

Biopiracy of Plant Resources and Sustainable Traditional Knowledge System in Africa

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Abstract

The relationship between plant resources and traditional communities in Africa is inseparable. For centuries, indigenous communities have been depending on their cultural innovations and practices for health and food. Plant resources are part of the traditional knowledge system of indigenous communities in Africa.

Colonialism and the scramble for Africa led to plant resources being opened to bioprospecting by western scientists and multinational pharmaceutical firms. They engage in secluded locations around Africa in order to find ‘new drugs from exotic plants’ for profit-making or patent rights. The advent of technology has witnessed a lot of illegal exploitation and commercialization of plant resources (biopiracy). The traditional knowledge system is being eroded with disregard to the welfare of the owners of the knowledge to sustainably manage it. The paper looks at the challenges, the existing legal framework to appreciate if it’s adequate to ensure the sustainability of the traditional knowledge system in Africa.

Keywords: Biopiracy, Plant, Resource, Sustainable, Traditional, Knowledge System, Africa

1. Introduction

Russel Lawrence Barsh said ‘What is “traditional” about traditional knowledge is not its antiquity, but the way it is acquired and used, which is in turn unique to each indigenous culture’.¹

Many traditional communities in Sub-Saharan Africa have developed sophisticated resource and knowledge management systems, most of which are informal and oral. Invariably, certain informal protocols and norms have arisen from these systems. Some of these norms, over time, crystallised into indigenous legal systems and became embedded into the customary laws existing within the communities.²

Traditional Knowledge System according to EKA Sackey and OMJ Kasilo is defined as;

any knowledge originating from a local or traditional community that is the result of intellectual activity and insight in a traditional context, including know-how, skills, innovations, practices and learning, where the knowledge is embodied in the traditional lifestyle of a community, or contained in the codified knowledge systems passed on from one generation to another.³

Plant resources as part of the traditional knowledge system in Africa are a great source of livelihood among the indigenous population. There is divine wisdom or spirit that helps especially the Traditional Medicine Practitioners (TMP) to identify among thousands of plants those with medicinal values that can be used to treat specific diseases. This form of traditional knowledge has passed from generations to generations. A number of medicinal plants have suffered from overexploitation. Imagine a wonder plant like *PrunusAfricana* teeming with extraordinary chemical properties. Like most living organisms in a diverse but fragile biosphere, it is native to Cameroon one of the many poor countries in Africa. The motivations for bioprospecting of plant resources especially with respect to the modern pharmaceutical industry have become extremely lucrative because of the huge profit generation from those plants. These

¹Russel L. Barsh ‘Indigenous Knowledge in Biodiversity’ in DARRELL POSEY (ED.) *Cultural and Spiritual Values of Biodiversity* (1999): 73-74.

²Kent Nnadozie et al, ‘Traditional African Concepts of Access and Benefit Sharing’ in Kent Nnadozie et al, (eds) *African Perspectives on Genetic Resources: A Handbook on Laws, Policies, and Institutions Governing Access and Benefit Sharing* (2003):26.

³ EKA Sackey and OMJ Kasilo ‘Intellectual Property Approaches to the Protection of Traditional Knowledge in the African Region’, the *African Health Monitor* 14(2010):91.

new developments in science and intellectual property rights (IPR) have come together to fuel a turn to nature as a site for cosmetic and pharmaceutical discovery work.⁴

The large majority of bioprospecting of plant resources are in Africa because of its rich biodiversity.⁵ more than 50 % of western pharmaceutical drugs today were discovered simply by research into the traditional knowledge system in Africa.⁶

Indigenous communities in Africa bioprospect plant resources and to sell them for socioeconomic benefits. Indigenous communities accuse foreign private companies, of stealing their plant resources and local knowledge. In 1995, the estimated market value of pharmaceutical derivatives from traditional knowledge was \$43 billion; this represents almost 13 % of worldwide profits from pharmaceuticals.⁷

'Biopiracy' is the term most commonly used when multinational corporations profit from the medicinal and agricultural uses of plants known to indigenous or native societies and fail to compensate those communities.⁸ The potential from bioprospecting has been recognized for decades. Indeed, building on indigenous peoples' knowledge system of biodiverse resources and their use is a recognized drug discovery strategy.⁹ The issue of drug discovery activities and profit-making are gradually eroding valuable medicinal plants found in indigenous forests around Africa. The African states who are the duty bearers to protect and promote sustainable management of these plant resources have fallen into the whims and caprices of western pharmaceutical firms against the wellbeing of the original owners of these resources. This has come with a new form violation in which has led to many plants becoming endangered due to overexploitation and the indigenous traditional medicine practitioners can no longer exploit them.

⁴ Chris Hamilton 'Biodiversity, Biopiracy and benefits: what allegations of biopiracy tell us about intellectual property', *New York Oxford University Press US* (2006).

⁵David Conforto 'Traditional and Modern-Day Biopiracy: Redefining the Biopiracy Debate', *Journal of Environmental Law & Litigation* 19 (2004):396.

⁶Conforto (n 5 above) 396.

⁷ Maggie Kohls and Blackbeard or Albert Schweitzer 'Reconciling Biopiracy', *Chicago-Kent Journal of Intellectual Property* 6(2007):111.

⁸Lorna Dwyer 'Biopiracy, Trade, and Sustainable Development', *Colorado Journal of International Environmental Law & Policy* 19(2008):258.

⁹ Hamilton (n 1 above)

2. Traditional Knowledge System in Africa

Without emphasising much on the historical background of the traditional knowledge system, the traditional knowledge on plant resources also known as ecological knowledge is generally based on beliefs, cultures and superstition. Traditional societies in Africa have developed profound knowledge about plant resources and have, in some cases, actively developed and improved them for their food and medicinal need. Their traditional livelihood systems although constantly changing and adapting to new socio-economic and environmental conditions, embrace principles of sustainability and emphasise certain general. Although not necessarily universal values such as family bonding and cross-generational communication but including links with ancestors, the wellbeing of future generations and rights to lands, territories, and resources which tend to be collective and inalienable rather than individual and alienable.¹⁰

Traditional knowledge system in Africa is the knowledge that is conveyed orally. It is more adaptable to new information. Also, it is perhaps more vulnerable to the distortions of individual experience than the printed word.¹¹ This knowledge system is understood as contemporary, that is, not static but evolving because it is practical. It is community-based, unwritten but preserved in the oral tradition and the collective memory, and informed by customs, practices, rituals, proverbs, oral stories, and it is dynamic and fluid and does not exist in totality or systematised.¹²

The African traditional systems developed as a matter of survival of the communities in the management of socio-economic and ecological facts of life. It has been generally believed that centuries of association with the environment by traditional or indigenous peoples have produced a deep understanding of the inter-relationship among them of the different elements of the habitat and helped in the preservation, conservation and sustainable biodiversity management.¹³

The traditional knowledge systems also include such controversial issues as bioprospecting which is to describe the old and traditional practice of indigenous lifestyles of collecting and

¹⁰Nnadozie (n 2 above) 26.

¹¹Georg Albers-Schnberg 'The pharmaceutical discovery process' in Timothy Swanson (ed) *Intellectual Property Rights and Biodiversity Conservation: an interdisciplinary analysis of the values of medicinal plants* (1995) :66

¹²Anwar Osman 'Indigenous Knowledge in Africa: Challenges and Opportunities'. Retrieved 13 December 2017, https://www.ufs.ac.za/docs/librariesprovider20/centre-for-africa-studies-documents/all-documents/osman-lecture-1788-eng.pdf?sfvrsn=e436fb21_0

¹³EKA Sackey (n 1 above) 93.

screening of plants and other biological materials for commercial purposes, for new drugs, cosmetics and seeds. It may be argued that bioprospecting is benefitting from biodiversity, that sometimes amounts to biopiracy, as it fails to compensate adequately indigenous communities providing the access to their resources and that patents and products developed on the basis of traditional knowledge resemble so closely traditional knowledge that they breach intellectual property rights and constitute intellectual piracy.¹⁴

Intellectual property does not directly convey market value to an idea or plant but allows the market to work where a person is permitted to exclude others from using his or her ideas or plants under a license.¹⁵

2.1. Challenges facing Traditional Knowledge Systems in Africa

2.1.1. Historical Challenges

Indigenous communities and traditional healers in Africa have since time immemorial obtained divine knowledge about medicinal plants from their ancestral spirits who also taught them special ways of relating to nature and how to honour the god of knowledge. There has always been a deep interconnection between the medicinal plant resources and traditional Africans.¹⁶

The challenges to disconnect the traditional Africans from these medicinal plant resources started from the days of colonialism. The colonial forces have done a lot in trying to erode the traditional knowledge system in Africa. The understanding of this traditional knowledge system as primitive, archaic, outdated or witchcraft by the colonial forces thereby bringing in market forces which see profit-making in everything with no regard for the spiritual sources of Africa knowledge system.

Colonial powers used brutal policies and devious methods to subjugate the African people in order to acquire full control over their lands and resources. These policies and methods included

¹⁴Malgosia Fitzmaurice 'The Dilemma of Traditional Knowledge: Indigenous Peoples and Traditional Knowledge', *International Community Law Review* 10(2008):278.

¹⁵OtsileNtsoane 'Intellectual Property Rights and Natural Resources: A Case Study of Harvesters of Medicinal Plants in the North West Province, South Africa' in Isaac Mazonde and Pradip Thomas (eds) *Indigenous Knowledge Systems and Intellectual Property in the Twenty-First Century: Perspectives from Southern Africa*, (2007) Dakar: Senegal :110.

¹⁶Ntsoane (n 13 above) 112.

consistent inferiorisation of indigenous cultures, and concerted efforts to erase existing systems of knowledge and their replacement with Western-driven belief and knowledge systems.¹⁷

African people have lost their biological resource rights to a handful of people and now they run the risk of losing the fundamental basis of their existence, which is their natural plants and cultural heritage.¹⁸ One of the challenges facing traditional knowledge systems in Africa today is how to use their indigenous common heritage for the common concern of mankind.

The fact that traditional knowledge is being so widely disseminated and commercially exploited with such a small proportion of the benefits flowing back to provider peoples and communities raises the question of ownership.¹⁹

The patent system and traditional knowledge systems have conflicting interests. Patents guarantee a time-limited monopoly (20 years in some countries) to a specific inventor providing an incentive for individuals to create and invent. In contrast, traditional knowledge is shared knowledge within indigenous communities that are improved from generations to generations.²⁰ Traditional knowledge system in Africa continues to be impounded with challenges of abuse where an outside entity, like a private company or researcher, disrespected customary rules of a local community or did not pay adequate remuneration in exchange for using a community's traditional knowledge for commercial efforts.²¹

The fact that a traditional knowledge system is a form of innovation that has no property protection because the indigenous people who originally developed the knowledge are not recognised for any reward in the patent system is a huge challenge. As a result of this problem, countries with traditional knowledge are negatively affected because their traditional knowledge lacks proper publication and documentation in Western or science mediums.²²

¹⁷ Osman (n 12 above)

¹⁸Ntsoane (n 13 above) 113.

¹⁹Dutfield Graham 'TRIPS-Related Aspects of Traditional Knowledge', *Case Western Reserve Journal of International Law* 33 (2001):276.

²⁰Ameera Haider 'Reconciling Patent Law and Traditional Knowledge: Strategies for Countries with Traditional Knowledge to Successfully Protect Their Knowledge from Abuse', *Case West Reserve Journal of International Law* 48 (2016):370.

²¹Haider (n 17 above)

²²Haider (n 17 above)

The importance of traditional knowledge system is supported by two leading premises; cultural integrity and economic justice.²³ Part of the challenges relating to the cultural integrity of traditional knowledge system in Africa is the misappropriation of the knowledge that is allowing others to profit from it at the community's expense that suggests an anti-free-riding principle premised on unjust enrichment.²⁴

Another important challenge is that indigenous peoples are unlikely to be equipped to negotiate sophisticated licensing transactions to the appropriation of their traditional knowledge, and information, by its very nature, is often impossible to reclaim the knowledge once released to the public domain upon the expiration of the license or patent right.²⁵

2.1.2. Socio-Anthropological Challenges

The questions that continue to linger in one's mind is whether or not life forms should be patented to make them private property? The second question is whether the use of knowledge that is freely given in one culture can be commoditised in another for private profit? Traditional knowledge may be free goods in a tribal or peasant society in Africa, but these free goods have become protected intellectual property in an industrial or capitalist society leaving the peasant society in Africa to languish in poverty without any social benefit arising from the commoditisation of their traditional knowledge (biopiracy).²⁶

Traditional knowledge has yet to be integrated within management discourse as a potential source of legitimate recognisable intellectual capital with attendant property rights.²⁷

According to Brush, the anthropological issues with traditional knowledge system are in a number of trends. These trends are the demise of indigenous people and the changes that have eroded traditional knowledge, loss of biological resources from tropical deforestation that has

²³ Pager Sean A. 'Traditional Knowledge Rights and Wrongs', *Virginia Journal of Law & Technology* 20 (2016):82 at 200.

²⁴ Pager (n 20 above) 31.

²⁵ Pager (n 20 above) 34.

²⁶ Stephen B. Brush 'Indigenous Knowledge of Biological Resources and Intellectual Property Rights: The Role of Anthropology', *American Anthropologist* 95 (1993): 653 at 686.

²⁷D. Orozco and L. Poonamallee 'The Role of Ethics in the Commercialization of Indigenous Knowledge', *Journal of Business and Ethics* 119 (2014):275 at 286.

increased the apparent value of biological resources that remain in their natural habitats. As biological resources become more scarce and valuable, information about these resources contains in the traditional knowledge system should become more valuable.²⁸

One of the concerns here is that of treating ideas as properties. The logical elements of the concept of property rights as applied to material things involving occupation, possession, control, appropriation, restitution, etc. are inapplicable to ideas or creations of the intellect.²⁹ If a person has the natural right to protect his/her idea as property, why should the term of protection be limited to a few years? In creating monopolies, intellectual property rights increase the cost of using new ideas, limit competition, and foster a cumbersome bureaucratic and legal framework that is often inequitable to economically disadvantaged societies.³⁰ Collective inventions may be possible to overcome this quagmire of inequality, that which requires an open reciprocal exchange of information among the community of producers by transferring technology from the one to the other.

Intellectual property rights are ferocious to indigenous communities because of the socio-economic string attached to innovations or inventions in industrialised communities. The monopoly rights are very costly to obtain, monitoring of compliance, ferreting out infringers, bringing out lawsuits, etc. cannot be afforded in Africa traditional knowledge system.³¹

Another anthropological challenge to TKS is the disposition of this knowledge system. Some communities may by public nature dispose of more traditional knowledge than others, but the uneven distribution of the knowledge does not vitiate the principle of 'common heritage and access to this knowledge can be restricted to certain individuals, not on the basis of private monopoly benefits.

Given TKS holistic socio-cultural and even spiritual dimensions, traditional knowledge is largely communitarian in terms of discovery and experimentation and the mode of transmission and

²⁸ Brush (n 23 above) 653.

²⁹ Fritz Machlup and Edith Penrose 'The Patent Controversy in the Nineteenth Century', *the Journal of Economic History* 10 (1950):1 at 29.

³⁰ Brush (n 23 above) 656.

³¹ Brush (n 23 above) 656.

sharing is often collective rather than individualistic in the adulterated western knowledge system.³²

Irrespective of the above challenges, Africa traditional knowledge system continues to derive its viability and strength at the level of economic sustainability, self-reliance, and cost-effectiveness. However, the legal framework to ensure the sustainability of Africa traditional knowledge system is imperative.

3. Legal Frameworks to Sustainable Africa Traditional Knowledge System

Many of the legal frameworks have been developed or established because of the western impression that every person has a moral right to control the product of his or her labour or creativity. This moral right to control the product is based on the dictate of western demand and/or interest which focuses on providing limited incentives to private inventors in exchange for creativity that benefits the greater public good.³³

Customary law in traditional knowledge systems often provides for specific rules concerning the question of how traditional knowledge is acquired, possessed and shared. The task of crafting laws to determine which systems best meet the specific needs of the stakeholders and how existing protection systems would have to be changed in order to better serve the interest of the traditional knowledge holders and to set incentives for continuing innovation in this knowledge system is upon the African States to grapple with.³⁴

The legal framework for the sustainable traditional knowledge system in Africa that is supposed to guarantee the conservation and sustainable use of biodiversity, the protection, and promotion of traditional knowledge and implementation of other legal instruments is weak and failing to provide for the welfare of the people. Some of the devastating effects of colonialism are the annihilation of traditional values in Africa. Scholars and many activists are battling through writings and other forms of actions to fight against the complete annihilation of these values.

³² EKA Sackey and OMJ Kasilo (n 3 above):92.

³³Ragavan Srividhya 'Protection of Traditional Knowledge', *Minnesota Intellectual Property Review*2 (2001):60.

³⁴ Mathias Leistner 'Analysis of Different Areas of Indigenous Resources', in: S. Lewinski (ed) *Indigenous Heritage and Intellectual Property: Genetic Resources, Traditional Knowledge and Folklore*, (The Hague: Kluwer Law International, 2003): 58 at 59.

Tellez has argued that even when the TK is accessed legally, there are concerns that the use is culturally and morally offensive to the TK holder or in a manner that is deceptive of the TK. The TK holder cannot control the use made outside the community. There is a lack of recognition of customary laws and practices that may exist that regulate access and use of plant resources or TK can be considered as conducive to misappropriation. This is evident to the fact that customary laws are not legally enforceable against persons outside of the community against practices such as extracting knowledge from a traditional knowledge community without compensation unless national law recognizes and extends customary laws to apply to third parties outside the community.³⁵

The African Charter on Human and Peoples' Rights 1981 is the first binding legal instrument aimed to end colonialism, fight for the rights of African people to sustainably manage their traditional knowledge system.

African States parties to the Charter have the duties according to article 17(3) to promote and protect morals and traditional values recognised by the community.³⁶ The African Charter recognises equality in property right and it imposes a duty on the African States to promote the equal utilisation of traditional knowledge for the benefit of the local populations. Article 21(5) of the Charter provides;

States parties to the present Charter shall undertake to eliminate all forms of foreign economic exploitation particularly that practised by international monopolies so as to enable their peoples to fully benefit from the advantages derived from their national resources.³⁷

The above duty imposed on States parties is important to fight against the illegality or biopiracy exploitation of traditional knowledge by foreign monopolies for commercial purposes without fair compensation to the original owners of the knowledge. There is the high cry of a gradual extinction of a number of medicinal plant resources preserved over the years by the indigenous communities around Africa with little attention to ensure their sustainability.

³⁵ VM Tellez 'The WIPO Negotiations on IP, Genetic Resources and Traditional Knowledge: Can It Deliver?' *South Centre Policy Brief*22 (2015):3. Retrieved 30 December 2017, https://www.southcentre.int/wp-content/uploads/2015/10/PB22_The-WIPO-Negotiations-on-IP-Genetic-Resources-and-Traditional-Knowledge-Can-It-Deliver_EN_rev.pdf

³⁶African Charter on Human and Peoples Rights Adopted in Nairobi June 27, 1981. Retrieved 19 December 2017, www.achpr.org/files/instruments/achpr/banjul_charter.pdf

³⁷ The African Charter (n 34 above)

The African Model Law for the Protection of the Rights of Local Communities, Farmers, Breeders and Regulation of Access to Biological Resources (African Model Law) in its Article 16 recognises the rights of traditional communities over their innovations, practices, knowledge, and technologies acquired through generations. The Model Law also recognises their right to collectively benefit from the utilisation of such resources and is to be protected in accordance with norms, practices and customary law of local and indigenous communities.³⁸ The Model Law provides for the protection of indigenous traditional knowledge relevant to plant resources, the right to an equitable share of benefits arising from the use of plant resources, the right to participate in making decisions on matters related to the conservation and sustainable use of plant resources.³⁹

The negative effects on indigenous communities arising from the widespread commercial exploitation of traditional knowledge, especially in the pharmaceutical, cosmetic, and agriculture industries, the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2003⁴⁰ adopted the Convention concerning the Protection of World Cultural and Natural Heritage aimed at the safeguarding of intangible cultural heritage in order to protect further disproportion of tangible cultural heritage.⁴¹

Article 5 of the above UNESCO Convention demands that effective and active measures are taken for the protection, conservation, and presentation of the cultural and natural heritage situated on its territory, each States Party to this Convention shall endeavour to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community. The state party shall also develop scientific and technical studies and research and to work out such operating methods as will make the State capable of counteracting the dangers that threaten its cultural or natural heritage as well as take appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation

³⁸Kuruk Paul 'The Role of Customary Law under SUI Generis Frameworks of Intellectual Property Rights in Traditional and Indigenous Knowledge', *Indiana International & Comparative Law Review* 17 (2007):67 at 118.

³⁹PhilippeCullet 'Plant Variety Protection in Africa: Towards Compliance with the TRIPs Agreement', *Journal of African Law* 45 (2001): 97 at122.

⁴⁰http://portal.unesco.org/en/ev.php-URL_ID=13055&URL_DO=DO_TOPIC&URL_SECTION=201.html . 19 December 2017

⁴¹Kuruk (n 35 above): 2

and presentation of this heritage. The active implementations of this article 5 will guarantee a sustainable traditional knowledge system in Africa.⁴²

In an effort to rectify the weaknesses of Africa traditional knowledge system in case of sharing of benefits arising from the utilisation of the said knowledge, the United Nations Convention on Biodiversity has made some provisions to regulate the use of this knowledge.⁴³

The 1992 Convention on Biological Diversity (CBD)⁴⁴ establishes sovereign national rights over biological resources and commits member countries to conserve them and develop them for sustainability. The CBD preamble affirms that the conservation of biological diversity is a common concern of humankind and it is the responsibility of the State to ensure the conservation of their biological diversity and for using their biological resources in a sustainable manner.⁴⁵ Sustainable use of biological resources means finding new drugs, crops, and industrial products while conserving the resources for future studies.⁴⁶

To satisfy the three goals of the CBD (conservation, development, and benefit sharing), the principle of sovereign rights over traditional knowledge system has been emphasised with the duty imposed on State Parties to the Convention in the article 8(j);

to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices.⁴⁷

This article 8(j) is necessary to fight against illegal exploitation of traditional knowledge especially from indigenous communities in Africa. Article 8(c) of the CBD called on each Contracting Party to the Convention to manage biological resources important for the

⁴² (n 36 above)

⁴³ The United Nations Biological Diversity Convention 1992. Retrieved 10 December 2017, <https://www.cbd.int/abs/about/>

⁴⁴ United Nations Convention on Biological Diversity (CBD) 1992. Retrieved 10 December 2017, <https://www.cbd.int/doc/legal/cbd-en.pdf>

⁴⁵(n 40 above)

⁴⁶Action bioscience. Retrieved 16 September 2017, <http://www.actionbioscience.org/biodiversity/gollin.html>

⁴⁷ The CBD Convention (n 40 above)

conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.⁴⁸

The question of equitable sharing of benefits arising from the utilisation of traditional knowledge was addressed by State Parties to the CBD Convention with the adoption of the Nagoya Protocol in 2010.

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity from its introduction highlighted the issue of compliance to any contractual agreement between State Parties relating to access to traditional knowledge. The compliance of contractual parties to any agreement is for the fact that access to traditional knowledge held by indigenous and local communities when it is associated with genetic resources will strengthen the ability of these communities to benefit from the use of their knowledge, innovations, and practices.⁴⁹

State parties duty bearer to the Protocol have the obligation to promote the use of plant resources and associated traditional knowledge, and by strengthening the opportunities for fair and equitable sharing of benefits from their use, guarantee sustainably use its components and human well-being.⁵⁰

Based on a broad recognition of the contribution that traditional knowledge can make to both the conservation and the sustainable use of biological diversity as two fundamental objectives of the Convention on Biological Diversity, there is also the need to ensure the equitable sharing of benefits arising from the utilisation of traditional knowledge. State Parties to the CBD Convention have adopted the Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessment regarding Developments Proposed to

⁴⁸ Article 8 (c) of the CBD, regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;

⁴⁹ Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity: text and annex / Secretariat of the Convention on Biological Diversity (2011). Retrieved 13 December 2017, <https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf>

⁵⁰ (n 44 above)

take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities.⁵¹

The Voluntary Guidelines are provided as guidance on how to take into account traditional knowledge, innovations and practices as part of the impact-assessment processes and promote the use of appropriate technologies. The policy framework of any state party to the implementation of these Guidelines should be in a manner that is consistent with international law and with other international obligations.⁵²

The 2002 Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of Their Utilisation on its part has stated some fundamental requirements. These requirements include legal certainty and clarity (paragraph 42, (a) of the Guidelines); development of the framework agreements (paragraph 42, (b, iii) of the Guidelines); mutually agreed agreements should be negotiated efficiently and within a reasonable period of time (paragraph 42, (f) of the Guidelines). Paragraph 43 of the Guidelines included all the basic elements, which should be covered by such agreements, such as 'regulating the use of resources in order to take into account ethical concerns of the particular parties and stakeholders, in particular, indigenous and local communities' (paragraph 43 (a) of the Guidelines).⁵³

It is without gainsaying that one cannot be discussing traditional knowledge system in Africa without discussing the role of indigenous people who are the custodians of the knowledge system. The United Nations' recognition of the role of indigenous people in their sustainable management of traditional knowledge which today has become a bone of contention in biotechnological inventions and commercialisation.

The 2007 United Nations Declaration on the Rights of Indigenous People was in recognition that respect for indigenous knowledge, cultures and traditional practices contributes to the sustainable

⁵¹Secretariat of the Convention on Biological Diversity (2004), Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessment regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities Montreal, 25p. (CBD Guidelines Series)

⁵² (n 46 above)

⁵³M. Fitzmaurice 'The Dilemma of Traditional Knowledge: Indigenous Peoples and Traditional Knowledge', *International Community Law Review*10 (2008): 255 at 278.

and equitable development and proper management of plant resources. Article 31 (1) of the UN Declaration provides that;

Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge, and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literature, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.⁵⁴

Technological advances in the area of bioprospecting have failed to recognise this provision of the Declaration with a prevailing number of biopiracy cases relating to exploitation and commercialisation of traditional knowledge in Africa. African countries and their traditional communities are confronted with the global challenges of compliance and respect of this declaration because they believe that they have not derived great benefits from traditional forms of the intellectual property yet find themselves rich with traditional knowledge, especially plant genetic resources.⁵⁵

The traditional knowledge system in Africa within the context of intellectual property protection confronts enormous discrimination and inequality. The intellectual property protection is on the multiplicity of agreements with external parties which makes it difficult for African countries to build a solid policy that can be translated into regional normative to sustain the knowledge system.

The World Trade Organisation Trade-Related Aspect of Intellectual Property Rights (TRIPs) rules relating to trade in plant resources is very much disputed in the African region. The WTO African Working Group has argued that by mandating or enabling the patenting of plants resources, Article 27.3(b) of TRIPs is likely to lead to illegal appropriation of the knowledge and

⁵⁴61/295 United Nations Declaration on the Rights of Indigenous Peoples. Retrieved 20 December 2017, www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

⁵⁵Daniel J. Gervais 'Traditional Knowledge: A Challenge to the International Intellectual Property System', *International Intellectual Property Law & Policy*7 (2002):3.

resources of indigenous and local communities.⁵⁶ According to the article 27.3(b) of TRIPs Agreement, member states can exclude from patentability;

plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof.⁵⁷

The language of this provision continues to be contested among developing countries and Africa. The question of protection of traditional knowledge should be shifted not only as a common heritage of mankind but to protection for the common wellbeing of mankind contrary to the requirements of the TRIPs Agreement. Property rights or patent monopoly is not known among indigenous communities who are holders of the traditional knowledge system in Africa because of its exclusionary effect to offer their traditional knowledge as private property.

The knowledge system is ‘traditional’ because its creation and use are part of the cultural traditions of a community, and not necessarily that the knowledge is ancient or static that should be modified for patent protection.⁵⁸ A *sui generis* law as stipulated in article 27.3(b) of TRIPs Agreement above can be necessary to ensure a sustainable traditional knowledge system since most of the traditional knowledge in Africa has not been documented because the practice has been when a traditional healer prescribes a mixture of herbs as cure for a sickness, he may not be able to isolate and describe the chemical compounds and their effects on the body in terms of modern biochemistry.⁵⁹

International debates especially about TRIPs Agreement and other international instruments regarding IP protection of traditional knowledge between the developed countries (who are seeking for TK in their pharmaceutical industries) and developing countries (holders of the traditional knowledge) has been on the harmonisation of these legal frameworks to compel any

⁵⁶The South Centre, South Unity and South Progress. July 1995. Retrieved 21 December 2017, https://www.southcentre.int/wp-content/uploads/2017/03/AN_DIIP_TRIPS1_The-TRIPS-and-WTO-Negotiations-Stakes-for-Africa_EN-1.pdf

⁵⁷ WTO Annex 1c Agreement on Trade-Related Aspects of Intellectual Property Rights. Retrieved 21 December 2017, https://www.wto.org/english/docs_e/legal_e/27-trips.pdf

⁵⁸ Joelle Dountio ‘The Protection of Traditional Knowledge: challenges and possibilities arising from the protection of biodiversity in South Africa’, *South African Journal of Art History* 26 (2011): 10 at 22.

⁵⁹Dountio (n 52 above):12.

person seeking IP protection over traditional knowledge (TK) to ‘disclose’ information relating to the source of origin the TK or plant resources, prove that the indigenous people have ‘consented’ to the exploitation of their TK and ‘access and benefit-sharing’ mechanism arising from the commercialisation of the plant resources.

Interpretation of a *sui generis* protection of plant resources under the TRIPs Agreement is that African states should take advantage of the opportunity they have to devise a property rights system adapted to their needs and conditions and they should avoid any system involving the introduction of monopoly or exclusionary rights, such as patents.⁶⁰

The Republic of South Africa Intellectual Property Laws Amendment Bill of 2008 in its preamble highlighted the importance of traditional knowledge system stating that the wealth of traditional knowledge held by the indigenous people of South Africa be recognised, preserved, protected and promoted and made accessible to the public. Secondly, it is necessary to create a legal dispensation for the commercial exploitation of indigenous knowledge in a manner that will benefit the country and will ensure that fair financial benefits will also be received by indigenous communities and persons.⁶¹ Although the Bill does not provide legal protection to plant resources, such protection has been referred to the provision of the Patents Amendment Act, 2005 of the Republic of South Africa. Section 30(3A) of the Amended Patent Act 2005 obliges any patent application to issue a statement in the prescribed manner stating whether or not the invention for which protection is claimed is based on traditional knowledge.⁶² The non-fulfilment of these requirements will be coined as biopiracy to the sustainable management of the traditional knowledge system in the country.

This biopiracy paradigm has been described as a situation where large multinational corporations seek to develop highly sophisticated plant resources and/or pharmaceutical product send their researchers to exotic places around Africa. The company never shares its profits, however, with the local community from which it derived plant resources and traditional knowledge.⁶³

⁶⁰Philippe (n 33 above): 97 at122.

⁶¹ Republic of South Africa Intellectual Property Laws Amendment Bill of 2008. Retrieved 26 December 2017, <https://www.publishsa.co.za/file/1446644266ord-ip-laws-amendment-act-2013.pdf>

⁶²South Africa Patents Amendment Act 2005 (Act No. 20 of 2005)

⁶³Paul J. Heald ,The Rhetoric of Biopiracy’, *Cardozo Journal of International&ComparativeLaw*11 (2003):519 at 521.

This was the case with the exploitation of *Prunus Africana* the native plant in the Mount Cameroon area, South West Region of the country by a French pharmaceutical company, Plantecam Medicam. In the 1970s, this company had the exclusive permit to harvest *Prunus* bark in the Mount Cameroon area. The company employed harvesters from the Western Region of Cameroon. It was unacceptable for the local population that *Prunus* barks of the tree were exploited from their lands without them being employed by the company. To express their dismay, they started unsustainable exploitation of *Prunus* (such as felling of trees to maximise the quantity of bark harvested) and they sold the bark to middlemen at very low prices. The activities of Plantecam Medicam were therefore under serious threat. Indeed, while wild *Prunus* populations were getting depleted, the company was buying *Prunus* barks from middlemen at higher prices. To address these issues, in 1997 and with the assistance of the Mount Cameroon Project and local forestry administrators, Plantecam Medicam signed two agreements for the harvesting and supply of *Prunus* products with two community-based organisations (CBOs) the Mapanja *Prunus* Harvesters' Union (July 1997) and the Bokwango *Prunus* Harvesters Union (September 1997). These agreements were seen as materialising the implementation of the participatory forest management approach brought about by the 1994 forestry law⁶⁴

In Kenya, The Protection of Traditional Knowledge and Cultural Expressions Act, 2016 has provided in-depth protection of the country's traditional knowledge system in a way to ensure its sustainable management. Section 7(2)(3) of this Act imposes a duty on any county government in Kenya to document and register its traditional knowledge for the purpose of recognition and such registration shall be undertaken willingly by the owners of traditional knowledge upon obtaining prior informed consent but shall not require the public disclosure of the traditional knowledge concerned.⁶⁵

As a practical measure to guarantee the recognition and preservation of her traditional knowledge as a right to cultural heritage, the Amended Constitution of The Republic of Zimbabwe of 2013 provides in Article 33;

⁶⁴ MT Mahop 'Summary sheet for an African bioprospecting/biopiracy example. Regional ABS Capacity-Building Workshop for Eastern and Southern Africa hosted by the Institute for Biodiversity Conservation (IBC)', (Addis Ababa, 2005).

⁶⁵The Kenyan Protection of Traditional Knowledge and Cultural Expressions Act, 2016. Retrieved 26 December 2017,

http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ProtectionofTraditionalKnowledgeandCulturalExpressionsAct_No33of2016.pdf

The State must take measures to preserve, protect and promote indigenous knowledge systems, including knowledge of the medicinal and other properties of animal and plant life possessed by local communities and people.⁶⁶

Although the many African States have crafted laws for the conservation, preservation, and promotion of traditional knowledge, the Republic of Zimbabwe has exceptionally given an enforceable constitutional recognition of the traditional knowledge system.

Malgosia is of the opinion that in order to tackle the socio-anthropological challenges of traditional knowledge system, African states should strengthen indigenous or local communities capacity on matters pertaining to conservation, maintenance, and protection of traditional knowledge or plant resources; promote the exchange of experiences and knowledge; promote culturally appropriate and gender-specific ways in which to record and uphold women's knowledge of biological diversity or traditional knowledge.⁶⁷

The African Union and its Member States should craft enforceable legal frameworks than producing recommendations which are not useful to guarantee the sustainability of indigenous traditional knowledge system in the continent. When the community is not bound by the laws, then the traditional knowledge will continue to suffer from illegal exploitation and commercialisation by foreign multinationals without an equal benefit-sharing.

4. The relation between Modern Science and Traditional Knowledge System

The existence of modern science is a development from traditional knowledge. Modern science metamorphoses from traditional knowledge which is negotiated through the process of experiment or trial and error. The traditional knowledge system is an inheritance deeply connected to practices based on divine or spiritual inspiration and ancestral lineage.

As illustrated by Sackey and Kasilo, there are some areas of non-convergence between traditional knowledge and modern science. Traditional knowledge seems to be relatively less transferable than conventional science, given it's holistic socio-cultural and even spiritual dimensions. Traditional knowledge system in Africa is community-based such that plant resource discovery and experimentation and the mode of transmission and sharing are often

⁶⁶The Amended Constitution of the Republic of Zimbabwe 2013. Retrieved 2 January 2018, https://www.constituteproject.org/constitution/Zimbabwe_2013.pdf

⁶⁷M. Fitzmaurice (n 47 above) 8

collective rather than individualistic. Certain communities like the pygmies, the San, the Maasai and many others in Africa enjoy their unique identity because of their knowledge of certain medicinal plant resources. Their knowledge is embedded in the products and services associated with the traditional knowledge of proprietary systems which are often more flexible and negotiable than modern science. The engine of growth and sustainability is neither the market nor the profit motive nor is it prone to large-scale mass production and economies of scale.⁶⁸ Another contrasting relation between modern science in plant resources and traditional knowledge is the fact that based on the profit motive, intellectual property protection is granted to modern science for a limited period of time which upon expiration it becomes a public good. The traditional knowledge system is attached to a community because of its ancestral lineage and beliefs system which is practice orally not articulated in modern language from generations to generations without any time frame but its safety and efficacy are threatened because it is not documented. Biomedicine is articulated and well documented in modern language as scientific evidence.

Traditional knowledge is important as a source of biological information worth knowing. Modern science has always needed traditional knowledge relating to bioactive substances such as medicinal preparation and toxins of the plant continue to do so. The reality is that in modern science or pharmaceutical industry, to produce pharmaceutical products is usually so long and complex with the likelihood that the trails will fade away in the course of time.⁶⁹

One of the very common relations between traditional knowledge and modern science is that the loss of traditional knowledge means cutting off access to potentially huge stocks of complex plant substances that scientists are unlikely to be able to stumble across elsewhere.⁷⁰

5. Conclusion

Plant knowledge in the Africa traditional knowledge system is facing a high level of threat from both academic publications and patent system that are exposing what has been considered sacred over centuries in indigenous communities. A number of medicinal plant resources are over-

⁶⁸EKA Sackey and OMJ Kasilo (n 3 above):92.

⁶⁹Graham Dutfield 'From traditional medicines to modern drugs', in: Tania Bubela and Richard Gold (eds), *Genetic Resources and Traditional Knowledge: Case Studies and Conflicting Interests*, (Cheltenham: Edward Elgar Publishing Limited, 2012): 94 at 97.

⁷⁰Graham (n 67 above) 100.

harvested or exploited by big western pharmaceutical firms without compensation to the original owners. There is the need for an adequate documentation mechanism for African traditional knowledge management system to ensure successful conservation of plant resources which will among others create awareness among societies to avoid harvesting resources from sacred areas. The African States should adopt a community-based approach to indicate that conservation consciousness evolved as a social practice through the need to manage and ensure the sustainable use of plant resources.

practical measures to fight the prevailing biopiracy activities of multinational corporations (MNCs) searching for rich plant resources everywhere to make out a product along with the traditional knowledge for the sake of patent right shall provide sustainable management of the knowledge system.

Legal regimes have evolved over time in acknowledging this reality and developing regulatory systems to support this praxis. In recent times, however, the increasing influence of profit motivated and corporatised control of agriculture has gnawed at this sacred relationship of humanity with our living planet.

Traditional knowledge system with its historical, ethical and religious aspect touches the very identity of indigenous communities in Africa which is symbolic to the deep regard of their belief system. As opposed to modern science, traditional knowledge often does not belong to an individual but transmitted collectively.