TRADITIONAL APPROACHES AND LEADERSHIP PERSPECTIVES ON SUSTAINABLE ENVIRONMENTAL CONSERVATION PRACTICES IN AFRICA

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INTRODUCTION AND BACKGROUND

Environmental sustainability has become a priority agenda globally, with World bodies such as the UN, UNESCO and World Bank encouraging environmental restoration with various incentives for all nations (UNCTAD, 2019; Kiran, 2015). The Sustainable Development Goals (SDGs) agreed at the Rio+20 UN Conference on Sustainable Development reflect the linkages between poverty reduction, natural resource management and development, as well as local and global environmental challenges to collectively manage shared global environmental risks and to build resilience across all types of countries to contribute to inclusive and sustainable development, taking into account complex issues such as the interactions between food, water and energy security (OECD, 2015).

Environmental sustainability is not a new subject, but rather, as stated by Field Museum, (2019); communities and early civilisations' understanding of sustainability traces to the distant past and links with the Zhou dynasty in China (1100-171), as well as the Egyptian, Mesopotamian Greeks and Romans (Du Pisani, 2006). It is notable that the most serious problems facing the world today, such as water and food supply crises, extreme volatility in energy and food prices, rising greenhouse gas emissions, severe income disparity, chronic fiscal imbalances and terrorism (World Economic Forum, 2012) either stem from environmental mismanagement or inequality, or both (OECD, 2012). This demands the need for the implementation of the Green Growth Development agenda (African Development Bank, 2012) in which sustainable development projects are supported on the African continent. According to the AfDB (2013: 60),

"Africa should seize opportunities for greener, more sustainable growth to become more resilient in the face of climate change. By incorporating green principles in development plans, African countries will extend access to water, energy and transport, boost agricultural productivity and create new jobs and expertise; they will also build sustainable cities and develop their natural resources while reducing waste."

The problem being addressed in answering to the statement above follows.

THE PROBLEM INVESTIGATED

The problem is that countless global initiatives, usually from a Western perspective, meant to promote environmental management and sustainability have failed (Butler, 2013; Booth, 2015; Ritchie & Roser, 2018), leaving a burning question: Why has the world not become more environmentally sustainable

despite decades of local plans, state laws, national policies and international agreements? This failure is of concern to environmental executives, environmental researchers as well as policy makers across the globe. Concerned environmental managers, of both private and public sector organisations throughout the world are waiting for answers on the outcome of the UN Agenda 2030 SDGs.

LITERATURE REVIEW

The literature reviewed will provide insight to environment management and sustainability history after many failed attempts. Thereafter the traditional environmental conservation approaches, indigenous practices and traditional leaders' perspectives in Africa will follow.

Environmental sustainability and its history in Africa

Environmental sustainability has become a global priority because our future depends on it. The atmosphere is fast wasting away; hurricanes, hailstorms, burning forests, degraded wetlands and general ecological obliteration are the order of the day (Asiimire, 2014). Marks (2018) records that 97 percent of climate scientists agree that climate change is occurring, and that there is a need to shift away from fossil fuels and move towards sustainable forms of energy. The UN Progress and Information Report (2018) mentions that worldwide, about one fifth of the Earth's land surface that was once covered by vegetation is showing persistent and declining trends in productivity, threatening the livelihoods of over one billion people, while up to 24 million square kilometres of land is affected, including 19 per cent of cropland, 16 per cent of forest land, 19 per cent of grassland and 28 per cent of rangeland.

In different regions of Africa, in an analysis of statistical surveys for natural disasters over a 30-year period from 1974 to 2003, Lukamba (2010) notes that every year a variety of environmental disasters occurs and that these are becoming more prevalent. Of the many disasters that have hit Southern Africa, (amongst which are droughts, floods, fires, human wildlife conflicts), tabulated in Table 1 below are a series of notable cyclones that have struck between the years 2000 and 2019. Humans, through their activities such as, for instance deforestation (the cutting down of trees at a faster pace than nature can replace) is causing an increase in the frequency, magnitude and impact of drought and flood events in certain areas (SADC, 2012; Hlatshwayo, 2017). Table 1 below summarizes the major hydro-meteorological disasters that hit Southern Africa in the last two decades.

The forces of nature cannot be controlled, but its harmful effects can be minimized. Concerted efforts are being made to come up with disaster laws intended to avert the impact of natural disasters on humanity through advance planning and preparation (South African National Disaster Management Framework, 2005).

TABLE 1: NOTABLE CYCLONES THAT HAVE STRUCK SOUTHERN AFRICA BETWEEN 2000 AND 2019.

Name of Cyclone	Date Occurred	Countries affected by the disaster
Cyclone Eline	Feb/March 2000	Mozambique, Madagascar, Zimbabwe, South Africa
Cyclone Hudah	April 2000	Mozambique, Madagascar
Cyclone Flavio	11 February, 2007	Mozambique, Madagascar
Cyclone Irina	Feb/March, 2012	Madagascar, Mozambique, and South Africa
Cyclone Dineo	March, 2017	Swaziland, Mozambique, South Africa, Zimbabwe
Cyclone Idai	4-17 March, 2019	Mozambique, Zimbabwe and Malawi

Source: Internet Geography, 2019, Hlatshwayo, 2017

Since then, World leaders are being seen committing to take greater action to reduce the impact of the climate crisis (Reliefweb, 2019)

As early as 1992, more than 170 countries gathered at the Rio Earth Summit and agreed to pursue sustainable development, protect biological diversity, prevent dangerous interference with climate systems, and conserve forests. Currently, almost three decades later, the natural systems on which humanity relies continue to be degraded (Howes, 2017).

Of the Millennium Development Goals (MDGs) created in the year 2000; MDG 7 (Ensure environmental sustainability) was formulated to ensure environmental sustainability in recognition of a growing concern about current consumption and production patterns leading to an unsustainable use of natural resources (Reliefweb, 2019; World Economic and Social Survey 2014/2015.) The MDG failed, and the UN Secretary-General Ban Ki-Moon links the lack of progress to 'unmet commitments, inadequate resources, lack of focus and accountability, and insufficient interest in sustainable development' (UN, 2010). Strategic Development Goals (SDGs) succeeded the MDGs, and it is notable that several of these SDGs seek to address issues of ending poverty and ensuring sustainability, such as SDGs 1., 2., 6., 7., 12., 14., 15., 16 and 17 through their specified targets. In particular, the successor to MDG 7, which is SDG 15 in the 2030 Agenda for Sustainable Development seeks to 'protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (UN, 2018).

The failure of all the initiatives mentioned above is of concern to both environmental researchers and environmental policy makers across the globe. Concerned environmentalists and managers throughout the world are waiting for answers on the outcome of the SDGs. Fehling, Nelson and Venkatapuram (2013) carried out a multidisciplinary literature review with a focus on limitations of the MDGs, and 90 articles describe MDGs as having being created by only a few stakeholders without adequate involvement of developing countries. This is in spite of the fact that the framework of firstly the MDGs and, currently of the SDGs embraced multidimensional efforts to protect the environment; they were designed to apply to all countries, showing the universality and the need for global cooperation. Since the world is a global village, indeed efforts of environmental sustainability should be welcome from all corners of the globe, inclusive of developing countries such as Zimbabwe, which were already practising environmental management for sustainability long before the inception of these global efforts. Examples of the destruction by wildfires of the Amazonia, Australian, the American as well as South Africa's Western Cape province point to the need for a close working relationship with people who live adjacent to where these challenges are experienced almost annually, and tap into their indigenous knowledge systems for ways to ensure proper environmental management.

Environmental researchers, global policy makers as well as environmental managers of both private and public sector organisations are of the opinion that, without a massive change in policy, as well as failure to take decisive action could lead to the occurrence of severe and more frequent natural disasters, such as heat waves, tropical cyclones, floods and landslides; and in short; "widespread, abrupt and possibly irreversible changes to basic Earth-system processes" on which the well-being of present and future generations depends (Griggs, Stafford-Smith, Gaffney, Rockström, Öhman, Shyamsundar, Steffen, Glaser, Kanie, & Noble, 2013: 306).

Thus, how can indigenous conservation

methods and practices assist environmental managers in managing and making a contribution to sustainable environmental conservation?

Traditional approaches through indigenous conservation methods and practices in Africa

Indigenous conservation methods of water, forests, lands, fisheries and wild animals are of concern in this research because:

"It is a sad indictment of our global society that uncontrolled exploitation of natural resources such as forests, land, water, and fisheries – often by the powerful few – has caused alarming changes to our natural world in recent decades. This has proved especially harmful for the most vulnerable people in the world, who depend on natural resources for their livelihood" (ECA, 2010b).

Natural resources, whether renewable or non-renewable, are a part of the real wealth of nations; they are the natural capital out of which all other forms of capital are made as they contribute towards fiscal revenue, income, and poverty reduction. (OECD, 2011). Below in Table 2 is a list of the selected natural resources, and an explanation as to why global conservation managers and leaders need to take action concerning them.

All along, efforts at environmental sustainability have been addressed using approaches and methods based on environmental management theories from

TABLE 2: NATURAL RESOURCES AND REASONS FOR CONSERVATION

Natural Resource	Reason for conservation
Water	Water directly affects many issues critical to promoting sustainable development, such as the economy, agriculture, health, trade, energy, peace and security. -Clean and readily accessible water is critical to human health, a healthy environment, good sanitation, poverty reduction, a sustainable economy, as well as peace and security. -Developing countries are the most affected by water shortages, flooding and poor water quality. Up to 80% of illnesses in the developing world are linked to inadequate water and sanitation (Government of Canada, 2020).
Forests	-Provide wood for different uses, as well as medicines, fossil fuels -Reduce global warming, which threatens farm produce as well as protect the quality of drinking water (Kaimowitz, 2019). - Keep rural households living near forested areas out of extreme poverty as they depend on these forests for their subsistence and income; commercial activities such as extraction gum, paper and harvesting of honey - Healthy forests provide critical and important ecosystem services such as habitat for biodiversity, provision of drinking water, water and climate cycle regulation, erosion prevention, crop pollination, soil fertility, and flood control. -Clearing forests for agriculture, extractive industries, urbanization and other land uses leads to the loss of habitat and brings humans and wildlife into closer contact, increasing the risk of spill over of infectious diseases from animals to humans as they come into close contact (The World Bank, 2020).

Land	- All development is centred on land; in fact, land and natural resources are primary livelihood and development assets for rural peoples, land provides a foundation for poverty reduction, increased food security, gender equality, cultural survival as well as environmental sustainability (Springer, 2016).
Fisheries	-In most developing countries, fisheries offer a potential for meeting people's nutritional demands as fish are a source of protein, vitamins and essential minerals (FAO, 2021). Fish offer an ideal supplement to the often poor and monotonous diet of many rural people. -Fish offer a cheap food source to low-income consumers who are almost always undernourished. -Can provide a way of increasing the low incomes of many rural households. (FAO, 2021)
Wild Animals	-Extracting wildlife from its natural habitat leads to disastrous results. If a single species should become extinct, the whole food chain is disrupted and affects all other species. Maintaining biodiversity is vital for a healthy and functional ecosystem (Bali Safari, 2018).

Source: Authors' compilation

developed nations who were involved in their crafting, and who upheld science as being superior to all other knowledge forms (such as Indigenous Knowledge Systems), and yet have achieved minimal success.

Swatuk (2016) states that the Western understanding of 'development', and therefore of resource use, has been based on the belief that 'Man' holds dominion over nature; that 'nature' is both an endless source as well as a limitless sink (inexhaustible). The results of such a 'limited' perspective are there for all to see–climate change. An interesting paradox is presented by Swatuk (2016, p.1):

"…while Africa remains the object of 'development', Western modes of 'development' have led us all towards localized ecological collapse and generalized planetary destruction. Is it possible that Africans (and other low consumption oriented cultures) might have been right all along? That approaches to living within an ecosystem's limits are not evidence of 'backwardness', but of – dare we say it – 'sustainability' and 'resilience'? As the West scrambles to deal with increased climate variability, we suggest that perhaps Western 'experts' should begin by a survey of historical resource use and management practices in a place such as Africa (and Asia and Latin America, i.e. lands between 'the tropics') whose peoples have always lived with extreme climate variability".

A different approach is therefore needed, an approach that incorporates Africa's indigenous leadership and knowledge systems, methods and practice, which may contribute to management research and practice. In order to do this, we must go back to where we originated from (Asiimire, 2014). It is "the indigenous forms of harnessing and utilising the natural resources of the region, by local communities – as they meet their needs" – that are much closer to the concept of sustainable development (Noyoo, 2007 p.167). Indigenous knowledge has profound roles to play in conserving Southern Africa's environment as well as to promote sustainable ways of utilising the region's natural resources for the common good of all its inhabitants and it also "provides the basis for grassroots decision-making, much of which takes place at the community level through indigenous organisations and associations where problems are identified, and solutions are determined" (Nayoo,

2007, p.170).

Indigenous knowledge, as described by Barasa, (2007, p. 140) is:

"…the local knowledge that is unique to a given culture or society. It is the basis for local-level decision-making in agriculture, health care, food preparation (gastronomy), education, natural resource management and a host of other activities in rural communities'. In essence, indigenous knowledge is that knowledge used to run/ manage all the sectors and sub-sectors of the traditional or local or rural economies/ society".

Indigenous knowledge, being unique to a culture is built by societies through generations as they live in close contact with nature (Senanayake, 2006). This knowledge encompasses norms, a system of classification of natural resources, empirical observations about the local environment and a system of self-management that governs resource use (Ngara, 2013). In the SADC region, traditional and indigenous knowledge systems have been utilised in the successful management and conservation of natural resources, which could also be used as building blocks for modern day environmental conservation in the following manner:

- Some elements of the Shona people of Zimbabwe include respect for nature, a moral attitude towards nature, restraint in resource exploitation, mutual co-operation, agreed exclusions, intergenerational communication and sociocultural continuity which can be quite valuable in policy formulation.
- The Barotse or Lozi people in Zambia are guided by a saying: 'Water is life'. The most important food for the Barotse people is fish; their cattle depend on pastures that need water and all transportation is by waterway, hence 'water is life'. Tradition requires that every Litunga (King) in Barotseland, should have canals dug and water management maintained to ensure a flow of water all year round. Natural rules have also controlled marine life for centuries; for example, rivers rise and floods occur during the fish-spawning season. This gives the fish more physical space so that they can become difficult to catch at this time (Southern African Research and Documentation Centre, 2005:2-3). Other laws were enacted by Barotse Kings to conserve wildlife; game animals were especially protected; for example, it was an offence to kill a female beast.
- In Malawi, IKS is still sustaining people through their knowledge of social management, crop protection systems and traditional medicines. Farmers have extensive knowledge in using tree species such as Msangu (Faidherbiaalbida) to improve and maintain soil fertility (Noyoo, 2007).
- Traditionally, the Batswana in Botswana had grazing land that was located far away from the villages and croplands, resource overseers were responsible for monitoring the status of grazing and informed the Chief when overgrazing was becoming a problem (Nayoo, 2007)

The above examples illustrate knowledge that is needed most in natural resources management and which reconnects human beings to the bio-sphere and its bio-regions, incorporating respect and socio-cultural, moral and spiritual expressions (Bonye, n d). This resonates with the call of the Zimbabwean traditional leaders (who are considered as traditional knowledge-holding entities), to revert to the basics of African environmental conservation; to re-assert conservation practices that were used in the past (pre-colonial period) that showed great promise and have been appraised for maintaining a balance in the ecological system. These practices are essential to the sustainable development and to the livelihoods of hundreds of millions of people; they serve the interests of not only the indigenous people; but extend to the common future needs of all of humanity

(Dutfield, 2010).

In the traditional African society, nature was regarded as a gift given by God to the benefit of mankind (Mbiti, 1969). The various animal and tree species in the sacred forests, rivers, lakes, and mountains of which the environment is made, was supposed to be respected and used sustainably. This meant that man and nature were to co-exist peacefully. However, in African settings there existed an Indigenous Knowledge Systems informed approach to natural resources management which was based on local traditional values that emphasized the sustainable utilization of natural resources through application of IKS (Gadzirayi, Mutandwa, Chihiya & Chikosha; 2006). Atteh (1991) postulated that IKS was embodied in culture and was described as an integrated pattern of human knowledge, beliefs and behaviour. IKS consists of language, ideas, beliefs, customs, taboos, codes, institutions, tools, techniques, artefacts, rituals, ceremonies, folklores and gender (Atteh 1991; Lingard, Raharison, Rabakonandrianina, Rakotoarisoa & Elmqvist, 2003; Katsande, 2015; Bobo, Aghomo & Ntumwel, 2015). This culture is passed down from one generation to the next and generally it provides a holistic view of how to use natural resources based on traditional ethical perspectives.

People in traditional settings were aware that the environment could become degraded, and therefore needed to be conserved. Severe punishment was in place for those who mismanaged natural resources and thus, community members were ever mindful of the manner in which they utilized the available resources (Diawuo & Issifu, 2015). Environmental conservation was the way of life in native African communities. Methods of conservation of forestry; marine and river ecosystems; wildlife; protection of particular plant, animal, or fish species existed and were practised in different African communities. Home-grown resource management rules and practices were developed as mechanisms for sustainable land use and resource management, and these defined the accepted land use practices and values, which were passed down through the generations (Makaudze & Shoko, 2015; Alidri, 2016). These sustainable practices formed the culture, or the way of life of these people. Degradation of the natural environment was kept to a minimum; natural resources were used sustainably, and climatological disasters were not as frequent as nowadays.

The nobility of these sustainable cultural practices, promulgated by traditional leaders, can today be emulated by environmental managers and adopted as a pointer, showing the direction and even the worldview that needs to be taken in modern day natural conservation. The key question being raised in this research is: In the historical past, what were the indigenous methods and practices which contributed to management of natural resources and the environment? This research paper seeks to revive some sustainable conservation relegated key issues and practices within the Zimbabwean environmental conservation context, with a particular emphasis on documenting the traditional practices that could be of value not only in the day to day life of rural communities, but also in the practise of current global, modern day environmental management. In this paper, wisdom and practices on indigenous methods of environmental conservation are provided by Zimbabwean traditional leaders. What follows hereafter is a narrative of the significance of traditional leadership and the role they played in environmental conservation.

Traditional Leadership, environmental conservation and sustainability

In Africa, traditional management of the environment and natural resources are under the leadership of Tribal Chiefs. The knowledge of cultural norms, values and beliefs in the traditional systems of environmental conservation that sustained communities were embodied in these traditional chiefs. Through traditional

religious practices and wise deployment of indigenous knowledge systems, these chiefs preserved the environment (Mawere, 2013). They were therefore accepted by their subjects as the religious, political, judicial and the spiritual embodiments of their communities (Appiah-Opoku & Hyma, 1999).

The traditional leader had a broad knowledge base of how to live sustainably (Fien, 2010; Kiran, 2015), and used certain practices which seemed to balance the co-existence of humans and nature (environment). The traditional leaders ensured that their subjects embraced the indigenous knowledge systems of conservation as a way of life, and mandated that it be dutifully transmitted to their children. At household level, the elderly folk were to teach their young ones the cultural beliefs, values, norms, and practices that guided land use and resource management. These lessons in natural resource management were expressed through religious beliefs and moral sanctions, inclusive of a range of sacred and cultural practices (Diawuo & Issifu, 2015).

In the Zimbabwean context, traditional leaders operate as the first line of conservation monitory institutions and they are empowered by the Government of Zimbabwe Traditional Leaders Act of (2001). This is done in accordance with the duties of the Chiefs as enunciated in Sect 5 sub-section L (i-iv) which ensures that the land and its natural resources are used and exploited in terms of the law and, in particular, controlling:

(i) over-cultivation; and (ii) over-grazing; and (iii) the indiscriminate destruction of flora and fauna; and (iv) illegal settlements; and generally preventing the degradation, abuse or misuse of land and natural resources in his area. The subjects of every traditional authority had to show respect for, and obedience to traditional leadership as well as elders and these were an important aspect of traditional Zimbabwean communities.

Erosion of traditional methods of environmental conservation

The late 19th century is seen as the beginning of the decline in the importance of the indigenous knowledge systems (UNESCO, 2010). The importance of Chiefs as custodians of the environment was no longer recognized (Augustine, 2016). All the Indigenous knowledge methods, alongside the customary laws traditionally used to conserve the natural environment began to be despised and instead of seeking ways to merge traditional conservation practices with expert science, the indigenous methods of conservation were relegated and inferiorized as unscientific (Osman, 2009; Mawere, 2013). The Euro-Western scientific view of management of natural resources took centre stage, and there was a failure of acknowledging the indigenous methods that communities had used successfully for centuries in conserving their natural environment.

With the relegation of indigenous methods of conservation to the dustbin of mediocrity, the traditional authority of the chiefs as indigenous law enforcing agents, which was once critical in conserving natural resources was no longer upheld; the sacred became desecrated. The exploitation of the ecosystem for immediate monetary profit set in, there was excessive exploitation of natural resources instead of managing these for sustainable biotic yield, resulting in unnecessary degradation and alteration of habitats of wild plants and animals (Kyasiimire, 2010). There is a strong interdependent link between degraded habitats and loss of wild flora and fauna (Patil, Kumar & Bagvandas, 2017). Commodification of natural resources meant that management was transferred from the traditional chiefs to local government authorities who attached little cultural value to the natural resource management (since they had limited knowledge of it) (Thondhlana & Shackleton, 2015). Instead of incorporating the existent contribution

of indigenous cultures and institutions, the local government authorities discarded them, yet modernity and development should be contextualized to a people's culture by incorporating their social values, norms, attitudes, beliefs, principles and practices (Alidri, 2016).

In the literary world, there are many ways of acquiring knowledge. "Knowledge is not a one-way street…not all knowledge resides in the north, to be transferred to the south as necessary. There is richness in cross cultural fertilization" (Ncube, 2010:78). It is ironic in this instance that, across the world, studies are currently being conducted to understand the value and practical aspect of traditional practices followed by the indigenous people (Kiran, 2015), and yet there was concerted effort to erase existing indigenous systems of knowledge and replacing them wholly with Western-driven beliefs and knowledge systems.

However, with this modern knowledge, serious problems have arisen; nature is now in conflict with human beings, there is wanton destruction of the environment (Heller & Lawrence, 2007; Van der Walt, 2016). The harmonious co-existence of humans and the environment that once existed under the leadership and authority of the traditional chiefs is now a relic of the past (Logan, 2008). The world seems clueless; global summit after global summit have been held, but the conflict between nature and human beings is only getting worse. In particular, Africa has especially felt the impacts of climate change through deteriorating human health such as lung cancer and tuberculosis (Mawere, 2010); negative impacts on agriculture and food production, resulting in worsening the existing levels of poverty – all of which undermine the continent's developmental efforts.

Below are the theoretical underpinnings that have guided this study.

THEORETICAL UNDERPINNINGS OF THE STUDY

European based science is not the only science in existence (Saurombe and Materechera, 2017). This viewpoint was firstly presented by Dunn (2014a) who stated that while the process of finding out about the world is considered empirical (scientific), indigenous knowledge is acquired in a very different way, with first-hand experience being considered as the best or even the only way to properly learn. Indeed, indigenous peoples have different worldviews and means of relating to the world (Absolon, 2010). A worldview in this instance, is a way of understanding natural resources and humanity's place in the upkeep of natural resources, and this implies attitudes, values, perception, beliefs and practices, based on society with regard to the natural environmental resources of the cosmos (Gumo, Gisege, Raballah & Ouma, 2012).

African beliefs on Environmental Conservation

A strong interpersonal relationship with others as well as harmony, peace with nature, communalism, and spirituality characterizes African epistemology. In this set up, God's omnipresence is acknowledged. African epistemology presents God as the creator of all natural phenomena; African belief in the supernatural creates respect for animals, reverence for forests, rocks, mountains, and rivers; it gives an explanation as to why certain places are revered and certain activities tabooed; it opines that natural phenomena have spirits that define the relationship between humans and nature that is inter-linked and interdependent (Idang, 2015; Sibanda, 1997).

Holistic Theory

In African epistemology, holistic knowledge upholds the belief of the African, that knowledge of reality cannot be gained if the individual person detaches himself from it (Ndubisi, 2014; Anyanwu & Ruch, 1981). Knowledge of a given reality must involve the subject and the object, the knower and

the known (Ndubisi, 2014). It therefore follows that there is a connection or a relationship that exists between the African person and his world. The African does not claim to know anything in isolation, and as such, humankind, according to the African thought and belief, is not an isolated creature (Gumo, Gisege, Raballah & Ouma, 2012), but is part of a universe which is full of animals, plants and inanimate objects which are related to each other in various ways, and all these are in turn dependent on the Supreme God for their appearance and their continued existence.

From this worldview emanates the deep rooted epistemological understanding that man and nature are equal; and man should not therefore exercise an exploitative relationship over nature; both entities share the same spirit (Aikenhead & Ogawa, 2007). The nature of reality is thus governed by spirituality; man and nature are interrelated, and therefore, there is talk of relational ontologies.

Profile of natural and environmental resources

The World Bank Glossary defines natural resources as 'materials that occur in nature and are essential or useful to humans, such as water, air, land, forests, fish and wildlife, topsoil, and minerals' (World Bank 2016), to which Osman (2009) adds that it must include burial sites, traditional protected areas, water points, forest and forest products, agricultural land and wildlife.

Traditionally, these natural resources formed the very basis of religious and cultural beliefs, and were not just considered as a source of food and other necessities. This meant that certain areas such as woodlands, water points, mountains and even wild animals were considered sacred. Exploitation of the natural resource base was systematic and could only be done through the inspiration of spirit mediums and through the guidance of traditional institutions for the benefits of the whole Community (Paula, 2004).

Focus of Indigenous knowledge systems in environmental conservation

Communities' indigenous knowledge practices in environmental conservation were focused towards sustainable methods of grazing, tree cutting, hunting, gathering of firewood, farming, fishing, mining, pit sawing, collection of parts of vegetation for medicinal purposes, and so on. The emphasis was also on preventing veld fires, excessive mineral panning and quarrying, uncontrolled pit and river sand abstraction; wetland and stream bank cultivation; poaching, uncontrolled clearing of the land for cultivation; illegal tree felling for firewood and lumber; pollution of water bodies; extraction of minerals from burial places as well the control of livestock grazing or nomadic cattle herding. It is to be noted that the livelihoods of the communities depended on these natural resources, their well-being hinged on their abundant existence.

The manner in which these conservational activities were directed and presided over by the chief, was accepted and embraced by all, and was understood to be done for the benefit of all community members. These practices curtailed most of the environmental ills that we are experiencing today since societal rules and norms guided individual, family, and clan behaviour and attitude, strengthening the social bond and the sense of social responsibility in the use of environmental resources (Alidri, 2016).

The land itself, rather than libraries and the internet, is where indigenous knowledge is stored (Whitt, 2014). This indigenous way of instruction changed with the advent of formal education, which had very little consideration for indigenous knowledge or indigenous methods of instruction; children were separated from parents, and parents in turn became less able to pass on the knowledge that they themselves had inherited to their children (Fien, 2010). The norms, values and beliefs which sustained communities became downtrodden and desecrated. The ushering in of new religious beliefs (Christianity, Islam and many others)

as well as 'modernization' led people to cut down the sacred groves and the rainforests that they had maintained as untouched virgin forest for years. The result has been an ecological catastrophe; massive soil erosion, deforestation and denudation.

The research methodology that was adopted for the study follows below.

RESEARCH METHODOLOGY

Research design

An interpretive philosophy with a qualitative research design was adopted in order to gather knowledge and experiences in indigenous systems of environmental conservation utilised by ancient communities in Zimbabwe, under the leadership of traditional chiefs.

Data collection

Qualitative in-depth interviews were conducted with 10 participants, who were purposively selected on the basis of them having a specific criteria applicable to them (Bless; Higson-Smith & Sithole, 2013). Find who these participants are, and accordingly fill out the table 3. All participants had to have a depth of traditional conservation knowledge (Kumar, 2005). The 10 participants had solid foundational knowledge of the natural environment and its maintenance. Participants were ascribed an identifier code which will be used in the evidence quotes to support the findings: C1 is Chief 1; C2 is Chief 2, and so on up to Chief 4; L1 and L2 are Lecturer 1 and 2 respectively; EM1 and EM2 are the elderly wise men while ECO 1 and ECO 2 are the environmental conservation experts.

Below in Table 3 is a description of the research participants.

Physical visits were made to the homes of chiefs (Before the Covid pandemic) in Mashonaland East, Zimbabwe, which offered a 'natural setting' for a comfortable interview environment (Denzin & Lincoln, 2005). This part of Zimbabwe is an area that is rich in both natural and cultural resources, where old practices of conservation are still actively followed, but countrywide are being rarely considered as an asset that could be valued for sustainable environmental conservation. An observation was made, regarding interviewing traditional leaders and documenting the methods and practices on traditional environmental conservation, to avoid a lapse in the traditional wisdom narrative when some valuable information might have been forgotten (cultural oblivion). The period of engagement with each participant varied between 60-90 minutes. Traditional indigenous research ethics and protocol had to be strictly adhered to as participants being traditional leaders uphold protocols in their everyday life. Fien (2010) mentions how important it is to:

'…check and observe local protocols for inviting indigenous people to talk with you about their knowledge. There may be issues about who has the right to speak about what and to whom. Other issues may relate to sacred and secret knowledge. Some knowledge may only be shared with people of certain ages or with men or women only. These protocols need to be learnt to avoid insensitive questions.'

Attempting to interview African traditional leaders in general involves following long-established protocols, such as paying respects to the chief and the presentation of small gifts befitted to their culture (Tindana, Kass & Akweongo, 2006). All Chiefs (oblivious of what each had said), reminded the researchers of this protocol by mentioning the token prior to the interviews, known as 'mbudzi yedare raMambo' (a token towards the Chief's upkeep). The researchers were, however exempted from paying this token, in appreciation of the fact that data collected was to be used to propagate traditional wisdom of environmental conservation.

Verbal consent was given, and rapport established with the participants in order to gain their trust and encourage them to freely air their views and share their thoughts

(Thomas, Nelson & Silverman, 2011). Responses to the questions that were asked were captured on a voice recorder and transcribed verbatim. The questions asked was: In the past, what indigenous knowledge methods of conservation were used in the preservation of the environment? In concluding each interview, participants were asked: How then do we go back to the basics?

The participants' quoted verbatim responses, which are "…placing emphasis on the voice and authenticity of human experience" (Silverman, 2013: 6) were captured. Put together, they shared their wealth of knowledge, experiences as well as opinions on the subject at hand. This methodological approach is appropriate in that it is especially effective in obtaining culture-specific information about the values, opinions, behaviours and social contexts of a particular population, and it provides valuable insights into their perceptions and practices (Mack, Woodsong, Macqueen, Guest & Name, 2005).

TABLE 3: DESCRIPTIVE TABLE OF PARTICIPANTS

Participant	Designation	Gender & Age	Special Characteristics	Additional Special Characteristics
C1	Chief	Male, 76 yrs old	Involved in traditional leadership, oversees environmental conservation	All participants P1-P10 needed to have a depth of traditional conservation methods
C2	Chief	Male, 75yrs old	As above	
C3	Chief	Male, 72yrs old	As above	
C4	Chief	Male, 74yrs old	As above	
EM1	Elderly man 1	Male, 74yrs old	Has lived experiences of traditional methods of conservation	
EM2	Elderly man 2	Male, 79yrs old	As above	
L1	Lecturer	Female, 50yrs old	Has unique ecological knowledge	
L2	Lecturer	Male, 53yrs old	As above	
ECO1	Employee of an environmental conservation organisation	Female, 56yrs old	Expertise & insights in Western ways of environmental conservation	
ECO2	Employee of an environmental conservation organisation	Male, 50 yrs old	As above	

Data analysis

Data were analysed using the inductive approach (thematic analysis) and acting upon Burnard, Gill, Steward, Treasure and Chadwick's (2008) recommendation. The first stage comprised of reading the transcripts and getting immersed in the data, focusing on the content and language use. The second stage was transforming the notes into codes and themes, the third stage was establishing relationships between the themes, and grouping them according to their similarities (Attride-Stirling, 2001). Finally, narratives of emergent themes were written and are presented in Table 4 below.

FINDINGS AND DISCUSSION

The answer to the question is sought: In the past, what indigenous knowledge methods of conservation were used in the preservation of managing the environment? In concluding each interview, participants were asked: How then do we go back to the basics?

It is important at this point to note Mawere's (2013) viewpoint, that '…natural environment was considered common property and was sustainably managed through the wise deployment of indigenous knowledge systems…. With these indigenous knowledge systems acting as custo5ary laws, there was informal mutual understanding at all levels of the community in terms of how, when, by what means and by whom resources were harvested and used. Activities like fruit harvesting, cutting down of trees, hunting, fishing, grazing and gathering of other resources from the environment were also regulated by these customary laws enshrined in indigenous knowledge systems.

In Table 5 below are the indigenous methods of environmental conservation that were

TABLE 4: EMERGENT THEMES

Code	Theme
Peatlands, Wetlands, freshwater, rivers, floodplains	Indigenous ways of conserving water
-forbidden entry into groves -illegal to cut an immature tree -If necessary, cut branch of tree only (not entire tree) -collect only dried wood/dead wood for firewood	Indigenous ways of conserving Forest
-Mixed Cropping, zero tillage -Controlled burning -Bless seeds before planting	Indigenous ways of conserving Lands
-Fishing using nets and not hooks -throw back small fish	Indigenous ways of conserving fisheries
Totemism Selective hunting Unfit for human consumption Use of nets to hunt Preserve young animals	Indigenous ways of conserving Wild animals

assimilated as customary laws. These were the themes that came up as given by the participants.

Table 5 clearly indicates the indigenous methods of conservation per category, as derived from the data that were employed, by the chieftaincy and which proved effective in curbing unsustainable environmental conservation practices. Juxtaposed next to them are the unsustainable and destructive contemporary practices that are now rife under modern day environmental conservation.

The authority of the chiefs which became undermined under new systems of government, were reinstated after certain judicial aspects went wrong in as far as environmental conservation was concerned. The Government of Zimbabwe, having realized the importance of the traditional leaders in the country, especially as custodians of customs, culture and

TABLE 5: INDIGENOUS METHODS OF CONSERVATION VERSUS THE CONTEMPORARY METHODS

Category to be conserved	Indigenous method	Contemporary method
Soil fertility	-Mixed Cropping, zero tillage(EM1) -Controlled burning (EM1) -Bless seeds before a new crop to ensure a successful harvest (C2) -Perform rituals to get rid of pests (C4)	-Application of fertilisers (ECO1) -Uncontrolled burning of several hectares of land (ECO1)
Sacred Groves	-Entry strictly forbidden (EM2) -Trees therein used only for special occasions (burial of chiefs, and having been authorised by the chief (C3)	-No longer practised as the groves are almost non-existent; any tree can be cut to serve whatever purpose (EM2)
Trees/Shrubs	-Do not cut an immature tree so as to preserve its species, if you need to use the roots, only pull out a few and leave others to ensure continued growth (EM2) -Cut branch only for fencing/roofing poles (not entire tree); collect only dried wood/ dead wood for firewood (L1) -Shake tree to harvest ripe fruit; the fruit will naturally fall to the ground (L2) -Do not cut or pull out a whole plant, rather collect only a handful of the leaves or bark of the plant that you need to avoid over exploitation (EM1) -It was mandatory for trees to be planted at the homestead (at least five different fruits), as well as out in the fields, plant these as boundaries (non-fruit trees) (C1)	-Indiscriminate cutting down of trees; ring barking of trees, striking down the whole branch to harvest fruit and discard it after gathering the fruit (L2) -Re-afforestation is no longer a culture of the people-the government has had to declare a tree planting day (1 December every year) (ECO2)

Wildlife	-Totemism (C3) -Selective hunting of mature animals and leave out the young ones (EM2) -Declaring certain animals as 'unfit for human consumption', or 'royal' (should not be killed at all), e.g. the pangolin (C3) -Use nets to hunt, inspect the ensnared animal, if it is pregnant, or young, let it loose (C2) -No killing of young animals (EM2) -If animals are threatening to eat crops from the fields, beat drums to scare them away (EM1) -To prevent wild animals from destroying crops, grow chillies along the boundaries of the fields, or put beehives at the edges of the fields (C2)	-People now eat the animal that represents their totem, in total disregard for the tradition of not eating it (C3) -Trophy hunters, licensed hunters as well as poachers now kill any animal (young or old) for monetary gain, including those that were once considered as unfit for human consumption, and those whose propagation rate is low, such as leopards (ECO1) -Indiscriminate killing of animals (L2) -Put away (kill) the problematic animal (L1) -Ensnare the animals using nets, or set traps for them (ECO2)
Fishing	-User-friendly method of using nets and throw back into the river the small ones that will have been caught (C4)	-Fishing done using the hook, anything that is fished is taken for consumption (EM2)
Honey collection	-use of herbs to drug the bees while honey is being collected; it was forbidden to collect ALL the available honey, you had to leave some so that the bees could continue to propagate (C2) -No honey collection in winter (their propagation time) (EM2)	- All honey is collected wherever it is found, none is left so as to maximise on monetary gains (C2) -honey is collected whenever it is found (EM1)
Consistent rainfall patterns	-Traditional ceremonies were performed before the planting crops in order to "ask for enough rain" (C1)	-No longer rigorously practised, therefore there are inconsistent rainfall patterns

Source: Compiled by Researchers from participants' responses, 2020.

values, gave back power to traditional leaders to restore their dignity and role in the communities, especially in remote and rural areas (Augustine, 2016). Traditional leaders are once again generally regarded as the custodians of the land and other natural resources in their respective jurisdictions (Chigwata, 2016). Other arms of government that have been put in place to cater for environmental conservation, such

as Environmental Management Authority (EMA) are reported to have by-laws that are ineffective and whose conservation methods are not as deterrent as when the chiefs were in charge. This relationship is aptly described by Makaudze and Shoko (2015, p268) as follows:

'Relations between the environmental conservation organs and communities are strained. In times past, indigenous people cooperated with taboos about the environment, there was never a collision path. Through taboos, the people always saw themselves as responsible for safeguarding the environment. With contemporary citizens, it is the duty of the environmental conservation organs to safeguard the environment, they in turn have no part to play.'

This tallies with findings by Ayaa and Waswa (2016) on a study conducted in Kenya which showed that natural resource conservation had always been in the traditions of local communities and had been expressed in various ways in the beliefs and practices used in their management and utilization. Furthermore, research from Ghana by Adu-Gyamfi (2011); a study from Nigeria by Eneji, Ntamu, Ajor, Ben, Bassey and Williams (2012) as well as findings by Awuah-Nyamekye (2014) also from Ghana highlight the fact that the use of totemic objects among most African indigenous communities for conservation and management of resources among tribes and clans was successful in the conservation and management of natural resources. All these go on to show how indigenous knowledge, sustainable practices, land and resource management, as well as climate change adaptation and disaster risk reduction strategies can be mediated using the rich local knowledge and practices for the benefit of mankind (Magni, 2017).

Under the contemporary method of conservation, the imposition of fines upon violators of environmental by-laws, according to C1, is only serving to exacerbate the problem.

C1: 'People are happy to pay, and EMA [Environment Management Authority] keeps collecting the money as if they are fundraising for the government…'

C2 laments how, in their mandates, the new statutory bodies claim to work with 'various stakeholders which include traditional leaders', and yet, in reality, they are not willing to incorporate the indigenous methods used by the traditional leaders into their contemporary natural conservation and development activities. The traditional leadership is pointing to this aspect as the reason for all the environmental problems that are being experienced today, hence their call to go back to the basics.

Another way in which the environment was conserved was in the way children were brought up. Traditional conservation methods were taught to young children through oral tradition, and as they grew, conservation would already have been inculcated as part of their culture. According to C1, a young child was taught Ubuntu, what came first was teaching the child how to handle his human environment; how to interrelate with others.

C1: '… as a human being, you don't steal, you ask for something before you take anything, you must not be selfish, think of others, don't be greedy, be respectful to others and have reverence for nature…'

Guided by the African epistemologies which teach equality of man and nature, it was thus easier for the child to transfer these lessons to his relationship with the world of nature around him. He therefore treated nature as an equal, the fear of the hovering spirits was all around. He was always mindful of the fact that the environment was held in trust for the gods, and was a communal commodity not to be abused (Mawere, 2013). What has now changed is the way children are being brought up–the indigenous knowledge is far removed from them, a huge amount

of time is spent within the confines of the classroom, away from their natural surroundings, and being taught 'abstract knowledge systems' (Fien, 2010), at the expense of the indigenous. C3 laments: "… children nowadays no longer know how to relate with their environment, the myths, taboos and the totem systems that were in place have either been forgotten, or are now trivialized". According to C4, it is greed that has crept into the character of the human being, (due to absence of the traditional upbringing of a child) causing acts such as the intentional setting of wildfires, illegal quarrying and mineral panning, pit and river sand abstraction, wetland and streambank cultivation, illegal tree felling, poaching and many other destructive acts.

C4: "…The elderly members of the family who were tasked with instructing the young ones against such vices as greed are no longer available, and the Chief, the overall custodian of the natural resources, who would mete out punishments and retributions for offences committed, has been stripped of his powers". This is consistent with findings by Mwalukomo (2008: iii) whose study in QwaQwa, South Africa confirm that in the past, even grass was managed through various traditional practices with traditional leaders regulating access and enforcing traditional rules of utilization.

Indeed, man has tried to dominate nature, (instead of being equal to, and treating it with respect), and this has come about with a substantial cost. In concluding each interview, participants were asked: How then do we go back to the basics?

The issue of education was strongly emphasized. L1 "…the best education today is exposure...they must live it… It must start within the school curricula; it must start at Primary school level...we must catch them young…" According to participant L2: "…there is a new curriculum on the table that emphasizes on the theme "Catch them young'. You see, it is difficult to teach the old goose new tricks…right now as we speak, there is engagement at high level to restoring our traditional way of life- as a taught subject at school. You see, the old sages will die…with their knowledge, but before they go… they must pass the baton…

There is some activity on the ground by traditional leadership indicating their serious commitment to walk the talk… Apart from the high level engagement with the leadership of the Ministry of Education and Culture in re-introducing traditional methods of conservation, C2 holds weekly radio talk shows about the traditional ways of environmental conservation, and also features on national televised programs directed at reconstructing the 'human environment' (life's basic rules of human relations).

EM 2 called for the resuscitation and reinstatement of traditional leadership approaches and their ways (culture) of ordering environmental conservation. EM 2: "…we must involve our traditional leadership in harnessing traditional ways of conservation, such as not entirely cutting down whole trees but pruning, and by selectively hunting animals at regulated intervals". This resonates with findings by Zinhiva and Chitakira (2017) whose study findings advocate for the need to strengthen and revert to traditional methods of bio-diversity management that worked for indigenous communities from time immemorial.

EM 1 had a similar train of thought as he mentioned that: EM 1: "…we must also compel the younger generation to walk following in the footprints of their ancestors. Some of our values and beliefs are lying forgotten and considered useless in this modern day….and our children nowadays do not even know about them and their significance. We must make a concerted effort to resuscitate these…"

In the National Arts and Culture, some

musicians have been reined in, in an effort to try and conscientise people about the need to 'get back to the basics'. Of note is a renowned musician referred to as 'M', who sings about, and promotes the African beliefs of equality of man and the environment and the interrelatedness of everything in the cosmos:

L3: Hapana chisikwa chiri nani kupinda chimwe (there is no creature that is of greater value than another)

L3: Hapana chisina muridzi; kuvhima masango anorura, unotokumbira varidzi (everything belongs to someone; even for you to successfully hunt from the forest, you must first ask the custodians of these forests).

The United Nations (1992b) recognizes that indigenous people have developed, over many generations, a traditional holistic scientific knowledge of their lands, natural resources, and environment, and as such, traditional governance is often held in high esteem for the management of natural resources and environments that local people traditionally occupy. When entire communities have an intimate knowledge of their environment, and manage this as their common resource, this can result in them significantly conserving it.

The once discarded wisdom of traditional leadership could be the answer to solving the impasse between nature and human beings. The main argument in this paper, as presented by the traditional leadership of Zimbabwe, is that science, or modern knowledge has been afforded the chance to prove itself as being able to provide the best answers to issues of environmental sustainability, and has failed. It is therefore time that conservationists at the highest level go back to the basics, and incorporate the rich indigenous knowledge systems that have for years, assisted in maintaining peace and harmony between man and nature. Although certain researchers have considered the ancient traditional ways of conservation as having a negative effect on modern natural resource conservation, research clearly demonstrates that the indigenous knowledge system way was, and still is a valuable means of managing resources (Alidri, 2016). It is time-tested, resilient and proactive knowledge which is still indispensable in the conservation of the biodiversity (Adom, Kquofi & Asante 2016). It relies on the high impacts of taboos, cosmological beliefs and totems in conservation ethics and issues (Adom et al.., 2016) which the indigenous communities ascribe to themselves.

CONTRIBUTION OF THE PAPER

As stated earlier on, Traditional leaders in Zimbabwe operate as the first line of environmental conservation, and through this paper, Zimbabwean Traditional Chiefs have shared how they have, in the past, conserved as well as promoted sustainable ways of utilising their natural resources to the benefit of all people as well as of the plant and animal kingdom. The Sustainable Development Goals (2030) are a universal call to action to, among others, protect the planet by conserving natural resources because, as chronicled earlier on in this paper; their irrational consumption and over utilisation have led to socio-economic and environmental problems. Modern methods of conservation have been tested and tried, with dismal results. In this paper, Zimbabwean traditional chiefs' point to indigenous ways of conservation, which they believe are climate friendly can still add value to issues of sustainability in the 21st century knowledge landscape where challenges of climate change are the source of most natural disasters. Being cultural leaders, the influence of their perspectives have far reaching effects on how today's local environmental managers will execute their duties as they impart the right culture in their employees, and to adopt behaviours that are pro-environmental and which promote sustainability initiatives. Western ways of conservation are not the only ways, but rather, much can also be learnt from the traditional methods herein provided.

The paper also presents educational implications in that it introduces a holistic approach towards augmenting people's environmental knowledge by encouraging school going children and those in tertiary to adopt pro-environmental behaviors towards the conservation and protection of the natural environment. It is to be noted how the Zimbabwean educational curriculum has incorporated traditional ways of environmental conservation as a way of conscientising the youth of how their daily actions can impact the environment either negatively or positively, and if the correct methods are taught and embraced, right from the grassroots level, this can result in the adoption of a positive environmental behavioural change, and an awareness of the necessity to tackle real-world environmental problems.

CONCLUSION

Findings indicate that traditionally, the natural environment was viewed as common property, and conservation management practices were guided by the chiefs, who dictated how, when, by what means and by whom natural resources were harvested and used. This research documents and illustrates much environmental conservation wisdom practiced by traditional leaders and adds a possible solution to a topical issue amid worldwide natural disasters that are occurring largely due to 'modern man's activities'. Communities can play a significant role in the conservation of its resources through traditional beliefs and practices. Most cultural beliefs have become eroded, as have beliefs in traditional leadership due to modernisation, resulting in the failure to properly conserve the environment. Traditional forms of knowledge which have in the past contributed to sustainable environmental conservation, can be learnt from and built upon through educational and cultural programs. Education is known as the most powerful weapon that can be used to transfer and promote traditional wisdom; and as such, the Zimbabwean traditional leadership is advocating for a return to the basics of environmental conservation by educating the people on the knowledge that they once had, but have now lost. To the African, nature is sacred; and it is this belief in the sacredness of nature and of natural resources that helped to stop the wanton destruction of the environment in times past.

The limitation of this study is that the findings cannot be generalised as it only addresses the views from a small sample group. In answering the initial question stated with the research problem, as to: Why has the world not become more environmentally sustainable despite decades of local plans, state laws, national policies and international agreements? It is clear that modern management and leadership do not present all the answers and that globally environmental managers can learn from the traditional leaders, in this instance Africa, as how to apply conservation management in a sustainable manner. More management research is needed utilising the perspectives of traditional leaders and indigenous methods, systems and practices in Africa.

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