

Challenges in Preserving Indigenous Knowledge Systems: Learning From Past Experiences

Kudzayi Chiwanza¹ Maxwell C.C. Musingafi^{2*} Paul Mupa³

3. Chairperson, Faculty of Applied Social Sciences; Information Science and Records Management, Zimbabwe Open University, Harare
4. Programme Coordinator, Faculty of Applied Social Sciences; Development Studies, Peace, Leadership & Conflict Resolution, Zimbabwe Open University, Masvingo Regional Campus
5. Quality Assurance Coordinator, Zimbabwe Open University, Masvingo Regional Campus

* E-mail of the corresponding author: mmusingafi@gmail.com

Abstract

In this paper we focus on the challenges in preserving indigenous knowledge systems. We explore the challenges of managing indigenous knowledge in the context of intellectual property rights and bio-piracy threats. We analyse how indigenous knowledge affects the lives of local people, investigate the extent to which indigenous knowledge was under threat and evaluate strategies that are in place to protect indigenous knowledge. Primarily, we discuss the role of laws in the general protection of science and knowledge, and specific details such as biodiversity, with emphasis on indigenous knowledge systems (IKS) and indigenous medicinal knowledge and their systems. Western sciences, knowledge and legislative laws play a pivotal role in protecting and preserving intellectual property, trade secrets, copy rights, and the general enforcement of ethical practices. The same laws, such as intellectual property rights, copyright, trade secrets and other pieces of legislation should particularly be essential in protecting indigenous knowledge and their systems in the African countries. We examine these laws to determine their effectiveness, strengths, weaknesses, and the challenges they place on the practical protection and preservation of IKS.

Key words: Challenges, law, indigenous knowledge systems, science, biodiversity, preserving

1. Introduction

Since time immemorial indigenous knowledge systems (IKSs) were used by societies in Africa and the rest of the world for various purposes, depending on the needs of the society in question. The socio-political and cultural dimensions of the western hegemonic tendencies in the world's global affairs posed serious challenges to IKS, especially to former African colonies. The west considered Africa as a 'dark continent', and hence despised its traditions, customs, belief systems, and indigenous knowledge systems as diabolic, barbaric, and backward. This had a negative impact on Africa's own socio-economic and political development. It is however important to note that Africans never completely lost touch with their traditional thought and values despite the cultural onslaught on African thought through the spread of the western worldview. It is in this light, that in this paper we call for the preservation of African traditions and knowledge systems. We believe that the west exploits Africa and the rest of the developing world by expropriating indigenous knowledge systems and patenting them in the west. Our mission in this study, therefore, is to assess the applicability of protection laws to the documentation and protection of IKS. The study suggests strategies that can be employed by stakeholders to safeguard their local knowledge.

2. Indigenous knowledge systems

Mugabe (1998) defines indigenous knowledge as knowledge that is held and made use of by people who regard themselves as indigenous to a particular place. This is based on a combination of cultural uniqueness and prior territorial occupancy relative to a more recently arrived population with its own distinct and subsequently dominant culture. The author further viewed traditional knowledge as encompassing both tacit and explicit knowledge and practices. Greaves (as captured in Mugabe, 1998) defines indigenous knowledge as "something more than matter of fact-information. Rather, it is invested with a sacred quality and systematic unity, supplying the foundation on which the members of a traditional community sense their community's personal identity and ancestral anchorage..." Betsie (captured in Mapara, 2009) notes that indigenous knowledge is part and parcel of the culture and history of any local community and that, for any development programme to occur, people must build on from what local people know. Nyumba (captured in Mapara, 2009) notes that as African people our lives are greatly affected by

indigenous knowledge, for example, we rely on it for medicinal and herbal needs, food supply, conflict resolution and spiritual growth. Indigenous knowledge is indeed the cornerstone for the building of our own identity and ensuring coherence of social structures within communities.

IKSs, which have survived for a very long time, can be defined as local knowledge that is unique to a given culture or society. IKSs are knowledge forms that have failed to die despite the racial and colonial onslaughts that they have suffered at the hands of imperialism and arrogance. These “forms of knowledge, referred to as IKSs, have originated locally and naturally” (Altieri, 1995). Mapara (2009) defines IKSs as “a body of knowledge, or bodies of knowledge, of the indigenous people of particular geographical areas that have survived for a very long time”. These bodies are developed through the processes of acculturation and through kinship relationships that societal groups form, and are handed down to the posterity through oral tradition and through cultural practices, like rituals and rites. As such, IKS are the adhesive that binds society as they constitute communicative processes through which knowledge is transmitted, preserved, and acquired by humans in society. According to Ermine (cited in Hammersmith 2007), “it can be elaborated that IKSs are linked to the communities that produce them”. He further observed that, “Those natural communities are characterised by complex kinship systems of relationships among people, animals, the earth, and the cosmos from which knowing emanates” *ibid*.

3. Study methodology

In this paper we adopt a qualitative descriptive research design combining both theoretical literature and empirical evidence. The paper is, however, largely based on theoretical literature review. We surveyed what theorists and other researchers say before looking at perceptions of work colleagues on what they consider to be the best practices in preserving IKS and the benefits derived from the protection of local knowledge. Thus for empirical evidence we used informal talks and discussions with workmates at the Zimbabwe Open University Faculty of Applied Social Sciences National Centre in Harare. The talk was so informal that none of the colleagues suspected it was for academic purposes.

4. Threats to indigenous knowledge

Sithole (as captured in Mapara, 2009) notes that since indigenous knowledge is mostly stored in people’s minds and passed on through generations by word of mouth rather than in written form, it is vulnerable to change. There are a number of factors that contribute to the loss of indigenous knowledge. For example, development processes, like rural/urban migration and changes to population structure as a result of famine, epidemics, displacement or war may all contribute to loss of indigenous knowledge. Nyumba (as captured in Mapara, 2009) notes that indigenous knowledge is under threat from modern technology because even in remote areas the powers that push global or just non-local content such as radio and television broadcasting and advertising among others, are much stronger than those pulling local content.

The World Intellectual Property Organisation argues that there is need to protect indigenous traditional knowledge from exploitation for financial gain by third parties. Hountondji (captured in Hammersmith, 2007) argues that the western society accumulates data relating to non-western societies and appropriates their knowledge systems. Hammersmith (2007) voiced his concern on the vulnerability of indigenous knowledge because; by nature it is exploitable and continues to be exploited for financial gain by multinational and international drug companies. Mugabe (1998) adds further weight to Hammersmith’s concerns by stating that plant derived prescription drugs in the United States of America are derived from forty (40) species of which fifty percent are from the tropics.

5. Intellectual property rights, bio-piracy and copyright issues

In Africa, more than eighty percent (80%) of the continent's population relies on plant and animal-based medicine to meet its health care requirements (Hammersmith, 2007). For the most part the plants and animals used in traditional medicine are collected from the wild, and in many cases, demand exceeds supply. As Africa's population grows, demand for traditional medicines will increase and pressure on natural resources will become greater than ever. Throughout Africa, many health-oriented ministries are now encouraging the use of local medicinal plants, and have established departments of traditional pharmacopoeia within the ministries to implement this policy. The need to

protect indigenous knowledge arises from the fact that drug companies make financial gains as well as exploit the medicinal properties in plants used by indigenous traditional people to treat various illnesses such as cancer and yet there is no recognition given.

In Zimbabwe the colonial era was characterised by huge economic disparities. For example, huge amounts of funds were allocated to the allopathic medical sector and no budgetary provisions were made for the traditional medical sector. Zimbabwe's independence in 1980 marked a paradigmatic shift in the long warpath between allopathic and traditional medicine when Minister of Health, Doctor Herbert Ushewokunze launched "The Zimbabwe National Traditional Healers Association" (ZINATHA) to promote indigenous medicine. The Zimbabwe National Traditional Healers Association (ZINATHA) aims to promote traditional medicine and practice, promote and research into traditional medicine and methods of healing, promote training in the art of herbal and spiritual healing, supervise the practice of traditional medicine and prevent abuse and quackery, and cooperate with the Ministry of Health and establish better working relations between traditional and allopathic practitioners.

Throughout Africa, for many generations, small plots of land near the homesteads have been used as home gardens. Because these gardens serve a family's own needs, they contain a whole range of plants that provide food and medicine. Africa has a history of conserving bio-diversity in medicinal plants for at least two reasons: traditional practices surrounding their use reflect local knowledge and wisdom, and the plants are readily available and relatively cheap being either easy to gather in the wild, or simple to cultivate in home gardens. Herbalists have preserved traditional knowledge and practices of herbal medicine, often using it in combination with spiritual powers. Certain families keep their recipes secret.

Hopper (as captured in Hammersmith, 2007) argues that international drug companies are exploiting the collective knowledge of indigenous traditional people for the benefit of a few. Sahai (captured in Hammersmith, 2007) further notes that diverse forms of indigenous knowledge have been plundered or pirated by researchers and commercial enterprises without any financial benefit accruing on the part of the creators or possessors. It is argued that the creators and possessors of indigenous knowledge should be compensated for ownership or possession of knowledge (Hammersmith, 2007). Mapara (2009) notes that even though African countries have acceded to two or more regional or international laws in the form of treaties, protocols, or agreements on intellectual property rights (IPR), it appears there is no clear cut policy on IPR in most African countries.

The subject of intellectual property rights (IPRs) and the related theme of indigenous knowledge systems have moved to the centre of academic discourse within the context of innovation and the commercialisation of knowledge. Specifically, wealth is no longer reckoned in terms of physical assets alone. In fact, in the knowledge economy that characterises the twenty-first century, intellectual property, or the product of the mind, have become more important than physical wealth in the form of buildings and other physical assets. But again the developing world lags behind in taking advantage of the move towards the commercialising of intellectual property. Africa is still way behind in terms of putting in place a structure for harnessing indigenous knowledge as intellectual property for its people and environment. For example, there are problems inherent in attempting to formulate intellectual property legislation over communally held resources in the public domain where plants with potential commercial value exist. Other examples are equally indivisible properties such as traditional music that is associated with a tribe and not an individual. The point here is that the west has succeeded in patenting these aspects of the African heritage, and has then claimed intellectual property rights over them, at the expense of the owners of these assets. While information technology (IT) has greatly enhanced communication across the world, and has made a clear contribution to development and the quality of human life, it has impacted rather negatively on copyright issues.

6. Intellectual property (IP) law system in Zimbabwe

Zimbabwe is still grappling to document traditional knowledge and also to formulate laws, to recognise its existence and the intellectual property rights. Not much is being done by Zimbabweans to document traditional knowledge. Yet Waite (as captured in Mapara, 2009) notes that Africans continue to use indigenous healers and traditional medicine, even though traditional and everything indigenous is being maligned and abused by the adopted colonial systems. Missionaries, the harbingers of colonialism, strongly opposed traditional medicine. They used education to

undermine the legitimacy of traditional medicine, insulted patients who used traditional medicine and organised their own racially biased professional associations to censure colleagues who referred patients to traditional healers. Africans could be dismissed for missing work on the pretext that they had gone to traditional healers but those who could produce certificates from doctors or letters confirming that they were being attended to by western doctors were accepted.

After independence the government passed the *Traditional Medical Practitioners Council Act of 1981 (79)* and this complemented the initiatives of the World Health Organisation (WHO) which had passed a declaration calling on countries to promote the role of traditional practitioners in the health care systems of developing countries and to allocate more financial support for the development of traditional medical systems. The board also urged the medical profession not to undervalue the traditional medical system. The World Health Organisation (WHO) also encouraged governments in developing countries to enact laws to legally recognise traditional health systems as is the case in Sri Lanka, India, and China. It also advocated for the utilisation of indigenous medicinal plants and remedies used by traditional practitioners to effectively treat patients.

The Zimbabwe National Traditional Healers Association (ZINATHA) has been advocating for the setting up of a traditional medicines department to facilitate research and development of patents on local herbs that have been found to be useful in the treatment of various ailments and the suppression of HIV and Aids symptoms. The association estimates that about 80% of Zimbabweans consult traditional healers, or alternatively faith healers, due to the rising costs of treatment in conventional health institutions. In November 2003, Zimbabwe National Traditional Healers Association (ZINATHA) and the Ministry of Environment and Tourism embarked on a million dollar traditional medicine project under which a variety of local traditional plants were tested for the treatment of various ailments, including opportunistic infections among HIV and Aids patients. But the lack of funds still stalls several projects that aim to document and protect traditional knowledge.

The protection of traditional knowledge also faces a challenge when it comes to patenting intellectual property rights. Foreign researchers can appropriate traditional knowledge and apply for a patent, claiming to have invented a new product since traditional knowledge has attributes of communal ownership, and sometimes have spiritual significance. There is a lot that needs to be done in terms of protecting knowledge and medicines. Knowledge is a contested territory and the knowledge that is generated in Africa may fail to be recognised or accepted in Europe.

Since Zimbabwe was a British colony, the legislation passed in the area of IPR over the years has been similar to the UK legislation. Legislation has traditionally covered all areas including trademarks, patents and copyrights. At independence in 1980, the key legislation in this field was retained. However, in post colonial era, there have been legislative changes. Thus parliament has amended the Copyright Act by introducing the Copyright Neighbouring Rights Act, while introducing new laws on the protection of trademarks and patents as well. These changes are direct consequences of Zimbabwe's obligations under the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs). The Act specifically deals with aspects of IK since it provides for the protection of folklore. While this is restricted to areas of Copyright, it is in part a reflection of the acceptance of the seriousness of the claims of the indigenous communities.

The institutional framework for the administration of intellectual property in Zimbabwe is fairly well established and advanced by sub-Saharan standards. The office of the registrar of patents and trade marks is responsible for the administration of the relevant IPs in Zimbabwe, while the controller of copyright, registrar and examiners, work at the copyright office to administer laws in that branch of IP law. Thus, structurally, Zimbabwean law largely conforms to the major requirements of the dominant IP law regime at the international level. It is however important to note that the new Copyright and Neighbouring Act, failed to protect the rights of indigenous people to their knowledge in the IKS matters.

7. International response

The debate on protection of indigenous knowledge is topical, especially for both developing and developed countries. Inter-governmental organisations such as UNESCO have opened debate on the possible protection of

indigenous knowledge using the intellectual property system. UNESCO formulated the Convention on the Protection of the Diversity of Cultural Contents and Artistic Expressions and this has been adopted by the member states.

Unfortunately, negotiations at the World Trade Organisation (WTO) around amendments to the trade related aspects of intellectual property law agreement on traditional knowledge have collapsed. Article 27 (3) (b) of the TRIPs Agreement empowers member states to consider protection of traditional knowledge using intellectual property systems. During discussions on the review of the TRIPs Agreement at Dohar, Qatar, developing countries proposed amendments of Article 27 (3) (b) to cater for the protection of the use of traditional knowledge that leads to an invention. Developed nations are opposed to this, leading to the collapse of the negotiations. WIPO has established an inter-governmental committee (IGC) to initiate discussions on the protection of traditional knowledge, genetic and biological resources and folklore, using intellectual property systems.

The United Nations Environment Programme (UNEP), which is the custodian of the Convention on Biological Biodiversity (CBD), has requested WIPO, WTO and FAO to consider protection and the benefit to local communities that have contributed to an invention or intellectual property development. WIPO convened the ICG and UNCTAD has voiced support, emphasising the economic value of traditional knowledge systems. Regional organisations such as the African Union have started to issue treaties and conventions regarding the regulation of traditional knowledge. Member states are busy formulating legislation on the regulation and protection of traditional knowledge systems.

The General Assembly of the United Nations adopted the Declaration on the Rights of Indigenous Peoples on 13 September 2007 and this constitutes a seminal document in the field of traditional knowledge. Article 31 of the declaration states that indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestation of their sciences, technologies and cultures, including human and genetic resources, seeds medicines, knowledge of the properties of fauna and flora, oral traditions, literature and designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge and traditional cultural expressions. Article 27 (3) (b) of TRIPs gives powers to member states to consider protection of traditional knowledge using existing intellectual property systems, as well as geographical indications, community-based rights and other forms of protection.

WIPO's inter-governmental committee on intellectual property and genetic resources, traditional knowledge and folk law has been working since 2001 to find a suitable system to protect the traditional knowledge of indigenous people. It is currently considering the protection of traditional knowledge through two complementary processes. Firstly, the consideration of an agreed list of issues concerning the protection of traditional knowledge, and secondly consideration of a draft set of revised objectives and principles for the protection of traditional knowledge

8. Indigenous knowledge and development

Indigenous knowledge may help identify cost-effective and sustainable mechanisms for poverty alleviation that are locally manageable and meaningful. This is done through the identification of innovative pathways to sustainable human development that enhance local communities and their environments. Indigenous knowledge can increase and enhance livelihood options, revitalise agriculture, increase food security, improve health and promote a sense of cultural pride within the community. Many plants currently growing wild in the ancestral domain produce natural dye, fibre, detergent and natural oil. Several plants in the ancestral domain have medicinal uses. Chemical compounds of these plants could be identified for the production of organic medicine. The saddening news is that the Natural Environment Policy of Zimbabwe is quiet about the protection of indigenous tree species. With technical training in seed collection, processing, propaganda and nursery establishment, government could generate income from seeds and seedlings without damaging the current forest.

Indigenous knowledge helps the communities cope with periodic food shortages by utilising the traditional knowhow of preserving food, thus revitalising agriculture and increasing food security. Some plants are used for inter-cropping and soil erosion control, to serve as a trellis for climbing plants, and to provide insect repellent or organic pesticide.

Using organic pesticide has the advantage over inorganic pesticide because it is locally available and affordable for every community member. Technical assistance in processing organic pesticides from local raw materials could help reduce yield loss to pests and possibly open a new source of income for the indigenous community.

The forest is the living pharmacy of the indigenous communities. It provides the medicine to cure common illnesses. However, medicinal plants in the forest are not always readily available when needed. They are often found in a specific part of the forest that may be distant and arduous to reach. This could be addressed by cultivating the identified medicinal plants in backyard or communal gardens making them more easily available, and thereby improving community health.

Proper documentation of indigenous knowledge produces a written cultural heritage that can be passed on from generation to generation. The indigenous knowledge documentation should show great promise for a better and more sustainable future.

The skills enhancement practices especially among women are needed in areas such as tree-seed collection and nursery establishment, food processing of wild fruits and spices, processing of herbal medicines, processing of organic pesticides, handicraft production, marketing of products and book-keeping. Indigenous communities need assistance to produce idealistic young professionals with a solid education in areas such as genetic engineering, plant-breeding, botany, chemistry or pharmacology, food science, social science, law and financial management to ensure the sustainability of these activities.

There is much to be learned from indigenous knowledge systems. Establishing national indigenous knowledge resource centres is essential to strengthen the capacities of agricultural research and extension systems. Validating farmers' experiments will create an environment which leads to the increased participation and empowerment of local people. While systematic documentation captures and preserves orally transmitted knowledge for present and future generations, it exposes indigenous communities to the risk of losing their intellectual property rights through piracy and commercial exploitation.

9. Conclusions and recommendations

The informal discussions established that indigenous communities require protection and compensation for the use of their knowledge. The informal participants voiced the need to prevent the unauthorised use of traditional knowledge by those who do not form part of their communities. This calls for laws and ethical standards upon which the preservation of indigenous knowledge is based. Ethics should form the basis upon which the laws are promulgated. Ethics reflect the morality of a given community or country. It would be ideal to consider what the community refers to as ethically acceptable conduct and weave the law along that line. The law on its own without being premised on ethical considerations, would not receive national recognition and acceptance. The people need to be guided by clear and unequivocal legal statutes in their quest to preserve their indigenous knowledge heritage.

One of the major recommendations from the informal participants is that people from different professional areas, including indigenous community members, should come together and develop creative ways of documenting IKS while protecting the intellectual property rights of the community.

A recommendation was made by the World Commission on Environment and Development (1987) that while it is clear that the concept of traditional ecological knowledge does not exclusively belong to indigenous peoples in Africa, research on African indigenous ecological knowledge is currently relevant for the following reasons:

- traditional knowledge should be protected;
- the community should benefit from such protection because they hold the right to protect their traditional knowledge; and
- the community understands behaviour considered unacceptable.

There is great value in the indigenous resources of Africa. Thus there is need to strengthen the legal framework to protect such resources and ensure Africa has a relatively rich body of indigenous knowledge and related technology. This knowledge is embodied in the continent's cultural and ecological diversities which have been used for generations. Effective utilisation of indigenous knowledge is critical for biodiversity conservation, sustainable use and prospecting, increasing food production, combating HIV/ AIDS, cancer and other diseases eradication and stemming environmental degradation.

Africa is rich in indigenous resources. There is need for a legal framework to protect such resources. Universities, colleges, government and the private sector should enter into partnerships to sponsor research on the effective utilisation and patenting of products derived from indigenous resources. A catalogue or bibliographic list of literature relating to such plant species should be established. The African Model law provides a starting point as it provides a legal basis for the protection of Africa's indigenous resources. Indigenous resources are intertwined with indigenous knowledge and there is need to protect both in order to save Africa's cultural and biological heritage.

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