Indigenous Knowledge in Africa: Challenges and Opportunities.
An Inaugural Lecture by Anwar Osman
Centre for Africa Studies

1. Introduction.

Although African Indigenous Knowledge Systems (AIKS) have existed for thousands of years, their concept and practice began to emerge in the science spheres only three decades ago. The development of new political, economic and cultural realities and postmodern methodologies created grounds and new ways to approach and embrace the AIKS. That is to say, the political recognition of indigenous people, failure of development planning to achieve the desired results, the growing disillusionment of Africans with the promises of the modern "Western" science at the same time increased public awareness of the value of the cultural Heritage and that 'science' must find its locality in the social and cultural context (Nel, 2008), are some of the those new realities and developments.

As it started to assert itself in different African contexts, the AIK is confronted with a number of challenges but it also invested on a range of opportunities.

The aim of this lecture, as its title suggests, is to identify and examine some of the main contemporary challenges facing AIK, (their historical roots) and to assess the existing and potential opportunities that would affirm its credibility as a source of knowledge capable of continuing to endure the tests of time and to serve its community and humanity (in an increasingly globalised world).

1.1 What is implied by AIK and Indigenous People.

In order to understand the nature and extent of the challenges facing AIK, it is imperative to outline some of the main features of the indigenous knowledge (IK) and other related concepts.

In International context, the term 'indigenous' is understood (mostly by Europeans) as being similar or synonym to 'traditional', 'aboriginal', 'vernacular', 'African', 'Black', and 'native American' (Loubser, 2005: 76). The phrase 'indigenous' people refers to a specific group of people occupying a certain geographic area (ibid: 75) for many generations. They possess, practice and protect a total sum of knowledge and skills constitutive of their meaning, belief systems, livelihood constructions and expression that distinguish them from other groups (Dondolo, 2005: 112; Hoppers, 2005; Nel, 2005; Masoga, 2005). In principle, African Indigenous Knowledge Systems (AIKS) are "informed by and relate to all domains of life and the environment" (Nel, 2008). However, the contemporary politics of indigeneity and identity are as such that people have multiple and overlapping identities shaped by the present political and economic dynamics and their manifestation on the socio-cultural context (ibid).

The dynamics of AIKS operate on two entwined levels; namely the empirical level and the cognitive level. The empirical level can be unpacked into (i) natural (ii) technological and architectural and (iii) socio-cultural spheres. The natural sphere includes ecology, biodiversity, soil, agriculture, medicinal and pharmaceutical. The second (i.e. technological and architectural) sphere consists of all the crafts such as metallurgy, textiles, basketry, food processing, building, etc. The third sphere is that of socio-cultural aspects of life e.g. social welfare, governance, conflict resolutions, music, art, etc. (Hoppers, 2005: 3).

All these practices and skills are performed within a cultural context and surroundings of rituals (some of which include songs, dances and fashion (ibid) and in harmony with nature. Unlike the mechanistic conception of reality (as first entertained by Sir Francis Bacon) which advocates vicious approach to nature (Capra, 1988: 226), AIKS emphasize the importance of a harmonious "interrelationship and interdependence of all phenomena" (Hoppers, 2005: 4) be it biological, physical, social, cultural or spiritual. Indeed, despite the fact that AIKS are contextually and culturally bound, yet all indigenous communities across the globe share in common their respect for all forms of life, contrary to the modernseparation of humans from their environment (ibid).

The concept of African Indigenous Knowledge Systems (AIKS) also delineates a cognitive structure in which theories and perceptions of both nature and culture are conceptualized (Hoppers: 3). Accordingly, the relationship between the indigenous knowledge, its holders, and the technologies and devices used for its application are bound to a cosmology, a world view (ibid; Nel, 2008). The core of indigenous cosmology is about "the co-evolution of spiritual, natural and human worlds" (Hoppers, 2005: 4).

Building on the foregoing empirical and cognitive levels, one may suggest that the main features of AIK are reflected in its holistic approach (as they include all aspects of life), yet fragmentary (as no one person knows them all). It is also community based, unwritten but preserved in the oral tradition and the collective memory, and informed by customs, practices, rituals, proverbs, oral stories, and it is dynamic and fluid (can't be fixed) and does not exist in totality or systematised (Dondolo, 2005: 115; Nel, 2008). In response to the question why then IK is often called a system, Nel (2008) argues that "system refers to the holistic nature of the knowledge as it links up and relates to all aspects of life and the environment as it also refers to the plurality of both its properties and functions. Finally, similar to any discipline, AIKS embody ethical standards, standards of responsibility, transmission and a 'system of rules and practices".

In conclusion, IKS refers to " a total of knowledge and practices, whether explicit or implicit, used in the management of socioeconomic, ecological and spiritual facets of life (Hoppers, 2005: 2), stored in the collective memory and communicated orally among members of the community and to the future generations [through, stories, myth, songs, etc].

2. Challenges facing AIKS

Although AIKS are steadily gaining a space and place in the African political, cultural and (to some extent) academic contexts, there remains a host of external and inherent challenges and barriers to do deal with before these systems are fully embraced as independent and/or complementary sources of knowledge and mainstreamed as consummate agents of innovations and natural resource-management.

The challenges accounted for in this lecture can be divided into three main categories, one of which relates to the impact of colonialism that continues to cast its long shadow in the postcolonial era. The second category comprises the impediments associated with or inherent in the body of AIKS and the third category of challenges is reflected in the passive response of universities and research institutions in Africa.

2.1 Colonial impact and its post-colonial reverberations.

The colonial powers used brutal policies and devious methods to subjugate the African people in order to acquire full control over their lands and resources. These policies and methods included consistent inferiorization of indigenous cultures, and concerted efforts to erase existing systems of knowledge and their replacement with Western-driven belief and knowledge systems. Such pre-mediated policies were successfully culminated in, on one hand, the absolute submission of the communities and stigmatisation of their knowledge systems with the consequence that most of the communities were trapped in the design of perpetuating their own subjugation (Progler,1999: 1) through western education, Christianisation, and degeneration of relatively self-sufficient economies into dependent consumers (Eyong, 2007: 131). On the other hand, the colonial design succeeded to produce the economic imbalances essential for the growth and domination of European capitalism and imperialism.

This project of domination continued to prosper during the post-colonial (also called neocolonial) articulations in the economic and political domains (Progler, 1999: 1) and the current systems of production and dissemination of academic knowledge in Africa which reflect the Western hegemony (Zeleza, 2006: 196) as Zeleza stated, 'the provisions of intellectual exchange are distinctly unequal; as the African Studies [including IKS] in Europe constitute a marginal part of the academy while the European epistemology remains central in African Studies' (ibid: 197).

Therefore, the Western domination of knowledge and marginalization of African systems of knowledge continue to be an academic challenge that calls for a comprehensive evaluation, rigorous planning and watchful implementation of policies that ensure the recognition and provisions of space for the local in the existing political, economic, cultural, and pedagogical domains. It is only then that AIKS may successfully be established and gradually contextualized within these domains.

2.2 Challenges facing or embedded in the body of AIK.

These can be divided into (i) alleged ethnicization (ii) epistemological, conceptual and methodological issues, (iii) restoration and protection of AIKS.

2.2.1 AIK: Alleged Ethnicization.

Ethnicity has not always been historically specific or socially generated pattern of identity. As the historical records show, the term ethnicity is derived from *ethnos* which was a Greek a political category (Lentz, 1995: 304). In Homer *ethnos* was still free of any connotations of common language, culture or history and was merely used to denote un-differential groups, be it soldiers or animals (ibid). Later, Aristotle used the word for both Greek and non-Greek segmentary societies "as opposed to *polis*; the Greek urban polity" (ibid). With the introduction of Christianity, *ethnos* in the Greek New Testament refers to "heathen", and its adjective *ethnikos* for "uncivilized "or "barbarian" (ibid). It was only during the unification ofthe Ottoman Islamic empire in the 15th century that *ethnos* became a term of 'selfidentification' for the Greek Orthodox. Finally, the term began to denote "we group" with a common culture and history in the 19th century during the Greek nationalists movement (ibid: 305).

As regards Africa, both historians and anthropologists agree that the pre-colonial African population was not "composed of tribes or ethnic groups with distinct boundaries" (ibid: 319) and the dominant characteristics of those pre-colonial societies were

> "*mobility, overlapping networks, multiple group membership*
> *and flexible, context-dependent drawing of boundaries*" (ibid).

It is only under the European Colonial rule of Africa that the concept of ' individual' identity with its collective corresponding (cultural and linguistic) component of distinct group confined to specific areas was deliberately introduced and applied through policies and administrative institutions that have directly or indirectly implemented the strategy 'divide and rule' (in such forms as zonation of resources and land use, censuses, redistribution and commercialization of land, etc. (ibid) and when the political borders of African countries were drawn, akin groups/communities were divided further into different nationalities. Therefore, fragmentation of land and resources, separation of people and restriction to access what used to be boundless, created competition and conflict between these groups. It was only through the codes of wisdom, morality, wellness and collectivism embedded in AIKS that the competing groups were (and still are) able to resolve their conflicts (MacMichael, 1912).

Brown (1997), Eriksen (1993) and Horalambos, et-al, (2000) share the opinion that in contemporary times, ethnicity is understood "as a social concept referring to cultural distinctiveness of a social group. An ethnic group can therefore be identified using sociocultural (rather than physical-biological) characteristics and an attachment to a common home". Nonetheless, ethnicity became such a fluid and multi-layered concept that it continuously shifts its position, both spatially and temporally, in accordance with shifts in opposition and alliance among African elites and leaders as informed by their political and economic interests.

In short, both historical and contemporary sources and archives show that AIKS has been used as an inter-intra communities vehicle for conflict resolution, and not as driver or catalyst for ethnicization. Indeed, it is ethnicity (in its social content) that has been decadently manipulated by colonialism to influence traditional leaders and currently by the African Elites to lobby their communities in order to achieve their own political and economic interests.

2.2.2. Epistemological, conceptual and methodological issues.

Based on the fact that the epistemology or knowledge of the indigenous largely rests on the spiritual and mental perceptions without necessarily having proven that empirically, critics of the AIK claim that it is, " a *knowledge that involves incomplete…or at worst a questionable understanding or conception of knowledge"* (Horsthemke, 2004: 31).

It has also been argued that among the three types of knowledge, [i.e. knowledge that- or *factual knowledge*; knowledge –how also called *practical knowledge* and finally knowledge of places, things, persons, also known as *knowledge by acquaintance*, , etc.], (ibid), the project of AIKS may cautiously be aligned with the 'knowledge-how- type', yet this is disputed by the same source as AIK fails conceptually to distinguish between the *practical knowledge* and the *factual* one and treat them as mutually dependent (ibid: 34). Furthermore, it was pointed out that although AIKS are described as being inclusive of all kinds of beliefs, they fall short of making reference to truth or justifications; hence their status is viewed as one of mere assumption or opinion, if not containers of superstitions and divination (ibid:35).

Scholars and theorists working on AIKS (such as Cresswell, 1998; Hountondji; 2002; Odora Hoppers, 2002a; 2002b; Selami and Kincheloe, 1999, etc.) are criticized for what has been described as vague and escapism analysis of terms such as epistemology and cosmology in an indigenous knowledge context (ibid:32) and were challenged to propose an alternative that is more feasible and comprehensive (ibid).

However, the same source of criticism, unexpectedly, asserted their disagreement with the Western knowledge pursuit and goal to exploit nature to a devastating effect and to tune its subjugation and inferiorisation of indigenous skills and insights to their manipulation for commercial gain (ibid:33). Unlike earlier criticism, this statement implicitly indicates a submission that AIKS are not only capable of functioning and delivering but their efficiency is widely acknowledged.

Other assessments consider AIKS as being unable to constitute valid bodies of knowledge for science promotion, since their mode of thinking is intuitive (and not analytical), their truth and rationality are related to local conditions and culture, and that their taxonomies accentuate ontological and biological differences between cognition systems (Nel, 2008).

As regards the methodology, AIKS research is admitted as fit into the broad scientific process, yet, their methodologies are not taken into account

The field methods currently applied by researchers are predominantly based on western methodology, and, when required, indigenous procedures are integrated in the form of Participatory Rural Appraisal, semi-structured interviews, in-depth interviews, and/or group focused interviews, (Kazemi, et al, 2003: 25) and, to some extent, interpretation of the data.

Given the holistic socioeconomic and spiritual dimensions of AIKS, its methods of discovery, knowing and experimentation are largely communitarian and that the mode of transmission is oral and collective (Emeagwali, 2003: 1), thus, it could be exigent to use them concurrently with the standard scientific methodologies; added to that the IK diachronic experimentation procedure can pose logistic inconvenience.

There is no doubt that most (if not all) of the challenges stated above are only some of the devastating consequences of colonialism's carefully designed policies to deconstruct, erase and relabel the fundamental cognitive of AIKS and the rich heritage of Africa and replace them with cognitive and theoretical conceptualizations as demonstrated in the Western hegemony (Nel, 2005: 3) today.

It is evident that AIK is facing two interrelated challenges, the first is the search for methodologies which are not driven by blind assertion of African ideas and concepts just to replace the Western terms without critical reflection (Mutema, 2003: 81) rather to identify, filter, provide and apply factual and data related protocols based on an integrated IK system. Closely related to this is the second challenge to craft research methodologies that are fit to the multi-disciplinary field of IK and representative of its nature in its own right and context at the same time taking account of the contemporary changes and developments in human knowledge (Wiredu, 1997: 327). In other words, to construct an emicetic type of methodologies.

2.2.3 Restoration and protection of AIK.

As mentioned earlier, the repressive colonial political and ideological apparatuses exerted consistent polices of coercion and consent on their African subjects resulting in absolute submission of the people and dislodgement of their belief systems and systems of knowing. The displacement and dislocation policies designed to confiscate the land and its rich resources, aggravated the estrangement of African communities, and hence, the loss of their knowledge systems that were closely connected and largely generated and reproduced by the very lands and environments that were taken away from them.

Therefore, restoration of the AIKS is, indeed, one of the daunting challenges facing decision makers and researchers today.

Another serious challenge is the protection of the indigenous resources and equally so the indigenous knowledge associated with them from (what I call) the "legalized" piracy which is licensed and conducted by national and international (pharmaceutical, medical cosmetic) corporations and their associate research institutions. Unfortunately, it is often

the case that piracy of knowledge and resources i s protected by bilateral agreements between ailing African regimes and international corporate under the false pretext of development programmes (Moahi, 2007: 5).

Another related challenge, is the protection of AIK from internet violations, knowledge economy and economic globalization which have far reaching effects in dispossessing the local communities of their knowledge systems, resources and products. The cultural globalization is also contributing to the erosion and eventual erasure of AIKS as the tendency is to dismiss undocumented and "unscientific" knowledge (ibid: 3).

Last but not least, there is the challenge of implementation of Intellectual Property Rights (IPR). Although, the IPR is given a high profile in the knowledge economy, much (if not all) of the knowledge products are vested in those who produce (but do not own) them (ibid: 4). In this regard, there are also the underlying legal and technical challenges of implementation of IPR for the benefit of the indigenous communities. Legally, IPR are of individualistic nature thus, they are not applicable to the collective and communal ownership of knowledge among the indigenous communities. While, this legal hurdle is being addressed, the different expressions of AIK (such as weaving, basketry, music, songs costumes, fashion, symbols, etc.) are being reproduced and commercially privatized by outsiders (*including the Chinese*). Technically, identification of the communities to which certain knowledge assets and/or products belong, poses another challenge as there are hundreds (if not thousands) of groups and communities in Africa.

3.   The passive response of universities and research institutions.

Since colonialism set foot in Africa and until the present day, all systems of knowledge production, dissemination and consumption reflect robust Western hegemony (Zeleza, 2006: 196). Indeed, the hegemony of what was previously colonial and now Western knowledge systems is entrenching itself deep in Africa with all the ravages of the contemporary knowledge imperialism and the capitalist globalization (ibid). In this regard, Zeleza confirms the dominance of the Western hegemony in post-colonial Africa (in his words):

"*it is everywhere….., dominating the disciplinary and interdisciplinary discourses and departments, paradigms and publications, academic politics and practices*" (Zeleza, 2006: 197).

In the post-independent Africa, the process of establishing new universities and research institutions has never ceased; but it also never ceased to surprise me that (with the exception of the building material and the physical sites) all these new establishments are dominated by the same Western hegemony even though the traditional library of the indigenous started to grow and draw attention and involvement of some African intellectuals. In fact, thirty years have passed since AIKS were brought into the research arena, yet it is only a few academics who pursue AIKS research motivated in that by their commitment and incentivized by government political and financial support.

To my knowledge, the University of the Free State, (through concerted effort of a few of its committed academic staff), is the only university in South Africa which is currently in a process of adopting an IK policy document, yet (with the exception of a couple departments), the institutional research and teaching policies are dominated by the Western Academic hegemony. Regrettably, committed African intellectuals in the Diaspora are too few and mostly distracted by other constrains to shape any change (Mamdani, 1990: 7; Zeleza, 2004: 263).

It is rather unsettling that most universities in Africa still perceive AIKS as the 'Other'. Indeed, the paradox of the universities in Africa is that they are located in Africa, teach and do research in Africa but not much of what they teach and research reflect the African context.

These realities strongly indicate that IKS research and teaching are yet to be internalized, but not without sufficient intellectual curiosity that is willing not only to break out of the comfort of its familiar zone but also to disrupt it and pose questions challenging the reluctance of the African academy to explore this new source of knowledge, probing its potentials and studying its epistemology, assessing whether it can provide a complementary source of knowledge in such a diverse and multi-cultural African society and robustly debating such relevant issues as who owns knowledge, how is knowledge validated and invalidated, what are the criteria and yardstick used, whether knowledge has a life cycle, etc.

4. Opportunities

Indigenous People and their indigenous knowledge systems (including those in Africa) have been formally recognized by the United Nations, and the Civil and Human Rights Movements since 1992 and the 21st of August is now recognized as the commemoration of the International Day of the World's Indigenous People. Many countries, such as India, Brazil, Colombia, Argentina, Bolivia, Mexico, and lately South Africa issued Policy Documents not only to endorse the rebirth of the previously suppressed indigenous but also protect their intellectual rights and encourage and incentivise researchers and education systems to include IKS in their core activities. Indeed, the Centre for Advanced Research on Indigenous Knowledge Systems established in 1993 in Mysore in India stands as an exemplary success of how government policy can be transformed into accredited high quality theoretical and applied research in the field of IKS; so much so that IK research became an integral component of all government's and NGOs development programmes.

The scene is set up and conditions are conducive more than any time before for African scholars and young researchers to start unpacking AIKS and work systematically and simultaneously on two research fronts; One that focuses on positioning AIKS as a source of factual knowledge and the other on AIKS as a source of solutions to contemporary socioeconomic and environmental issues.

3.1 *Positioning AIK as a source of factual knowledge*

As IK must battle the uncertainties of its newness, the objective here is to position it locally and internationally by creating the space it deserves among existing sources of knowledge. One is tempted to suggest that research and debate issues in this arena may include (but not confined to) (1) the historical and contemporary misinterpretations, (2) theoretical and methodological conceptualisation of IK, (3) African religions and cosmologies, (in this connection, revisiting Mazroui's theory of the African Triple Heritage), and (4) the potential of the inclusion of IKS in the curricula. In all this, Indigenous communities must be encouraged whenever possible and suitable to participate describing and interpreting their beliefs, thoughts and conceptual categories in their own terms (Mutema, 2003: 85).

3.2 *AIK as a source of solution for contemporary issues*.

Since one of the areas of strength of AIK is that it encompasses aspects of tangible application in its experience, then it must find its place in the present dynamics by manipulating and developing further those aspects of its body which are selectively recognized in the developed world for the good of its own communities. In addition, its position in the "border space" where the spiritual, moral (Nel, 2005: 10) and material converge; afford it a central role to play in the current debate on the uncertainties of the future (ibid).

With these aspects of pragmatic strength in mind, AIK research potential is increasingly realized and mainstreamed, even though its focus is local (Loubser, 2005: 80). In addition, indigenous communities in Africa (similar to their sister communities in the World) continued to provide many major contributions. Among these is their contribution with the greatest variety of cultural diversity. Another contribution is the wealth of knowledge (bothempirical and theoretical) on how to value, utilise and manage the natural resources (both fauna and flora); how to maintain an optimum use of resources and sustain the equilibrium of their ecosystems concurrently; how to cope with disasters and repair damages caused by natural conditions; and finally how traditional governance and associated intuitions remain the guardian of their resources and environments, and agents of peace and conflict resolution.

The World Conference (held in Budapest in 1999) recommended that the scientific and indigenous knowledge should be integrated especially in projects linking culture, environment and development (Shuaib: N.D.). There seem to be a positive response, as AIKS are now being used in preservation and restoration of ecosystems which are compromised by the greed of capitalist developed world. After so many failures of sustainable development programmes, AIKS became engines for rural development as they gave concrete sustainability benchmarks (Eyong: 2007: 88). Thus, it came as no surprise that they are now formally recognized as an indispensible agent in the design and implementation of sustainable development programmes. AIKS have also been identified as capable sources of knowledge and skills which have successfully been used in the adaptation and mitigation of climate change (ibid). Similarly, AIK expertise is utilized in

curing many common and rare illnesses, and widely used in pharmaceutical and medical enterprises, fisheries, agriculture, forestry, soil preservation, etc.

Such varied and wide range applications of AIK should motivate researchers to explore other potential applications in order to meet the steady demand for e.g. increased yet balanced productivity and development of informal economies, natural resource-management, disease treatment, improvement of performance of local governments and decision-making processes (especially in development programmes), improved approaches to adaptation and mitigation of climate change as well as resource and land-conflict resolution.

5. Future Prospects

As mentioned at the beginning of this lecture, the dynamics of AIKS operate on two entwined levels; namely the empirical level and the cognitive level.

As regards the empirical level, AIK relates to operationalised local thinking that has already claimed its credibility as a source of knowledge which can be applied in the field with tangible results, yet there is need for it to develop its research methods and techniques further in order to meet wider and more advanced applications; its formal recognition by research institutions, universities and other public and private establishments, would undoubtedly speed the development of those methods and techniques. The involvement of the local communities as custodians of the knowledge, resourceful reference is equally important.

AIK research should have prioritized the cognitive level or at least should given it weight and focus equal to that of its empirical level. To many, the cognitive level is still engulfed in obscurity which calls for thorough research and regular intellectual debates in order to understand better the epistemology of IK and how it communicates its notions of truth, beliefand justification. In other words, one of the future goals of AIK is to claim a space of fraternal co-existence (Hoppers, 2005: 30) with other sources of knowledge. The Western-indoctrinated universities, research institutions and individual intellectuals do not need to change what they usually do but as knowledge generating and consuming bodies, they are obligated to start learning to think and look differently at what they do. Indeed, the university in Africa should be an enabling environment in which all knowledge systems articulate their concepts and claim their space. The least that the university in Africa should do is to communicate its recognition of the cultural and social contexts within which it is located and from which it drives its legitimacy and identity. In short, it is a strategic goal that universities in Africa ought to be transformed into African universities. It is only then AIKS will be formally acknowledged and embraced within these intuitions and gradually incorporated and contextualized within their research strategies and teaching activities.

References

Brouwer, J. N.D.

Centre for Advanced Research on Indigenous Knowledge Systems. *Website:*
http://aune.1p1.uni-vaix.fr/~belbernard/misc/cerss/cariks.htm (visited 29.09.09)

Brown, M. 1997
Causes and implications of ethnic conflict. In Guibernau, M. and Rex, I.eds): *The Ethnic*
Reader. Cambridge: Polity Press.

Capra, F. 1988
Uncommon Wisdom. Conversation with Remarkable People. London.
Flamingo.

Cresswell, R. 1998
Knowledge is the most effective way out of the poverty trap. *The Star*
October 6). p.8.

Dondolo, L. 2005
Intangible Heritage: The production of indigenous knowledge in various aspects of social
life. In *Indilinga: African Journal of Indigenous Knowledge Systems.* Volume 4 Number
6. pp. 110 -126.

Emeagwali, G. 2003
African Indigenous Knowledge Systems (AIK): Implications for n Curriculum. In Falola,
T. (ed): *Ghana in Africa and the World. Essays in honour of Abu Boahen.* Africa World
Press. (also in *http://www.africahistory.net*). pp. 1 – 10.

Eriksen, T. 1993
Ethnicity and Nationalism. London: Pluto Press.

Eyong, C. T. 2005
Indigenous Knowledge and Sustainable Development in Africa.: Case Study on Central
Africa. In Emmanuel, K. Boon and Luc Hens (eds): Indigenous Knowledge Systems and
Sustainable Development: Relevance for Africa. Published in *Tribes and Tribals*. Special
Volume No. 1. pp. 121 – 139.

Haralambos, M. 2000
Sociology: Themes and Perspectives. 5th edition. London: Harper Collins Publishers Ltd.

Odora Hoppers, C. 2002a
Old truth, new realities. Africa Insight 32 (1), March.

2002b
Introduction. In Odora Hoppers (ed): *Indigenous Knowledge and the Integration of*
Knowledge Systems: Towards a philosophy of articulation. Clarement: New Africa
books. pp. vii – xiv.

Hoppers, C.O. 2005

Culture, Indigenous Knowledge and Development: The role of the university. Centre for Education Policy Development. Occasional paper No. 5

Horsthemke, K. 2004
'Indigenous Knowledge'- Conceptions and misconceptions. *Journal of Education*. No. 32. pp. 31- 48.

Hountondji, P.J. 2002
Knowledge appropriation in a post-colonial context. In Odora Hoppers (ed): *Indigenous Knowledge and the Integration of Knowledge Systems: Towards a philosophy of articulation.* Clarement: New Africa. books. pp. 23 – 38.

Kazemi, M.; Shahvali, M.; Zarafshani, K. 2003
The theoretical and empirical model for soil conservation using indigenous knowledge. In *Indilinga: African Journal of Indigenous Knowledge Systems.* Volume 2 Number 1. pp. 25 – 35.

Lentz, C. 1995
Tribalism and ethnicity in Africa: A review of four decades of Anglophone research. *Cah. Sci.hum 31(2).* pp 303 – 328.

Loubser, J. A. 2005
Unpacking the expression 'indigenous knowledge systems'. In *Indilinga: African Journal of Indigenous Knowledge Systems.* Volume 4 Number 6. pp. 74 – 88.

MacMichael, H.A. 1912
The Tribes of Northern and Central Kordofán. Cambridge University Press, Cambridge.

Mamdani, M, 1990
A Glimpse at African Studies Made in USA. *CODESRIA Bulletin*. No. 2. pp. 7 - 11

Masoga, M. 2005
South African research in Indigenous Knowledge System and challenges of change. In *Indilinga: African Journal of Indigenous Knowledge Systems.* Volume 4 Number 1. pp 15 – 37.

Moahi, K. 2007
Globalization, knowledge economy and the implications for indigenous knowledge. In *International Review of Information Ethics (IRIE).* Vol. 7 (December). pp 1 – 8.

Mutema, G. 2003
Phenomenology, Hermeneutics and the Study of Indigenous Knowledge. In *Indilinga: African Journal of Indigenous Knowledge Systems.* Volume 2 Number 1. pp. 81 – 88.

Nel, P. 2005

Indigenous Knowledge: Contestation, Rhetoric and Space. In *Indilinga: African Journal of Indigenous Knowledge Systems.* Volume 4 Number 1. pp. 2 – 14.

Nel, P. 2008
Indigenous knowledge Systems: Conceptualization and Methodology. Unpublished lecture (presented October, 21).

Nyong, C. T. 2007
Indigenous knowledge and sustainable development in Africa. Case nstudy on Central Africa. In Emmanuel K Boon and Luc Hens (eds): *Indigenous Knowledge Systems and Sustainable Development: Relevance to Africa. Published in Tribes and Tribals*, special issue No.1. pp. 121 – 139.

Progler, Y. 1999
Towards defining Western research on Indigenous Knowledge. *Muslimedia*. (December issue). pp. 1 – 15.

Sardar, Z. 1998
Postmodern and the Other. Pluto Press, USA.

Selami, L.M. and Kincheloe, J.L. (eds) 1999
What is Indigenous Knowledge: Voices from the academy. New York and London: Falmer Press.

Shuaib, L.
N.D. *Roles of Indigenous Knowledge Systems in Decision Making in Two Hydropower Generation Projects*. (email: Iwasa_s@arts.mak.ac.ug)

Wallner, F. 2005
Indigenous Knowledge and Western Science: Contradictions or cooperation. *Indilinga: African Journal of Indigenous Knowledge Systems.* Volume 4 Number 1. pp. 46 – 53.

Wiredu, J.E. 1997
How Not to Compare African Traditional Thought with Western Thought. *Transition*, Issue 75/76. pp. 320 – 327.

Zeleza, P. T. 2004
The African Academic Diaspora in the United States and Africa. The Challenges of Productive Engagement. *In Comparative Studies of South Asia, Africa and the Middle East.* 24.1. pp. 261 – 275.

Zeleza, P. T. 2006
The disciplinary, interdisciplinary and global dimensions of African Studies. In *International Journal of African Renaissance Studies.* Volume 1, No. 2. Pp. 195 - 220