



Journal Homepage: - [www.journalijar.com](http://www.journalijar.com)  
**INTERNATIONAL JOURNAL OF  
 ADVANCED RESEARCH (IJAR)**

Article DOI: 10.21474/IJAR01/1321  
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/1321>



### RESEARCH ARTICLE

## ILLUMINATING AFRICAN KNOWLEDGE SYSTEMS: THE NEED FOR A CONTEMPORARY DEVELOPMENT AGENDA.

David Millar<sup>1</sup> and Fabian Dome Yelsang<sup>2</sup>.

1. University for Development Studies, – Ghana.
2. IIRaCS, University for Development Studies, Ghana.

### Manuscript Info

#### Manuscript History

Received: 16 June 2016  
 Final Accepted: 19 July 2016  
 Published: August 2016

#### Key words:-

Social media, Teenagers,  
 Facebook depression, Social networks,  
 Cyber bullying, FOBO.

### Abstract

Despite obvious differences between the regions and ethnic groups on the vast African continent, one can identify common elements in the way African people see themselves (cultural universalis), the way they know and organise themselves: their religions, worldviews, relationships to nature, their notion of time, artistic expressions, leadership, and ethnic organizations, their ethics and values. In contemporary Africa, traditional knowledge, ethics and values still are an important driving force in a rural peoples' decisions making (action or inaction) and development activities in general. Of recent times there is the debate as to the degree of cultural erosion. Some argue that the erosion (enculturation/ inculturation/ cross-culturaliness) has debased the values associated with African knowledges. In-place of joining this debate the choice here is to establish as far as we can **WHAT WAS** and **WHAT IS** with respect to the Dagaaba of Northern Ghana. This being a Case Study has its limitations but the reward/ motivation is an attempt at documenting a people's knowledge for today and for posterity.

Copy Right, IJAR, 2016,. All rights reserved.

### Peculiarities of the African value systems:-

The basic building blocks of these *ethics and values which are expressed in actions or inactions* are similar but differently expressed because of the cultural and other specificities of the African peoples. Hence, pluralism (heterogeneity) is what Africa has to share with the rest of the world. Yet, there are many common elements in the African way of knowing: the worldviews, ecological spirituality and the existing cultural/religious practices do have similarities.

Earlier sociologist and anthropologist from the western world have studied Africa and its peoples as objects of interest relating to their fields of work embedded in the academic, political, economic and cultural context of colonialism and post colonialism. The recent upsurge of interest in knowledge of indigenous people has challenged the assumed superiority of western science over the sciences that have their roots and dynamics in Africa (and Asia, America and other regions). The challenge here is for African scholars to (re)value, give recognition, and articulate our ethics and value systems. We need to move away from the feeling of mediocrity to a collegial realm with our western counterparts (as the Asian scholars are doing). We constantly under-value and underrate our ethics and

values and hence deny them our scholaristic recognition and support. These are part of the expressions and discourses of an African renaissance (Mbeki, 1996; Jana, 2001) and this presents a challenge to our ethics and values which appear to be disappearing.

Oniangó (2000) concludes that in the theory of African knowledge, the world is centred upon the 'self' that lives in a personal world of culture. The African culture does not assume that reality can be perceived through reason alone. There are other modes of knowing, such as, imagination, intuitive experience, and personal feelings. This is why the deepest expression of the African cultural reality has been through art, myths, and music rather than through the Western mode: logical analysis.

The other basic view about nature held by the traditional African is that **life-force** permeates the whole universe and that matter spirits are an inseparable reality. The African has no definitions of such life-forces but only understands and describes them in terms of their functions. The soul is the individual will, his thought, conscience and judgment. Unlike the European, the African does not even say that the soul is the kind of entity that goes to heaven or hell after death. When an individual soul is compatible with other individuals, it is pure and there is peace and harmony. When it is not compatible with others it is impure and there is no peace and no harmony.

Emeagwali (2003) suggests that the African way of knowing appears to be largely communitarian in terms of discovery and experimentation and the mode of transmission and sharing is often collective rather than individualistic.

Goduka (2000) characterises African knowledge as spiritually centred wisdoms. In the traditional African view the universe is a spiritual and a material whole in which all beings are organically interrelated and interdependent. In the process of reclaiming/affirming our indigenous stories, cultural identity and voice, we need to decolonise our minds. She suggests that educators must move beyond a focus of specialization to holistic knowledge, from materialism to spirituality; from a focus on structures to understanding processes and from objectivity to subjective methods of enquiry.

#### **Spirituality Derivatives:-**

- ❖ God or the Creator.
- ❖ The Ancestor.
- ❖ Worship.
- ❖ Sacrifices.
- ❖ Festivals.

#### **Social Derivatives:-**

- ❖ The Village of/or Community
- ❖ The family
- ❖ The parent.
- ❖ The Man.
- ❖ The woman
- ❖ The child.
- ❖ Marriage.
- ❖ Birth
- ❖ Growing up.
- ❖ Death

#### **Cultural Derivatives:-**

- ❖ Artefacts
- ❖ Drumming.
- ❖ Dance.
- ❖ Music.
- ❖ Clothing.
- ❖ Eating/ Food.
- ❖ Language.
- ❖ Housing.

**Camaraderie:-**

- ❖ Kindness.
- ❖ Love.
- ❖ Reciprocity.
- ❖ Empathy.
- ❖ Social support systems.
- ❖ Peer.
- ❖ Age group.
- ❖ Friendship.
- ❖ Bravery.

**African technical knowledges and practices:-**

Below, we give a brief summary of some literature on African indigenous technical knowledge divided into sub themes: soil and water management, crops and trees, and animal production, medicine, mathematics, food processing, metallurgy and building techniques.

**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 (M'ma ni a tanga-My Mother land). 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 conservation, traditional erosion control, water harvesting and irrigation are all examples of effective practices, which are still widespread and to a large extent explain the food productivity in areas considered marginal by conventional standards.

Experiences on how traditional African soil and water conservation concepts can be matched with modern insights, using 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. (Reij and Waters-Bayer, 2001) In her Africa wide study on Realising the promise and potential of African Agriculture, the Inter-academic Council (2004), expresses the need for experimentation in creating effective solutions to the problems of African agriculture, especially those that empower the farmers in Africa to make decisions about their own crops and their own livelihoods. However, many of the present day 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 reviewed for this chapter, 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.

**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 (Fairhead 1993, Millar 1999) 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.

**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 production 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 an 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.

**Medicine:-**

According to Emeagwali (2003), African Traditional Medicine (ATM) is holistic and attempts to go beyond the boundaries of the physical body into the spiritual. This is in contrast to western bio-medicine which views the body mechanistically in terms of individual parts, and is derived from the germ theory of disease. ATM can be categorized as mind-body medicine. Some common medical principles have emerged over time in various African regions. These include several scientifically proven techniques and strategies, some of which are culturally specific and of psychological importance. Among the common principles and procedures utilized in African Traditional Medicine (ATM) are hydrotherapy, heat therapy, spinal manipulation, quarantine, bone-setting and surgery. Incantations and other devices of psycho -therapeutic dimension are often applied. Western based pharmaceutical companies often send agents to tap the knowledge of traditional African pharmacologists. Treatment for cancer, obesity, drug addiction, diabetes and other ailments have benefited directly and indirectly from traditional African pharmacologists through plants such as the African willow (South Africa), the hoodia plant (Namibia), iboga (Gabon and Cameroon) and other botanicals. Carlson (2002) acknowledged that Shaman Pharmaceuticals collaborated with 58 traditional doctors from 7 provinces and 42 communities in Guinea, West Africa, between 1994 and 1998. As a result of this collaborative venture 145 plant species were identified as useful for the treatment of type 2 diabetes mellitus.

The naming of major vessels and detailed knowledge of neuro-anatomy and neurological symptoms emerged in some areas, including ancient Northeast Africa. There is evidence of the use of pills, enemas, suppositories, infusions and elixirs for dispensing prescriptions. We have evidence of experimental medicine in surgery, orthopaedics, gynaecology, and pharmacology. Surgery has included male and female circumcision, brain surgery and the excision of tumors. The alignment of dislocated bones and the treatment of collarbone fractures have been documented. Pregnancy diagnosis through the use of urine samples and the use of spermicides as well as the removal of the ovaries have also been noted in some areas. Anaesthetics were derived from plants identified to have pain killing capabilities. Some areas have become well known for certain types of medical expertise as is the case of Funtua in Northern Nigeria for orthopaedics. Many of the traditional techniques are still utilized in some areas.

Some have undergone change over time. Others have been revived in more recent periods or have fallen into oblivion. The World Health Organization has recognized the contributions of traditional medicine to psychiatry.

### **Mathematics:-**

The African Mathematical Union based in Mozambique has listed innumerable sources of information on the history of Mathematics in Africa. Gerdes (1999) Doumbia (1997), Zaslavsky (1990) and Eglash (1999) have identified some important developments in the field. There are historically very practical explanations for the development of Mathematics in the continent. A complex system of trade developed in the context of the trans-Saharan trade and also trade with Asia in terms of commodities such as gold and gold dust, kola nuts, leather items such as bags and various types of textile. The extensive trade that developed between Great Zimbabwe and the Swahili city states necessitated systematic calculation and systems of measurement. In Muslim regions the calculation of heritance and the distribution of zakat necessitated mathematical accuracy. Some indigenous systems of calculation had 10 as a base whilst others were vigesimal (have the base of 20) such as the Yoruba system. Distinctions were made between prime numbers and multiples which contained other numbers. Various symbols evolved to represent various quantities. African systems of logic have also been manifested in games and activities of strategy such as mancala and ayo as well as games of alignment and puzzles.

### **Food Processing:-**

Indigenous fermented foods in Africa have usually been derived from cassava tubers, cereal legumes, oil seeds, palm tree sap, milk and various other local products. Okagbue (1997) has pointed out that 'the scientific basis of indigenous food fermentation lies in the nature of the micro-organisms involved in fermentation, and microbially induced change of the base product; the nature of the enzymatic reactions which take place; and the specific nature of the end-product in terms of nutritional and preservative qualities'.

Common to various parts of the continent have been de-hydrated granular food products which involved fermentation, frying and de-juicing; or products such as sorghum, maize, or other cereal fermented and made into alcoholic beverages. Food processors became aware of the significance of the various agencies by virtue of trial and error experimentation. Metallic objects were sometimes used to hasten fermentation and in this case serve as trace elements, thus promoting the growth of the relevant micro-organisms.

African civilization may be associated with specific methods of preparing and even consuming food items in ways which reflect some measure of relative uniformity throughout the continent. Fast food items ranging from couscous to "gari" or cassava granules; various types of cereal-based flour, pulverized tubers of various kinds and a wide variety of vegetable-based soups have given African culinary traditions a distinct character which may also be discussed in discussions on micro-biology and food processing. It has to be stressed that food preparation involves hypothesis formulation; the assumption of regularity in nature and a measure of logical consistency in thought in such a way as to facilitate repeatable and predictive capability on the part of the food processor or agent associated with food preparation.

### **Metallurgy:-**

Schmidt (1997) has made extensive research on steel production in ancient East Africa. Various types of metal products have been used over time by Africans ranging from gold, tin, silver, bronze, brass and iron/steel. The Sudanic empires of West Africa emerged in the context of various commercial routes and activities involving the gold trade. In the North/East Ethiopia and Nubia were the major suppliers of gold, with Egypt being a major importer. In Southern Africa the Kingdom of Monomotapa reigned supreme as a major gold producer. In the various spheres of metal production specific techniques and scientific principles were applied. These included:

- Excavation and ore identification
- The separation of ore from the non-ore bearing rocks
- Smelting by the use of bellows and heated furnaces
- Smithing and further refinement

The use of multishaft and open-shaft systems facilitated the circulation of air in intense heating processes whilst the bellows principle produced strong currents of air in the context of an air chamber expanded to draw in air through a valve or to expel it. Note that the various metal products were used for a wide range of purposes including armor as in the case of some Northern Nigerian city states; gold, silver, iron, copper and brass jewelry; currency including

circular and non-circular coins; pots and cooking utensils; cloth dyeing, sculpture and agricultural implements. The technical know-how and expertise which blacksmiths were associated with helped to enhance their status although they were also often associated with supernatural and psychic powers as well.

### **Building Technology:-**

Emeagwali (2003) describes how in various parts of ancient, medieval and contemporary Africa building constructions of various dimensions, shapes and types emerged reflecting various concepts, techniques and decorative principles and specific raw material preferences as well. Builders integrated the concept of the arch, the dome, and the use of columns and aisles in their construction. The underground vaults and passages and rock-hewn churches of Ancient Ethiopia are matched in Nubia and Egypt with pyramids of various dimensions. In the Sahelian region, adobe or dried clay was preferred in the context of moulded contours at times integrated with overall moulded sculpture. Permanent scaffolding made of protruding planks characterized the Malian region. The principle of evaporative cooling was integrated into the building activity. Mats were utilized as part of the décor and also to be saturated repeatedly, to cool the room.

Derelict ruins from walled cities such as Kano and Zazzau and other city states of Hausaland in the central Sudanic region of West Africa complement the rock hewn churches of Lalibela in Ethiopia, the Zimbabwe ruins, and the pyramids and temples of ancient Nubia, and Egypt. Museum displays also include vandalized structures and should invite discussions on the centuries of misappropriation of Africa's historical treasures. Some of Africa's misappropriated artifacts include Egyptian and Ethiopian obelisks and stelae in Rome, London, Washington and New York.

### **Indigenous knowledge and development:-**

During the colonial period and after, the formal models of agricultural development and health care efforts have been based on the introduction of western technologies. These technologies were not to complement, but to substitute traditional practices. Emeagwali (1997), states that, 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. According to her science and development emanated 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, however, or limit themselves to the traditional practices.

### **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.

### **Religions:-**

According to Mbiti (1969), existence for Africans is a religious phenomenon; man is a deeply religious being living in a religious universe. Mbiti points out five categories that are consistently mentioned in the various African religious practices: *God as the ultimate explanation of the genesis and sustenance of man and all things; spirits,*

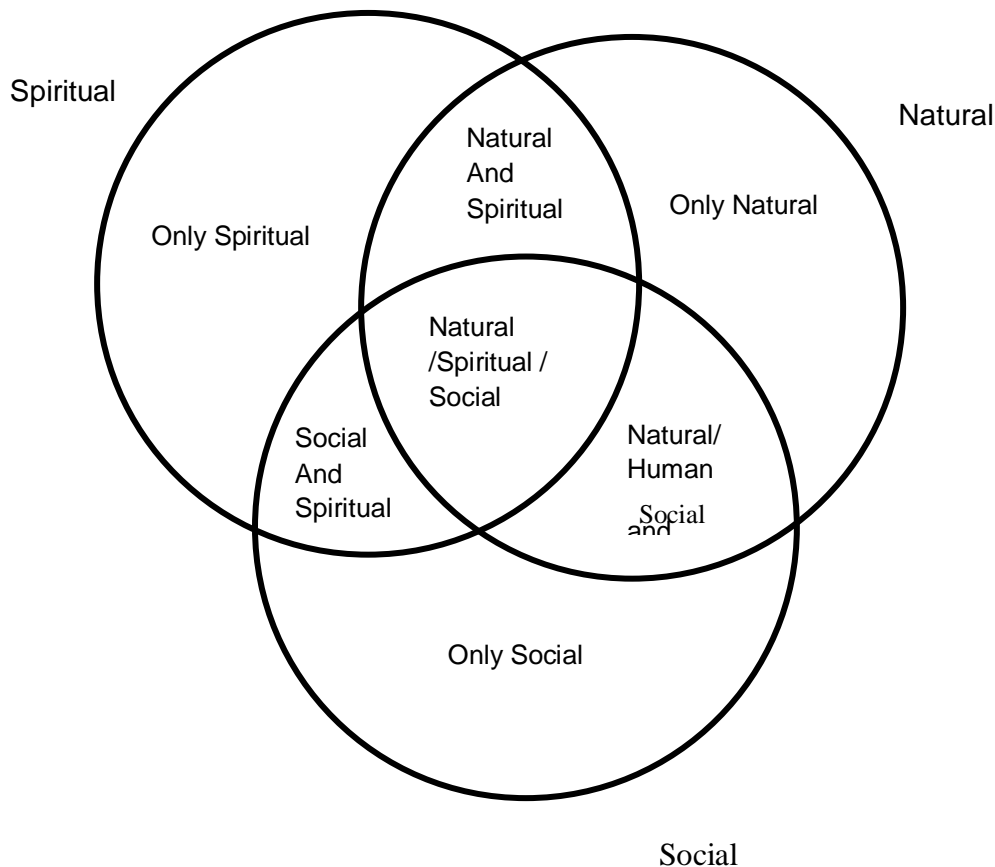
*made up of superhuman beings and spirits of ancestors; man, including human beings alive and those not yet born; animals and plants or the remainders of biological life; and phenomena and objects without biological life.*

In addition to these five categories, a vital force, power or energy permeates the whole universe. For the Africans, every plant, animal and natural phenomenon is a carrier of the divine. God is the source and the ultimate controller of these vital forces, and the spirits have access to some of them. Selected human beings, such as medicine men, witches, priests and rainmakers, have the knowledge and ability to tap, manipulate and use these forces. Some use it for the good and others for the ill of their communities. In order to appease the gods, people have to perform rituals and make sacrifices. There are numerous rituals such as those for the fertility of humans, crops and animals; for birth, initiation, marriage and death; for rainmaking, planting and harvesting.

#### **Cosmovisions:-**

Religious and philosophical concepts have their place within traditional worldviews. 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.

#### **Constellations of knowledges:-**



### THE LOGIC BEHIND THE 3-CIRCLES DEPICTING THE AFRICAN WORLDVIEWS

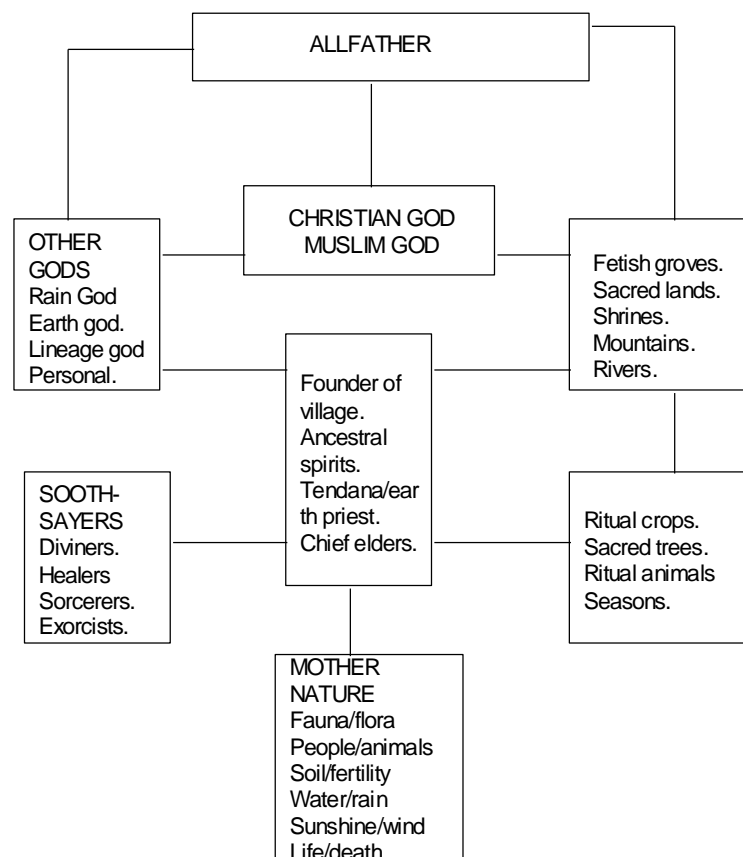
Social World, Spiritual World, and Natural World - the interaction of the three worlds implies the following constellations of knowledges:

- Knowledge resulting from Social interactions only.
- Combination between the Social and Natural.
- Combination between the Social and Spiritual.
- Knowledge resulting from Natural interactions only.
- Combination of the Natural and Spiritual.
- Knowledge resulting from Spiritual only.
- Combination of Social, Spiritual, and Natural (*this last constellation is the perfect state which strives to be in balance or harmony with itself*).

These constellations highlight the heterogeneity and complexities of African Sciences and therefore engendering different bodies of Knowledge's and Sciences that should underscore our investigations.

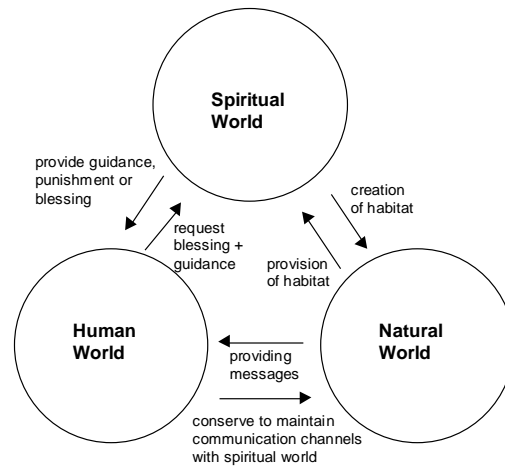
Conventional research concentrates on the 'horizontal level' – the Social and the Material. The investigations/ researches of the African should also be targeted at the 'horizontal level' but especially the '*vertical*' which deals with higher order discourses – the spiritual aspect.

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.

Gonese (1999) gives the diagram of the Shona cosmivision:



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 cosmivisions 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 (Millar 1999; 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.

#### **African reasoning:-**

The way Africans think and reason has been the subject of several studies and debates. The first studies on this subject were carried out by anthropologists in the colonial period. They reflect the Eurocentric bias characteristic of that era. These reflections often made distinctions in terms such as savage and civilised, prelogic and logic, oral and written, magic and scientific, and perception and conception.

Eurocentric prejudices have not stopped to exist in the minds of many non-Africans and have been reproduced in those of many Africans. Biakolo (1998) notes that the low state of African scientific and technological knowledge is often ascribed to the African mentality, which is supposed to be mystical, illogical and incapable of scientific pursuit. It is pointed out that the state of technology in Africa is proof of this, contrary to the situation in several Asian countries, which have been able to overcome the colonial experience and underdevelopment. Thus, in this line of reasoning for Africa to develop it must abandon the oral, magical, prelogical past and gradually assimilate the written, logical, scientific culture of the West.

Biakolo argues, however, that it is fiction to think of the history of the West as one continuous upward movement of progress. Even here, history shows periods of rapid material progression, moments of stagnation and times of decline. The fashionable pessimism about material and societal development in Africa seems to be related to the sustained western doctrine of superiority, rather than to a serious reflection of history. It provides no understanding of the past or of the present. It has been used in great measure to colonise and exploit Africa, but provides no key to

the knowledge about this continent. On the contrary, it merely repeats the outdated myth of Africa as the 'white man's burden'. This frustration is widely felt in Africa, but a widely shared answer that takes a constructive and critical look at African ways of knowing is still pending.

#### **Religious diversity and innovations:-**

In many cases a duality in cosmovisions can be observed: the same people or person observe both western and African visions. According to van Beek and Blakeley (1994), there is great variability and flexibility in the different African religions. Divination techniques move widely across the borders, cults spread from region to region, magical techniques are borrowed. Even at the local village level, this results in multiple options for the individual, which co-exist without conflict. The oral transmission and the non-dogmatic character of indigenous religions enhance this plurality and the absence of conflicts. This is also in line with the idea that religion is not an abstract theoretical reflection on beliefs, but one that implies action. Religion means performing or doing something: consulting a diviner, offering a sacrifice, praying, talking about a problem, enthroning a chief, falling into a trance, making magic and dancing at a funeral. Indigenous African religions often also are a means to an end. They aim at health, fertility, rain, protection, and harmony in relations. Religion is thus part of a survival strategy and serves practical ends, immediate or remote, social or individual.

#### **The notion of time: past, present and future:-**

According to Mbiti (1969), the linear concept of time in western thought, with an indefinite past, a present and an infinite future, is practically unknown in African traditional thinking. For Africans, time has two dimensions: a long past and a present. In the African languages, terms and verbs that refer to the future are practically absent because events that lie in it, have not taken place and cannot therefore constitute time. At best they are in potential time, not actual time. Time moves from the present to the past. Events move from the present into the past, the ocean of time in which everything becomes absorbed into a reality, that is neither after nor before.

Mbiti's analysis has encountered considerable criticism. Opat (1998) explores the idea of future in the Igbo worldview. He concludes that at each critical point of existential action, the person must ensure that everything is well in the spiritual world related to the intended action. This is why at the beginning of the planting season, before a marriage, burials, initiations, child naming ceremonies, or title taking ceremonies, there is always much concern to learn whether the action may imply potential dangers, and if so, how these can be averted. According to Opat, prayers are petitional in nature, and are said in order to avert the fulfilment of these events lined up for one in future time.

Millar (2002), presents the African concept of time as a circular way of the living, the dead and the yet unborn. These worlds are partly visible (present) and partly invisible (past and future).

#### **Destiny:-**

In this context, the African notion of a human being is important. Swanson (1980) studied the belief system of the Gourma in Burkina Faso, and found that in their cosmovision each person enters life with certain basic possessions, that qualify and define him or her as human. They are: the ancestral soul, the personal soul, the guiding spirit, the physical body, a God consciousness, and a destiny. The notion of destiny has great implications for development. This notion of destiny is in contrast to the western concept, in which the future can be influenced by special human efforts and nature can be controlled by human intervention.

In the Gourma cosmovision everything a person receives, good or bad, is part of destiny; success and failure in agriculture or health are interpreted as the result of one's personal destiny. Especially when a failure is encountered for the second or third time, it is interpreted as the result of metaphysical reasoning, and not from direct material causes. Swanson describes experiences of failure in rabbit keeping and tree planting programmes. The interpretation of the farmers was '*rabbits are not for me, they are not part of my destiny*'. A similar destiny is ascribed to land, when the failure in fruit tree planting was explained by '*my land did not like this particular tree*'. Van der Bremer (1984) found that the Auan in Senegal have a taboo on rice cultivation with the explanation: '*Our soil does not like rice*'.

## Artistic expressions:-

### Proverbs

Gyekye (1996) has compiled more than 150 proverbs and explained their meaning. These proverbs represent different values related to religion, immortality, survival, brotherhood, communal and individual values, morality, responsibility, marriage and family life, work ethic, chieftaincy, aesthetic values, knowledge and wisdom, human rights and ancestors. Gyekye argues that by listening to the proverbs and trying to understand their deeper meaning much can be learned about the values and motivation of the people that use them.

### Colours and numbers:-

Colours and numbers have religious meanings in many traditional cosmologies. A number of people have black and white as their sacred colour, and black and white animals are used for ritual sacrifice. Bartle (1983) describes the Akan cosmology and mentions three colours: red the sign of danger, black the sign of power and white the sign of purity. Black clothes are worn at funerals, but contrary to its meaning in western societies, this colour does not indicate sadness. It is the recognition of the changes in life: death, reincarnation and ancestral power, stool power, history, tradition and memories. The colours red, white and black are frequently used in African sculptures, paintings and architecture. Tribes like the Abaluyia, Baganda, Watumbatu and Gofa only use white animals for their religious rites (Mbiti, 1969). In Northern Ghana the colours of the fowl determine their use in sacrifices (Millar, 1999).

Numbers can have a religious meaning too. As documented by Mbiti (1969) counting people and livestock is forbidden in many African societies, partly for fear that misfortune would befall those who are numbered, partly because people are not individuals but corporate members of a society that cannot be defined numerically. For the Nandi, the number 'four' seems to be sacred. The number 'six' is sacred to the Shona and Jie, who sacrifice six animals. The Akamba and Vugusu have taboos attached to number 'seven'. The number 'nine' is sacred for the Baganda and all their gifts, sacrifices and sacred vessels must number nine or its multiples.

### African art:-

African art and artefacts such as masks, clothes, body painting, architecture and sculptures, like African music, have often emerged in the function of religion, rites and rituals, and are undoubtedly expressions of African emotions and identity. These expressions of art have reached high levels of aesthetics and can be divided into different styles and techniques. During colonial times many masks and sculptures were taken to the capitals of the colonisers, and many of these pieces are now exhibited in prestigious museums. Internationally reputed artists like Picasso, Moore and Giacometti have found great inspiration in African sculptures and paintings. Music such as jazz, blues and reggae also find their roots in Africa.

Wilkinson (1998) states that *'at the risk of generalisation and oversimplification of the complexities of the continent, African society - being communitarian and collective instead of embracing individualism - builds itself around the community and extended family. Hence, acts of individual creation, which can be found in western cultures, in Africa are replaced by co-operative ventures between the maker and the client. Since the client often dictates the look and even the shape of the work, the maker assumes the status of what to western eyes is considered to be that of an artisan rather than of an artist'*.

What is often not observed by the contemporary art analysts is the spiritual function and symbolic messages expressed in these pieces of art. Music has the function of strengthening rituals and helping people to get in a trance, thus enabling them to communicate with ancestral spirits. Mural paintings may contain messages about the social identity or the spiritual status of the inhabitants of a building, while sculptures and masks are frequently used to represent a spirit, or to strengthen the effect of a ritual. Among the Mijikenda of East Africa, the mediation role of sculpture is most noticeable in the natural process of sickness and death. Sickness is often associated with spirit possession and its cure may require elaborate exorcism, in which a sculpture plays a crucial role. (Orchardson-Mazrui 1993). In Ghana idols are often considered to be the real spirit - and not just a representation - and supernatural powers are ascribed to them, with whom humorous relationships can be established. (Millar p.c.).

### Cultural erosion and revival:-

Many of the traditional artistic expressions are subject to erosion. Traditional architecture, wall painting and sculpture are being replaced by modern practices, in which the cultural and spiritual values are marginalized. The number of museums in Africa is quite limited, and their exhibitions can often not be compared with those in Europe.

At the same time, one can observe some significant artistic innovations. Zimbabwean villagers have started to make stone sculptures for the western buyers, the unique architecture in Djenné, Mali, is being restored, and a number of African musicians have developed their own styles and international reputation. But many African artists live outside the continent, adjusting their expression to suit potential buyers, and, by and large, cultural erosion in Africa continues.

#### **Traditional leadership:-**

In most cases, traditional communities have a variety of traditional leaders, specialists and spirit mediums, who play an important role in village life. Below we describe the different spiritual specialists, according to Mbiti (1969).

#### **Medicine (wo)man, healers, herbalists (or sometimes called witch doctors):-**

They are present in almost all villages and towns in Africa. They can be men or women, have undergone formal or informal training and are influential. Their professional quality may vary, but they are expected to be trustworthy, morally upright, friendly, willing to serve, able to discern peoples' needs and be reasonable in their charges. They are to be concerned with sickness, disease, misfortune, which in African societies, are often attributed to negative action such as witchcraft or magic, of one person against another. The medicine (wo)man, therefore, has to find the cause of the disease, find out who the criminal is, diagnose the nature of the disease, apply the right treatment and supply means to prevent the misfortune from occurring again. Thus the healers apply both physical and spiritual, or psychological, treatments.

#### **Rainmakers:-**

They are engaged in the art of rainmaking or rain stopping. The entire livelihood of people, either farmers or pastoralists, depends on good rains. The seasons control the rhythm of community life, and in many societies the change of the seasons is marked by ritual activities. There are rites to mark occasions like the onset of the rains, the first planting, the first fruits, the harvest, the beginning of the hunting season. Rainmaking is one such a rite, and rainmakers are amongst the most important spiritual leaders. Their work is not only to 'make' rain, but also to 'stop' rain when too much comes at a certain time, or when it is not welcome at a given moment. Rainmakers are well versed in weather matters, and may spend long periods acquiring their knowledge: learn from other rainmakers, observing the sky, study the habits of trees, insects, animals, study astronomy and use common sense. Rain is a deeply religious theme, and those who 'deal' in it should be of high religious calibre. Rainmakers not only solicit physical rain, but also symbolise man's contact with the blessing of time and eternity.

#### **Kings, queens and rulers:-**

They do not necessarily exist in every African society (such as the Dagara of northern Ghana). These rulers are not simply political heads, they are also the mystical and religious guides, the divine symbol of their people's health and welfare. The weakening of the office of traditional rulers is leading to tensions between their supporters and African statesmen, who think in terms of nationhood rather than in terms of local kingdoms.

#### **Priests, soothsayers and religious founders:-**

The priest is the chief intermediary between the divine and the human. Just as the king is the political symbol of God's presence, the priest is the religious symbol of God amongst his people. His or her duties are mainly religious, but as Africans do not disassociate religion from other spheres of life, he or she may also have other functions.

*Earthpriests* play an important role in land tenure. They are considered the sons of the earth God, and regulate the ownership, tenure and use of land. They perform important roles in rituals related to soil fertility (Millar 1999).

*Soothsayers and diviners* are persons with special skills to interpret the messages of the divine world. They can read the signs given through animals, or objects, and are often consulted by earthpriests.

*Persons with mystical or magic power.* Mbiti states that, to his knowledge, there is no African society that does not hold beliefs in some type of mystical power. There is mystical power in words, especially those of a senior person. Words of parents can cause good fortune, curse, success, peace, sorrows or blessing, especially when spoken in situations of crisis. The words of a medicine man work through the medicine he gives to his patients. Curses and blessings are considered extremely potent, and many African people consult experts to counteract evil effects or to obtain powerfully charged objects, like charms and medicine. Magic can be either good or evil. Good magic is used by medicine men, diviners and rainmakers, and combined with their knowledge and skills for the welfare of the

community. Evil magic is used to harm human beings or their property. Sorcerers, or evil magicians, are believed to send flies, bats, birds, animals, spirits and magical objects to achieve their goals. Experiences of misfortune are often blamed on the misuse of mystical power. The subject of mystical power has religious as well as social, psychological and economic dimensions.

#### **The role of traditional leaders:-**

The role of traditional leaders in Africa is often debated within the context of endogenous development. Good and bad examples exist of their influence on the well being of the people. An example of the latter is put forward by Sheila Oparocha in the Compas Magazine no.4 (March 2001), as a reaction from readers: *"...More criticism could be included on the role of traditional leaders in Africa. For example, throughout the African continent, leaders are being criticised for their role in spreading HIV/AIDS and victimising young girls and women. Traditional leaders in various countries advocate sex with virgins as a cure for AIDS, or are proponents of cleansing rituals of widows through sexual intercourse with a male relative of the deceased. These kind of traditional practices need to be critically looked at...."*

#### **Traditional and national organisation and leadership:-**

Although Africa at present consists of nation states, the traditional organisation of its peoples is mainly based on ethnic lines. African social relations are often tribal, involving communal resource management patterns and group decision making (Izugbara, 1999), though a system of indirect rule was introduced in many places during the colonial period. Tengan (1991) gives a description of the people's perception of this process for the Sisala in Northern Ghana. 'Indirect rule' meant the institution of chiefs in stateless societies, in combination with district and provincial councils directly responsible to the central administration. This whole implied a major transformation of the political scene. Villages, which had been relatively autonomous, suddenly found themselves part of an extensive nation with a structured government. In most cases this process was not comprehensible to the villagers. The government imposed taxes, initiated forced labour for the construction of roads, and drafted young men to the army. Hence the government was identified with forced levies, forced labour and forced conscription. The chiefs who had to enforce these laws were considered part of the government, and regarded as harsh people in contrast to the more humane traditional rulers.

The independence of Ghana did not bring about any drastic changes in this system, as far as the Sisala were concerned. The Ghanaian government took over and granted constitutional backing to much of the political machinery set up by the British (Tengan 1991). For Zimbabwe, Aztec has reported that the war of liberalisation was not fought just to replace colonial regimes but to revive, restore and resuscitate an African system of governance. Yet, in many cases African politicians took over the governments, and actually consolidated what the colonialists had imported into the African continent.

Government is identified with the execution of law through the police force and the levy of taxes, and is disliked for both. Tengan (1991) reported that the Sissala subsistence farmers in Ghana have the idea that the literate and the government workers serve an impersonal entity, with an inexhaustible source of money. In their view, the government can never run out of money; it only needs to print more. Hence, government employees who have access to this wealth should not suffer any want, and, since government cash belongs to no person, it is not really immoral to 'chop' or steal some of it. The nation state has thus become an anonymous body, which attracts corruption, and it is common in Africa to talk about the 'national cake' from which everyone can take a slice. Those who try to be honest are seen as abnormal or foolish.

Traditional authorities, and the traditionally ascribed social obligations, do not suffer the same fate, however. When an offence takes place, it is considered criminal, and there is no such thing as a 'tribal cake'. This tribal loyalty transcends even national boundaries, as national borders have been established irrespective of ethnic lines of division. This makes national leadership more problematic than traditional leadership, as the latter is easily identifiable and seen as part of people's cultural identity.

#### **Present day Africa:-**

*We now take a look at the period after the colonial government from two positions: The period immediately after independence from the colonial administration with the first generation Pan-African leadership (10-15 years after independence), and the second and subsequent generations of leaders of Africa till date. Subsequently we present*

*some aspects of Africanism that could be considered for their possible retrogressive aspects. A self-critical and constructive attitude in our view is a precondition for Endogenous Development. We should be prepared to criticize others as well as ourselves. It involves investigation of ways to address possible retrogressive aspects of our cultural heritage.*

Immediately after independence the legacies left behind by the colonialist and reasons for which Africa argued for self-government were still rife. Various ideological reorientations were ‘on sale’ or ‘available to buy’. Socialism made in-roads and other ideologies existed that could help the neo-nationalist to leverage their ambitions and justify the demise of the colonialist. These, among a combination of factors, propelled the Pan-Africanism that appeared to be meeting the dream of Africans.

But after enjoying this spell of glorification, capitalism bounced back. Especially after the collapse of the socialist system in Eastern Europe, neo liberal approaches became commonplace. The globalisation effort brought in its wave a generation of leadership that professed the identity of ‘the true capitalists’ and ‘were disciples of democratic principles for Africa’. With a baggage of uncertainties, the apprenticeship and tutelage processes of the ‘new African leadership’ is gradually becoming crystallized – a system characterised by anticipated rewards and punishments that could be meted out by the west.

*We now want to discuss how far the African aspirations have been met and to what extent there is (among traditional and elderly members of rural Africa) the desire to revisit the pre colonial era.*

Our interactions with a critical group of elders, being the group that have lived in both eras, posits the position that not only little has been done to help realize the ‘African dream’ but a lot has been done to even undo the very little left behind by the colonialists. There are evidences suggesting the floggings of the performance of African leaders in the post colonial era are amply found in present day African leaders that give room for self-criticism and challenge.

The current leaderships (in the domains of political-governance as well as in the academic world and development fields) have done a lot of disservice to the culture and value systems of the Africans. Although lip service has been paid to revitalising African culture and traditions, we are yet to see concrete deliverables in this respect. The evidence is that the different leaders have and are continuing to undervalued the African knowledge systems and worldviews and in so doing played ourselves second fiddle to our colleagues in the west and have assumed mediocrity or even gave up to other worldviews and values. African leadership has done very little to enhance the indigenous knowledges of the African peoples and this limitation has found translations in various developmental deficiencies of Africa.

The current leaderships have plundered Africa’s natural resources with impunity and total development has retrogressed. Our overdependence on external technologies has limited our capacity to solve our own problems and develop technologies and skills of our own that better serve Africa’s own needs. It is common place to find African leaders today globe-trotting, calabash in hand, looking for expatriate private investors to come to Africa; offering them terms and conditions that are not offered to their own local investors. For African leaders the term private investor seems to have become synonymous with a non-African investor. The opening up of markets to unregulated free market economies, emphasis on privatisation, total belief and emphasis on western technology and large scale productivity, is even more worrying than has been the colonial era. The swallowing of western-styled democratic principles, legal systems and neoliberalism and the distance taken to traditional values, rulers and systems of governance, the traditional systems of peace keeping and justice is a far cry from the colonialist who administered jointly with traditional authority despite their exploitative agendas.

*Let us look at some expressions of what we call the **African’s road to self-destruction.***

This hypothetical list of problems is long and includes the following:

- Escalations of conflicts, wars and social or ethnic controversies.
- The destruction of the traditional community based economies by unregulated privatisation and unfair free trade.
- The breakdown of community based moral leadership, solidarity and reciprocity.
- The large scale leakages/accumulation of resources that allow some of the African leaders to be far richer than the nations they govern.
- The inclining poverty levels.

- Persistent inequity and sometimes repression of women.
- The wanton exploitation and destruction of our natural resources hence our environment for the love of money and/or for satisfying the west.
- The poorly developed agriculture and insufficient food systems.
- The deficient health systems and proliferation of diseases as malaria and HIV/AIDS.
- Poor roads and infrastructure.
- Lacking access to water.
- Poor education system that does not get to all and is skewed away from the culture of the people.
- Unregulated urbanisation with poor housing, roads and employment.
- The denial of various social amenities.
- Growing criminality: robbery, violence and rape.
- Ambiguous patterns of land use and land ownership.

We do not buy the argument that the colonial past, the globalisation, population growth, poor soil or climate are solely responsible for this dismal performance of African's development. It is our view that with a more responsible political, intellectual and moral leadership, devoid of petty jealousy, devoid of the desire to perpetuate in authority and accumulate wealth, a leadership that respects the norms and values that Africans thrive in, would have left us in a better state than we were when the colonial administrations left. But this requires a real commitment to pan-Africanism, a genuine desire and struggle to deal with Africa's poverty (also cultural and spiritual poverty), showing a large degree of tolerance, building peace and mending wounds. The chance is still there for Africans to redeem Africa if only introspection and commitments for concerted action is our collective hallmark.

### **Conclusions:-**

The authors, cited in this paper, give a picture of the diverse and complex African belief system and world vision. The presentation indicated that many differences exist between African and western concepts of matter, nature, religion, time, art, agriculture, nature conservation, local governance, community leadership, and decision making. Contacts with non-African cultures have certainly brought about intercultural exchanges and substitutions. But, in many respects, the traditional belief systems still form the roots and branches of the knowledge systems of rural people in Africa.

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 than on values, 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 increasingly 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 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 up 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.

For this, the interventionists need to establish a relationship with the community based on respect. And, 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. Hountondji (2001), a philosopher from Benin, rightly emphasises the need for an internal debate within traditional cultures in order to develop new alternatives for

negative traditional, as well as modernisation practices. He states: *"It is not enough to develop a new reading of the past, a new comprehension of tradition. Once it has been recognised that tradition is plural, the practical question is how to promote the internal debate inside our cultures in such a way, that it may itself develop the best possible new alternatives. We need to rebuild the traditional cultures with elements provided by debate."*

### **Recommended challenges:-**

Goduka (2000) challenges the epistemological perspective. She says: "Educators must move beyond a focus on specialization to holistic knowledge; from materialism to spirituality; from a focus on structures to understanding processes and from objective to subjective methods of enquiry. In short, educators must look beyond the so-called rational Newtonian-Cartesian epistemologies". This for us means a (re)orientation of a mind-set starting with the 'self'. A behavioural challenge for scholars in Africa demands 'de-schooling and re-schooling.

- *Are we prepared for this? Do we realise what the price and the possible benefits would be? And in which way can we do this?*

Emeagwali (2004), states that European philosophers of science have spent an inordinate amount of time discussing the nature of rationality, objectivity and problem solving in mainstream science. According to her we need to do the same for African science: rejecting, accepting, modifying or adapting relevant conceptual baggage in the field and creating entirely new constructs of analysis for understanding the phenomenon where necessary.

- *In doing this, what should be the standards for being scientific in the African context :what is the role of rationality, objectivity, repeatability, and what role do intuition, quality, spirituality, justice/morality and consensus play ?*

Emagalit (2004) looks at similar challenges from a cultural perspective. Discussing various philosophical frameworks, he talks about how African people base themselves on in interpreting, organizing, and rendering their lives possible in the physical and spiritual universe. He talks about a set of principles by which their experiences are ordered, rationally justified, and rendered meaningful, ethical and valuable.

- *As scientist, do we know these principles? What are the implications of such principles for an African policy position?*

Wiredu (2005) is looking at Africa from the lenses of a philosopher. He talks about the role of colonization that characterised the interruptions into the African societies in earlier times (our religion, language and education) by the western world. He uses the concept 'de-Africanized' as one of the attributes of colonization. He argues for decolonizing (sifting the out undue influences).

- *The question is how do we (re)organise our education to be 're-Africanized' as far as the sciences are concerned in Africa?*

Stoop (2005) recommends a capitalisation on local farmer's know-how (we add 'know-what') and experience and secondly on external solutions. He posits that such an understanding cannot be achieved from quantitative data of questionable accuracy that are the output of formal surveys; instead a dialogue based on semi-structured and informal interviews are the appropriate tool. He states further that the dissemination of most innovations will be much more effective when left to local communities through a rather informal farmer-to-farmer mechanism than when done by Government or NGOs extension services. We see this as a motivation for development alternative forms of technologies and dissemination processes that are based on the culture of the people; taking care of issues of equity, marginalisation and gender.

- *Are we ready for development 'an African Alternative'?*

Documented proceedings on a National Workshop on indigenous knowledge in Tanzania (June, 2001) captures vividly the policy, research, and theoretic challenges for African scholars, practitioners, and policy makers

- *How do we mobilise the stakeholders in African sciences as a constituency for building an African perspective in globalisation? Or do we allow globalisation to once more colonize us?*

The presentation above indicates that there is some work in progress, but that there are still tremendous challenges. Although African ways of knowing have been eroded and weakened, there are clearly common elements of the African way of knowing. Yet, there seems to be no clear consensus and hardly coordinated efforts on the way to revitalise the African way of knowing. The participants are therefore challenged to make their contribution to this

revitalisation process, which is not just a professional or academic challenge. It is a combination of personal commitment, political statement, spiritual connection and professional ethics.

### References:-

1. Bartle. P.F.W., 1983. The Universe has three souls; Notes on translating the Akan Culture. In: Journal of religion in African
2. Beek van and Blakeley 1994 . Religion in Africa. Heinemann, New Hampshire
3. Bernal M., 1987. Black Athena: The Afro-asiatic roots of classical civilisation. Free association books. London.
4. Biakolo. E., 1998. Categories of cross cultural cognition and the African Condition. In The African Philosophy Reader. Coetzee and Roux. Op.cit.
5. Biko, Steve. 1998. Some African cultural concepts in The African Philosophy Reader. Coetzee and Roux. Op cit.
6. Binsbergen. W. van. 1999. "Culturen bestaan niet" (there are no cultures) Erasmus University, Rotterdam
7. Breemer. Van den . j. 1984. "Onze aarde lust geen rijst" (our earth does not like rice). Leiden
8. Carlson, T et al. (2001) Case study of Medicinal plant Research in Guinea, *Economic Botany*, vol 55/4
9. Coetzee P.H. and Roux A.P.J. (eds) .1998. The African Philosophy Reader. Routledge London.
10. Diawara Mamadou 1998. Point Sud: Muscler le savoir local. Centre for Research on local knowledge. Bamako. Project plan.
11. Dombia, H., Mathematics in West Africa: Traditional Math Games in H.Selin (ed) (1997)
12. Eglash, R, African Fractals: Modern Computing and Indigenous Design, Rutgers, 1999
13. Emagalit, Z., (2004) Contemporary African philosophy.
14. Emeagwali. Gloria. (2003) African Indigenous Knowledge Systems: Implications for curriculum. in: Falola T (ed). Ghana in Africa and the World; essays in honour of Abu Boaden, African world press.
15. Fairhead James, 1993. Representing knowledge; the 'new farmer' in research fashion. In Pottier (Ed) 1993. Practicing development; social science perspectives. Routledge London.
16. Gerdes, P., Geometry From Africa: Mathematical and Educational Explorations, Mathematical Association of America, 1999
17. Goduka, I., (2000) African/indigenous philosophies: Legitimizing spirituality-centred wisdoms within the academy. Central Michigan University.
18. Gonesse, Cosmas. 1999. The three worlds. In Compas newsletter no 1.
19. Gonesse Cosmas 1999b. Bio-cultural diversity in Zimbabwe. Compas newsletter no 2
20. Haverkort. B., Hiemstra. W., (eds) 1999. Food for thought; ancient visions and new experiments of rural people. Zed books London.
21. Haverkort. B., Hiemstra. W., Hooft. K. van (2002) Ancient roots- New Shoots. Zed books
22. Interacademic Council (2004) Realising the promise and potential of African Agriculture Izugbara, 1999
23. Jana, P., (2001) African renaissance and the millennium action plan.
24. Kessel, I. van, (2002) In search of an African renaissance: An agenda for modernisation, neo-traditionalism or Africanisation?
25. Kaphagawani. D.N., 1998. What is African Philosophy? In The African Philosophy reader, Coetzee and Roux op. Cit.
26. Leach, M. and Mearns. R., 1996. The lie of the land; Challenging received wisdom on the African environment. IDS Sussex.
27. Levy Bruhl L., 1923. Primitive mentality. Allen and Unwin. London.
28. Levy Bruhl 1985 (1910). How natives think. Princeton University press, Princeton
29. Levy Strauss, C. 1966. The savage mind. Weidenfeld and Nicolson. London.
30. Mbeki, T., (1966) I am an African. Statement on behalf of the African National Congress on the occasion of the adoption by the Constitutional Assembly of the Republic of South Africa Constitution Bill 1966, Cape Town.
31. Mbiti, J., 1969. African Religions and Philosophy. Heinemann, London, Ibadan, Nairobi.
32. Millar, D. 1996. Footprints in the mud. Reconstructing the diversities in rural people's learning processes. Wageningen Agricultural University.
33. Millar. D., 1999. Traditional African Worldviews from a cosmovision perspective. In Haverkort and Hiemstra 1999.
34. Millar. David 1999b. Shrines and groves. Compas Newsletter no. 2.
35. Okagbure. R., (1997) African food processing. In Selin 1997.
36. Oniangó (2000)
37. Opata D.U. 1998. Essays on Igbo world view. Nsukka, Nigeria: AP express Publishers

38. Orchardson-Mazrui E., 1993. Janngamizi: Spirit and Sculpture. In: African Languages and Cultures 6, 2.
39. Orchardson-Mazrui. Proceedings of the National Workshop on Sharing and Application of Local/ Indigenous Knowledge in Tanzania, Bagamoyo, Tanzania (11<sup>th</sup> -13<sup>th</sup> June, 2001).
40. Oruka. H.O., (ed) 1990. Sage philosophy: Indigenous thinkers and modern debate on African thinkers. Brill, Leiden.
41. Parrinder. E.G. 1969. African Traditional Religion. Sheldon press London
42. Richards. P. 1985. Indigenous agricultural revolution. Ecology and food production in West Africa. Hutchinson. London.
43. Reijntjes, C., Haverkort, B. Waters Bayer. A., 1994. Farming for the Future, Introduction to Low External Input and Sustainable Agriculture. Mac Millan, London.
44. Reij C. and Waters Bayer A.. (2001) Indigenous soil and water practices in Africa
45. Schmidt. P., (1997) Iron technology in East Africa. Indiana University Press
46. Selin, H., Encyclopedia of the History of Science and Medicine in Non-Western Science, Kluwer, 1997
47. Sibanda. B., 1997. Governance and the environment: the role of African religion in sustainable utilisation of natural resources in Zimbabwe. In: Forest, trees and people newsletter no 34.
48. Stoop, W., (2005) (draft) Rural development and agricultural innovation: Bridging the gap between scientific theory and the divers farming practices of smallholders.
49. Swanson. Richard A., 1980. Development interventions and self realisation among the Gourma. In: Indigenous knowledge systems and development. Brokensha, Warren and Werner. University press of America. Latham .
50. Tengan Edward., 1991. The land as being and cosmos. Peter Lang. Frankfurt am Main
51. Wiredu. K., 1998. The concept of truth in the Akan language. In: The African philosophy reader Coetzee and Roux op.cit.
52. Wiredu, K., (2005) Toward decolonizing African philosophy and religion. *African Studies Quarterly*.
53. Zahan. D., 1970. The religion, spirituality and thought of traditional Africa. The University of Chicago press. Chicago and London.
54. Zaslavsky, C., Africa Counts: Number and Pattern in African Culture, Lawrence Hill, 1990