Journal of Cultural Heritage and Development, Volume 01 Issue 01, 2025
ISSN: 3080-2075 (Print), 3080-2083 (Online)

Reviving Indigenous Wisdom: The BaTonga's Role in Environmental Conservation

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Abstract

The thrust of this paper is on Indigenous Knowledge and Belief Systems (IKBS) of the BaTonga, which they used to preserve and conserve the natural environment. It is based on the cultural, religious, and ecological study of the BaTonga. The main objective of the study is to establish the extent of use and efficacy examines the environmental IKBS of the BaTonga people in their efforts to preserve the environment. The study is motivated by the unprecedented environmental degradation and depletion of natural resources in the Binga communal area in Matabeleland North Province. Regardless of the existence of IKBS and modern environmental management strategies, the environment is under siege, with local people complaining that modern ways should be complemented with IKBS, hence triggering this study. In this qualitative study, in-depth interviews and storytelling were conducted with traditional leaders and community elders of the BaTonga to collect data. Document analysis was also used to collect IKBS-related data from this indigenous community. In this study, thematic analysis is anchored on interpretive and ontological paradigms utilised within the Decoloniality theory. IKBSs found in this study were thematically presented as water bodies, vegetation, animals, birds, insects, and cosmology. The study concluded that the use of IKBSs is undermined by minoritisation and paucity of information on IKBSs documentation of the BaTonga. It was noted that the IKBS has potential for preserving the environment for sustainable development.

Keywords: Indigenous Knowledge Systems, wildlife, environmental conservation, environmental degradation, Indigenous people.

1. Introduction

Under colonialism, developing countries have increasingly neglected their indigenous knowledge and belief systems in preference to Western models in natural resource management discourse (Georgia, 2016). As such, natural resource management (national and international) policies, programmes, and strategies have marginalised and neglected the involvement of traditional institutions and indigenous knowledge systems, even though they remain relevant to the culture and are regularly practised and learned within communities and between generations (UNESCO, 2020). It is more imperative for Natural Resources Management (NRM) to integrate the indigenous knowledge and belief systems of various cultures to prevent drastic loss of bio-systems and facilitate natural regeneration of the environment (UNESCO, 2020). Despite calls for this integration, several environmental challenges have arisen in developing countries, where culturally relevant mechanisms have been neglected. These challenges include environmental

degradation, ozone layer depletion, water body acidification, deforestation, species extinction, and a dramatic decline in biodiversity (Mapira & Mazambara, 2013). While these issues are physically evident, there has been an over-reliance on Western methods of environmental preservation and conservation, often ignoring the valuable contributions of indigenous knowledge and belief systems in addressing these challenges (Rusinga & Maposa, 2020). UNESCO has recognised numerous African cultural beliefs and practices in the preservation of natural resources (UNESCO, 2003).

It is against this background that this study discusses the place of IKBS in environmental preservation and conservation of the BaTonga in Binga in a religio-cultural context, looking at their beliefs and practices. This is because environmental preservation and conservation strategies in many African countries are increasingly carbon-copying Western epistemologies, while ignoring the role of indigenous knowledge and belief systems as well as traditional institutions (Mapira and Mazambara, 2013). The use of Western strategies in conserving and preserving the natural environment has alienated indigenous people from environmental preservation strategies related to their cultural milieu. This is because indigenous knowledge and belief systems are often considered archaic, traditional, and uncivilised (Zivave, 2021). Be that as it may, the over-reliance on Western environmental strategies over indigenous ones, in preserving the natural environment, has resulted in more harm than safety. In this context, one may argue that indigenous knowledge and belief systems should be pursued to avoid further harm to the natural environment because continued environmental abuse and overuse will affect the natural habitat of humanity and every creature in the universe.

The Biodiversity Convention (1992) is a global treaty with the main goals of conserving biodiversity, sustainably using its components, and ensuring fair and equitable sharing of benefits from genetic resources (Ekardt et al., 2023). The treaty was initiated by the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, in June 1992, and made several resolutions to protect the environment from further harm (Aniah et al., 2014). Since then, different international fora, including, for example, the Beijing Conference for Women in 1995 echoed the problems of continuing environmental degradation (Kamla-Raj, 2006). The conference is critical in dealing with environmental challenges such as degradation, siltation, and climate change that ultimately affect women who are repositories of indigenous knowledge and belief systems in many African societies. This is because the African approach to natural resources preservation is deeply rooted in its respect for indigenous knowledge and belief systems.

From an African perspective, the use of Western methods undermines the role of the indigenous knowledge and belief systems of Africans. This is even though the IKBSs in many African societies have been recognised for its potential in reducing environmental challenges because Africans are “notoriously religious” (Mbiti, 1969). It has been further observed that indigenous knowledge and belief systems are saturated with environmentally friendly principles, such as taboos, unlike the Western epistemologies, which are capitalistic and materialistic, and do not put future generations at heart (Aniah et al., 2014). It can thus be argued that Western knowledge and belief systems are at the centre of the current environmental challenges because they are not closely linked with the Africans’ belief systems.

Land degradation, air pollution, eutrophication and deforestation all rose because of the advent of Western civilisation and culture, which replaced indigenous knowledge and belief systems, which by and large were centred on the sustainable use of the natural environment (Appiah-Opoku, 2007). Traditional ecological knowledge is closely linked with good environmental practices (UNESCO, 2003). However, deforestation and land use have become a major environmental challenge affecting the north-western part of Zimbabwe, and in particular Binga (Siambombe, Mutale & Muzingili, 2018). This is a result of rural land use, which is centred on farming, and this has resulted in the demand for more land. It is further observed that the indiscriminate cutting down of trees, poaching and water pollution are major environmental challenges affecting the BaTonga. There is a threat to wildlife populations in all reserves from illegal hunting, grazing and activities of local smallholder farmers (Siambombe, Mutale & Muzingili, 2018). Changes in land use and land tenure system influenced by the colonialists are equally blamed for the current environmental challenges (Rusinga & Maposa, 2020). The role of the chief in environmental use and regulation has been undermined, although they possess authority derived from their ancestors to be stewards of the natural environment. The flora and fauna was believed to belong to the spirit world, and the chiefs were considered the custodians of cultural knowledge and belief systems under their jurisdiction. Ancestral spirits had the authority of caring, protecting and managing forests, land, water sources, wildlife and other such resources located within such lands in the region and the country at large (Appiah-Opoku, 2007). Mapira and Mazambara (2013) assert that knowledge and practices accumulated through time have been used to make sustainable use of natural resources and minimise the impact of climate change. This means that IKBSs are critical in addressing contemporary environmental challenges. However, the coming of colonialism, modernity and industrialisation has affected how they interact with the environment as IKBSs are neglected in the natural resources management discourse. It

is because of this that the study focuses on the use of IKBSs by the BaTonga as representative of other indigenous communities.

This study focuses on the role of IKBSs in environmental preservation and conservation among the BaTonga in Binga, and it is framed within a religious context that emphasises the beliefs and practices shaping their relationship with the natural environment. The choice of Binga is significant due to its growing population, which rose from approximately 118,234 in 2012 and rose to around 159,982 in 2022. This has intensified pressure on local resources. While the lives of the BaTonga are deeply interconnected with their natural environment, colonialism, modernity, and industrialisation have markedly altered their interactions with these resources, complicating their ability to manage their environment effectively.

1.1 Who are the BaTonga?

The BaTonga are believed to have originated from the equatorial forests of the Congo Basin, migrating to the Zambezi Valley between the 15th and 16th centuries (Saidi & Matanzima, 2021). The term BaTonga derives from the prefix “Ba-” meaning owner, and the verb “Tonga,” meaning to rule or judge, signifying self-rule. This title reflects their chiefless society, where decisions were made collectively, unlike the hierarchical systems of the Shona or Ndebele (Ncube, 2004; Saidi, 2019).

Geographically, the BaTonga inhabit southern Zambia and northern Zimbabwe, particularly in Binga along the Zambezi Valley. Also known as the Basilwizi, or "people of the Great River," their identity is closely tied to the Zambezi River, which was historically referred to as Kasambabezi (McGregor, 2009, p. 2). Their long-standing adaptation to the harsh conditions of the valley suggests a deep historical presence (Colson, 1960; Sitambuli, 2016). Today, and in Zimbabwe, they are primarily found in and around Kariba and Binga District. Religiously, the BaTonga revere Nyami Nyami, a river god depicted as a snake spirit that governs their way of life. Nyami Nyami is seen as the protector of the BaTonga and is often represented with a snake body and fish head (Colson, 1960). This belief forms a cornerstone of their indigenous knowledge system, emphasising the sacredness of the Zambezi River basin and regulating their environmental practices in honour of the river god and their ancestors.

1.2 Problem statement

The Binga community faces numerous environmental challenges, including pollution, degradation, and poaching. However, they have largely relied on Western approaches to address these issues. In contrast, the neglected indigenous methods that incorporate local knowledge and belief systems are often more effective and culturally relevant. This

paper aims to explore the role of the indigenous knowledge and belief systems of the BaTonga in Binga district, Matabeleland North Province, in developing effective preservation and conservation management strategies which are culturally oriented.

1.3 Major research question

The major question is:

1. How do the BaTonga utilise indigenous knowledge and belief systems in environmental preservation and conservation management strategies?

1.4 Research objectives

In view of this main research question posed, the study was guided by the following objectives:

1. To examine the roles of indigenous knowledge and belief systems in natural environment preservation and conservation in the Binga District in Matabeleland North Province.

2. To suggest how the BaTonga IKBSs can assist in conserving the natural environment can complement modern ways.

1.5 Justification of the study

In light of the above research question, the subject of the interrelatedness between indigenous knowledge and belief systems (IKBSs) and preservation of the natural environment has emerged as a crucial topic within the broader fields of Religious Studies, eco-feminism, and environmentalism. This study contributes to the ongoing debate surrounding environmental discourse, focusing specifically on the BaTonga, an ethnic group in northwestern Zimbabwe. The choice of the BaTonga is particularly significant due to the limited ethnographic research conducted on this minority group compared to other Indigenous communities, such as the Ndebele, Karanga, Zezuru, and Korekore. The BaTonga's rich heritage and unique perspectives on environmental preservation have often been overlooked, resulting in their indigenous knowledge and belief systems being marginalised and neglected in environmental discussions. This study thus explores the importance of IKBSs among the BaTonga people, emphasising their potential contributions to environmental preservation. By exploring these connections, the research seeks to highlight the value of indigenous practices and knowledge in contemporary environmental discourse, ultimately contributing to the broader understanding of sustainable environmental strategies.

1.6 Understanding IKBS

In 2003, the UNESCO General Conference in Paris recognized intangible cultural heritage as encompassing the practices, representations, expressions, knowledge, skills, and the associated instruments, objects, artifacts, and cultural spaces that communities identify as part of their heritage (UNESCO, 2003, p. 4). This heritage is transmitted through generations and is continuously recreated by communities in response to their environment and history, fostering identity and continuity while promoting respect for cultural diversity and human creativity. From this definition, indigenous knowledge and belief systems (IKBSs) emerge as vital components of intangible cultural heritage. Specifically, the BaTonga of northern Zimbabwe, living along the Zambezi River basin, embody an IKBS characterised by local traditions, beliefs, customs, and religious views (Neil, 2005). This contrasts with Western epistemologies, emphasizing a culturally embedded understanding of knowledge. Maila and Loubser (2003) describe IKBSs as facts that are deeply rooted in the cultural and historical context of a people, forming the backbone of their social, economic, and technological identity.

In Africa, strategies for environmental preservation are intertwined with indigenous knowledge and belief systems. The BaTonga view themselves as environmentally conscious, with their connection to nature reflecting their belief system (Fontein, 2006). As Ranger (1999) notes, many African societies regard the natural environment as sacred because of their beliefs. Rusinga and Maposa (2020) emphasize that indigenous communities like the BaTonga systematically utilise natural resources, guided by traditions rooted in their cultural context. This knowledge is crucial for conserving biodiversity (UNESCO, 2020), shaping the BaTonga's perceptions and values regarding the environment.

2. Brief literature review

This sub-section deals with theoretical and empirical review with regard to the use of indigenous knowledge systems in environmental conservation. Notably, a Decolonial theoretical review is used in the context of environmental challenges.

2.1 Theoretical review

This paper is grounded in the Decoloniality theory, which critiques the dominance of Anglo-American thought in scientific discourse and seeks to establish a native cultural paradigm (Huerfano, Caballero, & Rojas, 2016). This reformulation is crucial for integrating African knowledge and belief systems into natural environmental preservation. Decoloniality aims to "remake the world" so that marginalised groups can reclaim their identity, land, history, knowledge, and power (Ndlovu-Gatsheni, 2014). It challenges the

biased global structures that dictate environmental management strategies, particularly in developing countries facing several environmental problems. The theory promotes the democratisation of epistemological spaces by recognising the significance of indigenous knowledge and belief systems in Africa in dealing with environmental challenges.

The worsening of the environmental crisis manifests in biased epistemologies that dismiss African knowledge in favour of Western conservation strategies (Shizha, 2006). Through Decoloniality, Africans and, in particular, the BaTonga, can address environmental challenges in ways that align with their cultural beliefs and practices. Coloniality appears when Western solutions are imposed on African communities, evident in the organisation of power, identity, and knowledge (Zondi, 2015). This perspective highlights how indigenous methods of environmental preservation are often dismissed as lacking scientific validity. Thus, Decoloniality seeks to uncover and confront coloniality in environmental preservation, exposing double standards in Western responses to Africa's environmental issues. The theory empowers African scholars to advocate for the democratisation of environmental strategies to combat global warming, climate change, land degradation, and other ecological crises. This approach aims to decentre hegemonic global epistemologies in the context of Zimbabwe's environmental challenges in the Binga community.

It is essential to recognise that the colonial and ethnic assumptions labelling the BaTonga people as environmentally ignorant are misguided. These stereotypes perpetuate cultural hegemony and imperialism, undermining the Indigenous knowledge system of minority groups. Such assumptions persist today, where the environmental conservation practices of minority ethnicities are undervalued. The persistence of colonial mindsets and cultural dominance alienates groups like the BaTonga from their Indigenous practices that support environmental preservation. The continued reliance on Western solutions reflects a long-standing neglect of Indigenous knowledge by governments and international organisations (Warren, 1992). Rusinga and Maposa (2020) argue that post-colonial Zimbabwe has perpetuated colonial legislation that harms local communities, while Wolmer (2007) notes that Western conservation initiatives often conflict with local livelihoods. The degradation of natural environments results from these Western strategies, which distort Indigenous perspectives on conservation (Aniah et al., 2014; Siambombe, Mutale, & Muzingili, 2018).

2.2 Empirical review

A study by Emery (1996) concluded that scientists now recognise that indigenous people have managed the environments in which they have lived for generations, often without significantly damaging local ecologies. The study noted that indigenous knowledge can

thus provide a powerful basis from which alternative ways of managing resources can be developed. In a related study, Tanyanyiwa and Chikwanha (2011) observed that indigenous knowledge technologies and know-how have an advantage over Western science in that they rely on locally available skills and materials and are thus often more cost-effective than introducing exotic technologies from outside. The indigenous knowledge is connected to the religiosity of the community in which it operates. This means that indigenous knowledge and belief systems are linked to the worldview or the way the local group perceives their relationship to the natural world (Emery, 1996). Tanyanyiwa and Chikwanha (2011) further note that indigenous knowledge is embedded in a dynamic system in which spirituality, kinship, local politics and other factors are tied together and influence one another. This means that a belief system about nature may influence how resources are managed and how willing people are to adopt new resource management strategies (Emery, 1996).

Studies have shown that serious effects of environmental challenges continue to threaten human existence and livelihoods (Tanyanyiwa & Chikwanha, 2011; Mukurazhizha et al., 2023). These challenges continue to affect developing nations such as Zimbabwe, resulting in environmental degradation, pollution and climate change, thereby leading to ecosystem imbalances (Mukurazhizha et al., 2023). While research has been done, including studies on mechanisms for addressing environmental problems and their effects on indigenous communities in Zimbabwe (Duri & Mapara, 2008; Muchenje & Goronga, 2015; Mukurazhizha et al., 2023), gaps are evident in the use of indigenous knowledge and belief systems of perceived minority ethnic groups such as the BaTonga in addressing environmental challenges. UNESCO (n.d.) acknowledges that leaving out indigenous knowledge and belief systems in addressing environmental issues has adverse effects on fighting the effects of environmental degradation, climate change, pollution and deforestation in the contemporary world.

Research in northwestern Zimbabwe shows that communities in Binga attribute environmental degradation to poor agricultural practices, urbanisation, and lack of access to clean energy, leading to climate change, aquatic species loss, deforestation, and soil erosion (Siambombe, Mutale, & Muzingili, 2018). In response to these challenges, there is a growing interest in revitalising the indigenous knowledge and belief systems (IKBSs) in post-colonial Africa to address environmental issues. Colonialism and Christianity have historically marginalised IKBSs, which could be instrumental in sustainable environmental strategies. The double minoritization of BaTonga IKBS, deemed inferior to Western practices, overlooks their rich historical context grounded in observation and experimentation (Ward, 1989). For instance, the Nyami Nyami tradition embodies the BaTonga's cultural heritage, shaping their belief system in the preservation of the natural

resources. This means that the IKBS of the BaTonga is part of their intangible cultural heritage. Smith (2016) points out that the safeguarding of intangible cultural heritage is not just about protecting the past but also about fostering resilience and adaptability for future generations. Furthermore, Duri and Mapara (2008) examined how pre-colonial Zimbabweans, specifically the Shona, conserved their natural resources using IKBSs.

Studies indicate that indigenous peoples' relationship with their environment is deeply shaped by their values, identity, and traditional wisdom, equipping them to effectively understand and tackle environmental challenges (WHO, 2025). For instance, Indigenous communities in Zimbabwe employ traditional ecological practices, such as what the Shona call "kuradzira munda," which involves resting the land to prevent degradation, reflecting a belief system that honours local flora and fauna (Zivave, 2021). However, Indigenous knowledge systems and institutions face significant threats due to land loss, forced displacement, and rapid environmental changes (Ford et al., 2020). These communities encounter numerous obstacles, including challenges in defining their development in line with traditional values, limited political participation, and difficulties accessing essential social services (UN, 2025). Moreover, Indigenous knowledge and belief systems are often overlooked in decision-making regarding land use and natural resource management (WHO, 2024). This neglect is compounded by the forced eviction of Indigenous peoples from their ancestral lands due to resource exploitation and large-scale development projects (UN, 2025). A notable example is Binga, where activities by Chinese miners are leading to significant environmental issues and potential displacement (Magidi and Hlungwani, 2022). This has affected the connection between indigenous identity and knowledge, which is premised on their land and other natural resources. Challenges such as displacement, climate change, pollution, and exclusion have affected the indigenous people in natural resource management (UN, 2025).

Despite the existing literature addressing the marginalisation of indigenous knowledge, there remains a notable gap in research specifically focused on the BaTonga people and their unique IKBS concerning contemporary environmental challenges. Most studies tend to concentrate on broader indigenous practices or focus on dominant cultural groups, failing to highlight the specific environmental strategies employed by the BaTonga. This study aims to fill this gap by providing a comprehensive examination of the BaTonga's IKBS and its potential contributions to sustainable environmental management in the context of current ecological crises.

This study focuses on the BaTonga people, whose beliefs have been historically undervalued due to colonial influences and modernity. By contributing to the discourse on environmental preservation through culturally relevant practices, this research aims to

align with the Sustainable Development Goals, integrating indigenous methods with modern approaches to ensure a sustainable future.

3. Research methodology

3.1 Design

This study employed a qualitative approach, utilising a phenomenological research design to explore the indigenous knowledge and belief systems of the BaTonga in relation to the natural environment. The phenomenological design was particularly relevant as it allowed for the examination of religious behaviours from the BaTonga's perspective, avoiding the imposition of preconceived value judgments. This approach facilitates an investigation into how individuals perceive and understand reality (Cox, 1992). By applying the principle of epoch, we gathered data after "bracketing" any external value judgments that may influence the interpretation. Consequently, the BaTonga's cultural beliefs and practices regarding environmental preservation were studied as unique and self-contained phenomena. The strength of this phenomenological approach lies in its ability to distinguish between the researchers' perceptions and the actual practices of the BaTonga people. This method ensured the collection of first-hand information from indigenous BaTonga individuals, especially when combined with participant observation. Moreover, this methodological design aligns with ethnography, focusing on the belief system, customs, taboos, and cultural practices of the BaTonga community.

3.2 Data collection procedure

Using a participant observation approach, we engaged in face-to-face interactions with BaTonga elders within their natural settings. This involved conducting in-depth interviews and closely observing how the BaTonga express their culture and religion in relation to environmental preservation strategies. The participant observation technique significantly enhanced our field investigation by allowing us to consider the unique circumstances and cultural context of the indigenous community. Our direct interactions with the BaTonga provided us with first-hand data, deepening our understanding of their socio-cultural environment. This insight was crucial for drawing conclusions on indigenous knowledge and belief systems concerning natural environment preservation and conservation strategies. By employing both participant observation and intensive interviewing methods, we were able to gain an “insider’s point of view,” which allowed us to interpret the significance of indigenous knowledge, cultural beliefs, customs, taboos, and traditions that shape how the BaTonga preserve their natural environment.

3.3 Population and Sampling

The research study was conducted among the BaTonga people in Binga district, who are found in the northwestern part of Zimbabwe. Thus, purposive sampling was used to select four (4) elders, two (2) headmen, and four (4) native residents from Binga district who were interviewed, as they are the custodians of the traditions. This means that ten participants were sampled for the study. In Binga, observations were made as to how the BaTonga deal with environmental challenges.

3.4 Data Collection Instruments

The study used an interview schedule and participant observation to collect data from the field. In Binga, interviews were conducted in several selected areas in Sikalenge, Manjolo, Siachilaba, and Kariyangwe chieftaincies. Those interviews were targeted at 10 elderly people who we considered credible custodians of BaTonga history, culture, and traditions. The elders are better informed about the indigenous knowledge and belief system of the BaTonga people. The interview delved into how IKBSs are being used to preserve natural resources. The interview further established difficulties and possibilities that come with modern ways of addressing environmental challenges. In addition, observational data were gathered through visits to cultural gatherings and the environmental spaces that are preserved through IKBSs. This involved watching how the BaTonga interacted with their environment. The data was analysed through the thematic frame approach.

4. Trustworthiness of Data.

The researchers ensured that the content of the data collection tools was relevant and culturally appropriate, accurately reflecting the participants' experiences and perspectives. Reliability was enhanced through data triangulation, as multiple methods were employed to gather information from the field. This approach strengthened the validity of the findings by providing a comprehensive understanding of the participants' insights.

5. Ethical Considerations

The researchers obtained informed consent from participants by clearly explaining the study's objectives, along with any potential risks and benefits of participation. Participants were also informed of their right to withdraw from the study at any time during the data collection process without facing any consequences.

6. Research findings

The study aimed to explore various Indigenous Knowledge and Belief Systems among the BaTonga people and their application in environmental preservation and conservation management strategies. Participants were coded as follows: E1, E2, E3, and E4 for elders; H1 and H2 for headmen; and N1, N2, N3, and N4 for native BaTonga individuals outside these groups. From the research participants, several sub-themes emerged.

6.1 Cosmology

The study revealed that the BaTonga cosmology is used to control how human beings interact with the natural environment.

E1 had to say:

> *We believe that the natural environment belongs to the river god and the ancestors. Nyami-Nyami is our supreme ancestor, and we revere nature, particularly the water bodies like rivers and pools.*

The above verbatim is also underscored by the H1, who underscored:

> *We believe in one Supreme Being called Leza, whom they consider the creator (Mulengi) of the universe and everything in it.*

N3 also underscored:

> *We are people of the river, and we believe in the river god, Nyami-Nyami. He is the owner of all aquatic species. Tradition has it that in the times of drought and hunger, Nyami-Nyami would help the BaTonga people with food.*

From the above verbatim submissions, it is clear that the BaTonga belief system attributes supernatural powers to various elements of the natural environment, particularly the Zambezi River, which is considered the home of the Nyami-Nyami and is highly revered. Preserving water bodies such as rivers, hot springs, and pools in their natural state aligns with the BaTonga's religious mandate. This reflects the tripartite cosmology described by Siambombe, Mutale, and Muzingili (2018), which includes underground spirits, ancestors, humans, and Leza. Violating religious taboos associated with water bodies can lead to punishment from ancestral spirits and it comes in the form of natural disasters, as the BaTonga believe that their ancestors may use locusts, quails, and elephants to punish those who mistreat the environment.

6.2 Wildlife

It also emerged from the study that the BaTonga use totems to preserve the fauna. Totems refer to the animals, objects, and aquatic species that are considered sacred by a cultural group of people (Zivave, 2021). Many of the BaTonga totems are derived from animals, and participants highlighted some of the following totems.

Totem	English Name	Clan Name
Chiwena	Crocodile	Munkuli
Mpongo	Goat	Muleya
Ngombe	Cow	Mungombe
Suntwe/Mbelele	Hyena/sheep	Muzamba
Nzovu	Elephant	Munsaka
Sokwe	Baboons	Mudimba
Mbizi	Zebra	Mudenda
Munyati	Buffalo	Munkombwe
Mulavu/Inkuku	Lion/Chicken	Mumpande

N1 had to say:

> *In our culture, it is taboo to hunt or eat one's totem.*

In the same light, E2 said:

> *Totemic animals are revered in many ways. They are not supposed to be killed or used as relish.*

These verbatim responses indicate that totems help in the preservation of some animal species, for example, totemic animals like baboons, lions, zebras, crocodiles and rhinoceroses are considered sacred among the Muchimba, Mumpande, Mudenda and Munkuli clans, respectively. Besides being totemic animals, some animals are associated with ancestors. For example, the lion (*Mulavu)* is used by ancestors when they manifest themselves. The study revealed that the lion is used to predict weather patterns among the BaTonga who live along the Zambezi. According to H2:

> *Ancestors manifest themselves at shrines such as Chibbwatata hot spring through a lion. During the rainmaking (sic) ritual ceremony called Malende, a lion is used by ancestors to inform people about the weather.*

The verbatim response could suggest that the lion holds a valuable place in the lives of the BaTonga people. An empirical study by Siambombe, Mutale and Muzingili (2018)

notes that the lion is a sacred animal which is preserved because of its association with BaTonga spirituality. What makes animals sacred in BaTonga ontology is the ancestral spirits related to these animals. As such, sacred animals are respected because they represent ancestors. As a result, this promotes respect for sacred animals because they embody a sacred power that protects them from human greed and destruction.

6.3 Birds, Reptiles and Insects

Totem	**English Name**	**Clan Name**
Magande	Frog	Mugande
Basi chombolwa	Brown ants	Munenge
Intale	Crocodile	Mutale
Ntanga	Pumpkin seed	Muntanga
Buyuni	Quails	Mweembe
Nkwilimba	Pigeon	Mwinde
Nzuki	Bees	Muunga
Buyuni	Quails	Muvwandu

E3 underscored that:

> *Totems among the BaTonga preserve animals, birds, insects and plants.*

This was further corroborated by H1, who underscored that:

> *Totems in our culture are not limited to animals but to every component of the flora and fauna.*

The above excerpt suggests that reptiles, birds and insects also occupy an important role in the lives of the BaTonga people. All species are critical components of biodiversity preserved through totemism and sacredness (Mapira & Mazambara, 2013). The value of all forms of biodiversity reduces the killing of some edible animals, birds, reptiles and insects. These components of biodiversity are venerated, and the BaTonga are encouraged to use them sustainably and preserve them from possible extinction.

6.4 Water bodies

Participants in this study cited several examples of water bodies that are centres of environmental preservation. Table 1 below indicates the list of water bodies that act as centres of environmental protection. Most sacred places in Binga are regarded as the residence of ancestral spirits**.**

Name of sacred place	**Location**
Chibbwatata hot spring	Kani ward near Zambezi River
Zambezi river	Binga
Saba hot spring	Saba

H1 underscored that:

> *Rivers, hot springs and other water bodies as sacred. We strongly revere the Zambezi River and its tributaries because of their association with Nyami-Nyami.*

N4 further asserted that:

> *Hot springs are home to water spirits like mermaids, and there are taboos associated with rivers and hot springs. There are so many consequences that can be experienced as a result of polluting water bodies.*

Similar sentiments were echoed by E2, who said:

> *Our belief that water bodies belong to BaTonga ancestors helps in the preservation of aquatic species and the prevention of water pollution.*

N1 underscored that:

> *We conduct most of our rituals on river banks, pools and hot springs. In these places, fishing is prohibited, and if one fishes at that place, one would be blown away by a strange wind into the water and drown or catch fish with human hair.*

The findings above suggest that water bodies are treated with great caution and respect. The veneration of tributaries and the pools along the Zambezi River is overt among the BaTonga. For example, Namoongamoonga in Dobola ward along Nakapande River, Chibbwatata hot spring and Saba hot spring are sacred. Thus, water bodies are the abode of ancestors. Siambombe, Mutale and Muzingili (2018) indicate that the BaTonga are constantly referred to as people of the river because of their close association with

water bodies. It is this belief system that has preserved water bodies from pollution and misuse among the BaTonga people.

6.5 Mountains and Plants

The BaTonga also value mountains, forests, and plants in their natural resource management. E3 underscored that:

> *Nachuulwe Mountain in Siabuwa is sacred, and harvesting of firewood is taboo.*

N2 also underscored that:

> *Trees such as baobab trees (Mubuuyu), tamarind (Musiikka) and mwiiyi/munyi are considered sacred because the rainmaking ritual ceremony (Malende) is done under such trees.*

This was further corroborated by H2, who said:

> *In our culture, Mululwe is considered sacred and is not used as firewood because it brings misfortune to the family.*

From the above, mountains and trees are highly valued and preserved for their sacredness and as sources of food among the BaTonga. This aligns with Duri and Mapara (2007), who found that indigenous fruit trees like *muzhanje* (*Uapaca kirkiana*), *mutamba* (*Strychnos*), *mutohwe* (*Azanza garkeana*), and *munhengeni* (*Ximenia*) are protected from being used as firewood to ensure a steady supply of fruits. Similarly, the BaTonga utilise taboos related to certain trees like baobab trees (*Mubuuyu*), tamarind (*Musiikka),* and *mwiiyi/munyi* to aid in environmental preservation and reduce deforestation risks. Their belief in the sacredness of trees, rooted in indigenous knowledge and belief systems (IKBS), not only serves religious purposes but also safeguards trees from destruction.

6.6 Land

With regards to land as a critical part of the environment, E4 underscored that:

> *We do land clearance (kukukuula) in September (Ivwivwi). The chief gives a go-ahead to clear the land by doing Kugwisya Chibala. All crop residues are piled together and burned.*

On the other hand, H2 stated that:

> *Land clearance is done to prevent the spread of pests that can have adverse effects on plants. This is important in maintaining soil fertility and reducing environmental degradation.*

N4 further elaborated that:

> *Our land use system is divided into farming areas (Kumyuunda) and areas for animal pastures (Machezezyo). To reduce overgrazing, we have many grazing pastures (Machezezyo) which have water sources like pools and rivers where animals can drink water from.*

The word for word rendering given above reflects that the BaTonga demonstrate a deep care for the land, viewing the chief as the custodian representing the ancestors who are perceived as the real owners and custodians. This highlights the absence of individual land ownership, as communal stewardship prevails. Without this communal framework, land abuse can lead to degradation. The BaTonga's environmentally friendly land use system is influenced by the fear of ancestral reprisals and community accountability. Their division of land into *Kumyuunda* (arable land) and *Machezezeyo* (grazing land) fosters conservation and reflects a commitment to protecting both land and biodiversity. This aligns with Duri and Mapara (2007), who noted that indigenous land use prioritises the welfare of both humans and animals. Thus, BaTonga wisdom in land use significantly contributes to the preservation of the natural environment.

7. Discussion of findings

The management of natural resources is integral to the BaTonga's knowledge and belief systems, deeply rooted in their religious worldview. This worldview emphasises the interconnectedness of the Supreme Being Leza, spirits, and humans within the cosmos. For the BaTonga, human habitation and nature are inseparable. As Zivave (2021) notes, the environment is saturated with spiritual significance, leading to practices that respect ancestors through good environmental stewardship. Rivers, forests, and mountains embody ancestral spirits (*Mizimu*) and water spirits (*Nyami-Nyami*), underscoring the sacredness of these natural elements. Rusinga and Maposa (2013) highlight that the BaTonga believe the natural environment belongs to their revered ancestors. Thus, misuse of the environment incites ancestral anger, reinforcing a belief system that curtails deforestation, pollution, and environmental degradation.

Wildlife conservation is another critical aspect of BaTonga environmental practices, with many animals regarded as totems. Mukurazhizha et al. (2023) explain that totems play a vital role in preserving specific species and habitats. Strict taboos against harming totemic animals ensure community adherence, as violations are believed to bring misfortune,

including illness or death. This spiritual significance fosters a strong connection between humans and nature, promoting conservation. The BaTonga also maintain that sacred animals, such as lions, are protectors of ancestral spirits. Committing acts against these animals is believed to invite severe repercussions from both ancestors and traditional leaders, serving as an effective conservation strategy. Metuh (1981) notes the ferocity of these beliefs, instilling a deep respect for wildlife that acts as a deterrent against poaching and unnecessary destruction.

Water bodies hold profound religious and cultural significance for the BaTonga. Practices surrounding water conservation include prohibitions against littering or using contaminated objects to fetch water, reflecting a commitment to preserving these vital resources (Matanzima & Saidi, 2020). Although indigenous knowledge and belief systems (IKBS) may lack scientific validation, they have historically proven effective in environmental conservation (Duri & Mapara, 2007). The BaTonga also view forests, trees, and mountains as essential components of their ecosystem. Sacred sites, like Nachuulwe, are protected through cultural taboos that forbid activities such as firewood harvesting, which is believed to bring dire consequences for offenders. This reverence aids in preserving both plant and animal life.

We advocate for the decolonisation of environmental epistemology (Mawere and Kadenge, 2010). Reviving BaTonga environmental wisdom is essential for achieving sustainable development and preserving intangible cultural heritage. Integrating IKBS with some Western scientific conservation strategies has the potential to enhance environmental management, counteracting the detrimental effects of colonial and religious influences that marginalise indigenous practices. The BaTonga worldview offers valuable insights for addressing contemporary environmental challenges.

8. Conclusion

This paper has explored the role of Indigenous knowledge and belief systems (IKBSs) in natural resources preservation among the BaTonga and their implications for Zimbabwe. Key issues discussed include land management, conservation practices through taboos and rituals, and the significance of totems in protecting biodiversity. Zimbabwe's cultural policy recognises the value of IKBSs in environmental preservation, yet there is an under appreciation of integrative approaches that combine modern and traditional methods. A refocused strategy is needed to incorporate IKBS into environmental legislation, ensuring it reflects local culture and realities. The involvement of indigenous people in conservation must extend beyond mere acknowledgement, emphasising the importance of local solutions. Integrating IKBS into environmental policy is essential for addressing contemporary challenges effectively.

9. Recommendations

In light of the findings, the study recommends the following:

9.1 Revisiting Indigenous Knowledge and Belief Systems: It is crucial to re-evaluate and integrate the Indigenous knowledge and belief systems of Zimbabwean ethnic groups. These systems offer valuable insights for the management, preservation, and conservation of the natural environment. Such integration is essential not only for the sustainable development of northwestern Zimbabwe but also for the broader national context.

9.2 Empowerment through Education: Chiefs and community leaders must take an active role in educating their subordinates about the importance of using the indigenous knowledge system for environmental preservation. By promoting awareness and understanding, they can foster a culture that values conservation over exploitation, ensuring that natural resources are protected for future generations.

9.3 Collaboration with the Environmental Management Agency (EMA): The EMA should prioritise the encouragement and application of Indigenous knowledge and belief systems in their environmental strategies. By doing so, they can empower indigenous communities to see themselves as custodians of the environment, fostering a sense of responsibility and active participation in conservation efforts.

9.4 Government Incentives for Conservation: The government should implement incentives that promote the use of Indigenous knowledge and belief systems aimed at environmental conservation. By aligning these practices with community development initiatives, residents will be motivated to engage in sustainable practices that benefit both their communities and the environment.

9.5 Documentation of Indigenous Knowledge: There is an urgent need to document the Indigenous knowledge and belief systems of local communities. This knowledge plays a vital role in natural resource management and serves as a foundational element for sustainable practices. Comprehensive documentation will facilitate the preservation of these invaluable systems and ensure their transmission to future generations.

10. Acknowledgements

We would like to acknowledge the BaTonga traditional leaders, elders, and knowledge custodians who participated in this research.

11. References

Aniah, P. Aasoglenang, A.T. and Bonye S. Z. (2014). Behind the Myth: Indigenous Knowledge and Belief System in Natural Resource Conservation in North East Ghana. *International Journal of Environmental Protection and Policy 2*(3); 104-112. doi: 10.11648/j.ijepp.20140203.11

Appiah-Opoku, S. (2007). Indigenous beliefs and environmental stewardship: a rural Ghana experience. *Journal of Cultural Geography*, *22*(1), 79-88. http://dx.doi.org/10.1080/08873630709478212

Colson, E. (1960). *The social organisation of the Gwembe Tonga*, Manchester: Manchester University Press.

Cox, J. L. (1992). *Expressing the Sacred: An Introduction to the Phenomenology of Religion,* Harare: University of Zimbabwe Publications.

Duri, F. and Mapara, J. (2008). Environmental Awareness and Management Strategies in Pre-Colonial Zimbabwe, *Zimbabwe Journal of Geographical. Research 1*(2), 98-111.

Ekardt, F., & Bärenwaldt, M. (2023). The German Climate Verdict, Human Rights, Paris Target, and EU Climate Law. *Sustainability*, *15*(17), 12993. https://doi.org/10.3390/su151712993

Emery, A. R. (1996). The Participation of Indigenous Peoples and Their Knowledge in Environmental Assessment and Development Planning (draft). Centre for Traditional Knowledge: Ottawa, Canada.

Fontein J. (2006). *The Silence of Great Zimbabwe. Contested Landscapes and the Power of Heritage.* Harare: Weaver Press.

Ford, J. D., King, N., Galappaththi, E. K., Pearce, T., McDowell, G., Harper, S. L., (2020). The Resilience of Indigenous Peoples to Environmental Change. *One Earth 2*, 532-543. https://doi.org/10.1016/j.oneear.2020.05.014

Kamla-Raj, L. (2006). *Indigenous Knowledge and Biodiversity Conservation and Management in Ghana*. Laarbeeklaan 103B-1090 Jette, Belgium

Kaunda C.J. (2015). The Denial of African Agency, A Decolonial Theological Turn. *Black Theology 13*(1), 73-92.

Loubser, J. A. (2005). Unpacking the expression “Indigenous Knowledge Systems*”, Indilinga: African Journal of Indigenous Knowledge Systems, 4*(1), 74-88.

Magidi, M. and Hlungwani, P. M. (2022). Development or destruction? Impacts of mining on the environment and rural livelihoods at Connemara Mine, Zimbabwe, *South African Geographical Journal*, DOI: 10.1080/03736245.2022.2032294

Maila, M., & Loubser, C. (2003). Emancipatory Indigenous Knowledge Systems: Implications for Environmental Education in South Africa. *South African Journal of Education, 23*(4), 276-280.

Mangena, F. (2012). Towards Hunhu/Ubuntu Dialogical Moral Theory, *Phronimon*, *13*(2), 1-17.

Manyena, S. B. (2013). Ethnic identity, agency, and development: The case of the Zimbabwean Tonga. In L. Cliggett & V. Bond (Eds.), *Tonga timeline: Appraising sixty years of multidisciplinary research in Zambia and Zimbabwe* (pp. 25-66). Lembani Trust.

Mapara, J. (2009). Indigenous Knowledge Systems in Zimbabwe: Juxtaposing Postcolonial Theory. *The Journal of Pan African Studies, 3*(1), 139-155.

Mapira, J. & Mazambara, P. (2013). Indigenous Knowledge Systems and Their Implications for Sustainable Development in Zimbabwe, *Journal of Sustainable Development in Africa*, *15*(5), 90-106.

Mashingaidze, T. M. (2013). Beyond the Kariba dam induced displacements: The Zimbabwean Tonga's struggles for restitution, 1990s-2000s. *International Journal on Minority and Group Rights*, *20*(3), 381-404.

Matanzima, J. & Saidi, U. (2020). Landscape, belonging and identity in Northwest Zimbabwe: a semiotic analysis. *African Identities, 18*(1-2), 233-251. DOI: https://doi.org/10.1080/14725843.2020.1777839.73

Matthews, T. (1976). The *historical traditions of the peoples of the Gwembe Valley, Middle Zambezi*. Unpublished Doctoral Thesis, London University.

Mawere, M. and Kadenge, M. (2010) Zvierwa as African IKS: epistemological and ethical implications of selected Shona taboos. *Indilinga*: *African Journal of Indigenous Knowledge Systems*, *9*(1), 123-126.

Mbiti, J. S. (1969). *African Religions and Philosophy*. Nairobi: East African Educational Publishers.

McGregor, J. (2003). Living with the river: Landscape and memory in the Zambezi Valley, northwest Zimbabwe. In W. Beinart & J. McGregor (Eds.), *Social history and African environments* (pp. 87-105). Ohio University Press.

McGregor, J. (2009). Crossing *the Zambezi: The politics of landscape on a Central African Frontier*. Harare: Weaver Press.

Ncube. G. T. (2004). *A history of Northwestern Zimbabwe, 1850-1960.* Gweru: Mambo Press

Ndlovu-Gatsheni, S. J. (2014). Global Coloniality and the challenges of creating African futures. *The strategic review of Southern Africa*, *36*(2), 181-202.

Nel, P. J. (2005). Indigenous Knowledge System in Theory and Practice, *Indilinga: African Journal of Indigenous Knowledge System (IAJIKS), 4*(1), vii-xii.

Odora- Hoppers, C. (2001*). Indigenous Knowledge and the Integration of Knowledge Systems: Towards a Conceptual and Methodological Framework,* Pretoria: HSRC.

Ranger, T. O. (1999). *Voices from the Rocks: Nature, Culture & History in the Matopos Hills of Zimbabwe,* Harare: Baobab Books.

Ruggeri, M. (2019). Sustainable Intensification in a Forest-agriculture Frontier Landscape: Analysis of C Capture and Sequestration Potential under Two Different Scenarios in Binga District, Zimbabwe. *Journal of Land and Rural Studies, 7*(2), 169-194

Rusinga, O. & Maposa, R. (2020). 'Traditional religion and natural resources': A reflection on the significance of indigenous knowledge systems on the utilisation of natural resources among the Ndau People in South-eastern Zimbabwe, *African Journal of Ecology and Ecosystems*, *7*(4), 001-006.

Saidi, U. & Matanzima, J. (2021). Negotiating Territoriality in North-Western Zimbabwe: Locating the Multiple Identities of BaTonga, Shangwe, and Karanga in History, *African Journal of Inter/Multidisciplinary Studies,* 3(2), 61-74.

Saidi, U. (2019). African heritage is not dead: Glitches in organising knowledge and memories with a focus on the BaTonga in Zimbabwe. In P. Ngulube (Ed.), *Handbook on advocacy, promotion, and public programming for memory institutions* (pp. 314-333). IGI Global.

Shizha, E. (2006). Legitimising Indigenous Knowledge in Zimbabwe: A Theoretical Analysis of Postcolonial School Knowledge and Its Colonial Legacy. *Youth and Children's Studies*. 2. http://scholars.wlu.ca/brantford_yc/2

Siambombe, A., Mutale Q. and Muzingili, T. (2018). Indigenous Knowledge Systems: A Synthesis of Batonga People's Traditional Knowledge on Weather Dynamism, *African Journal of Social Work, 8*(2), 46-55.

Tanyanyiwa, V. I. and Chikwanha, M. (2011). The Role of Indigenous Knowledge Systems in the Management of Forest Resources in Mugabe Area, Masvingo, Zimbabwe. *Journal of Sustainable Development in Africa, 13*(3), 132-149.

UN (2025). Indigenous Peoples Respect NOT Dehumanisation. URL https://www.un.org/en/fight-racism/vulnerable-groups/indigenous-peoples.

UNESCO (2003). The Convention for the Safeguarding of the Intangible Cultural Heritage. Paris: UNESCO.

UNESCO (2020). Intangible Cultural Heritage and Sustainable Development. https://ich.unesco.org/doc/src/34299-EN.pdf

UNESCO (n.d.). *UNESCO's actions for biodiversity: Making peace with nature*. Paris: UNESCO.

Ward, H. G. (1989). *African Development Reconsidered: New Perspectives from the Continent*. New York: Phelps-Stokes Institute Publications.

Warren, D. M. (1992). *Indigenous Knowledge, Biodiversity Conservation and Development. A Key Note Address at International Conference on Conservation of Biodiversity in Africa: Local Initiatives and Institutional Roles*, Nairobi, Kenya, 30 August-3 September 1992; www.ciesin.org/docs/004-173.html

WHO (2024). International Day of the World's Indigenous Peoples. URL https://www.who.int/southeastasia/news/speeches/detail/international-day-of-the-world-s-indigenous-peoples-2024?

Wolmer, W. (2007). *From Wilderness Vision to Farm Invasions: Conservation & Development in Zimbabwe's Southeast Lowveld.* Harare: Weaver Press.

Zivave, W. (2021). Lies, fears and the scandals of missionaries: Contesting Christian conceptions about God in Africa. In A. Nhemachena & M. Mawere (Eds.), *Sovereignty becoming pulverized sovereignty: Unpacking the dark side of Slave 4.0 within Industry 4.0 in twenty-first century Africa* (pp. 217-232). Bamenda, Cameroon: Langaa Research & Publishing CIG.

Zondi, S. (2015). African Union Approaches to peace building: Efforts at shifting the continent towards decolonial peace. *Africa Insights*, *43*(4), 105-131.