

## **Challenges and opportunities in the protection and preservation of indigenous knowledge in Africa**

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*This chapter presents challenges and opportunities in the protection and preservation of indigenous knowledge (IK) in Africa. Specific examples have been taken from the Maasai pastoralists and the Sambia and Zigua traditional medicine men of North-eastern Tanzania. The chapter argues that there is a threat of IK extinction due to lack of recording and problems associated with preservation and protection of the knowledge from pirates. Examples of efforts made by Tanzania in IK preservation, including efforts by the Economic and Social Research Foundation in developing IK database and training initiatives at the University of Dar es Salaam, are discussed. Ethical issues in IK systems are also discussed, with emphasis on returning IK benefits to the owners of the knowledge, and involving people in IK research. Finally, the chapter highlights challenges in IK prevention and suggests measures that can be taken to alleviate them. These include, among other things, developing appropriate IK policies and practices, establishing IK resource centres, offering training, doing research and developing South-South IK networks.*

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## Introduction

Indigenous knowledge (IK) can be defined as a systematic body of knowledge acquired by local people through the accumulation of experiences, informal experiments and an intimate understanding of the environment in a given culture (Rajasakeran & Arren, 1992). IK can be seen as local or traditional knowledge that is unique to every culture or society. This knowledge influences planning as well as decision making in local areas.

IK is regarded as a problem-solving mechanism for rural communities. It is recognised as having relevance to the daily life of most individuals, economic development, culture preservation and political transformation, which leads to poverty reduction. IK plays a substantive part in the eradication of poverty among communities in different parts of Africa. The knowledge is implicit and thus difficult to systemise. It is embedded in community practices, institutions, relationships and rituals.

IK is effective in helping to access the poor with information as, in most cases, it is the only information they control and certainly the one with which they are familiar. When they are empowered with IK, they can use it to solve critical problems. IK is said to be as old as the human race itself. Johnson (1992) identifies the following characteristic features of IK:

- It is locally bound, i.e. indigenous to a specific area.
- It is culture and context specific.
- It is non-formal knowledge.
- It is orally transmitted and generally not documented.
- It is dynamic and adaptive, not static, changing as the society changes socially, economically, culturally, etc.
- It is holistic in nature.
- It is closely related to the survival and subsistence of many people worldwide.
- It belongs to the community – the knowledge is communally owned.

Based on the above, it can be concluded that IK is scientific in the sense that it is obtained through many years of practising and practising, and therefore provides scientific solutions to problems that communities are facing. IK belongs to the particular community; it is there for helping

to solve people's problems and is to be shared communally. Those who possess the knowledge possess it on behalf of the community. IK is meant to benefit all the people in the community.

## IK practices in Tanzania

### *The Maasai of Northern Tanzania*

The Maasai people of Northern Tanzania are pastoralists. They interact directly with the environment from childhood. In this way, they have acquired a great deal of knowledge on their environment. They have ensured that the knowledge on physical resources is used sustainably.

For instance, their strategy of mobile grazing allows their animals to utilise a wide variety of forage vegetation types that are dispersed in the wild. This practice increases seasonal grazing and the carrying capacity of the land. Through their intimate association with the natural grasslands, Maasai pastoralists are familiar with every plant in their rangelands and pastures. They can describe the palatability of each plant for the different animals they keep, and they know each plant's seasonality, nutrition value, toxicity and medicinal properties.

The pastoralists have knowledge and experience of supplementing their animals' diet with minerals, which not only provides resistance to disease, but also enhances their appetite, growth, fertility and milk production. The Maasai are fully aware of the migration pattern for effective land use and conservation. This is an example of true indigenous knowledge that belongs to the community for the community.

### *The traditional medicine men of North-eastern Tanzania*

In the North-eastern part of Tanzania lives the Sambia and Zigua people. These communities are well known for their traditional medicine. They have cured people from wounds, stomach pain, tropical diseases such as malaria, etc. through the use of herbs and other traditional means. The knowledge is said to be transmitted among family members from one generation to the next. The father in the family works very closely with the eldest son, who then does the same and carries over the skills to his eldest son.

The same is done by the mother, who passes on the knowledge to her eldest daughter. This knowledge has all the characteristics of IK outlined above. Some women have even specialised in assisting women in labour.

This knowledge is, however, threatened as formal schooling takes over. As children go to school, the potential successor has a choice between abandoning Western education and being a traditional medicine man, or joining a modern medical school towards a formal career. This is the dilemma facing sons and daughters of the Sambia and Zigua medicine men and women.

### **Current issues in the management of IK in Africa**

There are pertinent issues with regard to the management of IK systems in Africa. One of them is the threat of extinction of IK. As mentioned, most IK practices have not been recorded in written form. The knowledge is transmitted orally from one generation to the next. In this way, IK easily faces extinction due to a lack of recording.

Among the leading reasons for the possible extinction of IK is that the focus has been on IK that has a direct cash value, thus ignoring the "non-cash" knowledge. For example, attempts have been made to research and document medicinal plants, as such initiatives lead to the discovery of substances that can be used by large pharmaceutical industries to develop medicines. On the other hand, not much has been done in areas such as traditional dances, rituals and languages, as they do not contribute directly to economic productivity. The main area of concern for IK systems in Africa, therefore, is how they should be preserved. What measures need to be taken to ensure preservation of the knowledge so that it is transmitted from generation to generation?

Lack of written memory on IK has also led to its marginalisation. IK is usually not documented; it is orally transmitted, as we have seen in the case of the Maasai pastoralists and the Sambia and Zigua medicine men of Tanzania. The new generation, who spend most of their time in formal education, are exposed more to Western education systems and less to IK. As such, there is little appreciation of the existence of IK. Africa

has largely been unable to document its IK so as to protect and prevent it from becoming extinct or from being pirated.

It should be noted that there is less appreciation of IK today than there used to be in the past. Western-based knowledge has taken over in the education system. Anyone practising IK as a means to obtain solutions, such as for medical problems, is looked down upon as outdated and primitive. Western medical technology has taken over. The issue, therefore, is how to ensure that IK is integrated into the global knowledge system for its survival.

There is also concern about the need to take stock of what IK can be found in Africa. For example, the following needs to be addressed:

- What kind of IK exists in different parts of Africa?
- Where is it? If someone wants particular knowledge, where can he or she get it from?
- Who owns the knowledge or has to be consulted to access it?
- Under what conditions is the knowledge accessible? In other words, what intellectual property rights exist in getting access to the knowledge?

### **Protection and preservation of IK in Africa**

#### ***Protection versus promotion of IK***

It is common knowledge that Africa is very rich in IK. The issue of protecting the knowledge is a topical one. There is, however, a debate on the promotion and development of existing IK. Which of the two should be given priority? Should Africa first put more emphasis on the protection of what is currently there, or should it first promote the IK for wider awareness?

During the conference on African Information Ethics held in Pretoria, South Africa, in February 2007, IK panel members deliberated on the issue of promotion versus protection of IK, and which should be given priority. The discussion was very stimulating and, in the end, it was agreed that Africa should focus on promoting IK, particularly in the areas of medicinal plants, game reserves, the environment, etc., and add value to the knowledge as a prerequisite for its protection. Whereas protection was acknowledged to be important, the argument was that IK

should be made known widely through promotion, after which the next stage is protection. Protection before promotion was seen to be an inward-looking approach. Other members of the panel, however, were of the opinion that both should be done simultaneously.

### ***Preservation and protection of IK in Tanzania through the ESRF database***

Several efforts have been made in Tanzania with regard to the protection and preservation of IK. One of these is the Tanzania Development Gateway database of the Economic and Social Research Foundation (ESRF).

ESRF is a non-governmental organisation (NGO) in Tanzania whose main objective is to build and strengthen human and institutional capabilities in economic and social policy analysis and decision making, and to enhance understanding of policy options within the government, donor community and in the growing non-governmental sector in Tanzania.

ESRF has developed a database on IK that is a product of the Tanzania Development Gateway, an initiative that uses information technology and the Internet to promote social and economic development within Tanzania. The database was established by ESRF to enhance sharing and dissemination of IK information, experiences and practices in Tanzania. Its objectives are to:

- Provide a platform where IK is captured, stored and disseminated
- Provide a mechanism for sharing this knowledge and also integrate it with modern science and technology to enhance the dissemination of information
- Promote sharing and dissemination of IK information, experience and practices
- In realisation of IK and its contribution to socioeconomic development, promote development of IK systems to improve the provision of information to local communities.

### ***Training in IK systems***

Some IK training initiatives have been developed to train people in IK principles and practices. The Faculty of Law of the University of Dar es Salaam in Tanzania, for example, has a course on IK systems. The course is, however, taught from a

legal point of view. At the moment, it is taught as a module of Intellectual Property Rights. This is an effort on the right direction.

### **Ethical issues in IK**

As highlighted earlier, IK has been practised in Africa since time immemorial. With globalisation, whereby countries in the world are open and connected in all spheres of life, there are ethical issues that need to be considered when one is discussing IK systems in Africa. One such issue is the ownership of research findings or discovery. For example, if research on IK is conducted in a certain remote village in Africa, with information provided by the villagers themselves as respondents, who owns the findings of that research, or the innovation for that matter?

The tendency has been that researchers from the West conduct research and, after data collection, they are seen no more. The ownership remains with the researcher who patents the findings. The indigenous people are used only to generate data and have no knowledge of the outcome of the data they have produced. If the innovation is a resource with economic value, it is patented by the researcher, often without involving the respondents. This is unethical.

Equally important is that research methods used in IK should be appropriate to the indigenous community. The kind of data collection methods, data analysis and presentation of the findings should be brought down to a level that the indigenous people would understand. It should be considered unethical to use research methods that may have a negative impact on the people, whether physically or otherwise. For instance, research methods that may subject respondents to harmful practices or bodily harm should be considered illegal.

Another ethical issue is that IK systems should be inclusive. They should include all groups in the community and no group should be marginalised. For example, all age groups (youths, elders, etc.) should be included in research and enjoy the benefits accrued from IK. In terms of gender, both men and women should be involved in the IK research process. In many areas in Africa, women have been marginalised and given low priority when it comes to information

generation and use (Nkebukwa, 2007). IK researchers should tap information from all social groups. More importantly, they have to be gender sensitive.

In terms of the use of IK, profit has to be returned to the people who are the owners of the knowledge. Any benefit accrued from IK must also benefit the owners of the knowledge. In many cases, IK discoveries have been made and patented elsewhere without the indigenous people being aware of this. The researchers who claim ownership of the innovations end up benefitting from ownership and utility of the IK.

There has to be promotion of a positive identity and consciousness of IK. People have to appreciate the existence, relevance and use of IK that is available locally. IK is knowledge just like any other knowledge that can help people in a local setting. If valued and used appropriately, it can help liberate people in Africa from overdependence on Western knowledge.

Similarly, the negative side of IK has to be identified. This implies that we have to present IK in a critical manner and analyse it objectively to be able to see its negative side. In other words, there has to be a balanced view of IK systems. We have to be able to present and discourage the negative side of IK. It has to be noted that not all IK is good. For example, some people in Africa practise witchcraft. This is an indigenous form of knowledge, but harmful, as it affects others without their consent. Such types of IK should be revealed and completely discouraged.

### Challenges in preserving IK in Tanzania

As pointed out earlier, most IK is not available in written form. It is mainly found in practice and is transmitted orally from one generation to the next. This renders its preservation difficult. Education in Africa has traditionally been transmitted orally from one generation to the next. Africa is basically an oral society and IK has followed the same pattern. Moreover, such transmission has mainly been family based or occurs in small ethnic groups.

People in a community may have certain knowledge about a particular aspect. The problem, however, is that in some cases they are not conversant with how that knowledge works scientifically. For example, in the Usambara area

of North-eastern Tanzania, and indeed in many other parts of Africa, there is sound knowledge of traditional medicine men that prevent thieves from stealing property, such as cattle or other forms of wealth. This is believed to be true and practicable. The issue here is the science behind this knowledge – how does it operate scientifically? With an electronic security system, one can say exactly how it works; with this type of IK, it is difficult, although it is seen to work.

Another challenge is that, owing to its local or environmentally specific nature, IK has traditionally not been viewed as “capital” in a business sense. It has tended to be exclusive at times, susceptible to suspicion, and sometimes to abuse (Kaniki & Mphahlele, 2002). Thus, IK has not been managed as effectively as scientific knowledge, which is well managed because it is taken as knowledge that can be interpreted as capital value or profit.

Not much research has been conducted in IK and the findings documented. It is therefore difficult to obtain that knowledge and incorporate it in the educational curriculum for the purpose of formal transmission from one generation to the next. In this way, even the development and subsequent improvement of the knowledge can be difficult. It is understandable that knowledge generated by research institutes and universities is considered a resource just like any other resource that can be used for development. It is well organised, preserved in libraries and information units, and disseminated for wider access to the user community. This is not the case with IK. There is sufficient evidence (Covin & Stivers, 1997) that IK can be drawn from a wide range of disciplines, such as:

- Environmental conservation
- Traditional education systems
- Health practices and prevention
- Medical technology
- Sustainable agricultural practices
- Local industry and technology, and many other areas

The problem, however, is how the local knowledge practices, principles and methodologies are appreciated and applied. Whereas modern scientific knowledge generated through scientific research processes is highly appreciated, in many respects IK is still questionable.

## Recommendations

The following recommendations are put forward with a view to improving the generation, collection, preservation and use of IK.

### ***Adoption of appropriate policies***

Each country needs to have in place appropriate policies that encourage and provide guidelines for the innovation, conservation and preservation of IK. South Africa, for example, adopted IK policy in 2004 (Saleti, 2007), which provides the government's stance in this matter. Policies are expected to address the following, among others:

- The government's appreciation of IK
- Political commitment towards IK systems
- Copyright and patent issues
- Use of IK
- Transborder IK systems and how to share them
- Statement on the protection of IK
- Preservation of IK
- Distribution of benefits accrued from IK

### ***Research in IK systems***

There has to be deliberate efforts to conduct research in the area of IK. This role can best be undertaken by universities and appropriate research institutes. Areas can include disclosing, recording and preserving IK. Issues such as the following are relevant:

- What specific IK systems exist in Africa?
- How is the knowledge applied for productivity?
- What practices, traditions and norms surround the innovation, use and transmission of IK in Africa?
- How can specific community-based measures be used to promote IK systems?

### ***Establishment of IK databases***

Equally important is the creation of databases on IK. Libraries and information centres have this role to play. Other stakeholders, such as private organisations, relevant ministries and government organisations and NGOs, can all join hands in recording and preserving IK.

### ***Establishment of IK resource centres***

Some countries have IK resource centres in place. For example, in Nigeria the following activities are carried out:

- Conducting and coordinating research activities on IK
- Disseminating IK information
- Networking IK initiatives
- Exchanging IK information with other centres
- Doing quality assurance on IK practices
- Formulating IK policy

Each country needs to have IK centres legally established and its operations guided by law.

### ***Involvement of the government and NGOs in IK systems development***

African governments need to take a leading role in intervening and participating fully in the creation, development and protection of IK. This commitment is essential, as it makes room for actors to invest in these initiatives. Political commitment in such endeavours is an important aspect of IK development. Individuals and NGOs will have the courage and strength to become involved if they realise that the government places value and emphasis on IK systems.

Important too, is the involvement of NGOs in IK development initiatives. The government, in its capacity, needs only to set policies, rules and regulations governing aspects related to the use and protection of IK. Core IK activities, such as research, use and dissemination of IK, can be done by individuals as well as governmental and non-governmental organisations. In the Tanga region in Tanzania, for example, there is an NGO known as Tanga Aids Working Group (TAWG). This HIV/AIDS organisation uses both local IK expertise and modern medical experts to fight against HIV/AIDS. The combination of Western and indigenous medical facilities, plus counselling, has proven to be very successful in helping people living with the disease. Scheinman (2002) points out that this is a low-cost alternative to imported therapies.

### ***Formation of collaborative teams with other developing countries***

International conventions on IK are world

forums that many African countries are not conversant with. It is therefore important that, in IK development at international level, African countries collaborate with developing countries on other continents that are interested in IK systems, for example Brazil, China and India, for joint negotiations and collaborations. This is a struggle that developing countries cannot be given at no cost, but they have to work on it in order to acquire collective strategies at regional and international levels.

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