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## The Role of Indigenous Knowledge Systems (IKSs) in Sustainable Conservation of Forest Resources in the Vhembe Biosphere Reserve

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## **Abstract**

Indigenous Knowledge Systems (IKSs), which were accumulated through the indigenous people's direct interaction with and dependency on the natural environment, play a critical role in forest resource conservation. However, this unique knowledge is under threat of extinction due to the current dominance of Western Scientific Knowledge (WSK) in forest resource management. This depicts the influx of Christianity, modernisation, economic development, and population growth, which pose a threat to the existence of IKS in forest resource conservation. Clashes between traditional leaders and other stakeholders over power relations in resource management have been a bone of contention, thereby escalating the conflict of roles in forest resource conservation. An exploratory qualitative design was done. Traditional leaders, traditional health practitioners, community members, and Vhembe Biosphere Reserve (VBR) members were selected purposively for the study. Data was collected using semi-structured interviews. Sankofa and Afrocentricity theories premised the study. The study revealed that indigenous knowledge in forest management is critical to conserving forest resources and livelihoods. Despite Western Knowledge being taken as superior, loyalty to the African indigenous ways and customs by the indigenous communities conserves the forest resources better. The authors argue that the government should promote bottom-up conservation strategies through the active involvement of traditional leaders and their communities in policy formulation and implementation for holistic conservation of forest resources. This should be made easy by outlining distinctive roles for respective stakeholders in forest resource management. The paper recommends the active involvement of indigenous knowledge holders in policy formulation and the legislative process of related laws.

**Keywords:** *Indigenous Knowledge Systems, Sustainable, Conservation, Forest, Resource management*

## **1. Introduction**

From a critical observation, the authors opine that the Vhembe Biosphere Reserve (VBR), located in the Limpopo province of South Africa, is extraordinarily rich in biodiversity, yet it stands out as the leading area with endangered forests. It is in the public domain that forests in the Vhembe biosphere are pregnant with numerous significant roles for the sustainable

wellbeing of humanity. Jesmine, Signgh, Onial, and Mathur (2016:307) succinctly submit that forests are:

Valuable as habitat for a diversity of life, agent of erosion control, regulator of watershed and climate, source of non-timber forest products, timber, and paper pulp.

With a meticulous view aimed at enabling a collective conservation goal, the Vhembe Biosphere Reserve has been understood to have an immense impact on the indigenous people's culture and economy and on the activities of the inhabitants encompassing it (Nimachow, Joshi, & Oyi, 2011). Since time immemorial, the indigenous communities within the Vhembe biosphere have made a mark in terms of contributing to conservation through indigenous customary law. It is trite to note that these indigenous communities were able to scaffold and build the foundation for justice, unity, and peace within their jurisdiction through observing customary law. In that regard, Muffi and Woodley (2010) noted that

The bio-cultural diversity management of forest resources incorporates the chiefs, spirit mediums, traditional health practitioners, and local leadership that possess incalculable knowledge about the habits, inhabitants and life cycles of plants and animals.

In antiquity, indigenous customary institutions spearheaded by traditional leaders managed natural resources, including forests, and this was well regulated through beliefs, taboos, and cultural values or norms (Chibememe, Muboko, Gandiwa, Kupika, Muposhi, & Pwiti, 2014). In accordance with Indigenous Knowledge Systems (IKSs), land (cultivated and uncultivated) is communally owned with traditional leaders being stewards, as done in various African kingdoms (Fairhead & Leah, 2004). Because of this social contract and the availability of indigenous customary laws, the exploitation of forest resources was well managed. It is through this that forest resources serve all communities sustainably: "as a source of food, medicines, fuel, water, building materials, and a place for spiritual activities" (Ellen & Harris, 2000). In that regard, traditional leaders adopted intergenerational governance. For instance, relating to hunting, they had made decisions on "who hunts, where to hunt, which season to hunt, and the animals to hunt", and it was an abomination for one to access the forest and exploit resources without their permission and without following the set rules (Chikwanha & Tanyanyiwa, 2011). Because of these

customs, negative impacts on forest resources and the environment at large were low.

Unfortunately, the dawn of colonial rule on the African continent is argued to have changed most traditional activities and exacerbated the degradation of the IKS. Mushuku (2014) amplified that by noting that “Christian missionaries introduced new faith and westernised formal educational systems” ushered in gradual changes in multiple indigenous practices, norms, and beliefs. Furthermore, IKS was then demonised and dismissed by colonisers and their associates as archaic and unsystematic, which is no wonder why it is becoming extinct (Kugara, 2017). Against this backdrop, IKS for forest heritage is worthy of being preserved for the benefit of African people regardless of the advent of Western Knowledge Systems (WKSs).

What most IKS practitioners criticised is that the emergence of WKSs undermine IKS and introduced the commercial exploitation of forest resources “at an industrial scale for export to global markets” (Mawere, 2010). Ironically, the West have continued to use indigenous materials they demonised for their own benefit to support their industrial growth. Worse still, the same materials or medicinal plants, which are looted from Africa are refined and repackaged in the West and exported back to Africa under the purported labels of ‘Western medicines’ or ‘Western inventions’. This hypocrisy is typical of colonial and imperialist behaviours; ploys of implanting an inferiority complex into the minds of Africans so that they hate anything that is local and African. In this way, Westerners create an easy path for themselves to continue looting African resources unhindered. The African leaders at strategic levels of governance, including traditional leaders who are supposed to be the custodians of indigenous materials do not see much value in anything local because their minds have been captured by the coloniser. So, the mindset change is the most important factor to consider for the pendulum to change in favour of Africa. WKSs enabled outsiders to invade indigenous forests to commercially exploit timber and other forest resources like “rubber, kola nuts, palm oil, and so on.” On the other hand, vast forests were cleared for commercial cultivation of cash crops. In a bid to protect the South Africa’s forest heritage, the national government opted to create protected areas, such as the Vhembe Biosphere Reserve. However, what the authors critique more about this creation is that IKSs of natural resource management are neglected at the expense of modern statutes for its protection. The conundrum around this issue is centered on the fact that the governance and protection of the Vhembe Biosphere Reserve via modern means is unfruitful due to increase in biodiversity loss. Based on the authors’

fieldwork observations, forests in the Vhembe Biosphere Reserve are prone to deforestation and severe degradation due to “population growth and unsustainable agricultural practices, agro-industry, bushfire and logging”. Consequently, there is considerable unseen habitant destruction which intensify threats on species populations. As such, this paper outlines a corrective to the Western Knowledge Systems (WKSs) that demean Indigenous Knowledge Systems (IKSs) for forest management by advancing a clear and logical unadulterated view of Africans.

## 2. Theoretical Framework

The paper was premised on the following theories:

### ***2.1 Afrocentricity Theory***

In South Africa, most conservation laws and policies are based on Western values, theories, and legal concepts. Against this backdrop, the authors argue that the adoption of the Afrocentricity Theory is fundamental to restoring and maintaining forest resources within African indigenous communities. The Western-oriented laws and practices that have been put in place to safeguard the forest’s resources do not resonate with African values and beliefs. As such, indigenous communities feel oppressed and challenge these laws by violating their rights to exercise their deprived rights: “right to enjoy their own culture, to profess and practice their own religion, and to use their own language, in private and in public” (Article 2.1 of the Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities, 1992). In view of this, numerous indigenous forests are in a worse situation because they are governed dominantly by laws that do not consider African values and norms. Therefore, the authors use the Afrocentricity theory in a reactionary note against the pursuit of using Western-oriented norms (laws) to govern the practical concerns of everyday challenges encountering African indigenous communities. According to Chawane (2016), to better resolve challenges affecting Africans, there is a need to usurp African means and ideologies in formulating them. In line with this, the paper is premised on challenging exclusionary laws, policies, and practices that do not include African values and norms in managing forest resources within African indigenous communities.

## **2.2 Sankofa Theory**

According to Quan-Baffour (2008), Sankofa means 'look back and take it.' This theory entails that for proper management of African indigenous forest resources, there is a need to go back to the unadulterated ways of African means of managing forest resources and blend them into modern ways that are fit. The authors adopt Sankofaism in appraising how African indigenous philosophy can be a rubric in guiding the process of having hybrid laws for forest resource management in African indigenous communities. The authors argue vehemently that the governance of indigenous forest resources ought to be determined directly and/or indirectly by the indigenous norms, aspirations, and values of the indigenous communities in question. Indigenous forests are better managed for the benefit of future generations if the governance regime of these forests is strongly anchored in African indigenous thought while learning new ideas and thoughts from other worldviews. It is because of this that African indigenous knowledge holders (traditional leaders, the elderly, and traditional health practitioners) were used to going the indigenous way in a bid to accommodate it in the forest resource management legislation.

## **3. Literature Review**

### **3.1 Law and Environmental Function**

The main strategy to manage protected areas is environmental law, and this law constitutes the basis of environmental governance (Jeffery, 2005). The law is an essential instrument for the protection of numerous issues. First, law is defined by Yates (2011) as:

The aggregate of legislation, judicial precedents, and accepted legal principles; the body of authoritative grounds for judicial and administrative action; especially, the body of rules, standards, and principles that the courts of a particular jurisdiction apply in deciding controversies brought before them.

On the other hand, Ndifiembeu (2006:10) describes law as,

A formal means of social control involving the use of rules that are created, interpreted, and enforced by specially trained persons in a particular community.

From the above definitions, one can deduce that law consists of rules of conduct, and trained people are given authority to enforce them. Within the context of states, law is created and administered through a system of courts in which judges hear disputes between parties and apply a set of rules in order to provide an outcome that is just and fair. Justice represents the ultimate goal towards which the law, with its important role in creating stability and change in society, protecting private and public interests, and facilitating conflict resolution in an orderly manner, should strive (Ndifiembeu, 2006).

Insofar as the environment is concerned, the law has a threefold function (Storm, 2000). The first and most significant is its existential function, which has to do with its care for the environment. By ensuring the protection of soil, water, air, flora, and fauna from negative human impacts. Secondly, the law helps to curb the depletion of natural resources and safeguard the environment that man needs in order to remain healthy and live a dignified life. Thirdly, its existential function is complemented by its social function. Environmental law helps secure facilities for people to relax and enjoy the natural environment. Its social function is linked to its aesthetic function. It allows humans to experience the diversity, uniqueness, and beauty of nature (Storm, 2000). Environmental law is an essential tool of environmental governance, which is important in addressing the challenges confronting the forests.

### ***3.2 Environmental Governance***

Governance encompasses governmental actions and the actions of actors such as private sector groups, Non-governmental organisations (NGOs), and other civil society groups (Lemos & Agrawal, 2006; Speth & Haas, 2007). Civil society has been calling on authorities to adhere to the norms of good governance in their management of resources (Speth & Haas, 2007). Good governance, according to the United Nations (UN), is governance that is accountable, transparent, participatory, consensus-oriented, responsive, effective, efficient, equitable, inclusive, and adheres to the rule of law (UNESCAP, 2011). Environmental governance is an integral part of governance. The concept of environmental governance encompasses the relationship between governmental and non-governmental structures where power is exercised in environmental decision-making. It has to do with how decisions are made, with emphasis on the need for citizens and interest groups to have their voices heard (Jeffery, 2005). The engagement of the public is essential for creating an environmentally sustainable future. Governments alone cannot solve the

major environmental problems. Only through the building of partnerships within a civil society that is well informed and empowered within the framework of good environmental governance can this challenge be met (Jeffery, 2005; Du Plessis, 2008). With environmental governance, citizens should highlight inadequacies in decision-making and ensure that environmental laws are effectively enforced.

Good environmental governance can be measured by the effectiveness of strategies implemented to achieve environmental goals. These strategies include capacity building, public participation, access to environmental information, and justice (Jeffery, 2005; Du Plessis, 2008). Even though the Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in Environmental Matters, commonly known as the Aarhus Convention, is a regional environmental agreement limited to the United Nations Economic Commission for Europe area (Albrecht, 2011), it has global significance due to its promotion of environmental governance (Jeffery, 2005). It focuses on the need for participation by civil society in environmental issues as well as the importance of access to environmental information held by the public authorities. The Convention, according to Albrecht (2011:158), "regulates necessary requirements for participation in all kinds of environmental procedures." Moreso, it provides that public participation, access to information, education, and awareness are the most important elements of environmental governance (Jeffery, 2005).

Access to environmental information enables the public to be well informed and capable of questioning government actions. This can lead to more responsible environmental decision-making and greater potential for environmental justice. In 2001, the former Secretary General of the United Nations, Kofi Annan, described the Convention as the international community of nations' most advanced regional environmental governance instrument (UNECE, 2001 in Dore, 2001). Law and environmental governance involve standard-setting and institutions that guide the interaction of government and non-governmental structures in implementing environmental policy (Lemos & Agrawal, 2006; Speth & Haas, 2007). If a country's legal framework is devoid of the elements of good environmental governance, it will likely be difficult to achieve national environmental policy objectives through it.

#### **4. Methodology**

An exploratory qualitative design was chosen to study the role of Indigenous Knowledge Systems in the sustainable conservation of forest

resources in the Vhembe Biosphere Reserve. The following participants were selected:

**Table 1:** Participants who took part in the study

Category	Number
Traditional leaders (participants 1 and 2)	2
Traditional health practitioners (diviner [participant 3], herbalist [participant 4], and faith healer [participant 5])	3
Vhembe Biosphere Reserve members [participants 6 and 7],	2
Community members (3 elderly [participants 8, 9, 10] and 2 youths [participants 11 and 12])	5
<b>Total</b>	<b>12</b>

All participants were picked from one village within the Vhembe Biosphere Reserve. A non-probability sampling method was used. Participants were selected purposively. African indigenous ethics and protocols were adhered to: dressing properly (women covering their shoulders and not wearing trousers), asking permission, and doing some rituals like consulting the ancestors for permission to carry out the interview when getting in the consultation room of traditional health practitioners. The participants were promised anonymity and were not paid anything to participate in the study.

## 5. Findings

### 5.1 State of Forests

The authors learned that the custodian of the forest resources in South Africa is the Department of Agriculture, Forestry, and Fisheries (DAFF). As such, it ensures that they accrue sustainable development even in ecosystem services. Most of the forests in the Vhembe Biosphere Reserve play a critical role in providing livelihoods for many households. One participant had the following to say:

Almost everything we do on our homesteads is directly and/or indirectly linked to the forests. We do our rituals, harvest medicines, indigenous fruits, firewood, at times water and equipment for the construction of our houses and animal shelter. (Participant 8)

From the above response, indigenous forest resources create employment for some people and provide energy, shelter, food, and ecosystem services for the sustainability of the forests. Since the indigenous communities

livelihoods are dependent on indigenous forest resources, managing these forests is critical for sustainability. This entails guarding and meticulously overseeing the social, environmental, and economic engagements done by communities in these forests.

Traditional leaders in the study were open to saying deforestation was a major challenge in their communities. The advent of load shedding has made the situation worse as different people go to their forests to harvest their trees for firewood for commercial purposes without their authorisation. Also, contrary to their community's mores, some people use machines to chop down these trees. This has greatly affected their platform to perform their cultural and spiritual veneration as expected by their ancestors. Without exonerating indigenous communities in their jurisdiction, much of the exploitation of forest resources is done by outsiders. Moreover, the overharvesting of fruits is a cause for concern as animals end up coming into the villages to look for food. This disturbs the ecosystem services that play a pivotal role in managing climate change. The State of the Forests report (2018:11) notes that South African forests are "the lungs through which the earth breathes." As such, these exploitations create an enormous threat that robs future generations of the chance to enjoy these resources. In the same way, the State of the Forests report (2018:11) submits that,

Paradoxically, our forests are exposed to constant threats ranging from land invasion, land restitution and redistribution, uncoordinated policy development, existing and emerging pests and diseases, alien invasive species, fire, and theft.

In view of the South African National Development Plan (2030), efforts were designed to ensure that forest resources are intelligently utilised to unlock profits that also bring investors in a bid to bring practical realisation of their contribution. Despite some of the forests in the Vhembe Biosphere Reserve being small, the country's developmental aspirations can be met if full protection and utilisation of resources are achieved. Also, indigenous communities relying on these forests will have enough to care for them. As such, management practices that are sustainable are called for. Participants noted that the exclusion of indigenous mechanisms in the management methods has led to the decreasing of forest resources over the past few years, among other factors.

Participants did not hide the fact that if key stakeholders can be brought together to develop strategies that include African ways, forest resources (both unmonitored and plantations) are destined to thrive. Some

of the participants were open to citing that some species that are extinct, champion trees (tree species with extraordinary diameter, height, crown spread, age of tree, and cultural heritage), and protected species are found in their indigenous forests. With regards to these, Section 12 of the National Forests Act (84 of 1998) prohibits people,

To cut, disturb, damage, destroy, remove, or transport any protected trees or parts thereof without a valid permit.

The authors learned that within the Vhembe Biosphere Reserve there are some nature reserves that gain the privilege of getting extra protection; hence, exploitation of forest resources is monitored. Despite the monitoring and security services offered, rumours of some syndicates that surreptitiously exploit forest resources continue. Some participants were outspoken, saying that if they are not stopped, their *modus operandi* will be modified, and there is a likelihood they will use it in other provinces. So far, the South African Constitution (1996) has been hailed as the most progressive constitution in the world. It should be noted, therefore, that the Constitution in South Africa is the *suprema lex* of all laws. This Constitution obliges the government of the day to make sure that environmental assets are protected for the sake of future generations. Section 24 of the Constitution says,

Everyone has the right

- (a) To an environment that is not harmful to their health or wellbeing; and
- (b) To have the environment protected for the benefit of present and future generations through legislative and other measures that
  - (i) Prevent pollution and ecological degradation;
  - (ii) Promote conservation; and
  - (iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

To give effect and pragmatic realisation to the above Constitutional imperative, the National Veld and Forest Fire Act (101 of 1998) and the National Forests Act (84 of 1998) were promulgated. These laws cemented the desire to ensure that present and future generations are protected in the utilisation of forest resources. Also key in their outline is the issue of equal distribution of the social, economic, and environmental benefits that accrue from these resources. To ensure these benefits reach the grassroots

levels, the participants argued that they seem to be neglected in the commercial harvesting of the forest resources, hence their desire that the African indigenous mechanisms of conservation be included in all the processes.

## ***5.2 IKS Methods of Conserving Forest Resources***

Many indigenous communities within the Vhembe Biosphere Reserve have been successful in using Indigenous Knowledge Systems to manage forest resources. Despite the development that has happened within their areas, most of the indigenous peoples still subject themselves to indigenous leadership and indigenous laws. Some of the indigenous methods they highlighted that are key to conserving those forests are as follows:

### ***5.2.1 Totems***

Totems are generally believed to be an orderly way people of different groups associate themselves with some species of animals. The indigenous communities identify and call themselves using the totem, and it is arguably believed that they are descendants of it. The authors argue that totems cherish indispensable historical narratives that make people who they are. Tarugarira (2017:19) postulates that,

Obviously, there must have been internal motives behind the basis of totemism, anchored on the ideas of animism (the various beliefs in souls), fetishism (the belief in the power of inanimate objects), and ancestor veneration.

The authors, through the views given by participants, drive the narrative that, aside from the importance of totems in documenting the rich history of a people, they play a critical role in forest resources management in most indigenous communities. This is premised on the Afrocentricity theory which underpins the revival of African ways in providing solutions to our day-to-day challenges. The authors learnt that some participants still uphold their totems to such an extent that there are some plants, animals, and trees they do not cut in reverence of their totems. In this way, the refraining from eating certain plants and animals conserved the resources from the forests.

One participant noted,

Totems to us are very key. Unlike the Colonial narrative to discredit them, they played a significant role in protecting some species in the forests. For example, if one's totem was a zebra. It meant that such people should not eat zebras at all costs. This would therefore mean there was a balance of having zebras eaten by everyone in the community, hence, manage our forest resources. (Participant 8)

Regarding the above, it was also reported that groups of people would emulate and at times mimic the life of the animal they subscribe to. Some vegetation that some of the animals that were their totems was avoided as well. The philosophical underpinning of such beliefs are following conserved forests resources as there was control of people not to all eat one particular vegetables and/or tress.

### *5.2.2 Harvesting Traditional Medicine*

The organic intellectuals in the study succinctly pointed out that the communities in the Vhembe Biosphere Reserve heavily relied on Indigenous Knowledge Systems for sustainable forest resource management. Despite the influence of Western Knowledge Systems (WKSs), most communities have been religiously resilient to their deeply entrenched indigenous leadership and customary laws that have been there since time immemorial. It is indispensable to note that because of such leadership and adherence to indigenous law, most indigenous societies utilised forest resources with due diligence. For instance, the indigenous knowledge and 'initiations' acquired by traditional health practitioners (herbalists, faith healers, diviners, traditional surgeons, and traditional birth attendants) equipped them to sustainably extract their medicine from nature in a harmonious manner. Mwaura (2008) opines that traditional health practitioners merely harvested the part of the plant needed without killing the plant. This was also done with proper rituals (kneeling and clapping of hands – other aspects the participants advised the authors not to disclose and document them because of their sacred nature) that depicted the time, season and instruments used in harvesting.

The above shows that indigenous communities meticulously adhered to IKS values, norms, principles, and religious attachments directly or indirectly linked to forest resources. The authors' rubbing shoulders with the organic intellectuals in the area proved beyond any speck of doubt they have profound comprehension of IKS. According to them, they are

moving libraries who strongly hold views that IKS used to be and remains the leading effective way in the management and conservation of forest management. To buttress this, Obiara and Emeka (2015) content that down history, almost all indigenous communities lived in harmony and in a symbiotic relationship with their surroundings and remained in the same areas for years without any harm to the same environment. One participant noted that,

As traditional health practitioners, we are very knowledgeable when it comes to harvesting our medicines in the forests to avoid destroying them. We are well trained that we harvest the plants towards sunset so that the plant is not affected by the sun but be able replenish at night. We know the type of rots that are not key for the survival of the tree. So, we know how to 'operate' the tree: to remove the bark, roots, and other essentials without tempering with the life of the tree. (Participants 4)

The authors emulated that indigenous science played a critical role in how practitioners harvested their medicine. Above all, thumbs up to the fact that this knowledge was taught to all traditional health practitioners before they were released to start their practice in sole. Interesting was the fact that failure to adhere to such guidelines a practitioner would face chastisement from the ancestors. The participants noted that the forests belonged to the ancestors and one ought to practice due diligence to ensure the ancestors are happy as they inhabit these places. Also confirmed by the participants in the study is the fact that harvesting of medicine is done on older trees and less on young trees. This was meant to allow the young trees not to die but replace the older trees. The same applied to harvesting of trees for firewood amid the loadshedding that has seen communities relying more on firewood for cooking. In this way, dried branches are usually encouraged rather than cutting down a wet tree.

### *5.2.3 Spirituality*

The issue of spirituality also plays an integral part in conserving forest resources. The views of the participants revealed that indigenous communities had a rich and profound understanding of IKSs that are key for forest management. Most forests in the Vhembe Biosphere Reserve were said to be sacred. This meant that they were associated with certain rituals and cultural protocols that enabled the ancestors to allow entry and intelligent harvesting of their resources. These cultural protocols are argued

to enable persistent existence of forest resources within indigenous communities.

The authors' observations, which are corroborated by the participants, showed that disregard of the cultural protocols, rituals, and indigenous practices in accessing and using these forest resources can attract curses that will cause drought and/or strange animals attacking community members. To give flesh to this, one participant said,

Going against the rituals and practices of these forests is disastrous. We have heard many cases where strange things happen to people who ignore our customs. Of late, we have been having animals escape from Kruger to attack people as the ancestors are angry at the way people are overharvesting trees to go and sell. Whether these animals escape, or they are spiritual animals no one can really tell. What is surprising about these animals is that they do not kill you but scare and/or injure you as warnings. Some of the reported animals are not even known – they have strange descriptions. The ancestors are angry. (Participant 3)

In line with the above, rituals associated with forest resources preservation were key. Rituals could be done to clean the springs in the forests that supply water. This was reported to be a way of saying to the ancestors, "We are responsible for the protection of the natural resources." Edgar, Matshidze and Lee (2022:14) buttressed this view.

Indigenous African communities used taboos to communicate important aspects of their day-to-day activities. In many indigenous African water sources, there is a sacred component that Africans respect. This spiritual component was informed by ancestral beliefs, while others were informed by the availability of *zwijho*. However, they served the same purpose of water conservation and management.

In the above quote, some taboos like having women who have reached menopause were key when it comes to cleaning the springs and other water sources. *Zwijho* (sacred sites) played a pivotal role in the sustenance of human and environmental well-being. Failure to be responsible by African indigenous communities was argued to provoke the ancestors and snakes would increase around the water sources to protect them. According to Mawere (2012:87), these "promote dialogue between different conservation knowledges and practices." While traditional health practitioners become involved in addressing these spiritual dimensions, the authors argue that some of these indigenous forest conservation practices are fundamental and need to be revived and integrated in the mainstream

for conservation. This is because modern laws play a certain role but fail to instill fear as some of the spiritual protection. Being adamant in the Western-oriented thinking and disregarding the indigenous mechanisms as unscientific merely exacerbates the challenge of forests resources conservation throughout the country and impacts on climate change.

Traditional leaders and most of the elderly members of the community were cited by participants as custodians of the IKSs. Also, it was noted that through them, indigenous customary law established soberness and solidarity in sustainable forest resources management. Besides these mentioned methods, cosmological beliefs also aided in conserving and managing forest resources. These ensured that all moral decadence in defiling forest beliefs is curbed, and people meticulously adhere to the indigenous prescripts. One participant noted that,

The issue where people use the cover of the forests to commit adultery and fornication is forbidden by ancestors as this defiles the forests. Also, going to sacred rivers in these forests dressed indecently is forbidden. People should not throw litter in the forest, as they attract the wrath of ancestors. All these were to conserve our forests. (Participant 10)

Sentiments echoed by participants showed that modern laws were in some way to blame for influencing people to exploit forest resources. It was mainly the older community members who were well conversant with indigenous methods of conservation and management of forest resources. Most of the young community members showed ignorance of these methods. And this ignorance was attributed mostly to the westernised education system and economic hustles prevailing in rural communities. To substantiate this assertion, Obiara and Emeka (2015) opine that:

Western Knowledge is viewed as having a monopoly on truth and regards knowledge that originates outside the institutionalised Western education system as an unacceptable fallacy.

Deducing from the above quote, the authors contend that the young community members (mostly the ones who have been exposed to Western education) misconstrue IKS and its indispensable role in conserving and managing forest resources. The lack of documentation of IKS from an Afrocentric perspective further exacerbated the misconstruing of IKS.

Traditional leaders and municipalities ought to work hand in hand in the distribution of land. This will help avoid sacred lands that are key areas for rituals and meant for indigenous practices and activities. This will be a

sure way to avoid a bone of contention, which will result in unending fights over the control of land. This 'war', if not resolved, will lead to serious challenges over access to land, which will undermine the sustainable livelihood of indigenous communities as they will encroach on forests in search of arable land, grazing land, and settlement areas that negatively affect the environment.

### ***4.3 Challenges in Conserving Forest Resources***

#### ***4.3.1 Monopoly of knowledge by Western Knowledge***

From the views gotten from the participants, they expressed concerns about the manner in which Western knowledge is used as the standard of truth, even if they have to verify the authenticity of indigenous knowledge. This is buttressed by Wolfgram (2006), who contends that Western Knowledge has the monopoly on determining the efficacy of everything. One diviner noted the following sentiments:

On what basis really can we have the existence and reliability of our knowledge gauged against white men knowledge. It seems that our norms, customs, taboos, and myths in forest resource management need their validation to be accepted first. Who does that to their knowledge using our ways? (Participant 3)

While talking to the youth, the authors could clearly note the way Western Knowledge has been adopted and has changed and stereotyped the way the youth view indigenous knowledge. With the way they have taken Western Knowledge as the standard, they could not hesitate to laugh and question the literacy of traditional knowledge holders in overseeing forest resource management. According to them, one can only be well equipped if they have attended formal schools. With these attitudes emanating from the youth, it is clear that if nothing is done to preserve IKSs, they will soon be extinct. On the other hand, knowledge holders lamented over how their knowledge has been dismissed and thrown in the dustbin by the advent of formal schools. Consequently, this move has made formal education supreme, thereby undermining indigenous knowledge in forest management. This has made Western knowledge the leading education system when it comes to formulating environmental policies in forest management (Obiara & Emeka, 2015).

The authors questioned the use of Western Knowledge to question and validate Indigenous Knowledge Systems. Kugara, Mdhluli, Daswa, Matshidze, and Ramavhunga (2021) cited that such an exercise introduces methodological challenges and has deplorable application. Some of the youth would demand Western-oriented justifications for IKS practices like myths and taboos. Consequently, the failure of some youth to get Western-oriented justifications would lead them to disregard and violate established beliefs, values, and norms for forest management.

A diviner cited that,

The influx of migrant populations, western-based education, modernisation, and Christianity are among the factors that are of threat to customary beliefs and practices. (Participant 3)

The above participant was sure that most people were made to abandon their indigenous way of life because they were made to believe that it was inferior to other knowledge forms, mainly from the West. It is because of this that most people who were indigenous knowledge holders and used to preside over indigenous ceremonies have converted to Christianity. Those who converted them made them label their way of life as evil and associated with the demonic. Kugara (2017) buttressed this assertion by noting that numerous indigenous communities abandoned their ways because they were said to be associated with witchcraft. Consequently, this abandonment of IKSs has threatened the forest conservation management strategies that were key to these communities.

#### *4.2.2 Modernisation key in Forest Resource Management*

The authors have learned that modernisation in forest resource management has caused custodians of IKSs to be spectators in their own jurisdictions. This, according to participants, has caused traditional leaders to be incapacitated and fail to fully control people under their jurisdiction when it comes to forest resource exploitation. Key to modernisation is the Western-oriented economic development that promotes the destruction of forests and management systems unfriendly to conserving forest resources.

Looking at the scale of how Indigenous Knowledge Systems have been endangered, there is a sure hope that forest resource exploitation will increase in areas inhabited by indigenous communities. Speaking on the latter, one traditional leader opined,

Our heritage resources are in danger. Modernisation has introduced commercial competition that is concerned with profiteering without due regard for our forests. The increasing market forces and global means of production have threatened the effectiveness of IKS in forest resource conservation. At the same time, our rituals done in the forests are soon to be eliminated, and the protection of our climate through these harvests is hampered. (Participant 2)

Due to 21<sup>st</sup>-century economic hustles by modernised people, the authors noted that the commercialisation of forest products such as firewood and wild fruits has expanded. Modernisation has put pressure on these forests because of the increase in human population, which translates to a high demand for forest resources. The authors argue that this high demand for forest resources has bred uncalled competition in indigenous communities to access forest resources, thus collapsing established Indigenous Knowledge Systems meant to protect forests.

The traditional leader noted that,

We who are custodians of Indigenous Knowledge Systems feel like the adopted laws in governing forests usage are to a greater extent overridden by the government (which is Western-oriented in its laws) and that we custodians of these indigenous communities continue occupying ceremonial roles while our forests are being exploited. (Participant 1)

Extrapolating from what the chief said, it can be deduced that most economic initiatives in indigenous communities are always given priority over their traditions and livelihoods. For example, the Phipidhi waterfall, which is densely a forest resource and contains a natural sacred site, was constructed to give room to a tourism development. Indigenous communities in the area contest that they were not consulted when the constructors started the project, which saw a huge destruction of their forest and place of veneration (Sinthumule, Mugwena, and Rabumbulu, 2021). In terms of the Indigenous Knowledge Systems, such a violation of a sacred site would attract harsh penalties, but the interdict of the court did not work. One would be left to think that maybe the destruction and exploitation of the forest was left because they were focusing on accruing financial benefits; unfortunately, it was the opposite.

#### *4.3.3 Mixed Settlements*

The chief was puzzled to say that mixed settlements in their indigenous communities have become a bone of contention that poses a threat to the Indigenous Knowledge Systems meant for forest resource management. Since the world has become a global village, people have migrated from other continents, countries, provinces, and villages to settle in a village that has cultural norms and values that are strange to them. In the traditional leader's words,

People from different tribes or ethnic groups are settled together, for example, in the study area, the Tonga, Ndebele, Shona, Nambya, and Nyanja live together. This has resulted in cultural practices being diluted and the encroachment of sacred places on agricultural land and other forest produce resources due to conflicts of beliefs and customs.  
(Participant 2)

Being cognisant of the rainbow nation and the benefits of mixing with other ethnic groups, the chief and other participants were clear to note that people have different ethnic beliefs, values, norms, and customs. The challenge that emanated was the fact that other ethnic groups from other places persisted in practising their indigenous values and norms in their community instead of conforming to the ones in their community in a bid to prevent confusion and bring equal efforts to conserving forests. The participants were clear that their community was theirs and that the taboos, values, myths, norms, and indigenous practices governing their sacred places are for that particular community, and other ethnic groups that have joined them find it difficult to follow that. In line with this, one youth said,

Let everyone who visits Rome do what the Romans do. We have our own customs here and cannot take their customs and make a hybrid.  
(Participant 12)

Some of the elderly people showed disappointment at the way some of the ethnic groups and nationalities in the area harvested some prohibited tree species for firewood. This, according to them, angers the ancestors, as this is a recipe for excess exploitation of forest resources, as these trees do not last despite providing good fire. The mixed settlement was also noted to lead to indigenous knowledge as it is passed orally. It is assumed that with time, their indigenous knowledge will be distorted and overrun by those from outside. To make matters worse, the cultural practices that were key

in transmitting related indigenous forest management knowledge are gradually being replaced because of modernisation. The authors argue that indigenous knowledge loss in forest management is no doubt a threat to its efficacy. Lastly, its loss we comprise forest management as it is also not properly and chronologically documented.

## **Conclusion**

In conclusion, the article has endeavoured to show that indigenous knowledge for forest management is critical to conservation. Besides its indispensable role in forest management, forest exploitation is rife, and IKS is also gradually disappearing. The study knowledge holders openly admitted to the degradation of IKS, hence arguing for its resuscitation. Nevertheless, its distortion and disappearance are due to the elevation of Western Knowledge, mixed settlements, and modernisation, IKS will soon be extinct. Therefore, the study recommends the following:

- Proper documentation of IKS before submitting it for integration with Western Knowledge
- Active involvement of the indigenous knowledge holders in policy formulation and the legislative process of related laws, and
- Defining the precise and concise roles of various forest managers to avoid role conflicts.

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## Reference List

Chawane, M., 2016. The development of Afrocentricity: A historical survey. *Yesterday and Today*, (16), pp.78-99.

Chibememe, G., Muboko, N., Gandiwa, E., Kupika, O.L., Muposhi, V.K., and Pwiti, G., 2014. *Embracing Indigenous Knowledge Systems in the Management of Dry land Ecosystems in the Great Limpopo Trans frontier Conservation Area; The case of Chibememe and Tshovani Communities.* <http://doi.org/10.1080/14888386.2014.934715>.

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

du Plessis, A., 2008. Public participation, good environmental governance and fulfilment of environmental rights. *Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad*, 11(2), pp.1-34.

Edgar, B.A., Matshidze, P.E. and Lee, K.S., 2022. Exploring Vhavenda Indigenous Methods of Water Conservation and Management in Tshidzivhe Village, Limpopo Province, South Africa. *South African Journal of Cultural History*, 36(2), pp.1-22.

Ellen, R. and Harris, H., 2000. *Indigenous Environmental Knowledge and its Transformations; Critical Anthropological Perspectives*. Amsterdam: The Netherlands: Harwood Academic Publishers pp. 1-33.

Jeffery, M., 2005. Environmental Governance: A comparative analysis of public participation and access to justice. *Journal of South Pacific Law*, 9(2).

Jesmine, B., Signgh, Y., Onial M., and Mathur, V.B., 201). *Traditional Knowledge System in India for Biodiversity Conservation*. Indian Journal of Traditional Knowledge, Volume 15(2) pp. 304-312.

Kugara, S.L., 2017. *Witchcraft belief and criminal responsibility: A case study of selected areas in South Africa and Zimbabwe* (Doctoral dissertation).

Kugara, S.L., Mdhluli, T.D., Daswa, T.J., Matshidze, P.E. and Ramavhunga, N.E., 2021. The significance of multicultural methodologies on African indigenous knowledge research. In *Ethical Research Approaches to Indigenous Knowledge Education* (pp. 83-109). IGI Global.

Lemos, M.C. and Agrawal, A., 2006. Environmental governance. *Annu. Rev. Environ. Resour.*, 31, pp.297-325.

Lemos, M.C. and Agrawal, A., 2006. Environmental governance. *Annu. Rev. Environ. Resour.*, 31, pp.297-325.

Mawere, M., 2010. Indigenous knowledge systems' (IKSs) potential for establishing a moral, virtuous society: Lessons from selected IKSs in Zimbabwe and Mozambique. *Journal of Sustainable Development in Africa*, 12(7), pp.209-221.

Mawere, M., 2014. Forest insects, personhood and the Environment: Harurwa (edible stinkbugs) and conservation in south-eastern Zimbabwe.

Muffi, L. and Woodley, E. (2010). *Bio Cultural Diversity Conservation: A Global Source*. New York. Routledge.

Mushuku, A., 2014. *Revisiting Indigenous Knowledge Systems for Sustainable Management of Natural Resource in Fast Track Resettlement Schemes: A comparative analysis of Indigenous Knowledge System use in A1 Resettlement Schemes and Communal Area in Chiredzi and Zaka Districts, Zimbabwe*: Greener Journal of Social Sciences Volume 4(1) pp. 24-36.

Mwaura, P., 2008. Indigenous knowledge in disaster management in Africa. *Nairobi: United Nations Environment Programme*.

Nimachow, G. Joshi, R.C., and Oyi, D. (2011). *Role of Indigenous Knowledge System in Conservation of Forest Resources- A Case study of the Aka tribes of Arunachal Pradesh*: Indian Journal of Traditional Knowledge. Volume 10(2) pp. 276-280.

Obiora, A.C. and Emeka, E.E., 2015. African indigenous knowledge system and environmental sustainability. *International Journal of Environmental Protection and Policy*, 3(4), pp.88-96.

Quan-Baffour, K.P., 2008. The wisdom of our forefathers: Sankofaism and its educational lessons for today.

Sinthumule, N.I., Mugwena, T. and Rabumbulu, M., 2021. The Conflict between Preserving a 'Sacred Natural Site' and Exploiting Nature for Commercial Gain: Evidence from Phiphidi Waterfall in South Africa. *Sustainability*, 13(18), p.10476.

Speth, J.G. and Haas, P.M., 2007. *Global environmental governance*. Pearson Education India.

Storm, D.R., 2000. *Winery utilities: planning, design and operation*. Springer Science & Business Media.

Tarugarira, G., 2017. Dimensions of totemic history and its related accessories among the Gumbo-Madyirapazhe clan of Gutu, Zimbabwe. *DANDE Journal of Social Sciences and Communication*, 2(1).

The Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities, 1992.

The National Forests Act 84 of 1998.

The National Veld and Forest Fire Act 101 of 1998.

Yates, S. (2011). Black's Law Dictionary: The Making of an American Standard. *Law Libr. J.*, 103, 175.