

## Utilization of indigenous knowledge systems in water management in Hurungwe District, Zimbabwe

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### Abstract

Culture is a way of life which pervades all aspects of people's existence wherever they are situated. Thus the study explores the Korekore culture in a bid to show its vitality and relevance to modern society's water management in Zimbabwe. The article posits that the Korekore people have indigenous knowledge systems (IKS) that can be tapped and integrated not only in water management but in all sectors of the economy of Zimbabwe and perhaps elsewhere. Adopting a qualitative research design in a case study approach, purposive sampling was used to select community elders and traditional practitioners who are associated with in-depth knowledge of traditional beliefs and practices. The data collection techniques included interviews, questionnaires participant observations and peer reviewed journal articles analysis. Findings show that Korekore beliefs and practices on water resources management can be used as effective water management tools. The paper argues that if blended with modern approaches, IKS can be an effective intervention strategy to mitigate the challenges faced in water management, particularly in arid environments where the dearth of water is commonplace. The paper also posits that the Korekore cultural beliefs and practices are not only relevant at local level but are consistent with the principles of Integrated Water Resources Management (IWRM) and thus must be strengthened and integrated into different sectors of the economy as part of a people's heritage.

**Keywords** Korekore, water management, indigenous knowledge, culture, heritage, integration

### Introduction

There has recently been a surge of interest worldwide in the way indigenous people interact with their environment and the value of their knowledge systems. Many international organizations, such as the Convention of Biodiversity, the United Nations Working Group on Indigenous Populations, the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Working Group on Traditional Resource Rights, have called for the recognition of indigenous peoples rights to self-determination, the value of their knowledge, and the need for strategies to protect and preserve this knowledge [1]. The position taken by these international bodies has largely been precipitated by the global

environmental crisis, which revealed the shortcomings of an exclusively scientific approach, often within the western economic development paradigm, in solving the multitude of environmental problems facing present and future generations. Indigenous societies just like any other society possess rich experiences, understanding and explanations which they have long acquired in relation to their specific social and ecological contexts [2]–[4]. Rural and indigenous people use local knowledge to inform decision-making about fundamental aspects of day to day life [5]. This knowledge is integral to a cultural complex that also encompasses resource use practices, social interactions, ritual and spirituality. These unique ways of knowing are important facets of the world's cultural diversity, and provide a foundation for locally-appropriate sustainable development. The paper identifies key features of the Korekore IK in water management in Zimbabwe; (i) examines the relevance of the Korekore IK in water conservation; and (iii) provides suggestions for policy-makers on how to appropriate IK in water conservation in Zimbabwe.

### Methodology

#### The study area

This study was carried out in Hurungwe District in Zimbabwe. The population of Hurungwe is 329 197 of which 164,711 are males and 164,486 are females [21]. The Mashonaland West province in which the Hurungwe District is situated has a total population of 1,501,656 constituting 747,475 males and 754,181 females. The district is located in southern Africa on latitude 16° 24' South of the Equator and longitude of 29° 35' East of the Greenwich Meridian, and placed at an altitude of 1165 metres. The district covers an area of 19 843.26 km<sup>2</sup> [21]. Estimations of religious identity in the country indicate that Christianity is the most popular religion having 85% of the population as its adherents [1]. While African Traditional Religion constitutes only 3% of the population, other religions account for 12% of the people. Although the Zimbabwean government does not make it mandatory to register a religious group, estimates vary on how much of the population is syncretic. There are few Zimbabweans who have not encountered Christianity in some form, but many Christians also associate themselves with traditional practices on certain occasions (e.g. *Kurova Guva* (ritual) ceremonies). This, therefore, gives syncretism a strong status in the country. Indeed, those who constitute this

category of worshippers account for 50% of the entire population. Pure Christians are estimated at 24% while other religions constitute 26% [6]. A good number of indigenous churches have developed from the mainstream Christian churches and some of them practise both Christianity and traditional beliefs and practices. Amongst the Christian churches in Hurungwe District, the Zimbabwe Assembly of God (ZAOGA) seems the only one which strictly adheres to Christianity tenets and opposes the incorporation of traditional practices and belief systems. Others such as the Seventh Apostle provide a mixture of traditional religious practices and beliefs and Christianity. The belief in and practice of traditional religion is wide spread in the district as it is sometimes practised in conjunction with other religion.

#### **Sample size and data analysis**

The study used the qualitative research method through structured interviews and observation. One hundred and twenty (120) participants selected through snowball sampling technique were interviewed on their views on the role played by taboos and totemism on water management in Hurungwe District in Zimbabwe. Site visitations (field work) and observations were undertaken by the researchers to validate the responses given by the respondents. Data were also obtained from secondary sources. This was achieved by employing electronic data search from goggle scholar where relevant peer-reviewed articles were identified. Analysis of the paper focuses on the role and uniqueness of totemism and taboos in water management in Hurungwe district, Zimbabwe.

#### **The uniqueness of indigenous knowledge**

Practical and research needs inform how the concept of indigenous knowledge (IK) is defined [7]. Whereas IK denotes a general umbrella concept meaning the participants' knowledge of their temporal and social space, indigenous knowledge system (IKS) "delineates a cognitive structure in which theories and perceptions of nature and culture are conceptualized". On the other hand, indigenous technical knowledge (ITK), which is practical-oriented, is "concerned with operationalised local thinking in such fields as agriculture, fisheries, health, horticulture, and forestry" [7], [8]. IK also refers to skills and philosophies developed by societies with long histories of interaction with their natural surroundings [9]. Defined from another perspective, Kolawole conceives IK to mean the knowledge developed by grassroots people in a geographical location, and which they have acquired over many years of constant observations, experimentations and validations of phenomena within their immediate environment [5]. Consequently, IKS develops as a consequence of practical engagement in everyday life, through trial and error, and are constantly reinforced by local people's experience [10]. This experience is characteristically the product of many generations of intelligent reasoning, and since its failure has immediate consequence on the lives of its practitioners its success is very often a good measure of Darwinian fitness [9]. It is, as the author neatly puts it, "tested in the rigorous laboratory of survival" [9]. It is thus locally rooted to a particular set of experiences and is generated by people living in those places. The general belief among

practitioners is that transferring it to other places runs the risk of dislocating it [11]. IKS is orally transmitted through imitation and demonstration. Thus, the general consensus is that writing it down changes some of its fundamental properties [9]. IKS is characteristically shared to a much greater degree than other forms of knowledge, including global science [7]. This is why it is sometimes called the "people's science", an appellation which also arises from its generation in the contexts of everyday production. However, its distribution is still segmentary, that is socially clustered [4], [9]. It is usually asymmetrically distributed within a population, by gender and age, for example, and preserved through distribution in the memories of different individuals. Specialists may exist by virtue of experience, but also by virtue of ritual or political authority. It focuses on particular individuals and may achieve a degree of coherence in rituals and other symbolic constructs. Its distribution is always fragmentary; it does not exist in totality or individually [4]. To a considerable extent, it devolves not in individuals themselves, but in the practices and interactions in which people engage them. Indigenous people view the world as an integral whole; their beliefs, knowledge and other forms of cultural expressions have been handed down through the generations [4], [12]

#### **Role of indigenous knowledge system**

IKS is an integral part of the development process of local communities [13]. The 1998/99 World Development Report recognises knowledge, not capital, as the key to sustainable social and economic development. Building on local knowledge system (LKS) is the first step to mobilise such capital. Thus, IKS plays a profound role in societies as it helps shape and defines their very existence and provides the foundation for their beliefs and traditional practices. IKS provides the basis for problem-solving strategies for local communities, especially the poor [2]. It represents an important component of global knowledge on development issues. Unfortunately, IKS is an underutilised resource in the development process [14]. Learning from IKS, by investigating first what local communities know and have, can improve understanding of local conditions and will provide a productive context for activities designed to help the communities [2], [5], [15]. Understanding IKS can increase responsiveness of development agents to local level challenges. Sharing IKS within and across communities can help enhance cross-cultural understanding and promote the cultural dimension of development. IKS can help promote biodiversity conservation by characterising resource uses that are appropriate for the particular local landscape. Indeed, incorporating IK into conservation and development activities is believed to be an important mechanism for ensuring the most efficient and productive use of natural resources in the short-term without jeopardising the long-term capacity of nature to continue producing these resources [16], [17]. IKS can help develop sensitive and caring values and attitudes, thereby promoting a vision of sustainable future. Indigenous communities have lived in harmony with the environment and have utilised resources without impairing nature's capacity to regenerate them. Their ways of living were sustainable and

IKS shaped their values and attitudes towards the environment. These attitudes and values have thus guided their actions and considerably made their way of living sustainable.

### Water management in rural Zimbabwe

Unlike in urban Zimbabwe where Western science is officially used exclusively for natural resources conservation, rural Zimbabwe deploys a myriad of traditional strategies enshrined in IKS to conserve water [4]. Religious and traditional beliefs, cultural folklores and practices play a crucial role for the successful conservation of water especially in the remote parts of the country. These include, among many others *zviera* (taboos) and *mitupo* (totemism) and conception of water as common property. In rural Zimbabwe, environmental conservation was and is always a common practice with taboos being one of such strategies [3], [4]. For some scholars taboos are a useful way of keeping checks on children as each taboo has two parts in water conservation, namely a surface meaning (a lie) and the truth.[18]. Buttressing this point one author has this to say:

*Shona people often use zviera (taboos) as one of the way of teaching young members of their society. The Shona had and still have, unique ways of transmitting social values which are crucial to the development of their society. Zviera, among other practices encourage conformity* [12].

The author further argues that taboos are not only sanctions to correct behaviour of children or teach members of the society but also the adult about how they should conduct and behave themselves towards water and other aquatic resources [12]. While taboos had two parts, there were and are still true taboos and false taboos [1], [4]. Taboos have been classified into five categories with regard to their role in water management [19]. According to Gelfand, there are taboos that talk about living in acceptable manner with water, avoidance of aquatic danger, good behaviour in water, healthy water teachings and those conveying religious teachings [19]. Taboos are thus meant to teach people to be at harmony with nature especially water. Some water related taboos in this category are immediately explained in the following paragraph.

The most commonly known taboos in Zimbabwe is *usaitira tsvina mutsime* literally translated to mean *do not excrete in a well* and *ukawetera mumvura, unozorwara nechirwera chehozwe*, meaning “if you urinate in a water source, you will suffer from bilharzia”. The consequence for violating these taboos is that first, the reservoir would dry up and second, the perpetrator will suffer from bilharzia. It is a truism that everyone deserves good health. As the consequence of abuse is undesirable to the perpetrator and would possibly cause health problems to the entire community members who use the urine-polluted water for domestic purposes, it means that people are obliged to avoid vicious characters that may result in ill health. In these taboos, instilling the fear of contracting a disease (and perhaps contracting the disease itself) is used as deterrent for those who may be tempted to urinate in water sources thereby polluting them. Therefore,

this taboo implicitly teaches people to act in a way that is compatible with the pursuit for a livable environment even though fear of contracting a disease is used as a deterrent. The taboo is coined in order to foster environmental awareness among the Shona people. In this regard, it has been noted that, “as human beings, we carry the whole weight of moral responsibility and obligations for the whole world on our shoulders” [3]. Besides being the habitat for the various aquatic creatures that also need clean water, rivers and other water points are important sources of water for domestic, agricultural and industrial purposes in any human society. It is for this reason that the Shona people have devised various taboos that are aimed at safeguarding the well-being, not only water sources and aquatic life, but also human community and the environment. Thus, by discouraging members of the community from urinating in rivers, the Shona people are simply trying to prevent the consequences of urine-contaminated water and also how it affects other aquatic creatures, like fish, given the fact that urine contains some component of nitrates that causes the accumulation of algae, which is dangerous to aquatic life. In reality, there is no causal relationship between urinating in water sources and contracting bilharzia. Hence, Shona environmental taboos are simply instruments that are aimed at protecting nature.

Another taboo among the Shona is *usauraya datya* translated to mean *do not kill a frog*. In Shona culture, killing an animal which is not edible is considered as cruel. In reality, frogs are inedible in the Shona culture and taboos such as this were put in place to protect the lives of such sentient beings. Besides, frogs usually live in clean, unpolluted water. The presence of frogs simply entails that the water is pure and safe to drink. In this manner, the taboo is a way of conserving frogs which would easily act as indicator species to tell people which water to drink or not without necessarily reverting to Western methods of water quality detection which are very expensive to acquire and use. Furthermore, there is a taboo like *usaraure mutsime* meaning, *do not fish in a well or any shallow waters*. The consequence of violating such a taboo is that such water sources will dry up. Whilst fishing itself is not prohibited, doing so in a well is a taboo because usually people in rural areas catch fish by using the leaves of a tree locally known as *mushambise* to poison the fish. In reality, such fishing method pollutes water and drastically reduces the number of fish therein, especially considering the size of a well. Thus, by making it a taboo to not fish in a well because the reservoir would dry up portrays a method of safeguarding the pollution of water. Drying up of the shallow waters is not a desirable consequence given that water is indispensable for sustenance of human beings, particularly so in an arid environment. The consequence is indeed a curse to the entire community and perpetrators are severely punished once caught [12].

There are also sacred wells and water bodies in rural Zimbabwe. Water from such sources is fetched through the use of *mukombe* (gourds) because metal objects and blackened clay pots are traditionally illegal to collect water from such sources. The belief among indigenous Zimbabweans is that such dug out wells and water bodies have got *njuzu*

(mermaids) such that if offended by using unaccepted utensils to collect water, the mermaids will either make the water dirty or the offender would be drowned or disappear into the waters [20]. Whilst this might not be true, such myths and beliefs help maintain sacredness of water bodies thereby keeping the waters unpolluted and conserved. The use of water gourds to fetch water is not only economic but clean and free of rust as opposed to blackened pots which leave the water somewhat polluted after collection.

Besides taboos, totemism is one other traditional water conservation strategy in rural Zimbabwe. By definition, totemism is a form of identity created by a particular clan of people [4] to maintain their cultural boundary. A totem is an animal or parts of it that anyone who uses it [as totem] is forbidden from killing and eating it. This is noticeable in the case of Shona people's care for open water sources like wells, rivers and dams. Since, the indigenous people are those who are the original inhabitants of an area, who have lived in a traditional homeland for a number of generations [9], it is easier for them to pass on the knowledge about their environment from one generation to another. Researches have shown that traditional institutions provide considerable protection of water resources without government juridical restrictions [9], [12].

### Results, discussions and recommendations

Interviews with participants were largely based on the use of totemism and taboos as practised by the community members in the management of water sources. The taboos and rituals that are being practised in Hurungwe District include totemism, observance of sacred places, and rain making ceremonies. The findings that emerged from both the interviews and observations indicated that taboos and totemism play a very critical role in the district. The research participants stressed that the community has managed to instil into people the sense of "sacredness" of water sources in the district. An elderly participant affirmed that *Matsime nezvitubu zvinoera haziybumirwe kusvikwa nevanhu saka naizvozvo zviera izvi zvinototevedzwa nemunhu wese mudunhu rino* meaning, *the sacred wells and pools are kept out of people by strict taboos and all the community members adhere to this view religiously* (Village elder, October 2016, informal interview). Seventy six (76) out of one hundred and twenty (120) participants stressed that it is a taboo to enter into *Kadangwe pool* (a sacred deep water pool in Hurungwe) to fetch water with metal objects. The reason given by these elderly men was that use of metal objects angers spirit mediums (*zvinotsamwisa midzimu*) and dry up the pool as punishment for the Korekore community. Furthermore, the killing of snakes and frogs from *Kadangwe* was also noted as a taboo. The idea behind this as narrated by the elders was that Hurungwe District spirit mediums dwell in that pool in the form of creatures like snakes and frogs among others, thus killing them would amount to literally killing the gods that safeguard the Korekore community and the water in the pool. This is because *Kadangwe* is traditionally a place for the gods

of Hurungwe. Therefore, no dirty or any pollution should be put into that pool. Thus, it is a taboo among the Korekore of Hurungwe to use any black container or dirty metal object to fetch water from or do laundry in *Kadangwe*. Most of the participants (100 out of 120) indicated that mysterious events have occurred on individuals who attempted to disregard the taboos. The most preferred water drawing utensils from the pool are *mikombe* (water gourds). Observations by the first author in October 2016 revealed that there were eight water gourds (*mikombe*) neatly placed at the edge of the pool. While the majority among the elderly felt that the taboo play a pivotal role on water management in the district, there were few participants particularly the youth and Christians who felt that the taboo is a *baseless myth and lacks scientific evidence which is only perpetuated by a certain group of primitive elderly people* (A youth interviewee). The youth and the Christians felt that the Hurungwe community, especially the Korekore ethnic group should adopt the modern water management skills instead of clinging on taboos. Among those calling for the move towards modern water management were Christians and young people who felt that they were forced to observe certain taboos that are contrary to their Christian belief and are always being threatened by ostracism from the district if they do not comply with the existing taboos. An interview with a ZAOGA church elder revealed that two *vabvakure* (foreigners) from Masvingo (a province in Zimbabwe) were expelled from the district as they were disregarding traditional ethics of the Korekore community over water use. Interviews with key informants showed that totemism is still very intact in the village. The study also showed that there was no one whose totem is water related among the Korekore people. Most of the people identify with the *moyo* (heart) totem. This implies that they do not eat the heart of any animal. However, there were a few people whose totem is *dziva* (pool) and these do not eat fish and therefore is a taboo for them to catch, eat or sell fish.

The study, therefore, recommends that there is need to carry out further research in other districts to find out the role of IKS in various ethnic groups in relation to water conservation. The cultural symbols and IKS in water management need to be brought into public domain and knowledge frontiers. This can be achieved by introducing programmes in schools that focus on teaching of IKS in primary, secondary and tertiary institutions [8]. In line with the findings and conclusion, it is recommended that IKS framework and policy be put in place in Zimbabwe. This would guide the activities relating to the application of IKS in development practice. Government allocation of financial and human resources in support of IKS within communities is, therefore, plausible. Presently, Zimbabwe does not have a policy specifically on IKS. There is need to earmark funds to assist institutions that carry out programmes on IKS in areas that would allow local communities to appreciate local traditions and culture on water conservation. The study further recommends the integration of IKS in school curriculum to enhance the entrenchment of the positive aspects of the knowledge system. The current school curriculum does not

have an IKS component on water conservation. As some traditional practices are peculiar to specific geographical areas, there is need to produce IKS literatures on water conservation for different districts in Zimbabwe. Government Ministries, particularly Ministry of Environment and Natural Resources Management, need to work together with local communities and traditional leaders on water management issues. Indigenous ways of water conservation could be infused into modern methods of water conservation in order to achieve sustainable use of water-related resources. Traditional leaders need to be empowered through legislations to enable them assume a recognized status as custodians of traditions and water resources within their communities. Also, policy makers need to also promote the inclusion of IKS and its implications in water management. In summary, it is recommended that African government policy makers in general need not just adopt straightjacket policies that only work in more economically developed countries, but would do well to implement appropriate strategies that would enhance sustainable conservation of natural resources in African countries [22].

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