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Leveraging BaTonga Intangible Cultural Heritage for Effective Climate Adaptation Strategies

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Abstract

The BaTonga community's intangible cultural heritage is a rich tapestry of indigenous knowledge that has evolved in response to climatic challenges. This paper synthesises the adaptation strategies employed by the BaTonga, such as rituals and related taboos, and highlights the critical role of traditional ecological practices in fostering resilience to climate change. Using qualitative methods such as interviews and participatory observations, the study illustrates how the BaTonga integrate their indigenous knowledge with modern agro-ecological systems to enhance food security and promote environmental sustainability. It explores the significance of community-led initiatives that facilitate knowledge sharing and collective action, demonstrating how these strategies empower indigenous groups and strengthen social cohesion. Amid rapid innovation and technological advancements, BaTonga intangible cultural heritage is often overlooked and inadequately documented, despite its considerable value for community development. Reviving and documenting these heritage practices is crucial for integrating them with scientific approaches to effectively address climate challenges in the region. This research focuses on how the BaTonga's intangible cultural heritage enhances climate adaptation strategies, illustrating the potential of combining traditional practices with scientific knowledge to foster resilience in rural communities facing climatic changes. The indigenous knowledge system serves as the conceptual framework for this study, underscoring the necessity of embracing these practices as vital components of effective climate adaptation strategies to ensure a resilient future for the BaTonga community and beyond.

Keywords: *BaTonga, climate adaptation, kupundula, indigenous knowledge, intangible cultural heritage, mpande, sustainability.*

Introduction

Climate change has emerged as one of the most pressing global challenges of our time, affecting ecosystems, economies, and cultural identities across the world. Filho (2008:6-7) argues that the establishment of the Intergovernmental Panel on Climate Change (IPCC) in 1988 marked a significant milestone in our understanding of human-induced climate risks. Formed through collaboration between the World Meteorological Organisation and the United Nations Environment Programme, the IPCC has garnered global recognition for its critical assessments of climate science. This entails that climate information is a critical input for effective climate risk management.

As the climate crisis escalates, indigenous peoples, who often live in close harmony with their environment, are increasingly vulnerable to its impacts. Their cultural heritage and traditional practices are at risk, but they also hold invaluable knowledge that can inform effective climate adaptation strategies. While much of the literature has concentrated on the detrimental effects of climate change on material heritage, there is a growing recognition of the potential for cultural heritage to enable climate action (Fatorić and Seekamp, 2017). Thus, Tonga Indigenous Knowledge Systems (IKS) serve as a vital repository of nature-based solutions that can enhance community resilience through practices such as sustainable agriculture, water harvesting, and disaster preparedness.

Despite its importance, indigenous knowledge is gradually being undermined by modern development paradigms that prioritise short-term economic gains over sustainable practices. UNESCO's April 2025 workshop underscored two critical points: first, that cultural heritage is simultaneously threatened by climate change and serves as a potential solution for adaptation and mitigation; and second, that there is a pressing need to anchor cultural heritage protection within broader sustainable development frameworks. It is clear that climate change remains an unprecedented challenge globally; it disproportionately affects indigenous communities who are often the most reliant on their natural surroundings for survival (Chanza and Mafongoya, 2017). People are exposed and vulnerable to the adverse impacts of climate change due to their reliance on nature for their survival and sources of economic livelihoods.

Intangible originates from the Latin 'non tangere,' meaning 'untouchable'. Dewi, Sørensen, Andajani, Jayanti, and Ponimin (2025) and UNESCO (2003) define intangible cultural heritage

as the practices, representations, knowledge and skills associated therewith that communities, groups, and, in some cases, individuals recognise as part of their heritage. Cultural heritage immensely contributes to climate change adaptation; thus, the livelihood of the BaTonga has been widely identified through their unique Indigenous Knowledge Systems in adapting to those changes over the years. It mainly focuses on the BaTonga's intangible cultural heritage, specifically, practices like kupundula and mpande, and related taboos; researchers illuminate how these elements not only enrich cultural identity but also serve as effective tools for adaptation in the face of rapid climate change.

In Zimbabwe, the BaTonga people are among the Indigenous groups that predominantly rely on agriculture for their livelihoods, which are severely affected by climate change. However, little is known about the role of their intangible cultural heritage in adapting to the rapid changes in climate. Indigenous knowledge, as a body of observations, oral and written knowledge, innovations, technologies, practices, and beliefs developed by indigenous people through interaction and experience with the environment, offers unique insights into past and present climatic conditions and can inform adaptation strategies (Nyong, Adesina and Osman, 2007). Historical evidence indicates that the BaTonga have developed adaptive practices over the years to cope with climatic and environmental changes. Their Indigenous Knowledge Systems have played a crucial role in formulating different climate change adaptation strategies, including management practices, early warning, risk and disaster management. Harper and Ibrahim (2020) note that indigenous knowledge offers nature-based solutions, handed down by elders over generations, and effectively contributes to adaptation strategies at the local, national and global levels.

BaTonga people are the custodians of their unique Indigenous Knowledge Systems that have been passed down through generations and are deeply connected to their history, environment, and unique worldview. Their indigenous practices are rooted in a deep understanding of and respect for ecological systems and promote sustainable resource use. Despite several studies on Indigenous Knowledge in Climate Adaptation Strategies, for example, Siambombe, Mutale and Muzingili (2018), who looked at "Indigenous Knowledge Systems: a synthesis of BaTonga people's traditional knowledge on weather dynamism", focused on how some natural features, signs, animals, pests and plants were used in seasonal change predictions. Nevertheless, little attention has been paid to the BaTonga intangible cultural heritage for effective climate adaptation strategies such as Kupundula, mpande and some related taboos that have been

directly applied in climate change. The BaTonga's adaptation strategies in climate change appear to have been unique in Zimbabwe, as they propel their tapestry Indigenous Knowledge System into significant sustainable development. Therefore, there is a knowledge gap on the incorporation of BaTonga's intangible cultural heritage as effective climate adaptation strategies.

Understanding BaTonga Intangible Cultural Heritage

The BaTonga, residing primarily along the Zambezi River, possess a wealth of intangible cultural heritage developed over centuries in response to environmental challenges. Intangible cultural heritage includes rituals, practices, and taboos, such as kupundula and mpande, which play crucial roles in managing natural resources and promoting ecological sustainability. These practices are not merely relics of the past; they represent a dynamic knowledge system that has been adapted to ongoing climatic shifts. Through acknowledging and documenting these practices, we can harness their potential to address contemporary climate issues.

BaTonga are the custodians of their land, territory and natural resources, where they belong, and their underestimated Indigenous Knowledge Systems have a unique and important role in responding to environmental challenges. According to Wani and Ariana (2018), indigenous people have utilised their long-term generated knowledge to sustainably explore and adapt to their environment for survival. It is exactly this knowledge that has protected them from current and previous environmental uncertainties that threaten their existence (Wani and Ariana, 2018). For instance, BaTonga people are found in arid areas. Through this intangible cultural heritage, this study aims to answer the following questions: How have the BaTonga's intangible cultural heritage, such as Kupundula, mpande and selected related Tonga taboos, been utilised for climate change adaptation?

Despite the immense value of BaTonga intangible cultural heritage, these practices are often overlooked in favour of modern technologies. This research underscores the necessity of reviving and documenting these heritage practices, not only to preserve them but also to integrate them with scientific approaches. By doing so, we can create a holistic framework for addressing climate challenges that leverages the strengths of both traditional and modern systems.

The Role of Indigenous Knowledge Systems (IKS) in Climate Adaptation

The use of IKS has been recognised by many people in African countries as a paramount source of knowledge on climate change and adaptation (Mafongoya and Ajayi, 2017). Local communities possess the knowledge and practices necessary to cope with adverse environmental conditions, often developed through centuries of observation and experience. Adapting to climate change involves modifying practices to exploit valuable opportunities, and IKS forecasting is essential in regions experiencing climatic changes. Local communities have the knowledge and practices to cope with adverse environmental conditions that might occur in their vicinities (Mafongonya, 2018). IPCC (2018) defines adapting to climate change as a process of modifying to real or predictable weather conditions to exploit valuable opportunities. Foreseeing and expecting changes in climate elements through IKS forecasting is a significant and prerequisite practice in areas directly experiencing changes.

IKS is largely used to adapt to climate change and comprises knowledge of (a) the seasons; (b) historical storm patterns; (c) the colour of rain-bearing clouds; and (d) wind patterns, including direction and wind types. This indigenous knowledge is underestimated and enables people to plan their agricultural activities and adopt better management practices, such as constructing shelters, windbreaks, storm walls and homestead fences (Mukhopadhyay, 2009). Local communities predict rain and hailstorms that may damage crops and property by judging the colour of clouds and the sound of thunder, as well as the duration of drought (Gearheard, Pocernich, Stewart, Sanguya and Huntington, 2010). This knowledge is similar to that of BaTonga, who are highly dependent on natural resources, rain-fed agriculture and fragile dwellings. Therefore, IKS is a practical resource that enables people to respond to climate change because the knowledge system is embedded in local cultures and values.

The region is highly exposed to different impacts of climate change. However, they have adapted to both natural hazards and human-induced climate-related disasters such as drought, floods, and other climate hazards, and have shown how innovative and resilient they can be in the face of high climate variability by adjusting their cropping calendars. Fujieda and Kobayashi (2013) note that this resilience is based on indigenous knowledge, which focuses on coping with and adapting to unpredictable, diverse, and changing situations. Indigenous Knowledge Systems facilitate understanding and effective communication and increase the rate of dissemination and utilisation of climate change mitigation and adaptation options. Thus,

these indigenous practices stem from the recognition of both the increasing threats of climate change (Chanza and Mafongoya, 2017). Some scholars have explored the value of IK in natural resource management, water resource management, fisheries and aquatic conservation, and risk and disaster management, and health (Ngodigha, Abowei and Ogamba, 2015; Cabrera, Letson and Podestá, 2007), while others have looked at IK application for weather and seasonal climate forecasts (Zuma-Netshiukhwi, Stigter and Walker, 2013; Olsson, Folke and Berkes, 2004). However, the interest in IK in recent times is challenged by the gradual disappearance of the knowledge among indigenous communities. Mafongoya and Ajayi (2017) consider the fading away of IK a tragedy in that IK remains a social capital for indigenous people who relied upon their knowledge for food production and to ensure survival. For example, among the BaTonga, IK served as a social capital that enabled the necessary communal participation, networking, and responsibility led by traditional chiefs to gather and store food crops in anticipation of indigenously predicted drought.

Methodology

This study adopted a participatory research approach, collecting data through focus group discussions, interviews, and observations in Binga district. Forty (40) participants were purposively sampled. In each Ward, twelve (12) were interviewed, and eight (8) participated in focus group discussions (FGD). Interviews were conducted from 15 July to 12 October 2025 in each Ward. The target population included indigenous leaders, village heads, youth, and religious representatives from different Wards in Binga North and Binga South. A purposive sampling method was employed to select key informants, ensuring diverse perspectives were included. It is against this background that the researchers, who are native speakers of the Tonga language and live in Binga, conducted interviews in each Ward, and a week of observation of related rituals was conducted.

The demographic characteristics of the participants included twenty (20) females and twenty (20) males. As for age, the majority of participants (43.8%) were between the ages of 45 and 65 years, based on the assumption that the elderly are well informed in terms of local or IKS. With reference to education, 55% of the participants affirmed that they know how to read and write, while 45% of the participants confirmed that they do not know how to read and write. The data were thematically analysed, focusing on IKS and climate change adaptations, highlighting the demographic characteristics of participants, types of intangible cultural heritage, scientific knowledge, and climate adaptation strategies.

Results and Discussion

BaTonga Intangible Cultural Heritage as an Adaptation Strategy

Among the BaTonga, various intangible cultural heritage practices serve as essential adaptation strategies in response to climate change. This study focuses on two significant elements: *kupundula* and *mpande*, alongside relevant taboos. Findings show that respondents derive their valued Indigenous Knowledge System (IKS) from communal experiences and traditional gatherings, with these practices profoundly influencing their ability to navigate environmental changes. Participants identified several key elements of BaTonga's intangible cultural heritage relevant for climate change adaptation. As one of the respondents noted,

MubuTonga bwesu tulaluzibo lwakulondola masena eesu lujatikizya zilengwalengwa zyabuntu. Kuzwa kuluzibo oolu takukwe nitwali kubula chintu kwindila kukusanduka kwamuuwo.

"In our Tonga tradition, we have the knowledge of keeping our environment, which includes sacred traditions. Through this knowledge, the BaTonga lacked nothing even due to the changes of climate".

This highlights the integral role of IKS in fostering a sense of belonging and environmental stewardship. The participant further expressed concerns about a shift away from traditional knowledge to foreign knowledge systems that have dominated. While these new approaches may appear scientifically valid, they frequently lack the local relevance and efficacy of indigenous practices. That is, they do not bring fruitful results, although they seem to be meaningful from their scientific core. As technology increasingly supplants traditional wisdom, the depth of BaTonga's IKS faces significant erosion. However, incorporation of IKS into agriculture is an important strategy for promoting climate-resilient innovations in communal farming (Mafongoya and Ajayi, 2017). This implies that the local people use Indigenous Knowledge Systems as a first option before they seek advanced knowledge systems.

Kupundula, as a *BaTonga* ritual are critical adaptive measures that provide valuable insights into sustainable environmental management, where calendars for different seasons were highly respected. This ritual guides agricultural activities and promotes soil health and biodiversity. One of the respondents reported that, historically, rituals such as *kupundula* were associated with adequate rainfall and bountiful harvests. One of the participants remarked;

Musule akupundula twakali kujana mvula nyingi, mpawo chindi nchingi kumamanino amwezi waKaanddakaniini twakanonga twalya kale goloko, peepe zyasunu nzitubwene zyakuti kupundula takuchichitwi pe twakachachakulima nchelela. Pesi kupundula chakali chiyanza chibotu chalikutulondweda masena eesu. Myaka yasunu zyindi zyakulima zyakasanduka akaambo kabuchinche bwaanze.

"After doing some rituals of kupundula, we used to receive adequate rains, and most of the time by late November each year, we could have enjoyed our first fruits. This is different from what we are experiencing nowadays, where indigenous knowledge is fading, and new ways are employed, such as nutrition gardens and irrigation projects that have dominated the area. Yet, **Kupundula** was our significant philosophy, which even enhanced biodiversity. In recent years, we have shifted our planting dates to conform to these changes that have come to us."

The community has begun to shift its planting dates in response to changing climatic conditions, indicating a dynamic adaptation process.

Kupundula was marked as the fundamental information source which could give warnings about what will happen in that season. From this intangible cultural heritage, BaTonga people would have already known about diseases that might affect their crops and would be given mitigation measures. This is marked as their livelihood.

Participant 1 gave information regarding the *kupundula* ritual and reported:

Kupundula chakali chiyanza chilemekeka mubuntu bwesu, pesi sunu bulemu bwako bwakawubusigwa mponya muuwo wakunze wakajana makkalilo akusandula masena eesu.

"Kupundula was a sacred Tonga tradition, but nowadays its sacredness is no longer considered or respected; so, the current climate change has given it leeway to change the environment."

The finding implies that the BaTonga environment was well connected to ***kupundula,*** a ritual intangible knowledge which helped them to receive more rain, thereby having a bumper harvest. This underscores its importance as a key source of livelihood and sustainability for the BaTonga people. The findings resonate with Shoko (2007: 37), who notes that similar rituals are conducted by other groups, such as the Karanga, who conduct one of the most elaborate rituals called *mutoro or mukwerere*. The ritual is held at the beginning of the rainy season in early September or late February. It is held when the land is threatened with drought, and it is conducted by the spirit medium (*svikiro*) with the permission of the chief. This emphasises the importance of traditional practices in adapting to climate-related challenges.

The use of *mpande* ritual in Tonga represents another vital strategy for countering climate change impacts. Traditionally, it is employed to manage pests and optimise soil conditions, and has proven invaluable for ensuring long-term resource viability. This was justified by the following sentiments from **Participant 2**:

Mpande njiimwi nzila yalikugwasilizya kwiita mvula kwamyaaka miingi. Aabo bakali aampande bakali kulayilila zyelede azitelede, kakutakwe kubelesya zyaminsamu yasunu eeyo inyonyona muse wesu. Kulindiswe Mpande wakalimubotu loko nkaambo wakalikugwasizya zyelede kugankwa achiindi eecho.

"The other Tonga strategy to counter rainfall shortage was the use of Mpande, which saved us for many years. Those who possessed mpande could foretell the dos and don'ts. There was no use of scientific chemicals that needed serious precautions and resulted in different side effects on our land. To us, mpande was of great importance as it helped in advising when and how to grow small grain crops such as millet and sorghum."

Through the integration of *mpande*, the BaTonga could enhance their food security and economic stability while minimising reliance on chemical interventions, which have adverse side effects on the environment. Those with *mpande* could predict the amount of rain and its hazards, as well as pests and solutions. Such insights illustrate the importance of Indigenous knowledge systems in sustainable environmental management, demonstrating how rituals associated with *mpande* contribute to effective adaptation strategies.

BaTonga Taboos as an Adaptive Mechanism in Climate Change

Cultural taboos play a significant role in shaping the community's relationship with the environment. Unlike explicit prohibitions, taboos operate within a realm of social norms, reinforcing conservation practices and encouraging sustainable resource management (Essel, 2020). Taboos are concerned with all the social mechanisms of obedience that have ritual significance and with specific and restrictive behaviour in dangerous situations. Cultural beliefs rooted in IKS shape the community's perceptions of disasters and natural resource management. Violating these taboos is believed to invite misfortune, reinforcing the community's commitment to preserving their environment.

Several adaptation strategies are used for crops and livestock. There are related cultural taboos which help individuals and communities to live in times of extreme weather and climatic conditions. The respondents from Binga South, Ward 14 indicated that the decline in adherence

to these taboos has contributed to environmental degradation. For instance, Participant 3 recalled,

"I remember when we were growing up, we were told that no one is allowed to farm in places reserved for rain making ***'Kasaka kamalende takalimwi pe',*** *the environment sustains us so we must take good care of it, cherish and adore it…"*

The respondent further stated that ***Kasaka kamalende takanyinwi pe*** "it is a taboo to defecate in a place reserved for rain making," whereby anyone who does this will provoke the spirits.

This indicates that taboos played a significant and positive role in the protection of the environment, but that is not the situation now. These sacred places were largely known for rain-making ceremonies; therefore, such intangible cultural taboos were highly important. According to Zulu (2025: 8), the value of taboos in the Tonga land is that society is kept in check. This means that indigenous knowledge is a profound strategy of waste management where certain places were prohibited. However, today people have changed, and no one is interested in observing such valuable wisdom. Taboos against delinquent people help curb land degradation and reinforce its preservation, which is crucial for adaptation to climate change.

Despite the erosion of these practices, taboos still serve as mechanisms of obedience and cultural identity, guiding behaviours that protect sacred places and natural resources. However, the advent of modern scientific techniques has challenged the survival of these taboos, as many younger community members prioritise contemporary knowledge over traditional wisdom. This shift risks both cultural heritage and environmental sustainability. It is in line with Essel (2020: 95), who articulates the serious challenge in Cape Coast Metro in Ghana whereby the dilution of cultural beliefs leads to cultural erosion, thereby undermining taboos in societies. Most of the respondents were of the view that with the coming into being of science and technology, taboos appear to have an uncertain chance of continued survival. There is a great disregard for the observation of taboos owing to science and technology. The BaTonga calendar includes sacred days that shape agricultural practices, with specific prohibitions on cultivation during the specified times. There are various taboos associated with the gods and ancestors which prohibit people from exploiting these areas earmarked as sacred. There are sacred days among BaTonga people, and these were greatly highlighted by different respondents who said:

Kulatondwa kunjila mumuunda muliBwane oobu mbuzuba bwechiindo "It is a taboo to enter farms on Thursdays as it is a sacred day."

This connection is a spiritual belief which reinforces the community's commitment to environmental stewardship. According to Siambombe, Mutale and Muzingili (2018), among BaTonga, Thursday has been spared as a traditional resting day. As one respondent stated, "*Thursday is traditionally set for rain-making; being in the field on this day is taboo."* Such practices not only maintain biodiversity but also emphasise the interdependence between cultural and natural systems.

i. *Nuukkala mweezi takulimwi, zuba eelyo anga baswa* "At the beginning of the new moon, it is a taboo to conduct farming activities."

ii. *Kulatondwa kulya bweenda mumuunda nkaambo uleeta bulyi* "It is a taboo to eat whilst walking in the field, for this causes a lot of pests."

iii. *Kulatondwa kugonka mukotokoto ulaba aamakkula muungo* "It is a taboo to cut down the Mukotokoto tree, for you will have big and unpleasant breasts."

iv. *Misamu iitobela tisikilwi, mululwe, munsenye, mupopozya, chuundwe, musula* "The following trees are not allowed to prepare fire."

v. *Mansema ang'oko/ kanantiyana tazikkopwi pe ansimbi nkaambo lubono lulaba aamakoto amabbele* "It is a taboo to stir with a metal spoon when cooking colostrum and *kanantiyana*"

vi. *Kulatondwa kusuba mumuunda koyimvwi zilapya zilyo* "It is a taboo to urinate in the fields, for the crops will dry."

BaTonga preserved their environment through taboos where deforestation was totally prohibited; for instance, items (iii) and (iv) strictly restrict the cutting down of trees. Some of these trees are the ones that are associated with rain and are medicinal. Therefore, this invaluable intangible cultural heritage is one of the strategies employed by BaTonga to reduce the threatening climate conditions; however, nowadays these taboos are overlooked at the expense of certain scientific methods. Item (vi) above highlights how they kept their livestock; this strategic way was fundamental as it helped them to keep their livestock healthy.

A series of droughts is experienced in the area due to climate change; however, certain taboos are fundamental strategies used by BaTonga to curb these problems. For an area to continue with its sustainability, the following taboos are used and respected. These were articulated by Participants 3, 5 and 7:

i. *Kulatondwa kulya goloka Mwaami katanawangununa* "It is a taboo to taste products from the field before permission is granted by the chiefs."

ii. *Toyelede kujata nswabanda, nsoozi naa kusya mabede zilyo kazitana tumbuka uzoyeta bulyi* "It is a taboo to fetch different locusts in the field before the harvesting stage, as it causes a lot of pests."

iii. *Sokwe limwi lyamumunda litegwa ndakamana eeli talitemwi pe moyo wamuunda mpawo lyita mvula* "It is a taboo to cultivate ***ndakamana*** (local grass), as it is associated with rains."

iv. *Muunda wamandongo tutimbuulwi pe amuntu walede amwalumi naa mwanakazi* "It is a taboo to cross on the groundnut fields with someone who had sexual intercourse, for nuts will not grow well."

v. *Kulatondwa kutwika zilongo mumunda zyeeta bulyi* "It is a taboo to put some plates on the head whilst in the field, for this causes pests."

All these taboos from (i) to (v) above are strategies that are used by the BaTonga to preserve their environment. Some of these taboos, like (ii) and (v), reduce the effects of pests, which can lead to drought.

There are also games in BaTonga culture, and these games are not only for edutainment, but they signify the way people interact with their environment; hence, some of them are sacred because they are connected to climatic conditions. Daneel (2001) avers that African ecology is inseparably linked with indigenous knowledge. Taboos are an obligation and not a choice, as most of them are taken seriously since they are believed to have been imposed by their forebears and traditional rulers on their behalf and in the general interest of the community. When the researchers were collecting data, one of the participants indicated some of the Tonga game taboos as;

- *Kulatondwa kwaana mumuunda naa kuchiindi chalwaaka uleeta bulyi* "It is a taboo to make folktales in the field or immediately before summer; this causes pests."

- *Kulatondwa kunoga chiindi chakulima nkambo ulatanda mvula* "It is a taboo to perform a Tonga traditional game called *kunoga* as it chases away some rains."

- *Kufumbwa uusubila aabulo tataaluki pe ntanga ziya kukugankwa nkaambo tazikobika kabotu pe.* "Anyone who urinates on the bed whilst sleeping is not allowed to skip some grains ready for sowing, for they will not germinate."

These game taboos were fundamental strategies among the BaTonga as they preserved good climatic conditions. However, they are being substituted by current technological ways, and the indigenous knowledge does not seem to be functional; it is becoming hard to trace and understand their climate, which is tremendously changing.

Conclusion

The BaTonga community's intangible cultural heritage represents a vital reservoir of Indigenous Knowledge Systems (IKS) that are essential for effective climate adaptation strategies. This study underscores the crucial role of practices such as ***kupundula*** and ***mpande*** (traditional rituals) and related taboos in managing environmental challenges and enhancing resilience against climate change impacts. Recognising and valuing these traditional practices is imperative for developing comprehensive responses to the multifaceted challenges of climate change. The erosion of this knowledge due to modern development paradigms highlights the urgent need for documentation and revitalisation efforts to ensure these practices remain integral to the community's identity and sustainability. The incorporation of both traditional knowledge and contemporary scientific methods is essential for building resilience not only within the BaTonga community, but also among indigenous populations globally. The strengths of both adaptive strategies can cultivate sustainable practices that mitigate climate change impacts while honouring and preserving the rich cultural heritage that defines these communities, ultimately promoting sustainable development in an increasingly uncertain climatic landscape.

References

Ajibade, L., and Eche, J. 2017. Indigenous knowledge for climate change adaptation in Nigeria. In: indigenous knowledge systems and climate change management in Africa. *Wageningen, The*

Netherlands: CTA.

Ajibade, L., and Shokemi, O. 2003. Indigenous approach to weather forecasting in Asa L.G.A., Kwara State, Nigeria. Indilinga: *African Journal of Indigenous Knowledge Systems, 2(1*), 37 44.

Chanza, N and Mafongoya P.L. 2017. Indigenous-based climate science from the Zimbabwean experience: from impact identification, mitigation and adaptation. In: *Indigenous knowledge systems and climate change management in Africa. Wageningen,* the Netherlands: CTA;

Daneel, M. L .2001. *African earth keepers: Wholistic interfaith mission*. Maryknoll, N. Y.: Orbis Books.

Dewi, A. N., Sørensen, B., Andajani, K., Jayanti, C. T and Ponimin (2025) UNESCO and the definition of intangible cultural heritage: proposing some conceptual underpinnings. *Language and Semiotic Studies* 11(1):71-94. UNESCO. 2003. Convention for the safeguarding of the intangible cultural heritage.

Essel, E. A. 2020. The Role of Taboos in Solving Contemporary Environmental Degradation in Ghana: The Case of Cape Coast Metro. Social Sciences. http://www.sciencepublishinggroup.com/j/ss

Fatorić, S. and Seekamp, E. 2017. 'Are cultural heritage and resources threatened by climate change? A systematic literature review'. *Climatic Change* 142(1): 227–254.

Fujieda, A. and Kobayashi, H. 2013. 'Building disaster resilience with indigenous knowledge in rural Fiji', *Journal of Disaster Research* 8, 123-124

Gearheard, S., Pocernich, M., Stewart, R., Sanguya, J. and Huntington, H. P. 2010. 'Linking Inuit knowledge and meteorological station observations to understand changing wind patterns at Clyde River, Nunavut', *Climatic Change* 100, 267-294.

Harper, A and Ibrahim, H. O. 2020. *Indigenous Peoples' Knowledge and Climate Adaptation*.

IPCC .2023. *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (6 vols).* Geneva: Intergovernmental Panel on Climate Change.

IPCC. 2018. *Summary for Policymakers: Special Report on Global Warming of 1.5°C approved by governments.*

Kugara, S. L., Kugedera, A. P., Chivhenge, E and Museva, T. 2022. The Role of Indigenous Knowledge Systems (IKS) in Climate Change. *In Handbook of Research on Protecting and Managing Global Indigenous Knowledge Systems*. IGIGlobal Publishers.

Lin, B.B. 2023. 'Holistic climate change adaptation for World Heritage'. *Nature Sustainability 6*(10): 1157–1165.

Mafongoya, O. 2018. *The role of indigenous knowledge systems in seasonal prediction and adaptation to climate change and vulnerability amongst smallholder farmers in Bikita, Zimbabwe.* University of KwaZulu-Natal.

Mafongoya, P. L. and Ajayi, O.C. 2017. Indigenous Knowledge System and Climate Change Management in Africa, Wageningen: CTA.

Makwara, E. 2013. Indigenous Knowledge Systems and Modern Weather Forecasting: Exploring the Linkages. *Journal of Agriculture and Sustainability,* 2(1), 98–141.

Mapfumo, P. et al. 2017. 'Pathways to transformational change in the face of climate impacts: an analytical framework' *Climate and Development 9(5): 439–451.*

Mukhopadhyay, D. 2009. 'Cultural values, indigenous knowledge for climate change adaptations in developing countries', IOP Conference Series, *Earth and Environmental Science* 6,

Naess, L. O. 2013. The role of local knowledge in adaptation to climate change. *Wiley Interdisciplinary Reviews: Climate Change. 99–106.*

Nyong, A., Adesina, F., Osman Elasha, B., 2007. The value of indigenous knowledge in climate change mitigation and adaptation strategies in the African Sahel. Mitig. Adapt. *Strateg. Glob. 12, 787–797.*

Shoko, T. 2007. *Karanga Indigenous Religion in Zimbabwe: Health and Well-Being*. Aldershot: Ashgate.

Wani, K. A., and Ariana L. 2018. Impact of climate change on indigenous people and adaptive capacity of Bajo tribe, Indonesia. *Environmental Claims Journal*; 30:302–13.

Zulu, Z. 2025. Sins and Taboos: A Case Study of the Tonga People's Taboos. *Advances in Literary Studies.* 13(1)