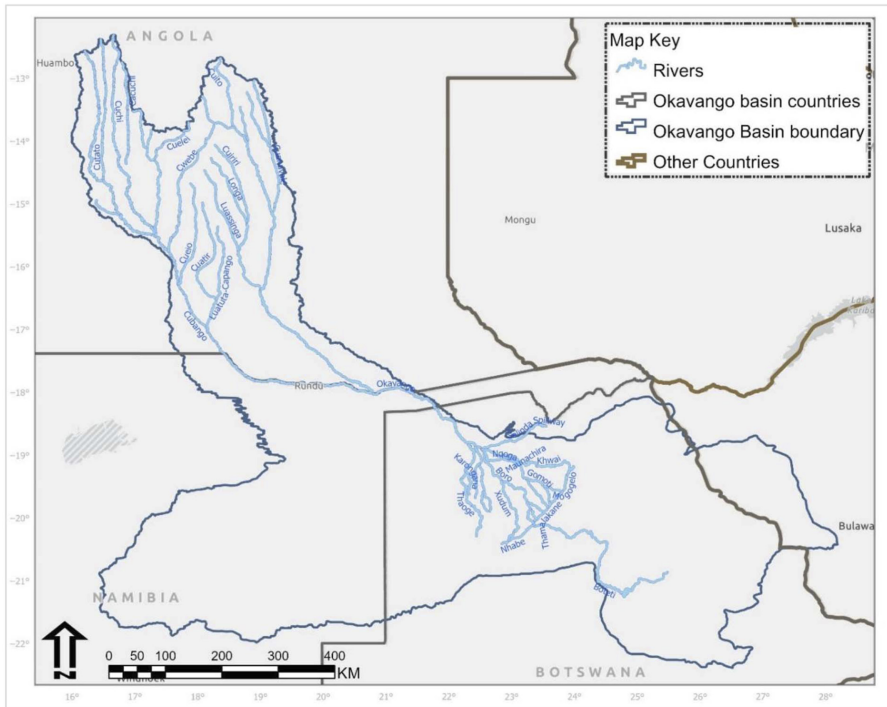
In international law, the 1971 Ramsar Convention on Wetlands aims to protect, preserve and promote wetlands across the world, and other conventions further support the protection of wetlands at an international level, including the 1972 UNESCO World Heritage Convention. While wetlands are valued for their natural beauty and biophysical attributes, less effort has been placed on acknowledging, identifying, researching and documenting their cultural attributes. Indeed, the cultural values of wetlands are gradually gaining interest owing to the implementation of sustainable development goals that demand a more holistic approach to resource conservation. Within this context, this paper examines cultural heritage values in the Okavango Delta landscape by exploring how the existing heritage policies and heritage listing framework could begin to consider the diverse heritage values at this site.

### *The Okavango Delta World Heritage Site: national and international conservation*

The Okavango Delta in northwest Botswana was listed as the 1000th World Heritage Site in June 2014 (Figure 2). Previously, the site was designated in 1996 under the 1971 Ramsar Convention on Wetlands and represents one of the largest wetlands of international importance in the world (Ramsar, 1971). The inscribed World Heritage property encompasses an area of 20,235.9 km<sup>2</sup> with a buffer zone of 22,866.3 km<sup>2</sup>. Protecting the landscape with multiple conventions potentially enhances conservation efforts and strengthens international custodianship. In Africa, only a few countries have wetlands with both Ramsar and UNESCO designations, including the Okavango Delta. Other sites of this nature can be found in France (Baie du Mont-Saint-Michel); Canada (Wood Buffalo National Park); Mauritania (Banc d'Arguin National Park); Mexico (Sian Ka'an) and Japan (Itsukushima Shinto Shrine) (McInnes *et al.*, 2017).

In addition to its biophysical value, the Okavango Delta landscape supports diverse human cultural and recreational activities. The inland delta is also an important source of water for human livelihoods and wildlife. Notably, under the 2003 UNESCO Convention on Safeguarding of the Intangible Cultural Heritage, these values could be incorporated into the future management of the site. The site itself is managed under a combination of national and international legislation as well as other on-site approaches aimed at ensuring the day-to-day functions of the delta.

The source of the Okavango Delta waters can be traced to the highlands of Angola, through Namibia and into Botswana (Figure 1). Thus, the transboundary nature of the delta is reflected



**Source(s):** Republic of Botswana, Ministry of Environment, Natural Resources Conservation and Tourism, Okavango Delta Management Plan (2021)

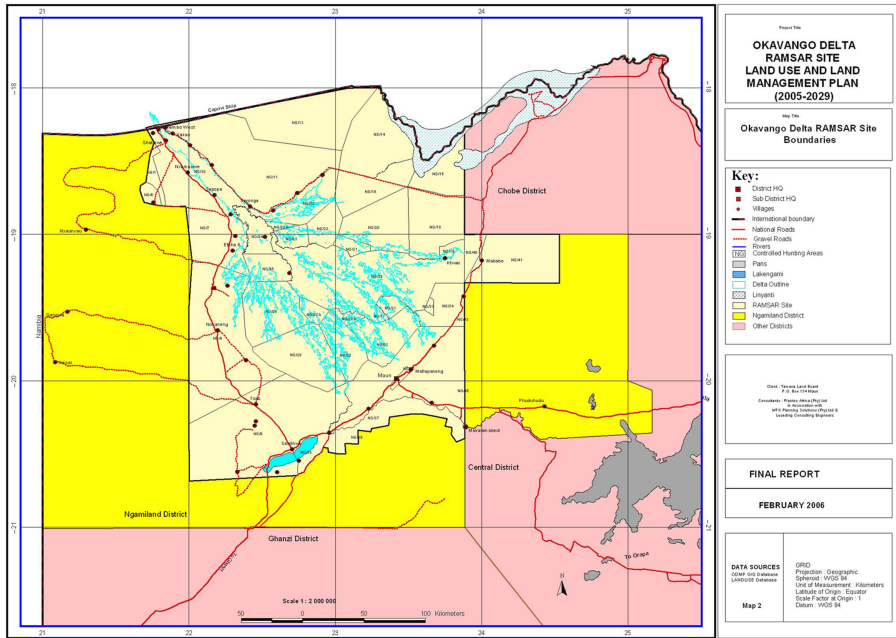
**Figure 1.**  
Map showing the  
location of the  
Okavango Delta within  
a transboundary  
context of the entire  
Okavango River basin  
starting from Angola  
through Namibia and  
into Botswana

in its management and governance structures, such as the Permanent Okavango River Basin Water Commission Agreement - OKACOM (<https://www.okacom.org/>), which was established in 1994 between Angola, Botswana and Namibia and commits the member states to promote coordinated and environmentally sustainable regional water resources management within the Cubango-Okavango River Basin, which spans these three countries. At an international level, this agreement is underscored by the delta's Ramsar and World Heritage Site status, emphasising the need for integrating the conservation and sustainable use of the wetland.

#### *World heritage attributes and Outstanding Universal Value of the property*

The Okavango Delta is inscribed under criteria (vii), (ix) and (x), which focus on its unique natural beauty as an inland delta landscape and a habitat for endangered species, as follows (Republic of Botswana, 2021):

- (1) *Criterion (vii)* - The Okavango Delta system thrives through an annual flood-pulse that revitalises the ecosystems during Botswana's dry winter season (June/July), providing a spectacle of life and wildlife displays in a desert environment. The site is a unique wetland landscape, a "rare beauty" that sustains an ecosystem of remarkable habitat and species diversity.
- (2) *Criterion (ix)* - The significant biophysical features of the site include, amongst others, geomorphic features such as islands, channels, river banks, flood plains, oxbow lakes and lagoons that sustain the interdependent geomorphological, hydrological and biological processes that give rise to various habitats including grasslands and woodlands.



Source(s): Republic of Botswana, Tawana Land Board (2006)

Figure 2. Map showing land use and land management around the Okavango Delta Ramsar site boundaries

*Criterion (x)* - The importance of the site is found in its large mammal population, a diverse variety of plant species, some threatened bird species, and rich natural habitats arising from permanent and seasonal rivers and lagoons, permanent swamps, seasonal and occasionally flooded grasslands, riparian forest and dry deciduous woodlands. Notably, the Okavango elephant population is much higher than in other areas in the region, often leading to human-wildlife conflict in association with arable farming.

*People and environment in the Okavango Delta*

In addition to its biophysical aspects, the delta hosts various ethnic groups, the majority of which now live in the delta's "Gateway Villages" (Keitumetse and Pampiri, 2016). Ethnic groups found in the Ngamiland District include the Hambukushu, Baherero, Basarwa (Hunter-Gatherers), Batawana, Wayei, Bakgalagadi, Basubiya and BaGciriku peoples (Statistics Botswana, 2015; Tawana Land Board, 2006; Ramsar, 2021). These groups traversed the landscape in historical and archaeological times, contributing to a variety of cultural heritage attributes that are yet to be fully identified, interpreted and expressed. Notably, the Okavango Delta region hosts the San people or Bushmen, who are one of Southern Africa's Khoe-speaking Indigenous hunter-gatherer and artisanal fishing cultures whose territories span Botswana, Namibia, Zimbabwe, Zambia, Lesotho, Angola and South Africa (Hitchcock, 2019).

The Okavango Delta World Heritage Site is situated on Tribal Land administered by a local body, Tawana Land Board (TLB), under the national 1968 Tribal Land Act (revised in 2018). This means that the land has communal origin and, in principle, management is undertaken in partnership with traditional authorities, with the traditional community allocation of land acknowledged and respected. This provides an opportunity for

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acknowledging and integrating traditional communal expressions of heritage in the on-going conservation and management of the World Heritage Site.

*Main management issues and challenges*

The Okavango Delta World Heritage Site nomination file identifies various factors affecting the property (Republic of Botswana, 2013) as well as how they have been previously addressed, either partially or fully. Most of the factors identified are threats and negative impacts on biophysical resources caused by humans. The research team built on the strength of its diversity (academics, community members and policy makers), which was required and encouraged by the HPL approach of building teams between policy makers and researcher, to add to the list of other management issues that require attention in order to ensure the sustainable management of the site. Building onto this expert diversity and approach, the research team identified a gap in how humans are affected by the conservation and management strategies, which warrants further consideration. Indeed, the poor recognition of values related to human-nature interactions is related in part to the designation of the Okavango Delta on the basis of natural criteria only (pointing to a narrow expert base), whereas the delta's biophysical, human and socio-economic features provide the potential to nurture the diverse human cultural identities of the people that live within the site. For example, Barnard *et al.* (1992) indicated that the northern boundary of the site is occupied by Khoe-speaking traditional hunter-gatherers, and this area is an ancient site of human occupation with several centuries of contact between hunter-gatherer-fishing San aboriginal peoples and later inward-migrating agro-pastoral-fishing Bantu-speaking peoples from the North. Approaches that seek to safeguard intangible cultural heritage through the World Heritage management system and the approaches and methods established for the 2003 UNESCO Convention, should help enhance the recognition of diverse values to achieve a more holistic and sustainable management and conservation. Key management challenges are briefly discussed below.

(1) Poaching

The 2007 Community Based Natural Resources Management (CBNRM) legislation aims to guide the delta's multiple Community Based Organisations (CBOs) to use natural resources in a sustainable manner. Local communities around the site have regulated access to, and use of, the World Heritage Site landscape. CBNRM policy also acts as an instrument to engage local communities in the management of the site, although poaching remains a problem. In Botswana, due to the presence of threatened wildlife and plant species of international importance, the government signed up to the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This serves as a global agreement among governments to regulate the international trade of species that are targeted for their tusks and horns, such as elephants and rhinos, which are sold on the international market. Certain species of birds and plants are also covered under the CITES convention.

The 1968 Forest Conservation Act is also a significant piece of legislation that guides the management and utilisation of forests and wood resources in areas such as the Okavango Delta. The Act regulates local community access to resources such as firewood and thatching grass, and a limited number of permits are issued each year on a first come, first served basis. The Department of Forest and Range Resources (DFRR) within Botswana's Ministry of Environment is responsible for implementing this legislation. In addition, the 1992 Wildlife Conservation and National Parks Act protects National Parks, Game Reserves, Sanctuaries, Private Reserves, and Wildlife Management Areas in the country. This Act provides some guidance on wildlife crimes in the delta region, and issues hunting licenses that are commonly sought by local communities for subsistence hunting as well as private businesses for

tourism hunting. Finally, based on seasonal permits, the 1975 Fisheries Protection Act was formulated to regulate, control, protect and improve fish species in the delta that are commonly targeted by local populations and tourism businesses.

(2) Land and resource conflicts

The management of the Okavango Delta World Heritage Site involves multiple stakeholders that compete for access to the land resources. For example, the 2008 Okavango Delta Management Plan (ODMP) stated that “the overlap of commercial fishing and angling/recreational activities on the same fishing grounds have often resulted in conflicts” (Republic of Botswana, 2021, p. 106). To help address this, the government of Botswana joined forces with neighbouring countries, under regional agreements, where potential transboundary resource conflicts can be discussed and addressed in advance. This includes OKACOM, which was established in 1994 to guide Member States (Angola, Botswana and Namibia) on common matters relating to the conservation, development and utilisation of the Cubango system’s water resources. Specifically, the Commission determines the long-term safe yield of water available from all potential water resources in the Okavango Basin; the reasonable levels of demand for water from consumers in the basin; and develops criteria for the conservation, equitable allocation and sustainable utilisation of water resources in the Okavango River Basin.

(3) Invasive species

Mfundisi *et al.* (2008) identified giant salvinia (*Salvinia molesta*) as a major problem in the Okavango Delta, which forms “monotypic covers” and, therefore, negatively affects macroinvertebrate diversity. Botswana is a signatory of the 1992 Convention on Biological Diversity (popularly known as the CBD convention), whose three main goals are to regulate the conservation of biological diversity; ensure the sustainable use of biodiversity components; and manage the fair and equitable sharing of the benefits from the use of genetic resources from the various biodiversity components (<https://www.cbd.int/>). Assistance with the management of invasive species such as *s.molesta* can be requested from the CBD funding initiatives.

## Methods

Under the HPL initiative, the general objective of this research was to reveal aspects of cultural heritage associated with the Okavango Delta World Heritage Site to achieve a more holistic and sustainable approach to conservation. The specific research questions addressed included, but were not limited to, the following:

- (1) What are the community cultural values associated with the Okavango Delta World Heritage Site?
- (2) Which cultural attributes can be unearthed within the site?
- (3) Which conservation issues impact the sustainable management of the Okavango Delta World Heritage Site?
- (4) What are the existing conflicts within the Okavango Delta World Heritage Site, and what measures might help address these?

The objective of the HPL methodology is to interlink heritage and practice in the conservation of World Heritage Sites. The Okavango Delta research-practice team included community members who live within or in close proximity to the World Heritage Site; research and teaching scholars; site managers; and an institutional director. This mix of people enabled the interaction and sharing of knowledge and experience between a diversity of stakeholders.

The two institutions involved in the project have collaborated for several years before the HPL exercise on various projects relating to the Okavango Delta, including the formulation of the dossier for its World Heritage nomination prior to the World Heritage listing in 2014 (Republic of Botswana, 2013). In addition, even after the World Heritage listing, some of the members of the research-practice team were involved in reviewing the site's 2017 Management plan. Thus, the research-practice team drew on this existing and on-going collaboration, partnership and experience of managing the OD-WHS.

The HPL methodology, whereby researchers and practitioners work together on a single World Heritage Site, enabled the development of a focussed research agenda that targets the conservation and management needs of the Okavango Delta. The HPL approach recognises that institutional-based research may not necessarily encompass policy and society knowledge needs. Equally, government and policy led practice on site rarely encompasses broader research needs. Thus, the HPL provided the framework under which these two aspects could be integrated, helping to identify not only common conservation issues and research needs but also providing opportunities to learn and adopt a diverse set of methodologies through trans-disciplinary collaboration.

The research-practice team for the Okavango Delta World Heritage Site focussed on the following research areas:

- (1) Methods for the identification of cultural values of the wetlands: this involved a desk-based literature review of work conducted on cultural heritage in the area to assess the depth of existing knowledge as well the gaps that could be addressed through the HPL exercise. Cultural heritage expressions in the Okavango Delta site are poorly recognised, despite the 1972 World Heritage Site nomination dossier (Republic of Botswana, 2013) acknowledging the existence of some cultural groups within the area.
- (2) Methods for research on poaching: this included statistical assessments of animal mortality as well as the identification of challenges relating to the cross-border conservation of key species (United Nations, 1992). In particular, CITES provides useful records that formed the basis of such assessments, although research on addressing human-wildlife existence dynamics remains lacking. Notably, this research has the potential to inform policy relating to poaching, requiring social science methods to assess human behaviours and expectations regarding the existence of wildlife alongside human occupation and land use (Cf. Velepini, 2021, Figure 2).
- (3) Approaches for managing *S. molesta*: this involved reviewing existing work on this invasive species in the Okavango Delta (e.g. Mfundisi, 2008) with a focus on assessment of water quality and a desire to create an environment that maximises the biodiversity value of the delta. In addition to the water quality assessment methods, identification of indigenous or people-based approaches to combating invasive species in general will add to the socio-cultural management approaches of the OD-WHS, by so doing diversifying and increasing stakeholders' participation.
- (4) Methods for research involving stakeholder networking: this involved exploring suitable methodologies for collaborative working between various actors, including the institutional (Mogomotsi *et al.*, 2020) and socio-cultural (Keitumetse, 2009) approaches needed to accrue diverse knowledge that enables a holistic approach to conservation of the Okavango Delta World Heritage Site. Ultimately, such an approach should underpin the sustainable management of this important landscape.

Based on these four main research areas, the research-practice team focussed on opportunities for identifying, acknowledging and incorporating cultural values in

a holistic approach to the conservation of the Okavango Delta landscape. As well as supporting biophysical conservation, this vision was intended to support sustainable development goals within the World Heritage Site more broadly. As an initial step towards achieving this, the following activities were undertaken:

- (1) The management focus, approach and resourcing of the World Heritage Site at local, national and international levels were evaluated to illustrate the “missing” cultural values within the site. This included the interrogation of data and information relating to the Okavango Delta Ramsar designation (e.g. Tawana Land Board maps) and UNESCO World Heritage List inscription (e.g. the Outstanding Universal Value details).
- (2) Relevant conservation and management plans and policies were reviewed to identify those policies relating to the cultural values of the Okavango Delta World Heritage Site, e.g. 1992 Convention on Biological Diversity.
- (3) Additional international instruments that might assist in the incorporation of cultural aspects of the site were identified, including the 2003 UNESCO Convention on the Safeguarding of the Intangible Cultural Heritage.
- (4) A literature review of existing research on the Okavango Delta World Heritage Site was undertaken alongside an assessment and analysis of archival records from relevant institutions, such as the Botswana National Museum’s site records register.

The diverse knowledge of the research-practice team also fed into these activities.

## Results

The Okavango Delta World Heritage site is listed as a natural site under the 1972 UNESCO World Heritage Convention; however, the site is also valued for its cultural attributes by the communities living within or in close proximity to it. There is also archaeological evidence pointing to the existence of important cultural attributes. These attributes should be incorporated into the conservation and management of the Okavango Delta World Heritage Site as significant and active components. For example, the architectural heritage of villages in the Okavango Delta (Mwale and Lintonbon, 2020) provides opportunities to express the site through native narratives. Furthermore, as guided by the definitions in the 2003 UNESCO Convention on the Safeguarding of the Intangible Cultural Heritage, important aspects of intangible cultural heritage are present. Our research agenda emphasised the currently limited expression of the cultural values of Okavango Delta World Heritage Site, which encompass archaeological heritage, community cultural values and folklore and folklife as well as Indigenous knowledge associated with the natural aspects of the site. These cultural features, which are not currently adequately acknowledged, are summarised below:

### *Archaeological sites*

The cultural heritage of wetlands in Botswana is best expressed in the Okavango Delta, where riverine peoples’ migrations demonstrate the historical linkages between the peoples of present-day Botswana, Zambia, Namibia and Zimbabwe as well as other neighbouring countries. Known archaeological sites are listed in [Table 1](#) based on site records from the Botswana National Museum.

### *Intangible cultural heritage of the Okavango delta world heritage site*

The Okavango Delta landscape is a source of cultural identity for local communities and has been inhabited for centuries by various Indigenous peoples who lived a hunter-gatherer

existence by adapting their cultural identity and lifestyle for the exploitation of particular resources (e.g., fishing and/or hunting). Most of these communities vacated the site to the periphery regions (Maun village and the surrounding areas) to pave the way for the establishment of protected nature reserves, such as the Moremi Game Reserve, which is now protected under the 1992 Wildlife and National Parks Act. However, the cultural values of the Okavango Delta World Heritage Site remain poorly documented in heritage designations and tourist activities in comparison to its natural aspects (Keitumetse, 2016). Therefore, research on the cultural values of people living in settlements of the Okavango Delta World Heritage Site (Figure 3) and how these cultural values have been shaped and remains relevant to protecting the natural values remains an on-going task to ensure a balanced expression of the site, but also shed light into traditional ways of managing natural resources that could lead to solutions that address issues of poaching and invasive species as already identified.

In particular, domains of intangible cultural heritage that require significant identification and documentation are (UNESCO, 2003):

- (1) Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
- (2) Performing arts;
- (3) Social practices, rituals and festive events;
- (4) Knowledge and practices concerning nature and the universe; and,
- (5) Traditional craftsmanship.

Geographically, Figure 3 shows the main settlements surrounding the Okavango Delta World Heritage Site, which have the greatest potential to yield currently unrecognised cultural values and intangible cultural heritage domains (UNESCO, 2003).

Furthermore, the cultural values of the site's different Protected Area ecological zones (Figure 4) offer an opportunity to diversify as well as enhance the interpretation of the site.

#### *Land tenure, landscape planning and heritage planning*

Physical planning of landscapes such as the Okavango Delta has the potential to illuminate cultural land tenure systems and incorporate their relevance in activities taking place in World Heritage Sites. Figure 5 shows such features within the Okavango Delta Ramsar site.

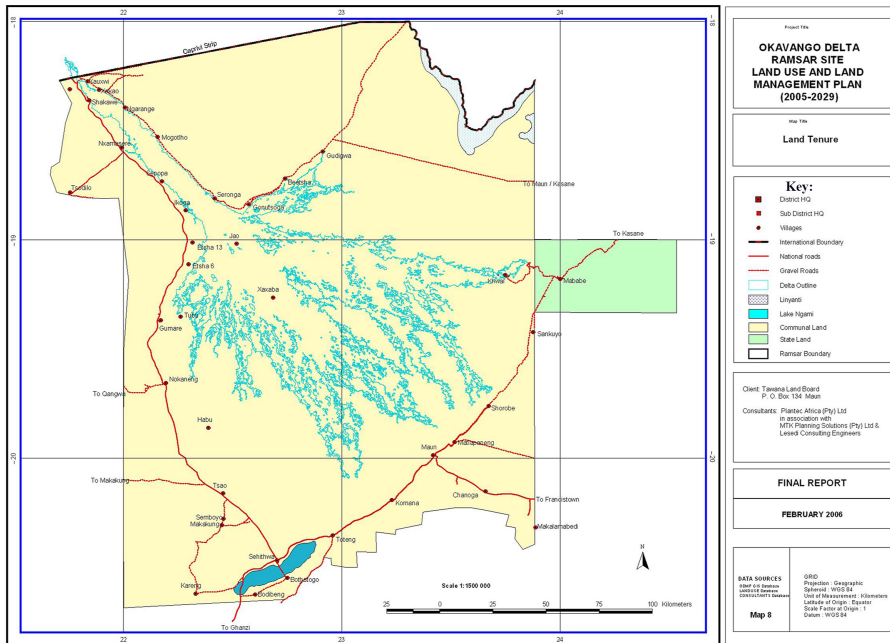
Map code	Type/age of archaeological site	Description of location
91-C3	LSA	Xaxai
91-C3	LSA	Xaxai
91-C3	LSA	XaiXai
91-C3	LSA	Xaixai
91-C2	IA	Gchwihaba
01-A2	LSA, fossils	Gchwihaba central
02-B4	LSA/MSA/IA	Toteng
81-B4	IA	Drotsky's cabins
93-C4	EIA	Matlapaneng
93-C4	LIA	Maun

**Note(s):** Middle Stone Age (MSA); Late Stone Age (LSA); Early Iron Age (EIA); Late Iron Age (LSA); Iron Age (IA)

**Source(s):** Data source: Botswana National Museum, table compiled by authors

**Table 1.** Archaeological sites in the Okavango Delta region illustrating the potential for sites with cultural heritage components such as archaeology (data source: Botswana National Museum)





Source(s): Republic of Botswana, Tawana Land Board (2006)

Figure 5. Land tenure patterns of the Okavango Delta Ramsar site provide a historical story of land use by local communities, national governments, and other stakeholders including tourism investors within the landscape

### Research needs

**Architectural heritage.** Several studies have shown that the integration of culture and heritage remains overlooked in modern urban planning systems in Botswana (Hammami, 2012; Mwale and Lintonbon, 2020). This is attributed to an expert-led “top-down” approach to urban planning (Hammami, 2012) that fails to acknowledge the cultural identities of landscapes and, most importantly, the spatial character and architectural reading of a place. However, communities have inhabited landscapes such as the Okavango Delta World Heritage Site for centuries, and they continue to shape their spatial character through architecture, culture and folklore and folklife practices. This intersection between the physical landscape and lived practices contributes to the recognition of both intangible and tangible heritage (Keitumetse, 2011; Mwale and Lintonbon, 2020) in addition to biophysical heritage alone. Therefore, an area that remains largely unexplored within the study site is how the natural heritage is woven into the architectural expressions and lived experiences; how people relate to the landscape through settlement patterns and land use (Figure 2) as well as the architectural motifs they imprint on the landscape all require future research.

**Linguistic heritage.** Research is required to investigate how languages describe the physical environment (Chebanne, 2016) and, as such, how they shed light on human-environment interactions. Indeed, Indigenous knowledge systems encompass cultural aspects of the landscape, and some of the current management approaches to the Okavango Delta are currently hampered by a lack of inclusion of Indigenous knowledge systems, including linguistic heritage. A study of languages can shed light into people’s interaction with the landscape through naming of places, naming of water body channels, to mention but a few. Tracing language spread in the vicinity of the Okavango Delta will also enable understanding of people’s settlement histories and their settlement patterns in the Okavango Delta landscape.

**Cultural economics.** The Okavango Delta World Heritage Site attracts many high-paying nature tourists, which has skewed conservation and management strategies towards natural resources.

Research on the potential cultural contributions to tourism (heritage tourism) within the region is now necessary to: (1) ensure that such expressions of heritage are valued and communicated to visitors to the World Heritage Site; and, (2) establish the frameworks and motivation needed for including and financing cultural heritage conservation through tourism activities.

### Discussion

The research priorities identified by the Okavango Delta research-practice team during the HPL process are multi-stakeholder and multidisciplinary in nature, and such the challenges identified as threats to the delta are also diverse, mimicking the diversity of the team expertise. The most outstanding threats have been identified as poaching, existence of invasive species such as *s.molesta*, as well as the lack of stakeholder networking. The HPL process also enabled the team to consider the research needed to fully understand the complexity of the situation “on the ground”, enabling in-depth collaboration and introspection that is otherwise rarely achieved. By working together, the research and practice teams identified the challenges and opportunities arising from each group, and developed an understanding of how, respectively, these might be addressed and supported to enable a sustainable collaboration going forward.

The team identified that, due to the Okavango Delta World Heritage Site’s outstanding biodiversity, hydrology and ecology, most existing research has focused on its geomorphology (Fryirs *et al.*, 2018), the natural environment (McCarthy, 2013; Ringrose and Vanderpsot, 2003), economic issues relating to nature tourism (Mogomotsi *et al.*, 2018), and physical land management planning (Mfundisi, 2008). In comparison, the opportunities for exploring archaeologies, histories, anthropologies, languages and folklore and folklife in the Okavango Delta World Heritage Site landscape remain largely untapped. We have observed that this loophole has contributed to non-sustainable approaches to the management of identified threats within the OD-WHS such as poaching, invasive species and stakeholder disconnection/discordant which leads to conflicts.

Going forward, other disciplinary approaches that have been rarely applied to the Okavango Delta offer significant opportunities, including those that explore human habitation patterns that would contribute to documenting the site’s architectural heritage. This would create opportunities for revealing additional values associated with the imprinting of social heritage on the landscape through time (e.g. Mwale and Lintonbon, 2020). Indeed, Keitumetse’s work (2005; 2009; 2016; 2020), though limited in scale, has paved the way for a focus on research that recognises the cultural attributes of the Okavango Delta World Heritage Site, but more still needs to be done to enhance how the site is expressed to its visitors. One notable benefit of revealing cultural values is the opportunity for local young people to learn about the cultural heritage of their landscape from an early age, creating pathways of transmission of cultural identities from generation to generation. This represents a pathway towards the sustainable conservation and management of not only natural but also cultural resources, including archaeological, historical, anthropological and folklore and folklife aspects.

The HPL process also revealed that the transboundary nature of the Okavango Delta World Heritage Site’s bio-physical, human and socio-economic features demands both professional and social collaborations across borders to create opportunities for its future sustainable conservation. This prompted the team to identify academic collaborators from adjoining countries who may be interested in future research. The transboundary nature of the site also provides the potential to nurture diverse human cultural components populated through the various countries and their related knowledge systems. For example, Barnard *et al.* (1992) indicate that the northern boundary of the site has important connections Khoespeaking traditional hunter-gatherers and is an ancient site of human occupation and territory with several centuries of contact between hunter-gatherer-fishing San aboriginal peoples and later in-migrating agro-pastoral-fishing Bantu-speaking peoples from the north.

The 2003 UNESCO Convention on the Safeguarding of Intangible Cultural Heritage offers an opportunity to incorporate cultural values into the conservation of the site, if consciously applied. Without doubt, the international policy strength of the Okavango Delta World Heritage Site lies in its double listing as a Ramsar Site and a UNESCO World Heritage Site. Through this international policy lens, Table 2 illustrates opportunities for recognising and incorporating the site’s cultural values more fully. Taking a positive stance, protecting landscapes through multiple conventions provides the potential to diversify and enhance conservation indicators of the landscape as well as multiply custodians and stakeholders. In Africa, only a few countries have wetland sites covered by both the 1971 Ramsar Convention and the 1972 UNESCO World Heritage Convention; these internationally important conventions provide a valuable framework through which the rich cultural heritage of the Okavango Delta can be explored, valued and conserved.

*Recommendations*

The main recommendation of this research is for the Botswana government to work towards listing the Okavango Delta World Heritage Site as a “mixed site” in the future to recognise the significance of both the nature and culture of the landscape. Within the UNESCO listing, mixed sites are those that contain elements of both natural and cultural significance, and as of May 2023, there are only 39 mixed World Heritage Sites compared to 1,118 cultural or natural listings. In the case of the Okavango Delta, cultural components can complement the already abundant ecological and biophysical heritage and enable a mixed site category to emerge, which would foster local pride in having cultural identities recognised within the listing. As cultural attributes are not yet adequately researched and populated, they currently appear non-existent despite the presence of intangible cultural values as described by the 2003 UNESCO Convention on Safeguarding Intangible Cultural Heritage (UNESCO, 2003, Table 2; Figures 3 and 4).

Importantly, the re-nomination of the Okavango Delta World Heritage Site as a mixed site will depend on the political will of the government to undertake an extensive project to document cultural values based on people and their place relationships. This would require consideration and representation of the diverse cultural groupings within the landscape, necessitating effective community and stakeholder participation. The re-inscription of Uluru-

Opportunities for including cultural attributes under the 1971 Ramsar designation	1972 UNESCO convention criteria
Recognises the interdependence of <i>Man and his environment</i> in a deltaic environment	<i>Criterion vii</i> - to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance
Wetlands constitute a resource of great economic, cultural, scientific and recreational value	<i>Criterion ix</i> - to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal and marine ecosystems and communities of plants and animals
Desire to stem the progressive encroachment on and loss of wetlands	<i>Criterion x</i> - to contain the most important and significant natural habitats for <i>in situ</i> conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation
Recognises waterfowl as an <i>international resource</i> Encourages far-sighted <i>national policies</i> with coordinated international action	

**Source(s):** Table compiled by authors

**Table 2.**  
Linking the Okavango Delta Ramsar Site “cultural value of wetlands” and the UNESCO World Heritage Site listing criteria based on natural values

Kata Tjuta National Park in Australia as a mixed World Heritage Site in 1994 highlights the challenge of an inclusive re-nomination process but also illustrates the value of including Indigenous communities in this process and how co-management practices can be secured beyond the re-listing process (Palmer, 2016).

### Conclusions

The collaboration within the research-practice team enabled an assessment of research needs in support of sustainable approaches to conservation by allowing all management stakeholders to work together simultaneously. The process further helped identify specific knowledge and data gaps, including management needs for *S. molesta*. Notably, the HPL process enabled collaborative research that can be implemented in practice to reveal the cultural aspects of the landscape and enhance and broaden the site's management strategies.

On-going research on the cultural aspects of the Okavango Delta landscape has the potential to enable the participation of different local and resident communities, allowing the fuller engagement and expression of identities through the site as well as their incorporation into its conservation and management. The cultural values of the Okavango Delta World Heritage Site are currently not well documented compared to its natural aspects (Keitumetse, 2016), with opportunities for examining the intangible heritage and architectural heritage of communal villages (Mwale and Lintonbon, 2020). If future research allows for the cultural values of the site to be fully established and documented, a substantive proposal could be made for the site to be re-nominated as a mixed site, although this required significant commitment and government support.

Overall, methodologies such as the HPL involve multiple stakeholders and provide opportunities for cooperation and collaboration in support of participation and inclusion. For the Okavango World Heritage Site, a holistic approach to conservation and management is required that engages all stakeholders in a meaningful manner. Such an approach should enable the cultural attributes of the site to be more fully realised and incorporated into the existing management frameworks of this internationally important site.

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### Author Affiliations

Susan Osireditse Keitumetse, Okavango Research Institute, University of Botswana, Gaborone, Botswana and UNESCO Chair (African Heritage Studies and Sustainable Development), University of Botswana, Gaborone, Botswana

Katlego Pleasure Mwale, Department of Architecture and Planning, University of Botswana, Gaborone, Botswana

Gakemotso Satau, Graduate Studies, Okavango Research Institute, University of Botswana, Maun, Botswana

Kgosietsile Velepini, Department of Languages and Social Sciences Education, Faculty of Education, University of Botswana, Gaborone, Botswana

Vasco Ompabaletse Baitsiseng, Department of Botswana National Museum, Ministry of Environment Natural Resources Conservation and Tourism, Government of Botswana, Maun, Botswana

Onalethuso Petruss Buyile Mambo Ntema, UNESCO Chair (African Heritage Studies and Sustainable Development), University of Botswana, Gaborone, Botswana

Jobe Manga, Department of Environmental Affairs, Ministry of Environment, Natural Resources Conservation and Tourism, Government of Botswana, Maun, Botswana

Stephen Thapelo Mogotsi, Department of Botswana National Museum, Ministry of Environment Natural Resources Conservation and Tourism, Government of Botswana, Maun, Botswana

### Corresponding author

Susan Osireditse Keitumetse can be contacted at: [keitumetses@ub.ac.bw](mailto:keitumetses@ub.ac.bw)

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