Interfacing two knowledge systems: Local Knowledge and Science in Africa

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ABSTRACT

In this article, with reference to Ghana and Zimbabwe, I explore the traditional African worldview, lifeworld, belief systems and ways of thinkin g and reasoning. This discourse captures the rich combination of spirituality, materiality and the social in a concept referred to here as ***Cosmovision***. Nowadays this worldview co-exists with western worldviews and systems of thinking, in various shades and combinations of both, as several parallels within the same continuum.

In the article, I try to illustrate that in the traditional African knowledge systems often a hierarchy exists between divine beings, spiritual beings, ancestors, and natural forces, such as climate, disease, floods, soil, vegetation, and animals. The worldview suggests a cyclical notion of time, and gives rise to several rituals in which the elders, and spiritual leaders play a prominent role. From the examples of Ghana and Zimbabwe in this write-up, it becomes clear that in the traditional worldview, land, water, animals and plants are not just a production factor with economic significance. They have their place within the sacred nature.

The role of colonialism in subordination of the African science and knowledge system in general is discussed. The article argues that the Transfer-Of-Technology model assumed even after independence still subjugated the African knowledge system and continues to do so. This not withstanding, the African knowledge system persists albeit marginally and has sustained many lives this far.

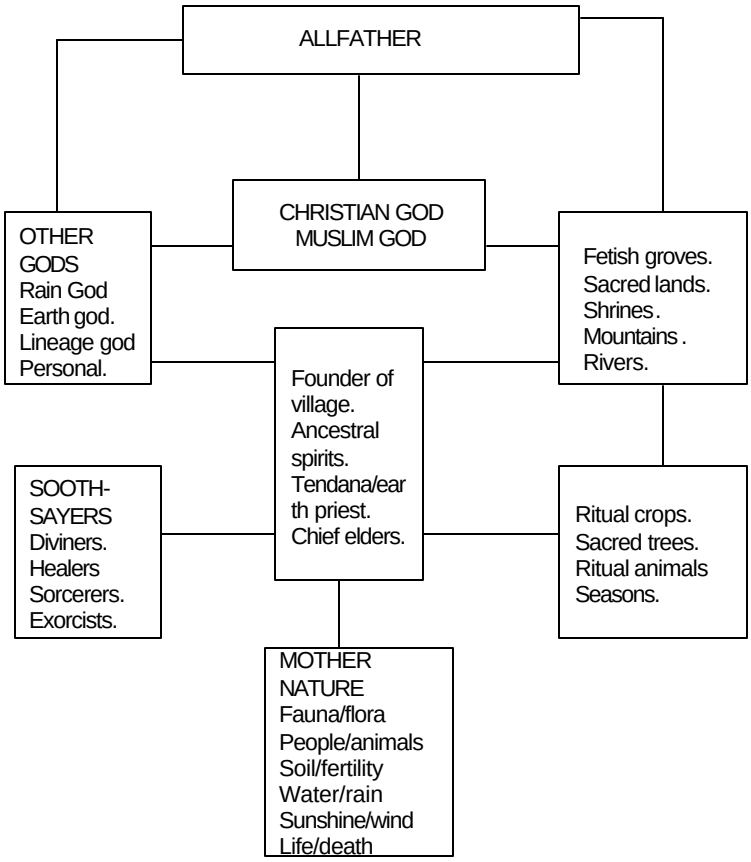
The article ends with a series of conclusions that highlight the reawakening of interest in the African knowledge system. This new interest is due in part to the persistence of elements of the African knowledge systems despite the numerous interruptions by interventionist. The failure of interventions from the western world to provide the envisaged benefits has gone to buttress the need for an alternative to the dominant paradigm approach. With these concluding remarks the article then makes a recommendation for an endogenous development process that focuses on a blend between the two knowledge systems within the concept of endogenous development.

1.0 AFRICAN WORLDVIEWS AND BELIEF SYSTEMS

Traditional African ways of thinking and reasoning differ in many respects from the dominant international approach. Despite generations of western influence, the decisions about agriculture, health and nature management are still heavily based on the concepts of African traditions. At village level the spiritual leaders, although often not clearly observed by outsiders, are quite influential. Nowadays, thinking amongst Africans ranges from traditional to modern, but in many cases both systems of thinking can be observed parallel to each other. Traditional worldviews and traditional institutions play an important role.

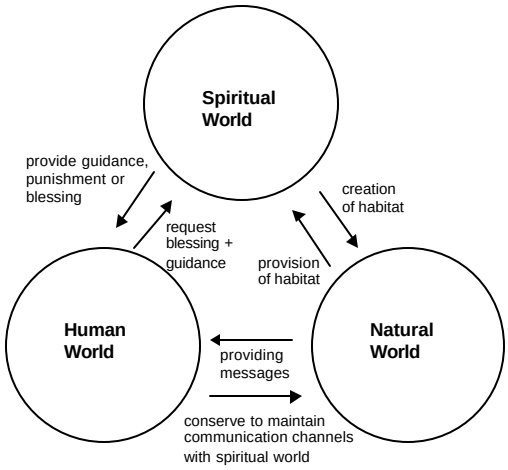
1.1 The Cosmovision concept

Religious and philosophical concepts have their place within traditional worldviews of Africans. Often a hierarchy between divine beings, spiritual beings, especially the ancestors, men and women, and natural forces, such as climate, disease, floods, soil, vegetation, animals, is indicated. These Cosmovisions give rise to several rituals in which the elders, the priests, soothsayers and spiritual leaders play a prominent role. Cosmovision, to a large extent, dictates the way land, water, plants and animals are to be used, how decisions are taken, problems are solved, experimentation takes place and how rural people organise themselves (Haverkort and Hiemstra, 1999). Millar (1999) presents the Cosmovision of the people in Northern Ghana in a diagram.



In Millar (1993) I posited that for the traditional people in northern Ghana gods, spirits, ancestors, spiritual and political leaders, sacred groves, lands and shrines, ritual crops and animals, food items and cash crops are all interrelated. Obviously Christianity, Islam and western education have influenced the cosmovision of the Africans, especially those with formal education. This notwithstanding, the basic African philosophy persists.

GONESE (1999) GIVES THE DIAGRAM OF THE SHONA COSMOVISION



For the Shona, the human world, the natural world and the spiritual world are linked. The natural world provides the habitat for the spirits and sends messages from the spiritual world to the human world. The spiritual world provides guidance, punishment and blessing to the human world. People therefore have to relate to both the natural and the spiritual world.

From these examples of traditional cosmovisions in two countries as far apart as Ghana and Zimbabwe, it becomes clear that in the general traditional African worldview, land, water, animals and plants are not just a production factor with economic significance. They have their place within the sanctity of nature. Moreover, certain places have a special spiritual significance and are used as locations for rituals and sacrifices, for example sacred groves, shrines, mountains and rivers (Gonese 1999). Fig trees and baobabs are often treated as sacred trees. The sun, moon and stars feature in myths and beliefs of many people. Certain animal species have a spiritual significance too. Cattle, sheep, goats and chicken are often used for sacrifices and other religious purposes. Creeping wild animals frequently feature in religious concepts. Snakes, lizards, chameleons and certain birds are considered to be messengers of the spiritual world.

Rain is regarded by African peoples to be one of the greatest blessings of God, who is often referred to as the rain-giver. Many of them make sacrifices, offerings and prayers to God in connection to rain. Rainmakers are reported in all parts of the continent. Their duties are to solicit God's help in providing rain or in halting it if too much falls.

1.2 Africa today

It is obvious that there are many different cultures, and many differences within cultures in sub-Saharan Africa. According to Hopfe and Woodward (1998) historic developments, demographic and ecological differences, as well as economic opportunities, colonial impact and religious missionary activities, to mention but a few factors, have resulted in a diversity of lifestyles, professional practices, values, religions and knowledge systems. Africa has a diversity of ecosystems, ranging from extensive mountain areas, savannah and dry land areas, to lowlands, coastal plains and tropical forests. Nomadic peoples often compete for land and water resources with sedentary peoples. The urban population is increasing and a considerable number of large cities exist. Traditional religions have common elements, but there is also a great variation in rituals, traditional institutions and leadership

structures. They are often combined with, or have been replaced by Christianity or Islam. As a result, a great number of different religious denominations can be observed. Yet, sub-Saharan Africa has a lot in common, as its peoples have known a great number of migrations across the continent. Although there are more than a thousand ethnic groups, many of them have similar origins or historic relationships. The population has a predominantly rural background, and even today agriculture remains to be the main occupation. Many African soils are aged and tend to be quite poor, which, combined with a harsh climate, makes agriculture a difficult and low productive activity.

In their various writings authors like Mbiti (1969), Emeaagwali (1997) and Biakolo (1998), took the position that the colonial past has had a strong impact on the indigenous cultures and peoples of Africa, limiting their capacity to solve their own problems and develop technologies and skills that serve their own needs. Colonisation left the continent with a low level of literacy, few educated people, and with poor physical and institutional infrastructure. The most productive agricultural lands, forestry and mineral resources have been, and often still are, exploited by entrepreneurs with a colonial background. Most of the present nations, those that exist less than 50 years, still reflect major aspects of the colonial system rather than the pre-colonial indigenous systems of governance. The same holds for the legal system and the education system. The religions of the colonisers and missionaries over the past centuries, though they introduced alien concepts and rituals, have not been able to suppress the value attached to ancestors, funerals, and a host of other traditional practices. Most health practices in rural Africa today are based on traditional healers and knowledge, using a wide range of herbs and rituals.

Africa is changing fast and there exists a mix of dominantly traditional, dominantly modern and more hybrid subcultures. Some aspects of indigenous knowledge are expressed openly, whilst other aspects are secretive and hidden from outsiders. Here I describe the elements of the past, which still play an important role in the values and decision-making processes of African rural peoples, and somehow also in the modernised African mind. Obviously, the degree and relevance vary per location, ethnic group and person. Many studies about African worldviews and indigenous knowledge either stress the positive aspects, or strive to show the limitations and negative aspects. The first written anthropological studies on Africa often included biases and Eurocentric prejudices, which, in part, have been corrected later (Biko, 1998; Coetzee and Roux,1998).

Romanticising indigenous knowledge, however, is not a good basis for endogenous development either. Phenomena such as taboos against planting trees, gross inequalities between men and women, land use practices that have detrimental ecological effects, and misuse of their position and knowledge by local leaders, are aspects which need to be observed and brought into the intercultural dialogue.

2.0 SOME AFRICAN TECHNICAL KNOWLEDGE AND PRACTICES

Most of the attention of development professionals to indigenous knowledge has a technical focus. Here, I give a brief summary of the literature on African indigenous technical knowledge divided into three sub themes: soil and water management, crops and trees, and animal production. The findings here are part of my earlier works (Millar, 1990; Haverkort and Millar, 1992; Haverkort and Millar, 1994).

2.1 Soil and water management

One of the common characteristics of the African cultures is the perception that the earth is associated with the concept of the mother, or womb. It is often considered to be a deity, the property of the gods, and the founders of a clan or tribe who were the first settlers in the area. Traditional functionaries, such as the earth priest, exercise spiritual control over the land. A wealth of information exists about agricultural traditional knowledge, especially on soil classification and practices of soil and water management. Mulching, use of water pockets in plant holes, soil and water conservation, traditional erosion control, and irrigation are all examples of effective practices.

Experiences on how traditional African soil and water conservation concepts can be matched with participatory approaches are accumulating. They are resulting in increased understanding of farmer livelihoods, and more and

more programmes today put farmers in the centre of their activities. However, many of these programmes hardly address the African worldviews, beliefs systems and the traditional systems of land tenure on which these practices are based. In the development literature, a general lack of information about the spiritual dimension of soil and water has been observed. Traditional functionaries, such as the earth priests, the spirit media and rainmakers who are traditionally consulted for issues related to land and water management by rural people, are hardly involved in rural development projects. In practice, the divide between anthropologists and development workers with a technical focus is quite deep.

2.2 Crops and trees

An overview of literature on traditional management of crops and trees reveals that the subjects most frequently dealt with are sacred groves, agro-forestry, plant breeding, and crop cultivation. Again, the literature gives more information about the bio-physical aspects of traditional use of trees and crops, than about the cultural and spiritual dimensions, with exception of the studies on sacred groves. Several studies stress the importance of sacred groves in relation to the efforts of the rural people to appease the spirits related to rainmaking, good crops or health. Traditional spiritual leaders play an important role in the management of these important patches of high biodiversity. Several authors also indicate that sacred groves can be an important starting point for development and rehabilitation of savannah areas, forests and wetlands.

Indigenous agro-forestry is widespread and several systems are described in literature. Farmers know the qualities of trees, what they can be used for, and the possibilities and limitations of combining trees with crops. Some tree species have a spiritual significance, which is reflected in taboos and rituals associated with them. Many studies on the traditional cultivation practices of crops, including traditional food crops and wild plants, can be found.

2.3 Livestock keeping

Livestock systems in Africa are extremely complex. In a broad sense we can distinguish between two major livestock systems, which are the extremes of a continuum: livestock systems associated with settled farmers and pastoral husbandry systems. The role of animals in the spiritual life of African rural people is quite unique and has been the subject of several studies. Literature describes beliefs and practices related to livestock on aspects like feeding, breeding, animal health, small stock and wild animals.

Literature also shows the immense changes that African livestock productions systems are undergoing currently, especially the pastoral systems, due to modernisation, population growth and government policies. It is necessary to look at indigenous knowledge related to livestock in the context of the culture of the people involved. In many ethno-veterinary and animal husbandry studies, this aspect has been overlooked, focusing mainly on the use of medicinal plants for curing diseases. There is much potential in activities that combine ethno-veterinary aspects with village based animal health care. There is a imbalance in the extent to which the different animal species are studied, and the use and importance of the species in rural peoples' lives. For example, most literature on fowl deals with chicken, though many families use a combination of species including guinea fowls, ducks, turkeys and pigeons. There is potential for working with rural people, especially women, by focusing on these 'non-traditional' species.

The role of women related to livestock is subject to many changes. In some cases they become more involved in livestock, in others less; the effect on their social position and status also shows a wide variation. In the last decades there has been a decline in 'conventional' livestock projects, due to disappointing results, especially the range development projects, and the projects based on the import of exogenous breeds. Meanwhile, the number of 'innovative' projects, for example on ethno-veterinary medicine and village-based animal health care, has increased. There is a sharp decline in the number of traditional breeds in Africa, which are adapted to the local culture, ecological circumstances and social structures. It is necessary to look at these breeds, taking into account not only the conventional productive role of livestock (like meat, milk and traction) but also the importance of manure, the role of livestock as a factor in risk-management, transport and in social and cultural life.

2.4 Indigenous knowledge and development

During the colonial period and after, the main models of formal agricultural development and health care efforts have been based on the introduction of western technologies, not to complement, but to substitute traditional practices. One of the major effects of colonialism was the subordination of science and education to the logic of the colonial production systems and class structures. Science and development ceased to emanate from the womb of African civilisation, indigenous problem solving and experimentation. The colonial system was exploitative, geared towards export of a surplus from the continent. It redeployed resources in the form of agricultural and mineral wealth from the periphery to the centre, destabilising the existing process of knowledge and technique development. Also after independence, the focus of research, education, extension and services to agriculture and health professionals continued on the basis of knowledge transfer from the west to Africa. In recent decades, the efforts to introduce the green revolution, cash crops and to train farmers to become entrepreneurs have not resulted in the expected outcome. This is mainly due to the fact that they were not rooted in African knowledge systems and did not take into account the specific ecological and socio-economic conditions.

In Africa, various blends between completely western and completely traditional practices exist. This is more true for health than for agriculture. The World Health Organisation (WHO) estimates that up to 80% of the people in Africa use traditional medicine as a major source of health care. People go for modern health services or high-input agricultural technologies when they can afford it. Most people opt for combining both systems, on a large scale, or limit themselves to the traditional practices.

CONCLUSIONS

During the last decades there has been a renewed interest in African indigenous knowledge. This is partly due to the influences of African culture on some European scholars and cultures, and partly due to a new positioning of Africans themselves. This renewed interest, however, is more concentrated on technologies rather than on systems, structures, and processes. It often has the intention of validating traditional technologies from a western scientific perspective. As local knowledge and values still form the main driving force for rural people's decisions on land use, food production, community management, health practices, religious practices, teaching, learning and experimenting, these should be seen as the main point of articulation for development activities and development workers. Programmes for health, agriculture, and the management of natural resources, should and can be built on African religious concepts, institutions and practices.

It is becoming increasing clear that for most traditional Africans, adoption of a new technology does not imply abandoning what they have been already doing or believing. Adoption means, therefore, doing both things side by side. For the African it is a question of survival in a diverse and risk-prone environment. Strategies for modernisation, by means of stimulating introduction of new innovations from outside, could be replaced strategies of endogenous development, 'development from within'.

Outsiders can build relationships with traditional leaders and discuss the possibilities of experimenting with forms of agriculture, health, or management of natural resources, of interest to the population in a given community. Rural appraisal exercises can include co-operation of spiritual leaders, and take notice of the worldview and religious concepts of the people involved. On-farm experiments and tree planting activities can be successfully planned together with the traditional leaders, and rituals can be held to initiate these activities and to discuss the traditional criteria to be used in evaluating the outcomes of the experiments or project.

RECOMMENDATIONS

RESEARCH AND DEVELOPMENT INTEGRATING INDIGENOUS KNOWLEDGE AND FORMAL SCIENCE

For such interfacing to succeed, the interventionists need to establish a relationship with the community based on respect. In this process, awareness is required to resist two temptations: the temptation to condemn and reject local knowledge and practices, and the temptation to justify and idealise them.

To integrate both knowledge systems, research for development should of necessity be participatory and the real essence of participatory research and development is to ensure that development starts from the people's indigenous knowledge.

The integration of both knowledges therefore demands that both development actions and researches are action-oriented, demand-driven, and problem-resolving in focus. CECIK, AZTREC and a few partners in the region are currently evolving strategies to enhance various forms of endogenous development and also evolve various interface studies that will contribute towards maximising the benefits accruing from the integration local knowledge and science – a necessary recipe for development.

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