

Ecological Implications of Water Spirit Beliefs in Southern Africa: The Need to Protect Knowledge, Nature, and Resource Rights

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Abstract—This paper explores the ecological ethic intrinsic to the traditional cosmologies of the Southern African Bantu-speaking peoples, specifically in association with water sources and riparian zones. It details the complexity of beliefs regarding the water spirits, particularly related to the snake and the mermaid, and their role in the calling of traditional healers in Southern Africa. The implications of these beliefs with regard to water and riparian zone management are examined. The pools in which such spirits reside have sacred status and are of key importance in the training of healers, as well as being important sites for the performance of family rituals. Many of these sites are threatened with environmental degradation, mainly by agroforestry and dam-building programs. Over the last century, healers have been increasingly marginalized from such pools through the privatization of land and the former South African Government's apartheid policies. It is argued that to promote indigenous knowledge and wise stewardship of resources, adequate protection of such sites is essential, and mechanisms need to be explored whereby healers and their communities can be granted access to such features of the landscape.

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 (CBD-UNCED 1992), the United Nations Working Group on Indigenous Populations (WGIP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Working Group on Traditional Resource Rights (WGTRR), are calling 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 (Gray 1997; Posey 1999; Posey and Dutfield 1996). This has largely been precipitated by the global environmental crisis, which has 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.

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There has been a corresponding awareness of the need to examine how indigenous people have managed to live in a sustainable way within their environments, both in the past and the present. The need to document and preserve such knowledge is thus seen as crucial for humanity's long-term survival on Earth. It is pertinent to note that much of this knowledge is intimately connected with the broader framework of peoples' cosmology and world view, which is embedded within their physical, spiritual, and social landscapes (Hirsch and O'Hanlon 1995; Tilley 1994). Hence, procuring and preserving existing knowledge, although crucial, is only one aspect of the equation. Knowledge is dependent on the protection and preservation of these broad features of the landscape, within which peoples' identity, cosmology, and knowledge are embedded. In terms of the physical landscape, protection and preservation are just one aspect of the solution. Ensuring indigenous people access to these sites is essential because such features are integral aspects of the nature, formation, and transmission of knowledge. Throughout the world, over the last 200 years these communities have become increasingly marginalized and denied access to such resources, with the resultant threat to their knowledge.

In South Africa, indigenous African peoples are emerging from centuries of alienation and marginalization imposed on them by their colonial and apartheid masters. In the last century, they were systematically denied access to a large percentage of their resources. The Land Act of 1913 is well recognized as the institutionalized mechanism that precipitated this, whereby it stipulated that over 80 percent of the population was to be confined to 13 percent of the total landmass of South Africa.

Since independence in 1994, efforts have been made to correct this state of affairs, but the present process of land restitution is slow, arduous, very expensive, and fraught with many difficulties. Many who were uprooted from their natural landscapes have lost their knowledge and traditions, or have repudiated them in favor of monotheism, capitalism, and globalization. These transformations, as well as the inevitable population pressures on the restricted resources, have led to behavior changes, which have resulted in environmental degradation and abandonment of much of the traditional ecological knowledge that is no longer relevant to them. These modern forces have all contributed to the "disenchantment" of the landscape, whereby the respect for the spirits of the land is rapidly disappearing and with it a powerful mechanism for limiting human behaviors that have negative ecological impacts.

Despite these threats to knowledge, however, there remains a strong body of beliefs among a core of African religious functionaries—the traditional diviner healers

(*amagqirha, izangoma*). Despite being heavily “demonized” by their Christian invaders, they continue to play a significant and influential role in their communities.

The following summary demonstrates the intimate connection that exists between the physical, spiritual, and social dimensions of Southern African spiritual healers’ knowledge and practice, particularly with reference to water resources and the belief of water spirits. It must be noted that water sources provide just one aspect of the knowledge base. Plants, forests, and mountains are also integral to the training and practice of traditional healers. The data presented comes from research I have done among the Zulu-, Xhosa-, and Karanga/Shona-speaking groups over the last 4 years. These communities span a wide area of Southern Africa, extending across several thousand kilometers and over a number of State boundaries (South Africa, Mozambique, and Zimbabwe). It is worth noting that I have identified a common corpus of knowledge linking the African healing traditions with the water spirits over this whole region that is not exclusive to these groups only. It also features strongly in other Bantu-speaking groups in the region, such as the Swazi, Venda, Sotho, Tshangaan, Ndebele, and Tswana, and they are also prevalent amongst the earliest known peoples of Southern Africa, the Khoekhoe and the San.

Water Spirits in Southern Africa

Among many of the Southern African indigenous people (Khoisan- and Bantu-speaking people) there exists a set of complex beliefs regarding water, river systems, and riparian zones. The spirit world is regarded as the ultimate source of such life-sustaining resources. Water is the essence of both spiritual and physical life, and the spirit world is regarded as the ultimate source of such life-sustaining powers. Integral to such beliefs are various zoomorphic spirit manifestations, primarily the snake and the mermaid, who reside in or beyond the water and who interact with humans in a variety of ways. The rivers, wetlands, and the sea are the dwelling places of such manifestations and are of fundamental importance to many of the African healing traditions and their practitioners.

The snake and the spirits of the water are specifically associated with the calling of healers and are seen as the providers of wisdom and knowledge, which are given to chosen individuals. Water sources are essential parts of the landscape for conducting rituals to aid communication with the spirit world. Water in itself is regarded among many African religious functionaries as a living force, which has the power to transform us from one state to another at a spiritual or physical level. It has the power to purify and protect one from evil, or to heal and bring one from illness to health. It is thus a vital element in the performance of many religious and healing rituals.

Common Themes

What is remarkable about all the differing accounts of the water spirits are the similarities in the myths and core

symbols. The central feature of these myths and rituals is the association with the “calling” of individuals to become diviners. This usually involves the physical submersion of the candidate under the water of a certain river pool or the sea (for a few hours, to days or even years) after which it is alleged that the individual emerges wearing the full regalia of a healer—a symbolic snake wrapped around his/her body and medicines. This experience of being taken under the water, often by a wind or a “snake” can happen in a dream, but this is merely notification that the individual’s ancestors are calling him/her to become a healer. The “calling” is usually preceded by the candidate suffering an illness (*ukuthwasa*), although sometimes, especially in the case of children, they just happen to be playing near the water at the time. Individuals who have had such experiences commonly report seeing snakes, mermaids, or even their ancestors. Skills in healing, sacred knowledge, psychic abilities, and medicinal plants seem to be the gifts that are imparted to these chosen people by the water spirits. It is the spirits that choose the client, not the other way around, and resistance to the “calling” usually leads to misfortune. Relatives are not allowed to display any grief at the disappearance of one who has gone under the water or he/she may never be returned to the living. Anyone who enters these water sources without the calling of the ancestors will disappear, never to return.

Key symbolic images linked to objects seen under the water or to messenger animals that summon the “chosen” one to meet the spirits are remarkably similar within all the groups, namely, the snake or python, the water monitor (*leguuan*), the hippopotamus, the dolphin, the otter, the crab, the frog, the brown fly, and/or the horse fly. Among the Zulu, snakes (especially pythons), and crabs that visit people in their houses are regarded as ancestral manifestations and should not be harmed.

Certain places are more favored by the river spirits than others. They are believed to live in deep pools of certain rivers, often below waterfalls, fast moving “living” water, or in the sea. “Living” water is often associated with its ability to generate foam, and the foam appears to be symbolically important. Berglund (1976: 146) cites a diviner (*isangoma*) informant who said,

It is as I said water that is living, running in the river. That is the living water. If the water had been in a dam as you asked (a while ago), then there would not be a snake in it. It is the living waters.

It is believed the ancestors, or spirits of the water, live in a dry area at the bottom of these pools and have a lifestyle very similar to people living on earth, in that they have houses, cattle, chickens, and so forth. They are prosperous, peaceful, happy, and in fact, lead an idyllic life.

The occurrence of certain plants near pools and river sources indicate the presence of the water spirits. Palmer (1996) notes that in the Eastern Cape the presence of the *umkumzi* (or *imkhamzi*) reed (*typha capensis*) on the edge of pools is seen as a sure sign of habitation by the water spirits. The reed is a key symbol in Zulu religion, and in one origin myth they claim that they emerged from a bed of reeds. The reed mat is an essential accoutrement of diviners, and this is directly linked to its association with water, healing, and creation.

For the San (/Xam) the presence of reeds and water-buchu indicates the location of the Water Snake's dwelling place (Hoff 1997). The foam generated from certain plants, the sacred *ubulawu*, is used by the Zulu and Xhosa for washing and eating in order to purify and connect an individual to the ancestors through dreams. Many of these species come from trees, bushes, and vines that grow near water sources (Hirst 1990). *Ubulawu* is very often administered to healers during rituals conducted in river pools. Significant cave sites, often with San paintings, are often found in close proximity to sacred pools, and many rituals for healing and rainmaking are performed at these sites.

There seems to be some discrepancy between the various areas as to whether the water spirits are regarded as shades (recently deceased relatives) of either paternal or maternal origin, or belong to a generalized amalgam of nonspecific or very old ancestors. In Natal, the water spirits, in the form of the snake, are referred to as the "*amakhosi*" (the great ancestors). They have explicitly stated that the snake is the metamorphosed amalgam of one's ancestors who live under the water. Both Berglund's (1976) informant and my informants suggest that they distinguish between the snake(s) that is/are a manifestation of the "family" (shade snakes), and the big one ("The one which is the Lord") representing the Supreme Deity. For instance, Berglund's (1976: 148) informant describes the python as *iNkosi yamadlozi* ("the lord of the shades" or "the one above") who resides in the pool.

The Zulu also recognize the existence of another category of nonhuman water spirits or semi-daemons that are half human/half fish (mermaids) and have stated that this is one of the forms the heavenly princess, *iNkosazana*, can take. These creatures often have transformative powers. For instance, *iNkosazana* can manifest as the mermaid, the snake, the rainbow, and gentle soft rain. The Shona are quite specific that the mermaids, known as *njuzu*, are alien spirits (*mashave*) of human and nonhuman origin (Aschwanden 1989). Certain mediums can be possessed by *njuzu* spirits who will give them healing powers. Mermaids are believed to come out of the water with their animals at night, and it is for that reason people are reluctant to go near rivers or the sea after dark.

Latham (1986), Aschwanden (1989), and Daneel (1971) have indicated the close link between the Shona/Karanga Supreme Deity, *Dzivaguru* (or *Mwari*), the original autochthon, from whence comes rain and fertility, and the spirits of the pool. The *njuzu* (mermaids), closely linked within the python and the puffadder, feature very strongly at the shrines to Mwari (Mlimo) at the Matonjeni Cave complex in the Matopos region of southwest Zimbabwe, as well as at the Nyamakati Pool shrine to *Dzivaguru* in northeast Zimbabwe. The aforementioned shrines are central to the rainmaking cult in the region. This link with the rainmaking forces and with fertility is a common theme throughout Southern Africa. *Inkosazana*, the Zulu heavenly princess, as the bringer of soft-soaking rains, is responsible for both agricultural and human fertility. Propitiation and appeals are made to her by virgins at the beginning of spring each year, appealing to her to bestow her gifts of fertility and to help them select a suitable husband.

There are many other rituals that are performed for the water spirits at rivers throughout Southern Africa. The purposes for conducting them and the ritual process may

vary from group to group. They are mainly conducted for diviners at various stages of their training, but some households will propitiate periodically to appeal to the spirits to bestow them with wealth, rain, good harvests, and fertility.

Among some Nguni groups, propitiation rituals are still made prior to planting in spring. A portion of the seeds to be planted are placed on the surface of the sacred pools. The river spirits will accept half of them and return the other half to mix with the remaining seed to enhance its fertility and yield. If none of the seed sinks, but just spreads over the water, this is an indication that the ancestors and spirit world are offended by the misdeeds of the living. Should this happen, the participants will immediately seek to determine the cause of the ancestors' anger, and frequently confessions of social tensions and jealousies get brought to the fore. These are discussed and resolved as speedily as possible, often at the riverbank itself in the presence of the ancestors. This reaffirms the intricate balance that they perceive to exist between the social, spiritual, and physical worlds.

Sacred Pools, Behavioral Taboos, and Ecology

As a result of the profound sacred status that the many rivers, pools, and water sources hold for Southern African indigenous communities, there existed in the past, and to some extent today, a range of taboos surrounding their access and utilization. Pools, rivers, and expanses of water are held with a mixture of awe, fear, and reverence. Great care was taken in the past to avoid disturbing or angering the water spirits. Common people were forbidden to go near sacred pools where the snake, mermaids, and spirits were known to exist. This injunction was reinforced with the fear that uninvited people would be taken under the water never to return. Only healers, kings/chiefs, or those who are pure of heart are allowed to approach such areas.

I have accompanied the *izangoma* to a number of these pools, and they are always approached with singing and prayer. The healer will inform the spirits who is approaching and reassures them that they come as friends. It was strictly taboo for anyone to extract plants or resources from the water's edge. This could only be done by healers who were allowed plants for medicinal use. Traditionally, healers approach the plant with humble clapping of the hands and appeal to the ancestors to allow them to utilize the plant for healing purposes. After removing the plant, they replace it with white beads as a sign of thanks. Similarly, when approaching water they often make offerings of beads and silver money.

Killing or injuring any of the messengers of the water (such as crabs, snakes, frog, or water birds) is also regarded as a great offense, and there are many groups in Southern Africa for whom the eating of fish is strictly taboo. Transgression of such taboos could result in the drying up of the water source and droughts. Many groups limit the distance to which residential units can be erected near rivers and where cultivation may take place. Hoff (1997: 24) noted that the San prefer not to live very close to a water source because of their belief that,

Water Snakes wander in the immediate vicinity of their homes, making these areas particularly dangerous.

In many places, the effects of modernity and the pressures for population resettlement have overwhelmed these traditional fears and restraints, leading to catastrophic results. Many people living in squatter settlements along rivers and streams in urban areas of South Africa have lost their lives and homes to flash floods in recent years.

The water spirits are generally believed to live in pools and swamps that never dry out. It is said that their role is to protect water sources and keep them alive. They can, however, be chased away by disrespectful behavior, social disharmony, or if the overharvesting of riparian zones take place. This will lead to the drying up and degradation of such rivers. Such forces are regarded as the guardians of fertility, morality, and life itself. Any disrespect shown to them may result in drowning, droughts, floods, and tornadoes. In Zimbabwe, Aschwanden (1989: 189) reports local opinion is that,

In the past—before the arrival of the white man—there are said to have been more pools and springs with water snakes. The many noises that came with the Europeans made many *njuzu* leave their habitats forever, which caused aridity. However, disobedience by many people is also said to have prompted the *njuzu* to retreat.

Damming or channeling water from rivers can also upset the river snake. A well known example of this was the resistance given by the valley Tonga when Kariba Dam was constructed. Their main fears were that the great water serpent *Nyaminyami* would be angered. The many disasters that beset the project were largely attributed to *Nyaminyami's* distress from being separated from its mate downstream from the wall. The more recent Lesotho Highlands Water project encountered similar resistance from the local inhabitants, who attributed the seismic motions to the great snake's distress with the project.

How people harness the idiom of the water spirits to mount powerful community opposition to social, political, and developmental projects was clearly demonstrated in the *Ambuya Juliana* movement that swept through Southern Zimbabwe in the early 1990s. This was in response to certain environmental catastrophes such as severe drought and rodent plagues.

The movement was inspired by a prophetess by the name of Juliana, who claimed to be an emissary of the water spirits (*njuzu*), with whom she had resided under water for a period of 4 years. She made her first appearance in the Zvishavane Mberengwa region at the height of the drought of 1992. She attributed the drought to the breakdown of respect that people had for the Earth's resources, particularly water sources, for lack of social harmony and abandonment of traditional practices and beliefs, and for the failure of the government and state to acknowledge the role of the spirits in the War of Liberation. The major grievances of the *njuzu* were the construction of dams and the drilling of boreholes. She stated that the smell of cement drove away the *njuzu* who were pivotal in the provision of drinking water for the people. It was stated (Mawere and Wilson 1995: 255) that,

The government is wrong in the manner in which they are blocking quite a number of streams to make dams. The government is also sinking boreholes and wells in a bad way, making explosions that frighten away the spirits and all other creatures.

She instituted a set of harsh taboos, which the community had to observe should they wish the drought to break, and to facilitate the return of the *njuzu* who would regenerate mountain springs, underwater, and surface rivers. Among these was the banning of the construction of dams and the drilling of boreholes, as well as the use of soaps or the immersion of metal or enamel containers into the rivers. It was also forbidden to kill any wild animal or to collect wild fruit or plants for sale, as these attract the rain.

The thousands of people who responded to her pronouncements, and adhered to the harsh taboos and restrictions which she imposed, is a graphic example of the great respect many people still hold for the water spirits in this region. Many taboos revealed a collective rejection of the modern economic forces of capitalism, agriculture, and religious (especially Christian) intrusion into the area. All these are seen as a threat to the maintenance of traditional practices.

This desire to return to tradition has been witnessed recently in the Mvoti valley area of the Kwazulu Natal Midlands, where certain rural communities have reinstated the ancient day of rest for the heavenly princess, *iNkosazana*. This day was known traditionally as *lesuku lweNkosazana* and was regarded as the day when no one was allowed to utilize the river or to tend their fields. The reinstatement of this day of rest was in response to a claim made by a lady (*isangoma*) who claimed that *iNkosazana* had visited her while she was hoeing her field. She said her children's names were Saturday and Monday and that on those days no one should use the rivers but should leave them in peace to recuperate so she and her children could enjoy them. The message was to be relayed to all five chiefdoms in the area. Collecting water, washing, or utilizing any water directly from the river on her day (Mondays and Saturdays) is now strictly prohibited.

Connected with the taboos, in respect of *iNkosazana*, is the revival of the planting ceremonies for her in spring. In the Mvoti area, all members of the chiefdom have to contribute a portion of their crop seeds and some money to purchase a goat for the chief prior to planting. On a designated day, all the people in the chiefdom awake early in the morning. Taking with them their hoes and spades, traditional beer (*tshwala*), and sour milk (*amas*), they congregate together in a forested valley above the river. The men demarcate a piece of land that is to be dedicated to *iNkosazana* and construct a fence around it. The soil inside the area is dug by all present. Then, the chief's mother and wife and all the elder women plant the grain collected from the households (households that do not contribute are fined).

Afterwards, a goat is sacrificed near the river, and an elder takes the bile from the gallbladder and sprinkles some of it into the river. He then ascends the mountain to the forest where the field is located and sprinkles the remaining bile on the field. I was told that this is a crucial part of the ritual because a connection has to be made between the water and the field. "This is done to show the significance that the garden, the goat and the river, all belong to *Nomkhubulwana*." Traditional songs are sung and there is much dancing performed. Following this, the women, dressed in leaves from the *Msenge* tree (cabbage tree), a tree sacred to *iNkosazana*, descend together to the river to take a bath. The *Msenge* leaves are stripped off their bodies and thrown into the water, and naked, the women wash themselves in the

water. No males—young or old—are allowed anywhere near the river at this stage. This is to emphasize respect for the women's bodies, as much as respect for the heavenly princess, the bearer of fertility. No woman is allowed to return home until she has taken the bath. The bath signifies the end of the ritual.

I conducted a small survey (n = 32) in this valley in early 2001 to evaluate how popular such rituals and constraints on using the river were to the local community. The majority of the respondents were very happy to be participating in the rituals, even though many of them did not have a clear idea of exactly who *iNkosazana* was, as these things had been long forgotten.

It was noted, however, that those who don't observe the day of rest or participate in the rituals have very poor and unproductive gardens. Those who had some hesitation or doubts about the practices were converted Christians, who claimed they had abandoned the ways of their ancestors. One such respondent even went so far as to say that these practices "were things of darkness," and that ever since she had met Jesus, she refrained from the practices of *Nomkhubulwana*. All the respondents endorsed their support for traditional leadership through the chiefs. This is of interest because I believe traditional governance through the chiefs has a powerful role to play in ecological management, particularly where it has been sanctioned by the spirit world.

While these examples can be seen as convenient idioms in which communities object to the forces of modernity, capitalism, monotheism, land invasion, and loss of control of resources, it cannot be denied that they have all experienced the negative ecological and social consequences that development has brought. These negative consequences merely confirm the community's conviction that the divine powers of the water have been disturbed, and this idiomatic expression is the most effective means by which protest can be voiced.

Environmental Threats to Sacred Pool Sites: Implications for Indigenous Knowledge

In the majority of the areas where I have conducted research, sacred pool sites of key significance for healers are being systematically threatened by development projects, mining, and modern agricultural practices. The privatization of land has led to many of the sacred pools being inaccessible to healers, and a number of healers have been arrested and imprisoned for crossing private land to get to the sacred pools. These restrictions can severely hinder a healer's training process.

Environmental damage through development initiatives also pose a great threat to both the physical and sacred status of pools. For example, in the Venda region of South Africa, a recent newspaper report has highlighted the environmental damage that is being inflicted on Lake Fundudzi (sacred to the Venda people) and other river systems in the region by large scale mining and chemical and industrial development projects in the area. Many of the rivers in the region are so polluted with chemicals and radiation that livestock and humans who drink from the water are suffering from multiple health problems, including birth defects.

The newspaper, *Mail and Guardian* (Nkosi and Arenstein 2001: 4), reports:

The threats to Lake Fundudzi were caused...because the province failed to allocate enough staff to its environmental impact assessment division and expected two staff to process 15 environmental impact assessments, 35 mining applications and roughly 15 other large development applications a month. The government therefore simply allowed subsistence farmers to invade and begin ploughing the steep hills above Lake Fundudzi on poorly constructed terraces without conducting environmental impact assessments or obeying other land use laws.

This report possibly overemphasizes the role of environmental impact assessments in curtailing such negative effects, and does not investigate disadvantages of such large-scale development projects in the region, or why there has been a need for local peasant farmers to move into the area in the first place. In the past, the region around the lake has been strictly monitored.

van de Waal (1997: 51) documents the difficulties researchers had in gaining access to the sacred lake, and he describes the "myths and superstitions" regarding it in the Venda region. These are completely in keeping with the general conceptions of the snake (python) and the water spirits that I have already outlined.

This lake itself is alleged to be inhabited by the ancestral spirits of the Vhatavhatsindi people. Even today, the foreign public is not allowed access to the lake. Only Gota (headman) Netshivha can give permission to visit the lake itself. In an attempt to conduct surveys on the lake, lengthy negotiations with the headman and his Tshivase Tribal authority at Mukumbane and Chief Tshivase himself were required, after which temporary permission was given to conduct a short pilot survey on the lake in 1988 which was later withdrawn.

The impact of large-scale agroforestry in many of the areas where sacred pools exist pose another serious threat to their well-being. The Mvoti River, which I have already discussed, is under serious threat by intensive agroforestry (pine, gum, wattle, and poplar plantations) and sugar cane farming. Most of the Upper Mvoti Catchment region, which feeds into this river, is now owned by a number of large, multinational agroforestry companies.

A report done on the status of this catchment area by MBB Engineering (Anon 1998) notes extensive afforestation, with marked reduction in streamflow. According to this report, a high density of alien vegetation presently exists in the riparian zones of the various subcatchments in the area. This is in direct contravention of the law, which in terms of the Conservation of Agricultural Resource Act (1983), states that no cultivation or soil disturbance may take place, and no trees may be planted, within a minimum distance of 30 m (98 feet) from the edge of any watercourse, stream or river, or within 50 m (164 feet) of any vlei, wetland, or spring. Furthermore, landowners are legally responsible for clearing aliens from riparian zones and for maintaining these zones in an "alien free" state. With regard to the Upper Mvoti Catchment, the report (E.1.3.) notes that,

The Act is difficult to enforce and remote sensing studies in a number of catchments reveal great variation in the application of the law and numerous cases of flagrant disregard.

The general consensus of the community surveyed in the valley is that the water levels of the river have dropped

considerably in recent years, thus supporting the findings of the report.

Similarly, I am working in another area in the northeastern Cape where there is a pool of great significance to the local Xhosa/Mpondomise people. This pool is so sacred that no one is allowed to approach it unless being led there by children. The pool has recently become a popular trout fishing spot for many South African anglers, which has the potential to threaten its sacred status. Furthermore, this pool is now under threat from large agroforestry plantations that are being planted over an extensive area upstream in the river's main catchment area, which includes a significant wetland that has been nominated as a RAMSAR site (see http://www.ramsar.org/index_about_ramsar.htm#rd) worthy of protection. A hydrological survey conducted in this quaternary catchment in 1996 to 1997, to assess the implications of afforestation for the river, predicted marked reductions in streamflow of 18 to 31 percent in the next 10 years (Forsyth and others 1997).

At present, there are scarcely any mechanisms by which healers can appeal for protection of sacred water sites and ensure access to them. One option would be the introduction of "culture significance" legislation in line with sacred site protection laws that have been introduced in other countries, such as Australia (Ritchie 1994). The South African National Heritage Resources Act (www.acts.co.za/ntl_heritage_res/National:1), 1999, has already established a framework in which such protection could be accommodated. It states that,

For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resource authorities...the national estate may include...landscapes and natural features of cultural significance.

This may provide protection for sites, but it does not go far enough to ensure rights of access, particularly when it involves private land.

Potential legislative protection could also be afforded through the concept of the Reserve, as outlined in the National Water Act of 1998. The notion of the Reserve consists of two parts:

1. The quantity and quality of water required for basic human use (including religious and cultural needs).
2. The ecological Reserve, which is defined as the water required to protect the aquatic ecosystems of the water resource.

In addition to the Reserve, the National Water Act has promoted the development of Catchment Management Agencies and Water User Associations through the development of the Water Conservation and Demand Management Strategy. Such structures may also provide a framework through which claims to protection and use can be negotiated.

Conclusions

In conclusion, this paper has demonstrated the scope and complexity of common African perceptions of water sources in Southern Africa and the need to recognize the importance of indigenous beliefs and practices in issues of riverine management. The repository of much of this knowledge comes from indigenous healers, who are regarded as the custodians of very ancient traditional wisdom and knowledge. This transferred knowledge is augmented through spiritual insight and communication with the ancestral world, and passed on to future generations through rigorous systems of training and apprenticeship. This knowledge is dependent on the availability and accessibility of resources. Without the plants needed to get spiritual insight, or without the presence of healthy water sources where the spirit forces reside, access to such knowledge will be denied. Moreover, knowledge is now under tremendous threat of being discarded and forgotten, as many communities are abandoning their traditional ways in favor of western education and capitalist enterprise, where the priorities for individual accumulation override the collective needs of the group, with resulting devastating effects on the environment (both physical and spiritual) and the source of their knowledge.

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