# Indigenous Knowledge: A Catalyst of Sustainable Development or Manifestation of Anachronism and Propagation of Pseudoscience in Sub-Saharan Africa in General and Zimbabwe in Particular

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## Abstract

The current textual analysis, which comes against the backdrop of the unmistakable denigration of African Indigenous Knowledge Systems in some quarters of the Sub-Saharan societies, discusses the centrality of Indigenous Knowledge to sustainable development in the region in question. The article, therefore, interrogates African Indigenous Knowledge Systems through the lens of decolonial ideals, critical consciousness, and the *Unhu/Ubuntu* philosophy. In its interdisciplinary approach, this discussion is anchored in and informed by Gade's theory of 'narratives of return' as well as by the *Sankofa* principle —notions that look into the past for solutions to the socio-economic problems vexing Sub-Saharan Africa (SSA) within the postcolonial dispensation. The current inquiry observes the primacy of African Indigenous Knowledge Systems mainly in the fields of education, medicine, mathematics, agriculture, environmental conservation, maintenance of a clean environment, and biodiversity preservation. Although African Indigenous Knowledge Systems are sometimes indicted for being anachronistic and viewed in some quarters of African society as manifestations of pseudoscience, they remain the key to unlocking the door that has prevented the masses from accessing mathematics, science, and engineering. Thus, African Indigenous Knowledge Systems are neither anachronistic nor pseudoscience but a sine qua non for sustainable socio-economic development in SSA in general and Zimbabwe in particular. However, this does not warrant the wholesale removal of Western Knowledge Systems from the local socio-economic development spheres. The current reflection, therefore, recommends the hybridization of African Indigenous Knowledge Systems and Western Knowledge Systems for sustainable socio-economic development in SSA.

## Indigenization Statement

Being an inhabitant and citizen of SSA in general and Zimbabwe in particular, the author collaborates and identifies with the native people of the said region, *viz.,* the aboriginal Africans and Zimbabweans. Pursuant to the agenda for indigenizing socio-economic development in the postcolonial and globalizing Sub-Saharan region, the author weighs the evidence as to whether African Indigenous Knowledge Systems (AIKS) can be

deemed of value to native Afro-Zimbabweans in this fast globalizing world or should be dismissed as semblances of anachronism and pseudoscience.

## Introduction and Background

The author observes two contending theses, one of which construes African Indigenous Knowledge Systems (AIKS) as the desiderata of sustainable socio-economic development in Sub-Saharan Africa (SSA), including Zimbabwe, whereas the other denigrates these AIKS as manifestations of anachronism and the propagation of pseudoscience. The current reflection, therefore, interfaces these two contending theses in the context of education, medicine, mathematics, agriculture, environmental conservation, maintenance of a clean environment, and biodiversity preservation, among other domains of human endeavour. This dialectical discourse is anchored in and informed by Gade's theory of "narratives of return" as well as by the *Sankofa* principle —notions that look into the past for solutions to the socio-economic problems vexing SSA within the postcolonial dispensation. In the process of juxtaposing the two contending theses, the author weighs the evidence as to whether AIKS can be considered of benefit to Afro-Zimbabweans in this fast globalizing world or be dismissed as outdated and "fake village science." The key finding of this reflection, which in itself, is the over-arching argument is that AIKS constitute the lifeblood of sustainable socio-economic development in SSA.

The current reflection comes against the backdrop of a colonial legacy which is ubiquitously and abundantly manifest in SSA. The monocultural predominance of Anglo-American-Australian educational approaches to serve the business and capital interests of these countries in SSA is evident, and could be described as the "coloniality of power" (Shizha, 2010). The coloniality of power is a system of control through globalized politics, economics, and culture, hence it incorporates cultural imperialism and neocolonialism. Ndlovu-Gatsheni (2015)

presents a more complete understanding of "'coloniality" or the "colonial logic", which, according to him, is a triad comprising the coloniality of power, coloniality of knowledge, and coloniality of being. The coloniality of power encompasses the Western-informed demarcation of the world into the core "zone of being" (the Global North) and the peripheral "zone of non-being" (the Global South) with asymmetrical power relations existing between the two *blocs*, skewed in favour of the so called "zone of being". The coloniality of knowledge constitutes the denigration of AIKS while portraying the Euro-North Americans (Global North) as the custodians of real knowledge worth seeking. The coloniality of being entails the Western-orchestrated questioning of African humanity.

Makuvaza and Shizha (2017), argue that "while SSA might have attained political independence from their erstwhile colonizers, their coloniality still remains and thus requires interrogation" (p. 5). Therefore, the structures of power, control, and hegemony emerged during the era of colonialism, which continue to symbolize the colonial logic (the triad of coloniality —coloniality of power, knowledge, and being), need to be challenged. In fact, SSA is embroiled in this colonial logic comprising the residues of colonialism. In more specific terms, SSA, is currently afflicted by the colonization of African knowledge spaces by Western epistemology —an arrangement symptomatic of the coloniality of knowledge.

In view of this coloniality of knowledge, Shizha (2010) argues that there is inequality in the hierarchical positioning of Western Knowledge Systems (WKS) (herein equated to Western epistemology or Western science) and AIKS (herein understood as synonymous with African epistemology or African Indigenous science). "Indeed, students are required to master the highly positioned empirical laboratory Science that contributes towards established Western knowledge, while being discouraged from broadening their lowly placed cultural science knowledge"

(Shizha, 2010, p. 33). This implies that, alongside the socio-politico-economic subjugation of SSA in general and Zimbabwe in particular, colonialism committed symbolic violence, *id est*, it forced African epistemology into a position of subservience because it occasioned an arrangement that places AIKS at a lower level and WKS at a higher level in virtually all areas of human endeavour. To make matters worse, SSA, seems to have legitimated this unduly oppressive *status quo* since most Afro-Zimbabweans seem to uncritically concur that WKS are superior to AIKS.

The colonization of African knowledge spaces by Western knowledge (coloniality of knowledge) in African educational institutions is very problematic, as "African narratives have been marginalized and deemed irrelevant when in actual fact they are the bedrock of African people's existentiality and identity" (Shizha, 2010, p. 33). This demonstrates that the erstwhile colonizers as well as neocolonialists substantially succeeded in de-Africanizing the African and nullify their history, humanity, and epistemology —and all this was done with a view to disenfranchising the African. This had the net effect of making the Africans believe contemptuously that their worldview is backward, vacuous, and inferior to Western epistemology. Therefore, by uncritically concurring with the view that WKS are superior to AIKS, Africans are dismissing what could be of value to them. They (Africans) could be dismissing the most viable alternatives for sustainable development.

Western scholarship on the whole attempts to give a negative cognitive and ontological status to everything African while valorizing everything in terms of Western cosmology, resulting in a monopolizing and conformist-driven strategy (Shizha, 2010). In fact, the deliberate exaltation and legitimation of Western meaning-making or Occidental epistemology serves to negate and decimate African epistemology embedded in AIKS with the result that the coloniality

of knowledge (as manifestation of cultural imperialism) continues to permeate SSA. This militates against the accomplishment of sustainable development in the Afro-Zimbabwean context.

In spite of their diversity and versatility, AIKS seem to have been neglected in most academic and non-academic disciplines. The main reasons for the marginalization of AIKS especially in Zimbabwe include lack of documentation, cultural prejudice, professional pride, problems of language, political power exercised by outsiders, and the gap between the practitioner and cultures (Mapira & Mazambara, 2013). This reflection on the whole discusses the centrality of AIKS to sustainable development within the Afro-Zimbabwean context, and vindicates AIKS through decolonial ideals, critical consciousness, and the *Unhu/Ubuntu* philosophy.

## Literature Review

This section illuminates the understanding of the concept of Indigenous knowledge in general. It goes further to discourse AIKS and their centrality to sustainable socio-economic development in SSA. The word "Indigenous" is derived from the Latin word *indigena* whose English equivalent is "indigene", which is usually taken to mean "native". The word Indigenous, thus, refers to "the root of things; as something that is natural and in-born to a specific context or culture" (Msila, 2009, p. 311). Indigenous, therefore, points to something peculiar to a certain culture and inimitable in any other cultural milieu.

Indigenous knowledge, thus, denotes the kind of meaning-making or knowledge production or epistemology which is peculiar to any given locale. The above is endorsed by Zengeya-Makuku et al. (2013), who view Indigenous knowledge as "knowledge that people in a given community developed, and continue to develop over time and is based on experience often

tested over centuries of use, adapted to the local culture and environment which is ever-changing and dynamic" (p. 447). This indicates that Indigenous knowledge is home-grown but amenable to change. Likewise, Mawere (2015) views Indigenous knowledge as "a set of ideas, beliefs and practices (some of which have Indigenous religious underpinnings) of a specific locale that has been used by its people to interact with their environment and other people over a long period of time" (p. 61). The fact that Indigenous knowledge can be used to 'interact with other people' demonstrates that it is compatible with the forces of globalization. In addition, terms "traditional", "native", "local" knowledge, and "ethno-science" are used interchangeably with the term Indigenous knowledge. Hence, indigeneity is not necessarily synonymous with backwardness and outdatedness because the Indigenous can still be contemporary and progressive.

Locally, Indigenous knowledge is embodied in what are particularly known as African Indigenous Knowledge Systems (AIKS). AIKS, therefore, incorporate combinations of epistemologies encompassing the technological, philosophical, social, economic, educational, legal, and governance systems of Africans (Msila, 2009). These systems are embedded in the history and culture of Africans, including their civilization. AIKS, thus, form the backbone of the social, economic, scientific, and technological identity of Africans (Msila, 2009).
AIKS are sometimes called the African People's Science, Ethno-Science, Folk-Ecology, Village Science, or Local Science, as they cover ecology, climate, agriculture, animal husbandry, botany, linguistics, medicine, clinical psychology, and craft skills, *inter-alia* (Mapira & Mazambara, 2013). Indigenous knowledge systems in general have also been defined as "the sum total of the knowledge and skills which people in a particular geographical area possess" (Shizha, 2010, p.

32). In the context of the current reflection, AIKS comprise the meaning-making process (epistemology) deemed idiosyncratic to SSA in general and Zimbabwe in particular.

Africanization, as the integration of AIKS into the various walks of life in Africa, demands a re-examination of history and the interrogation of cultural symbols (Msila, 2014). The above is consistent with the *Sankofa* principle and Gade's narratives of return, which resonate with and revolve around the return to the past for solutions to problems vexing humankind in postcolonial, but globalizing, SSA. According to Mapira and Mazambara (2013), Indigenous knowledge is home-grown, cultural, perennial (mainly through oral history), geared towards problem-solving, and dynamic/versatile/adaptable to ongoing changes/events. This adaptability to change renders AIKS compatible with the ever-intensifying forces of globalization.

The primacy of AIKS is seen in their being the fundamental drivers of sustainable development in SSA. Sustainable development refers to "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Adedoyin & Adebayo, 2006, p. 134).  Hence, the primacy of AIKS is glimpsed mainly in the fields of education, medicine, mathematics, food processing, metallurgy, and construction technology, among others (Shizha, 2010). AIKS are deemed central to other walks of life such as agriculture, environmental conservation, maintenance of a clean environment, and biodiversity preservation (Mapira & Mazambara, 2013). Thus, the repertoire of African Indigenous knowledge helps groups of people in certain areas to get the most out of their natural environment without necessarily disturbing the natural ecosystems, a good example being the use of *syzigium guineense* (*Mukute*) to identify an area with water so that a borehole is drilled (Zengeya-Makuku et al., 2013). In Zimbabwe in particular, it is common knowledge that areas with accessible

underground water reserves are usually marked by the *Mukute* trees. Hence, the prevalence of these *Mukute* trees could aid in the identification of an area ideal for drilling a borehole without necessarily having to trial-dig first and degrade the land. Thus, African Indigenous Knowledge is socially desirable, economically affordable, and developmentally sustainable (Wuta, 2020). Hence, the need for this knowledge to be recorded or codified and preserved for posterity (Tapfuma, 2012).

Regrettably, African Indigenous Knowledge is still an under-utilized resource in local development activities (Zengeya-Makuku et al., 2013) —reference herein being made to local development initiatives in SSA. Hence, Afro-Zimbabweans could be losing what could be of value to them. Yet available research points out the relevance of African Indigenous Knowledge, underscoring the need for educators to not only be aware of the existence of this African Indigenous Knowledge but also to have a significant knowledge of it (Zengeya-Makuku et al., 2013). African Indigenous Knowledge, therefore, needs to be intensively and extensively studied.

## Theoretical Framework

This inquiry is anchored in and informed by Gade's theory of 'narratives of return'. Although it may sound like a propagation of anachronism and retrogression, the theory of narratives of return is a vehement reaction to the colonial legacy in SSA. "Narratives of return are taken to mean embodiments of postcolonial critical 'consciousnesses' or 'voices' expressed in the form of political ideologies, philosophies and 'protest writings' by postcolonial statesmen, intellectuals as well as academics" (Makuvaza, 2017, p. 351). Therefore, Gade's narratives of return theory aligns with critical theory - a pedagogy suffused with a strong change agenda for liberating the downtrodden from the circumstances that enslave them. For Gade (as cited in

Makuvaza, 2017), "these political ideologies, pronouncements as well as protest writings (dubbed 'narratives of return') originate from discontentment and resentment of the *status quo* in postcolonial states where they are located" (p. 351). Hence, Gade's narratives of return reject the influence of neocolonialism, which undertakes to legitimize Western epistemologies whilst denigrating and downplaying the power of Indigenous meaning-making. Consequently, Gade's narratives of return theory provides a paradigmatic framework for decoloniality and resistance against Western epistemologies.

Logically, therefore, the narratives of return theory serves as a robust counter to the denigration of AIKS as it advocates for a retrieval of precolonial African epistemology to solve contemporary challenges. This is substantiated by Gade (as cited in Makuvaza, 2017), according to whom, "the major statement behind 'narratives of return' is a desire or yearning to 'return' to the past for possible solutions to challenges and problems associated with the postcolonial dispensation" (p. 351). This return to the past seeks to retrieve and re-engage the precolonial African epistemology for guidance in contemporary life, which on the whole seems to be hollow in terms of ethics and sustainability. Gade's theory of narratives of return, therefore, incorporates the Africanization agenda which is aimed at hybridizing the AIKS with the neoliberal WKS. This hybridization is implicitly the ultimate recommendation stemming from Gade's narratives of return theory. The preceding is endorsed by Dreyer et al. (2017) who report that the different narratives of return all made a call for Africanization. This is also confirmed by Hankela (2014) who argues, "these narratives have in common the sense that for the sake of a good future, society needs to *return to something African* rooted in pre-colonial times" (p. 48). Therefore, it is in the light of the preceding that AIKS are perceived to have the vast potential to complement WKS in terms of development within SSA.

The Indigenization-Africanization agenda implicated in the foregoing concurs with the *Sankofa* principle. *Sankofa* is an Akan word from the Akan-Adinkera people in Ghana. The literal translation of the word and the symbol is "it is not taboo to fetch what is at risk of being left behind" (Woodson, 2020). The word is derived from the words *san* meaning "return", *ko* meaning "go" and *fa* meaning "fetch, seek and take" (Slater, 2019, p. 1). Thus, after having been interpreted and re-interpreted in several different ways, it was established that *Sankofa* symbolizes the Akan people's quest for knowledge, which is based on critical reasoning, intelligent, and patient investigation of the past. "Visually and symbolically, '*Sankofa*' is expressed as a mythic bird that flies forward while looking backward with an egg (symbolizing the future) in its mouth" (Slater, 2019, p. 2). This ties with the motto, "In order to understand one's present and ensure one's future, one must know their past." The past referred to in the foregoing is epitomized basically by AIKS. Thus, the Akan people believe that the past serves as a guide for planning the future and it is this wisdom of learning from AIKS which ensures a bright and vibrant future. As a discussion designed to estimate the primacy of AIKS in SSA, the current reflection, therefore, is informed by *Sankofa*.

**Research Methodology**

This article employs predominantly textual or documentary analysis as a form of secondary research. Textual or documentary analysis is a qualitative research approach in which the researcher systematically examines existing documents or literature to extract meaningful data relevant to the driving concerns of the inquiry. According to Bowen (2009), documentary analysis is an efficient method that is less time-consuming and cost-effective, as it requires data selection instead of data collection, and documentary analysis is available (since many documents are in the public domain), unobtrusive (does not draw undue attention), and non-

reactive (unaffected by the research process). It is for these reasons that documentary analysis was preferred as the research design of this reflective piece. This paper, therefore, is a reflection on other people's literary works that include primary and secondary sources (journal articles, book chapters, and handbooks) that address the problem under scrutiny, *id est*, the dialectical contestation on the primacy of AIKS in SSA.

## Results

Subsequent sections discuss the application of AIKS across the various fields that include education, medicine, agriculture, environmental conservation, maintenance of a clean environment, and biodiversity preservation, with each of them logically demonstrating the centrality of AIKS to sustainable development in SSA.

### AIKSs and Education

This sub-section highlights the contribution of AIKS to the development of an education which is endogenous, contextualized, and functional, a *paideia* deemed ideal for SSA within the postcolonial dispensation. Indigenous knowledge, thus, needs to be incorporated into the local school curriculum because it can be used as an alternative or a complement to the conventional scientific methods and techniques for sustainable development, especially in agriculture, health, and environmental management (Tapfuma, 2012). The discovery of the cure for Type 2 diabetes in San Francisco in the period 1994-1998 (with input from New Guinea) and that of *gundamiti* (a herb with the potential to cure HIV/AIDS, whose botanical name is yet to be established) in 2007 by a student at the University of Zimbabwe serve to testify to the AIKS-WKS complementarity.

This centrality of AIKS is endorsed by Maposa (2011) who writes, "AIKS continue to be vital in Africa to sustain a holistic African existentiality" (p. 483). Hence, AIKS should be incorporated into the Zimbabwean school curriculum as a matter of policy, as they cover a wider spectrum of human endeavour inclusive of ecology, climate, crop cultivation, animal husbandry, botany, linguistics, medicine, clinical psychology, and craft skills. Therefore, AIKS have the potential to promote innovative thinking as they provide the basis for problem-solving strategies for local communities. Correspondingly, the Zimbabwe Environmental Education Policy stipulates the incorporation of AIKS into the teaching of Environmental Education in schools, colleges, and universities (Government of Zimbabwe, 2009).

In the same vein, Zimbabwe's school system could bring AIKS to the epicenter of instruction through the endogenous approach, which, according to Muchenje (2017), speaks to the contextualization of teaching-learning. So Indigenous knowledge provides a beacon of light within the tunnel of Eurocentric dogma, misinformation, and untruths (Emeagwali & Dei, 2014). "There is need to find a place for Indigenous knowledge in the current Eurocentric curriculum" (Zengeya-Makuku et al., 2013, p. 446). This portrays Indigenous knowledge as a viable alternative for the pedagogical-ideological-philosophical decolonization of education in SSA.

For countries whose educational policies have embraced AIKS, "the result has been phenomenological improvement in the technological development of these countries and the betterment of their people's standards of living" (Zengeya-Makuku et al., 2013, p. 449). Examples of such countries include Kenya, India, and Australia. Thus, Zengeya-Makuku et al. (2013) "recommend the inclusion of Indigenous knowledge in Zimbabwe's secondary school curriculum in the following three main areas: content, methodology and teaching aids…" (p. 449). For Zengeya-Makuku et al. (2013), content may include, for instance, the traditional

methods of treating livestock in agriculture, methodology may entail the use of resource people

such as the knowledgeable elderly in various aspects of subject topics, and, finally, teaching aids

could include artefacts of local phenomena related to topics and concepts under study.

Arguing a case for Zimbabwe as well, Mawere (2015) endorses the integration of Indigenous

knowledge (people's science) with conventional neoliberal science (knowledge from the

academy) on the grounds that AIKS motivate and generate interest within the educative process.

Pursuant to his case for Zimbabwe, Mawere (2015) writes:

> Since Indigenous knowledge is knowledge that arises directly out of the children's real
> life experiences, its incorporation into the school curriculum can motivate and bolster the
> intellectual fortunes and interests of the learners as students realize that recognition is
> given to what they already do, know, and say in their own communities (p. 63).

This conforms to the adage "from the known to the unknown" which encapsulates the concentric

model of teaching, according to which, the teacher teaches starting from familiar ground,

radiating outwards to unfamiliar areas of the subject matter. Hence, Mawere cites, as an

example, the *Tototo* beer brewing system practised in Western Mozambique and Eastern

Zimbabwe, which compares quite well with distillation studied in science at secondary school.

He argues, "in instances where students go into learning the science of distillation already

understanding the *Tototo* beer brewing system, abstraction is much easier to achieve, and

motivation, and interest in technology and development issues is generated" (Mawere, 2015, p.

63). Thus, contextualization of instruction pays instructional dividends.

Indigenous knowledge is also capable of promoting the cultural dimension of

development because "every culture is known for something distinctive and inimitable to it"

(Mawere, 2015, p. 65). The Shangaan people of the Zimbabwean low veld, for instance, are

well-known for their initiation rites (*Chinamwari/Khomba*), which have, of late, come to be

appreciated as helping reduce the chances of HIV/AIDS infection. The inclusion of such

Indigenous knowledge in Zimbabwe's school curriculum could not only enhance the cultural dimension of development but also help reduce poverty. This is because "instead of spending money on circumcision in the 'modern' hospitals, one could opt for a traditional one, such as the one performed during Khomba initiation rites" (Mawere, 2015, p. 66), which is more affordable.

Muchenje (2017) argues, "African countries can fulfil the SDG on education as a tool to bring about equality and development if African governments reconsider the relevance of incorporating AIKS into the school across the curriculum at both primary and secondary school level" (p. 69). This Africanization project is strategically positioned to promote cognitive justice within the Afro-Zimbabwean educational context. Thus, "contextualizing education using AIKS enhances cognitive justice in the classroom" (Muchenje, 2017, p. 69), as this legitimates the plurality of knowledge and promotes epistemological access.

Since they are conceptualized and communicated in Indigenous or native languages, AIKS serve to de-racialize (or de-tribalise) Afro-Zimbabwean instructional systems because:

> Local languages are the means for preserving, transmitting, and applying traditional knowledge in schools. A bilingual or multilingual education allows the full participation of all learners; it gives the learners the opportunity to confront, in the positive sense, the knowledge of their community with knowledge from elsewhere (Mawere, 2015, p. 61).

AIKS, thus, help break the barriers between races and ethnic groups in terms of knowledge production and cognitive justice.

For Afro-Zimbabwean students, science education that negates their lived experiences and cultural knowledge would perpetuate and reinforce colonial and neocolonial developments that actually disenfranchise them in a world where multicultural or intercultural knowledge is the basis of most educational projects (Shizha, 2010). Thus, any education system in SSA which denigrates and sidelines AIKS could be viewed as an extension of the colonial project, as it tends to perpetuate cultural imperialism. Therefore, the incorporation of AIKS into Afro-Zimbabwean

education is the surest way of enhancing decolonial ideals, African renaissance, sustainable development, and African empowerment. This is aptly captured by Mawere (2015) who argues:

> With Indigenous knowledge and conventional science in the curriculum, learners are, therefore, better empowered to shake off the chains of imperial domination, make their own decisions, and chart their own destiny based on what they learn both at home and at school (p. 62).

AIKS are, thus, liberatory in outlook as they tend to emancipate Afro-Zimbabwean neophytes from cultural imperialism, and consequently enfranchise them in accordance with the home-grown philosophy of *Unhu/Ubuntu*. Furthermore, AIKS facilitate the learning of neoliberal science through the endogenous approach predicated on the ideal of contextualization of instruction.

## AIKS and Medicine

The primacy of AIKS within the field of medicine is demonstrated, thus:

> The use of different herbs and plants to manage disease among the Masaai in Kenya and Tanzania; the *hoodia* plants used by the San people of Southern Africa; the discovery of the healing properties of the African willow (South Africa) and the *hoodia* plant (Namibia) and *iboga* (Gabon and Cameroun) - botanicals which are about to revolutionize the western medical establishment in terms of cancer treatment, dietary care and anti-addictive therapy, respectively - highlight the importance of honouring and respecting African perspectives on science (Shizha, 2010, p. 41).

Therefore, modern medicine as practised in SSA has an input from Indigenous medicine as embedded in AIKS. Moreover, the cure for Type 2 diabetes was identified by the Sharman Pharmaceuticals Research in the period between 1994 and 1998 in San Francisco with the assistance of fifty-eight (58) traditional doctors from New Guinea (Shizha, 2010). This complementarity between the neoliberal Western science and African ethno-science is affirmed by Tapfuma (2012) who, in the Zimbabwean context, maintains that AIKS could be used as an

alternative or a complement to the conventional scientific methods and techniques for sustainable development in health, among others.

## AIKS and Agriculture

In terms of 'land management practices', problems such as overstocking, overgrazing, land degradation, and soil exhaustion were rare in precolonial Africa because land was preserved, especially through the use of dung as organic fertilizer, transhumance, trading-out surplus livestock, and mixed cropping (Mapira & Mazambara, 2013). These were and still are sustainability practices which, in themselves, fall within AIKS. The use of dung as an organic fertilizer is commendable because it is less likely to (in the long-run) impoverish the soil, as inorganic fertilizers can. Where land is abundant, transhumance (which is the moving of livestock from one grazing ground to another in a seasonal cycle) could be embarked on in order to give pastureland the opportunity to recuperate, thereby addressing the problem of overgrazing. In areas where land is scarce, trading-out surplus livestock could relieve pressure on pastureland as it helps prevent overstocking, which certainly occasions overgrazing. Mixed cropping could be instrumental in limiting the spread of diseases since one pest vexing one plant could be destroyed by the other plant. Mixed cropping also promotes moisture-retention, as the shorter crop acts as a mulch, and this practice thus enhances the symbiotic relationship between different plant species. To, therefore, contextualize the current discourse, Tapfuma (2012) argues that AIKS promote sustainable agricultural development in contemporary Zimbabwe.

## AIKS and Environmental Conservation

Precolonial Zimbabweans conserved some natural resources through the use of taboos, which repose within AIKSs. A taboo is "any ritual prohibition on certain activities which may

involve the avoidance of certain people, places, objects or actions" (Jary & Jary, 1995, p. 667).

Consequently, some places were regarded as sacred and could not be molested by human

activities (Mapira & Mazambara, 2013). Taboos, thus, served to protect or safeguard certain

resources against possible damage. As an African Indigenous Knowledge System, taboos are

instrumental in salvaging certain elements of the ecology from possible extinction. Owing to

'taboos', therefore, certain rivers, water bodies, forests, caves, and veld resources in Zimbabwe

are kept in their natural state for centuries without being degraded through human interference.

Though indicted for lack of scientific validity, "traditional norms and beliefs (taboos

included) have been instrumental in the conservation of natural resources including mountains,

rivers, water bodies, forests and some caves. As part of AIKS, they have proved to be an

effective tool of natural resource conservation since the precolonial era" (Mapira & Mazambara,

2013, p. 99). Therefore, Zimbabwe cannot afford to denigrate AIKS, which, according to

Tapfuma (2012), are of benefit within the domain of ecological management and conservation

(the domain which is directly related to sustainable development).

**AIKS and Maintenance of a Clean Environment**

In pre-colonial Zimbabwe and SSA at large, human waste disposal was controlled, as

people were not allowed to defecate anywhere, anyhow (Mapira & Mazambara, 2013). This

demonstrates that environmental cleanliness was also central to AIKS. Moreover:

> Burial places for human corpses were located either close to homes or far away while
> strict rules on safeguarding sources of drinking water such as wells and springs were
> enforced. Often wooden fences were erected around them (wells and springs) in order to
> prevent water contamination from children and livestock. Some water bodies were
> considered as sacred thereby preventing swimming, bathing and other activities, which
> could pollute them (Mapira & Mazambara, 2013, p. 100).

Therefore, the ideals of environmental cleanliness which are currently in place in SSA borrow quite a lot from those practised in the past. In fact, they are largely informed by AIKS. The above is endorsed by Duri and Mapara (2007), according to whom, AIKS emphasised and still emphasize respect for the natural environment and its cleanliness. Hence, AIKS constitute the powerhouse of sustainable development in the Sub-Saharan context.

**AIKS and Biodiversity Preservation**

Totemism, in particular, is valued for preserving biodiversity in many parts of SSA, Zimbabwe included. For a shared understanding:

> Totemism is defined as the practice of symbolically identifying humans with non-human objects (usually animals or plants). The classic use of totemism is when a clan claims an animal as a mythological ancestor, however, the term has been used to cover a wide-range of symbolic practices (Jary & Jary, 1995, pp. 692-693).

Therefore, in the context of hunting and gathering communities, totemism reduces competition for some edible animals, birds, reptiles, insects or plants. Totemism, thus, protects certain animal species from possible extinction. In Zimbabwe, "totemism encouraged selective rather than indiscriminate hunting thereby preserving any endangered species from possible extinction" (Mapira & Mazambara, 2013, p. 99). This is because transgressors of totemism were believed to be heavily punished through tooth loss, tooth decay, and fines, *inter-alia*. Such penalties were effective in the conservation of various natural resources and species. Thus, natural resource conservation as informed by AIKS, is an exigency for sustainable development in SSA.

AIKSs therefore, have proved beyond doubt that they are central to sustainable development in Zimbabwe and beyond, as they continue to complement WKS in the areas of education, medicine, agriculture, environmental conservation, ecological cleanliness, and biodiversity preservation.

**Discussion**

This section further interrogates AIKS by presenting the perceived dark side of Indigenous knowledge —a counter-argument informed by Eurocentric thought. Thus, Westernized Africans-Zimbabweans tend to dismiss Indigenous knowledge as a manifestation of anachronism. The above predilection is premised on the position that re-visiting the Africa of the past (Africa of the old) is practically impossible (Mosweunyane, 2013). This suggests that AIKS have been overtaken by events. To Mosweunyane (2013), critics of AIKS are convinced that the African continent (Zimbabwe included) is immensely benefiting from the contemporary technological changes taking place in the world. With the above, Mosweunyane (2013) contends, "it is self-evident that all knowledge is comprised of concepts and propositions, including concepts and propositions that deal with learning strategies and methods of conducting inquiries. It has to be noted that not only education but social reality has become schooled or institutionalized" (p. 56). In view of the foregoing, learning is what happens in school (the four walls mentality) and all epistemology is couched in concepts and propositions which are of Western origin. This delegitimizes AIKS, which are on the whole acquired locally from home and community.

Critics of AIKS are also of the conviction that schools guide lives and worldview and define what is legitimate and what is not. To them, SSA (inclusive of Zimbabwe) cannot take the risk of reverting to its precolonial knowledge systems. This is because, with constant developments in science and technology, and with the new means of communication such as radio and television, "any person who does not keep up-to-date with these changes is condemned to be overtaken" (Mosweunyane, 2013, p. 56). The preceding expresses the anachronism allegedly characterizing AIKS. This thesis of anachronism aligns with the view that it is difficult

or almost impossible for Africa to revive its AIKS, some of which have been lost over time (Mosweunyane, 2013) —lost possibly due to the absence of proper and reliable documentation. It, therefore, becomes difficult to refute the position that SSA in particular have benefited and continue to benefit immensely from the Euro-Oriental meaning-making. However, the said anachronism could be a misunderstanding of AIKS by those who think that the Indigenous African epistemology is not dynamic but stagnant.

In some enclaves of the Afro-Zimbabwean society, AIKS are dismissed as pseudoscience. Hence, "many teachers are hesitant to incorporate Indigenous knowledge in the classroom out of fear of infecting classroom teaching with pseudoscience" (Shizha, 2010, p. 44). Thus, AIKS are believed to lack scientific validity. Likewise, Mosweunyane (2013) argues:

> African continent is part of the 'global village' and cannot in its current economic, social and political situation afford to function in isolation. This means the technological advancement that is so far realized will remain attractive to Africans, which will further compound the problem of indigenization (p. 57).

This casts aspersion on the hybridization of WKS and AIKS in the domains of local development, and appears to nullify the possibility of decolonization and Africanization/Indigenization of thought in Zimbabwe.

It should, however, be noted that there is no science which is perfect. Hence, a science without some dark side does not exist. Euro-Oriental science, for instance, has an even darker side considering how it has troubled the world through its manufacture of weapons for mass destruction.

## Conclusion and Recommendations

The present paper advances the thesis of hybridity/hybridization, which argues for the integration of AIKS and WKS with the former occupying a larger portion in education,

medicine, agriculture, and many other areas of human endeavour in order to achieve sustainable development in SSA. It is important to note that even those African scholars who are in favour of Indigenous knowledge and education are not dismissive of the Western forms of knowledge (Mosweunyane, 2013). This suggests the possibility and necessity of hybridizing AIKS with WKS. A formal education system can play an important role in Africa and if such a system is to meet the cultural, social, moral, intellectual, political, and economic needs of Africa, it has to be adapted and integrated into the Indigenous forms of knowledge (Mosweunyane, 2013). Hence, Mosweunyane (2013) proposes, "Africa should embrace both exogenous and endogenous technological activities for its advancement, which should be for realization of both scientific and technological growth in areas of medicine, metallurgy, ceramics, textile, food processing and building technology" (p. 57). Moswenyane's terms "exogenous" and "endogenous" evoke the WKS and AIKS, respectively — which, again accentuates the thesis of hybridity in SSA.

In spite of the dark side perceived to tarnish AIKS, they have proved beyond doubt that they are central to sustainable development, as they continue to complement WKS in the areas of education, medicine, agriculture, environmental conservation, ecological cleanliness, and biodiversity preservation. In the same vein, it remains defensible that AIKS are not pseudoscience but a key to unlocking the door that has prevented the masses from accessing mathematics, science, and engineering. AIKS are also an embodiment of decolonial ideals. They are not a manifestation of anachronism but a key to sustainable development in postcolonial SSA. However, this affirmation of AIKS does not serve to dismiss the utility of conventional or neoliberal science (WKS). In fact, the full-blown negation of conventional science in this era of globalization is a self-defeating predisposition, given that conventional science is the mainstay of the twenty-first century world economies, SSA and Zimbabwe included.

The current reflection, therefore, recommends the formulation of a comprehensive and binding policy framework tailored to specifically and effectively guide and expedite the integration of AIKS into Afro-Zimbabwean education at all levels, enabling Afro-Zimbabweans to continue harnessing Indigenous African epistemologies within the various walks of life for sustainable socio-economic development nationally. This educational policy framework could draw on the hybridization thesis, which, in the Afro-Zimbabwean context, urges the integration of AIKS and WKS within the areas of medicine, agriculture, environmental conservation, ecological cleanliness, and biodiversity preservation. There be ongoing inquiry into the sustainability of AIKS so that the policy formulated and enacted to guide the hybridization project keeps abreast with change within the current world order powered by the forces of globalization.

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