Erosion of Traditional Institutional Authority and Effects on African Indigenous Knowledge Systems in Management of Mopane Woodland Resources in the Luangwa Valley, Zambia

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Abstract: **The study aimed to establish erosion of traditional institutional authority and the effects on African indigenous knowledge systems in management of natural resources base. Impacts political and economic systems have on traditional institutional authority and indigenous knowledge systems for management of mopane woodland resources in the Luangwa Valley, Zambia are reviewed. Zambia's current political landscape regards traditional institutional authority as secondary even though the legitimacy and relevance of these institutions cannot be disputed. These institutions worked well before colonialism based on rules and traditions that promoted social order in a community, guaranteed safety, security, effective natural resources management and justice. Today, these roles are not recognized. They are not considered as a major embodiment of African indigenous knowledge systems. Traditional institutional authority and African indigenous knowledge systems are undoubtedly neglected and headed for eventual total erosion in Zambia. The political system wields much authority in rule making and application, and enforcement even on matters that fall under the jurisdiction of traditional leadership as in the case of management of mopane woodland resources in the Luangwa Valley, Zambia. Therefore, it is imperative that mechanisms that invoke an appreciation of traditional authority, African indigenous knowledge systems for natural resource management and participation are embodied in modern governance, management structures and conventional science. This is about reviving and protecting African indigenous knowledge systems; promoting passing of knowledge between generations, restoring and affirming confidence in traditional institutions for governing natural resources.**

Keywords: **African indigenous knowledge systems; mopane woodland resources, traditional institutional authority; Zambia**

I. INTRODUCTION

Natural resources have been at the core of human survival, especially in rural communities. This direct dependence on natural resources by rural communities has created a direct and close relationship between nature and people within their localities. Such symbiotic relationships have made communities interact with living and non-living elements (Musvoto, *et al.* 2007; Bray, 2007) hence the creation of indigenous knowledge systems. African indigenous knowledge systems have attracted the attention of the international community. This is so because African indigenous knowledge systems can interface with other modern knowledge systems and sectors.

Local communities are custodians of the vast traditional institutional knowledge and experience that has been accumulated over a long time. Therefore, its disappearance would be a loss to society in terms of the benefits from traditional skills necessary for sustainable management of natural resources base. Local community natural resources management is a holistic approach by communities to restore protect and maintain indigenous knowledge; promote the conveyance of knowledge from one generation to the other; and affirms confidence in traditional practices for governing communities to comply with the laws that govern natural resources use (Chigwenya & Manatsa, 2007). It embeds people's rights to self-determination, property, culture, traditions and customs reflected in the life of the people (IUCN/UNED/WWF, 1991). In Zambia, development of mechanisms to document indigenous knowledge and to manage mopane woodland resources base are weak or non-existent. The political and economic landscapes have not provided for policy to conceive liberty for the country. Today, Zambia is faced with the battle to secure and protect traditional institutional authority and the associated indigenous knowledge systems for natural resources base management.

The traditional institutional authorities and indigenous knowledge systems have been at the core of the survival of local communities who use these systems. The oral and rural nature of institutions and indigenous knowledge systems has made them obscure in the development of communities and innovation in modern science, political and economic set ups (Tanyanyiwa & Chikwanha, 2011). Local people are desirous of political and economic empowerment but rules and decisions affecting them are made without prior informed consent. In particular, indigenous knowledge has not been recognized in Zambia's political and economic landscape due to its unsystematic capture and storage of information and as a result it is threatened with extinction. Indigenous knowledge system is community, culture and society specific (World Bank, 1997). It should be seen not at variance with modern

scientific, political and economic systems rather as a catalyst for productive collaboration and cooperation in sustainable development. This means that political and economic systems should positively support use of indigenous knowledge at local level for decision making concerning natural resources base management, human health and food security (Chigwenya & Manatsa, 2007).

In Zambia, information on indigenous knowledge for mopane woodland resources management is anecdotal and yet local people have a huge data base of knowledge on how communities interact with their environment - floral and faunal resources (Tanyanyiwa & Chikwanha, 2011; World Bank, 1997). Woodland resources provide mankind with a wealth of benefits including wood for construction and fuel (Mukwada, 2000) as well as medicine for ailments. In addition, mopane woodlands are critical habitats that provide feed for livestock and endangered wildlife species. They form part of the earth's life support systems (IUCN/UNED/WWF, 1991). This review explores effects of erosion of traditional institutional authority and effects on indigenous knowledge and practices in natural resources base management in Zambia.

III. TRADITIONAL AUTHOURITY BEFORE AND DURING COLONIALISM

Traditional Authority has been central in Zambia's evolution as a nation during pre-colonial and colonial periods. It has also witnessed several changes in terms of functions and responsibilities; including guardianship of values and customs; appointments or ascension to power and jurisdiction. While some of these changes in the pre-colonial epoch, may have emerged naturally, in colonial times these were externally triggered. This reflection on traditional authority before and during colonialism is premised on changes in these modes.

First, one of the primary roles of traditional authority through the institution of chieftaincy pre-colonially is that of safeguarding traditional values and customs, administration of land, allegiance to the gods, prescribing rules and regulations for the governance of social behaviour, arrangement of customary marriages and protection of the community (Chibomba, 2004; Mashele, 2004). This authority worked well before colonialists stepped foot on the Zambian soil as they were based on rules and traditions that promoted social order and sense of community - a sense of community and social order that can only be attributed to the type of education that traditional communities were subjected to. Kinoti (1992) aptly describes the goal of this form of education:

Education in traditional African society aimed to produce persons who upheld the values that helped the society to remain integrated. These were values of peace and harmony, respect for authority, respect for and fear of supernatural realities. Since a society is defined by the kind of individuals who constitute it, education aimed to inculcate personality

values which helped the individuals to be integrated in them (p.80).

Further, this education and the resultant social order was clearly manifest in the way African traditional societies, Zambia included, co-existed and cooperated in the execution of their various socio-economic activities. Ayittey (2005), US based Ghanaian Economics professor, argues that in traditional Africa, authorities created the necessary conditions for their subjects to conduct their activities. Even with agriculture, the tribal government did not interfere or dictate what crops the peasants should raise. The role of the chief or kings in agriculture was to ensure that access to land was not denied to anyone, even strangers (p.348). Regrettably, it is this accommodation of strangers that paved the way for colonialism to make great inroads into indigenous land and turned locals' lives 'upside down'.

For example, Kusum (1988)'s study of the Ushi-Kabende of Mansa in Luapula Province of Zambia between 1947 and 1953, revealed that colonialists brought into their lives restrictions that had a bearing on their only means of livelihood. Notably, the local people were cut off from forests and game reserves which were the only source of fuel, game meat, caterpillars and honey. Hunting was only permitted with a registered gun and hunting license, both which were beyond the reach of many. With these restrictions and banning of the sale of game meat, people could not even kill wild pigs rampaging their gardens adds Kusum. And these measures and interference in the lives of local people were executed without due recognition of traditional authority under whose jurisdiction all this was undertaken. As Ayittey (2005) concludes, when Africa was colonized, the colonialists sought to control indigenous economic activities to their advantage. Africa's colonial history is replete with success and failures of these policies.

Second, the ascendance to traditional authority such as chieftaincy during pre-colonial era as Chibomba (2004, p.3) claims differ from one ethnic group to another: either it is inherited or assumed through recognition of benevolence and loyalty to the clan leadership or achieved through bravery in territorial acquisition from warfare. However, their jurisdiction and reign was for life. Unlike today, as we shall reiterate later, political meddling (presidential prerogatives notwithstanding) subjects this form of indigenous leadership to uncertainties through gazetting and degazetting of the ascension to the throne. And as Ayittey (2005) aptly observes, Africa's traditional governments were run by elders who were not infallible and the respect accorded to them was not a form of servility as young adult members of the community had space to participate in decision making either through council meetings or the village assemblies.

Sadly, there was a complete shift with what colonial agents and post-independence governments supported and/or instituted. Traditional authority was no longer revered or valued as a critical player in developmental projects. One

scholar described chiefs in Zambia as incompetent vis-à-vis bureaucratic and political structures, as hubs of ethnic divisiveness and unnecessary for rural development given that the then ruling party United National Independence Party (UNIP), had fully captivated the loyalty of the rural population (Van Binsbergen, 1987).

Third, traditional authority enjoyed oversight of their respective constituencies uninterrupted. As Chibomba (2004) notes, these authorities were considered supreme and natural rulers of their respective ethnic communities. However, this administration was not immune to the changes that came during colonial times. For example, the British rule changed the position of the Bemba chief and his political machinery, and continued to increase in different ways (Richards, 1940). She adds that, some of these "changes are due to the actual introduction of new authorities into the area – whether Government officials, missionaries, or other Europeans-who have either replaced the Bemba officials, divided the spheres of authority with them, or introduced entirely new conceptions of the functions of government itself (p.112). Researchers like Murithi (2006, p.14) have candidly synthesized these changes in Africa, highlighting the ultimate goal:

Colonialism did not only destroy the basis upon which Africans could define themselves, but where it could, it also co-opted the indigenous structures and mechanisms of governance and dispute resolution to serve the interest of the colonial administration. Indigenous traditions with regard to governing and resolving disputes in African societies were therefore corrupted by centralizing power of colonialism.

Therefore, thanks to the drivers of colonialism, traditional authority has never been the same. Chief's functions were taken by the white officials including the introduction of new offences such as the killing of elephants and a number of other forms of game, the digging of game-pits, and the use of primitive iron-smelteries and new fees such as hut tax and poll tax. Above all, customs considered offensive to natural justice and morality, in the colonialists view, were prohibited (Richards, 1940). Thus, all the limitations and inadequacies that may be associated with the traditional authority today, including neglecting African indigenous knowledge for mopane woodland resource management, we contend are inextricably rooted in the exploitation that was experienced during colonialism.

Further, as noted from the study of the Ushi-Kabende of Mansa in Luapula Province, on the eve of colonial occupation records, the Ushi alone consisted of twenty seven (27) chiefdoms and a few years later that was reduced to twelve (12) (Kusum, 1988). According to Kusum (1988), the purpose of this intervention was to facilitate tax collection, labour recruitment and instituting of colonial legitimacy through the traditional chiefs. The most distressing aspect about these changes is that traditional authority was now, according to Kusum, "saddled with the unpopular task of making capitalistic demands on the time, labour and produce of their

people" (p.252); making its traditional authorities functioning at the political and economic expediency of the colonialists.

IV. POLITICAL LANDSCAPE AND TRADITIONAL AUTHORITY IN INDEPENDENT ZAMBIA

Zambia's chiefdoms numbers 286 each with a hereditary chief who rules for life (Baldwin, 2013). The reverence and space accorded to traditional authority in independent Zambia may not be so different from the colonial epoch. The current political landscape seems to have upheld and continues to be anchored on the externally induced modified traditional authorities. As the current Chief Mwinelubemba Chitimukulu Kanyanta-Manga II of the Bemba Royal Establishment notes, what is most unsettling about these changes is that Zambia's subsequent governments continued on this path:

Politicians have created a dangerous gambit wherein the urban-born supposed intellectuals have since 1991 been trying to find ways to dilute and eventually abolish traditional rulership in this country in order to pave way for a strong working class that would be sociologically undefined, since there seems to be an uneasy balance between simple tribal affiliations and the so-called modernism (Lusaka Times, 2014).

In interrogating the political landscape and traditional authority in independent Zambia, we look at three fronts;

The resuscitation and contribution of the House of Chiefs; traditional authorities' access and control of resources including land administration and alienation and traditional Authority and Party Politics.

First, Zambia's House of Chiefs was first established in 1965 immediately after the country's independence and its creation was provided for under the independence constitution (Chibomba, 2004). The House of Chiefs notes Chibomba was necessitated to foster diverse tribal cultures, customs and traditions of the people of Zambia as well as nurture the aspirations of the people of Zambia at chiefdom level. Constitutionally, article 130 as amended in 1991, provides that, "there shall be a House of Chiefs for the Republic which shall be an advisory body to the government on traditional, customary and any matters referred to it by the president".

To what extent this advisory role is fulfilled remains an unanswered question, especially if political meddling we mentioned above is anything to go by. In what may be described as gross disregard for chiefs, a former Minister of Legal Affairs, then acting as Head of State, at a public event asserted that, government did not require permission from chiefs to get land to build its offices (Lusaka Times, 2014). Further, contemporary scholars and researcher like Ayittey (2005), argue that chiefs in British Africa had substantial role in government especially through the establishment of a House of Chiefs. He argues that the post-independence centralization of administration stifled the effective participation of the traditional rulers in government. And that nationalist and elites were determined to reduce the powers of

the chiefs and excluded them from government. In the case of Zambia, traditional authorities may not have been completely excluded from governance but their powers are undoubtedly reduced.

Presented bluntly, Ayittey (2005) advanced that "traditional African rulers (chiefs and kings) were perhaps the most persecuted group of people after independence. During colonial rule, African kings and chiefs who did not submit to the colonial administrators were replaced or exiled. The onslaught against chiefs continued after independence, and they were betrayed along with the rest of the African population" (p.119). In Zambia, traditional authority's subordination takes shape with the inception of the House of Chiefs+. Constitutionally, before the House of Chiefs is sworn in, they take an oath of allegiance to the president of the Republic. Article 134 of the 1991 Constitution stipulates that every member of the house including the chairperson shall take an oath of allegiance (Chibomba, 2004).

Second, traditional authority in Zambia continues to play an important role in the allocation of land, administering justice and organizing community projects. Baldwin (2013) noted that chiefs are "highly respected within their communities, with two thirds of rural Zambians saying that they trust traditional leaders a lot" (p. 798). As such chiefs for example have influence and what Chibomba (2004), describes as a tight grip on the behavioural patterns of their subjects and that what the chiefs decide is in a way regarded as 'the truth' due to the respect demanded from not only their subjects but everyone. The trust and even reverence for chiefs by their subjects are rooted in the latter understands of the former's primary responsibility. Ayittey (2005) describes this responsibility as being 'the survival of their people'. He adds, that;

An African chief generally did not make policy or take decisions by himself. He only executed the will of the people. He could not sell off his people and expect to remain chief. If a chief collaborated, it was the collective decision of the people to seek cooperation and or an alliance with the colonialists, as this offered the best means of survival (p.123).

Put differently, in traditional Africa, there was mutuality between chiefs and their respective subjects. While the chief ensured all was well with his subjects, the people also had obligations such as "a few days tribute labour each year and to answer sudden calls for help if made; and also claims to tribute in kind, usually paid in the form of an annual present of beer and/or grain, and a portion of animals killed in the hunt" to the chief (Richards, 1940, p.106). Unfortunately, in independent Zambia, the tribute is more or less superseded by government stipends and wages.

Third, although during the United National Independence Party (UNIP), some of the Chiefs were co-opted as members of its central committee, constitutionally chiefs are barred from running for political office (Baldwin, 2013; Van Binsbergen, 1987). This exclusion notwithstanding, chiefs have continued to press for active inclusion and participation in national governance. For example, in his account Chibomba (2005) reports that two chiefs in two separate incidences have rejected to be confined to cultural and traditional matters. One chief claims, the role of chiefs must be stretched to cover governance matters and the other rather elaborately argued that government should involve them in national activities like the African Freedom Day celebrations. The claim was that this would not only foster relationship between traditional rulers and government but would also give the people some strong spirit of patriotism.

However, involvement in governance should go beyond participation in national events, traditional authority's niche in political activities should be invigorated to include regular consultations with state actors. For example, traditional authority as custodians of indigenous knowledge, should have adequate space to contribute to strategies and/or policies on the management of mopane woodland resources (ECA, 2007). The Economic Commission for Africa (ECA), called on "the state and representative bodies of traditional authorities to jointly review all legislative provisions in order to educate traditional authorities about the impact of these legislations on their roles and for knowledge-building purposes" (ECA, 2007, p. 28). This is a more qualitative role than just parading traditional leaders at annual national events.

Another qualitative and critical political niche for traditional institutional authority, in independent Zambia, hinges on their cooperation with parliamentary representatives. With at least three (3) chiefs in every rural constituency as reported by Baldwin (2013), this partnership is inevitable especially in the delivery of public goods and services. Two (2) Zambian Parliamentarians have been quoted claiming that, faced with resistance from the chief, one would not operate effectively as Member of Parliament and that it would be difficult to get elected (or re-elected) without the support of the chief (Baldwin, 2013). As a custodian of customs and traditions, traditional authority is privy to all local problems and has a bigger stake greater than policy which renders institutions such as chieftaincy overarching responsibility on all developmental initiatives. Thus, traditional authority's role in management of mopane woodland resources is a political imperative.

V. ECONOMIC LANDSCAPE AND TRADITIONAL AUTHORITY IN INDEPENDENT ZAMBIA

Traditional authority's contribution to Zambia economic dimension and Africa as whole oscillates around their intermediary role in land alienation and natural resource management. A responsibility that as noted above is marred in political meddling and effrontery. From the onset, Ayittey (2005)'s counsel is worth appreciating; "…one cannot reach the African people without the use of chiefs as intermediaries. Even the British colonialists recognized this when crafting their colonial policy of "indirect rule". Far from being useless appendages of the "old system" these chiefs are in fact

Africa's most important human resource, vital for development purposes... (p.125).

However, in independent Zambia, traditional authorities are not guaranteed that social and economic development they so desperately need for their people. Cases in point are concerns around alienation of land especially to both local and foreign investors supposedly for economic development. As economic development has a correlation with building the capacity of locals as well as clear land access and tenure, local people have more often than not 'bones to chew with the externals'. For example, as some stakeholders claim:

It is common knowledge that any investor invests first to serve his interests before serving your interest. In fact what we are experiencing is a situation where investors are using cheap labour and our land, first and foremost to maximize profits which are later externalized. They would rather grow flowers than food for the starving Zambians. If the major intention is to develop, why then should they invest in areas where there is existing development, why not invade bare land? (Simwanza, 2006 as cited by Mudenda, 2006, p. 12).

The foregoing claim only goes to show that land continues to be a sensitive and contested means of economic development in independent Zambia. The media is not devoid of stories of land alienation couched in malpractices and corrupt practices. Nthamburi (1992) noted that in order to understand and interpret morality in public life, particularly in the Third World, one has to consider, among other factors, the causes of such ills as poverty. And there is no doubt that there is a strong link between land deprivation and local people's levels of poverty. Mudenda (2006)'s conclusion is that with the high demand (with reduced oversight from traditional authority), for customary land, there is likelihood that local people will (have) problems in accessing their own land. It is therefore incumbent upon Zambia's policy to work towards devising (in liaison with traditional authority) systems that will enhance the local's access to land. It is should be a moral duty for everyone to ensure views like Nthamburi's are reversed; "while Africa continues to struggle for liberation from the western structures, African elites and political leaders have added to Africa's suffering as a result of their selfish and exploitative nature. Wealth and power have been concentrated in the hands of a few selfish individuals hence the suffering of the majority of the people (Nthamburi, 1992, p.108).

VI. IMPORTANCE OF INDIGENOUS KNOWLEDGE SYSTEMS TO MOPANE WOODLAND MANAGEMENT

Indigenous knowledge systems are the local and traditional knowledge which is specific to a given society (World Bank, 1997; Bray and Els 2007; UN 2005). It is different from conventional knowledge system from universities, research institutions and private firms (Tanyanyiwa and Chikwanha, 2011). At local level, it is used in decision making in agriculture, health care, food security, education, natural resource management (Warren, 1991). It is the information base for a society, used to communicate and in decision-making (Tanyanyiwa and Chikwanha, 2011). Indigenous knowledge systems change and are affected by internal perceptions, views and by contact with external systems (Warren, 1991). Recognizing the legitimacy of traditional institutional authority and the role of indigenous knowledge in local communities can empower the people, increase self-sufficiency and strengthen self-determination (Thrupp, 1998). Upholding use of indigenous knowledge in woodland resources base management assures legitimacy and credibility, increases cultural pride and determination to address local challenges with local solutions. In that regard, sustainable development should design approaches that support and strengthen the vital traditional institutional authority and indigenous knowledge systems. Traditional institutional authority in combination with indigenous knowledge and practices can empower people to sustainably manage their natural resources base (Turner *et al*., 2000 and Toms, 2005).

Current strong views against indigenous knowledge systems is due to ecological crisis and overexploitation of natural resources attributable to local community attitudes and increasing demand for natural resources. Politics and economic systems and conventional science have not given legitimacy to indigenous knowledge for management of the natural resources base which they have utilized without eroding it (Emery, 1996). Modern systems have instead alienated indigenous people from what was theirs leading to discontentment and frustrations. In the case of mopane woodland, traditional institutional authority and indigenous knowledge have the capacity to provide viable options to sustainably manage woodland resources and have an advantage over conventional science as they apply locally refined skills and materials more effectively than the introduced foreign innovations.

Traditional institutional authority systems have evolved over generations within the local communities. Traditional institutional authorities controlled natural resource harvesting by providing for subsistence needs and survival. The mopane woodland resource base was safeguarded through spreading the risk as they employed various subsistence strategies but these institutions are being eroded and indigenous knowledge systems may soon extinct due to political and economic systems that work against them. Traditional institutional authorities and indigenous knowledge represent dynamic systems in which spirituality; kinship, local politics and other factors (Turner *et al*., 2000) are intrinsically related and affect one another. Spiritual beliefs about nature determine how natural resources should be managed by people (IIRR, 1996; Turner *et al*., 2000).

Indigenous knowledge for management of mopane woodland resources is embedded in the daily lives of the people. It requires documentalists with de-colonized methodologies that require them to be part of the everyday life of the people. For example, the chitemene (slash and burn) system in woodlands in Zambia is not only scientific, but also a social process, hence methods which are de-colonized will work better than

other methods which are removed from the everyday lifestyles of the people - getting practical aspects of the social processes that local people find themselves in on a daily basis (Chishimba, 2009). Chishimba (2009) notes that chitemene supports social institutions such as iciima (group work), a source of togetherness and collective responsibility. This is the reason Africa in general and Zambia in particular must rise from her slumber and step into her destiny. Why should Zambia accept workshops and lectures from the west on group dynamics when in actual fact traditional authority and indigenous knowledge have worked and are part of our everyday life? In fact, the west begins by dividing us in the name of economic hardships and then come from behind to lecture us on collective responsibility (Chishimba, 2009). This is our own knowledge, Zambia must rise.

Before indigenous knowledge is commercialized, the process of identification must include de-colonizing our minds and de-mystifying indigenous knowledge. This requires an interconnected approach to the whole process. This means that specialists in indigenous knowledge, local community members, political and economic systems and conventional scientists must work together. For instance, where modern scientists see primitive traditional medicine, the counterpart would deduce utilizable indigenous knowledge. This confirms that there is wealth of knowledge needed for developing a country. Indigenous knowledge is based on the fundamental principle of interconnectedness (symbiosis) of life cycles which includes spirituality. In indigenous knowledge, issues of socio-cultural, economic and environment are moralized by spirituality (Reid, *et al.,* 2006). For example, forests and other God-created works are sacred. Local names for God include leza, mulungu, zambi, mulena, lesa and so on (Chishimba, 2009). Therefore, spirituality must be comprehensive and documented as a process of supporting and strengthening indigenous knowledge.

When indigenous knowledge is collected, appropriated and distributed by conventional scientists, studies in Zambia (Chishimba, 2009) have shown that the owners of the knowledge do not benefit. Chishimba (2009) underscores this point by giving a typical example in the case of the maheu drink. First, the idea of maheu is from Magoye in Southern Province where the local people use a root called mahaabe. The types of enzymes in the roots were identified. Second, a similar root called chifumfula was being used in Chieftainess Nkomesha's area in Chongwe District, Lusaka Province. Upon doing laboratory analysis of the brew, an alternative technology was developed and the patent was sold to a private company which produces maheu for commercial purposes. Even though few local people were compensated for the role they played in the process, many questions arise: what has been the contribution from the producers to the owners of the indigenous knowledge on maheu, how empowered are the owners of the indigenous knowledge as to demand for social responsibility from the proprietors of the knowledge shared with the rest of society? So now is the time to act and change

the Zambian story. To safeguard the principle of the interconnectedness, the policy must relate to the UN Charter on indigenous people (2008). It is window dressing to address issues of indigenous knowledge without due consideration of the rights of the people who own it. Chishimba (2009) further states that to address the issue of the indigenous knowledge such as crafts from mopane woodland, one cannot rule out the land where the primary resources are harvested.

VII. LIMITATIONS AND CHALLENGES WITH USE OF INDIGENOUS KNOWLEDGE SYSTEMS IN MANAGEMENT OF MOPANE WOODLAND RESOURCES

Indigenous knowledge systems have been used for generations by local communities in the use and management of mopane woodland resources in the Luangwa Valley, eastern Zambia. However, colonization and formal education and the banning of traditional institutions and practices have led to the degeneration of indigenous knowledge systems and appear as outdated concepts, unsuitable for contemporary socio-economic and environmental issues (Turner *et al*., 2000, Reid *et al*., 2006 and Lawes *et al*., 2004). The above situations have reduced the transfer of knowledge from elders to young people (Puffer, 1995) and degradation of traditional institutional authority.

Despite the effects of external pressures, the core values of indigenous knowledge systems that have survived need to be recognized as valuable to sustainable management of mopane woodland resources. The UN Conference on Environmental Development of 1992 has elevated indigenous knowledge systems to work on a complementary level with conventional science in resource use and management (Behera and Nath 2005) and should therefore regain a recognizable status. However, wider economic and social forces erode indigenous knowledge by applying pressure on indigenous peoples to integrate with societies at large, causing indigenous knowledge and practices, to break down (Tanyanyiwa and Chikwanha, 2011). The insistence on western education and religion and various development agenda lead to the globalization and homogenization of cultures (Grenier, 1998). When this happens, indigenous knowledge - beliefs, values, customs and practices are affected and the knowledge base is eroded. Indigenous knowledge systems that were well adapted at some stage and critical to securing the natural resources base become inappropriate and results in degradation of a natural resource (Thrupp, 1989). Indigenous knowledge relied upon by local people can be incorrect (Thrupp, 1989) but certain practices are essential and affect the well-being of local people in positive ways.

VIII.CONSERVATION OF MOPANE WOODLAND WITH INDIGENOUS KNOWLEDGE

There are rules and regulations in the management of mopane woodland resources, among others, are burial places for chiefs and common graves. These are sacred places and mopane woodlands found on them are not supposed to be removed or

tempered with. The idea is to maintain the sacredness of woodlands and to promote a culture of responsibility and effective natural resources base management.

Since the people believe that the spirit of the dead would join other ancestral spirits in looking after the living, their burial places were regarded as highly sacred (Chiwandamira, 2000). As a result plants and grass around these sites were not to be cut or burnt. In fact any mismanagement of such sites by any human, local or foreign, constituted a very serious offence. Mukwada (2000) added that even the practice of burning grass in an effort to resuscitate pastures was never allowed near such sites. These and other related cultural practices have been vital in the preservation of mopane woodland resources base. The taboos set discouraged unwarranted destruction of resources such as wetlands and other cultural sites.

IX. EFFECTIVENESS OF INDIGENOUS KNOWLEDGE SYSTEMS IN MOPANE RESOURCES CONSERVATION

Mukwada (2000) underscores the importance of indigenous knowledge systems in the conservation of natural resources. Indigenous knowledge systems created a mutual co-existence and balance between man and his local environment. An example of students in Alaska (U.S.A) solved local environmental problems using indigenous knowledge which moved Manjengwa *et al.* (1999) to state that indigenous knowledge can be an effective tool in environmental exploitation and resource base conservation.

In addition, the Amazon forest in Brazil had no challenges of deforestation until the introduction of loggers (Grenier, 1998). Before the settlers, the locals respected their traditional and culture, as their guiding principles in the utilization of their forest resources. But now excessive utilization is taking place because the settlers do not appreciate the culture and practices of the indigenous people in resource use. The Amazon Indians were removed from their traditional land and have lost their culture owing to development leading to the suffering of the local people (Grenier, 1998; Tanyanyiwa and Chikwanha, 2011). This discourse on the Amazon forest above underscores that the management of the forest resources was more effective when the indigenous people used traditional institution authority and indigenous knowledge systems as opposed to the time when the foreigners applied their rules and regulations.

Like other countries, indigenous knowledge in Zambia's mopane woodlands is embedded in the daily lives of the people. Therefore, a comprehensive and deep-rooted inventory is vital, one which requires documentalists with de-colonized methodologies that require them to be part of the everyday life of the people (Chishimba, 2009). Application of methods which are removed from the everyday lifestyles of the indigenous people will not get practical aspects of the social processes that people find themselves in on a daily basis. This means that specialists in indigenous knowledge, community members, inclusive and conventional scientists must work together.

Our people's knowledge is being appropriated without benefit. Policy must address issues of indigenous knowledge with due consideration of the rights of the people who own it is vital. Lack of rural community engagement in the process of revitalization of traditional institutional authority and promotion of indigenous knowledge, and how they would benefit from commercialization or sustainable utilization of indigenous knowledge will not safeguard the interests of indigenous people.

In conclusion, African indigenous knowledge systems require strengthening through productive collaborations and corporation among political systems; indigenous knowledge and scientific knowledge for purposes of environmental conservation at the local level; introduction and development of holistic approaches to understanding indigenous knowledge systems; recognizing and preserving indigenous knowledge with the view to integrating it in national development plans; and the development of the intellectual property regimes (UN 2005) that recognize the enormous contribution that local and indigenous communities continue to make for the conservation and development of genetic resources which constitute the basis of food production.

An interconnected approach is required to fulfil this obligation. The already designated government institutions have not productively collaborated with traditional institutions with vested cultural heritage issues. Community engagement in the process of identification, documentation, sharing and popularization of the indigenous knowledge systems and practices is core to sustainability. Knowledge systems can be popularized through exhibitions, publications, research, extra-curricular school activities, social and business gatherings (local and international), as well as national events and ceremonies. In addition, patenting indigenous knowledge will ensure that all those commercial entities appropriating indigenous knowledge become socially responsible by ploughing back into the rural areas for the indigenous knowledge they use. Indigenous knowledge should be in the copyright laws and intellectual property laws in which case indigenous knowledge will be a collective property of the indigenous people.

The economies all over the world have become knowledge based. Any country which does not invest in knowledge in this digital era is a country headed for doom (Chishimba, 2009). Now is the time to realize and accept that indigenous knowledge is fundamentally a knowledge base for present and future innovations. Now is the time for Zambia to be in alignment with the rest of the world for accelerated development, invest in the people in order to secure the future of the country through an educated and informed citizenry.

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