African Indigenous Knowledge Systems and Patents: Is the Patent System Relevant to the Native Healers of Southern Nigeria?

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INTRODUCTION AND OVERVIEW

In the past decade, indigenous knowledge systems, hereinafter referred to as IKS, have witnessed a belated renaissance, both in policy instruments of some international intellectual property organizations[1] and in some global international law agreements.[2] In its progression from the peripheries to the outer margins of the core of international consciousness, a perplexing and recondite question is the relationship between dominant systems or narratives of intellectual property rights (IPRs) and IKS. Indigenous knowledge systems traverse a wide gamut of life, cultural experiences, epistemologies and empiricisms of thousands of disparate cultures often lumped together as if IKS were a simple monolith. IKS are implicated in ecology, agronomy, agriculture, medicine, animal husbandry, music, story-telling, cloth-weaving, et cetera across several thousands of different cultures and peoples. Given the multitudinous nature and diversity of indigenous knowledge systems, it becomes intellectually risky, if not fraudulent for general claims to be made regarding the nature of indigenous knowledge systems. Consequently, it is impossible to resolve the question of the relationship between IPRs and IKS without first narrowing the scope of the inquiry to a specific genre or type of IKS.

Thus, for the sake of analytical tidiness and rigour, I limit my analysis to a specific type or manifestation of IKS, namely, traditional knowledge on the uses of plants for medicine. Indeed, my analysis is further limited to the narrower issue of the protocols, norms and practices regulating the acquisition, use, transfer, and alienation of such knowledge among the indigenous healers (herbalists, in particular) of southern Nigeria. The question that this paper seeks to tackle is whether the patent system is of any relevance or pertinence to the search for mechanisms for the protection of indigenous knowledge of the medicinal uses of plants possessed by traditional healers of southern Nigeria. For some time, allegations of appro-priation of indigenous knowledge of the medicinal uses of plants have been made against researchers, bioprospectors and other entities actively scouring indigenous peoples' cornucopia for the next miracle drugs.[3]

The Concept of Traditional Knowledge of Medicinal Uses of Plants

It is necessary, at this stage, to define the concept of traditional knowledge of the medicinal uses of plants, in distinction from the broader issue of indigenous peoples[4] knowledge. The concept of traditional knowledge of the medicinal uses of plants, TKMP, pertains specifically to the diverse knowledge possessed by the relevant healers of the various medical uses or properties possessed by certain parts of certain plants. Such knowledge differentiates other uses and properties of such plants, such as food, as distinct from the plants' medicinal efficacy. Second, it must be borne in mind that people's health systems are a reflection of their philosophical and cultural tenets.[5] Consequently, knowledge of the medicinal uses of plants is only a part of a more holistic conception of disease, treatment, and recovery. Traditional medicine, it must be emphasized, focuses on the psychosomatic dimension of illness. It would therefore be invidious to examine traditional uses of medicinal plants outside of the prevailing cultural conception of illness in traditional societies. Third, it must be clarified at the outset that the notion of traditional knowledge as an antiquated and inferior body of knowledge is clearly rejected.

The central question posed in this paper is whether the patent system is relevant or useful for the protection of TKMP.[6] This question cannot be resolved without some reference to the politics of intellectual property rights vis-à-vis plant resources.[7] Of course, such an inquiry must also take into cognizance the quest of

indigenous and decolonized peoples for cultural self-determination.[8] The debate is thus inherently complex, recondite and cuts across issues such as the philosophical and ethical incompatibility of the Western-inspired patent system with indigenous peoples' conceptions of property. There are also issues of the ramifications of globalization and the economic, political and human rights implications of the emergent dispensation of patents on TKMP. Interestingly, the patent system itself is not new to controversy[9] and heated differences of opinion.[10]

This analysis in this paper is divided into four parts of which the first part is introductory. Part Two briefly examines the origin, nature, and functions of the modern patent system. In particular, attention is paid to the controversial nature of the patent system, especially, its development as part of the colonial project.[11] The central thrust of part two is that the patent system, a regime developed in the cultural hearth of Europe, bears the imprints, values, and worldview of European capitalism.

Part Three explores the nature and diversity of native healing in southern Nigeria. A feature that is often overlooked by scholars of this phenomenon is that native healers are largely categorized into two; the diviners and the herbalists. Both categories require immense and rigorous training and tutelage. More importantly, native healers embody and reflect the cosmological worldview of indigenous peoples. As practitioners of a distinct type of healthcare, native healers operate from a theoretical standpoint that construes ailment and disease as a psychosomatic pheno-menon, rather than a biological or pathogenic phenomenon. Hence, as part two argues, the practices of native healers, whether as diviners or herbalists, constitute a complex institution and a paradigm of its own distinct from the Western allopathic theory of illness. This epistemic schism is at the root of the misunderstanding between Western allopathic medicine and indigenous psychosomatic conception of illness.

Consequently, native healers' knowledge of the medicinal uses of plants cannot be narrowly construed or understood as knowledge about the "active chemicals" in a given plant. This striking feature of the conception of medicinal uses of plants is at the centre of the antinomy and conflict between the underlying philosophy of the patent system and indigenous protocols on the protection of TKMP. While the patent system seeks to isolate and privatize the "active ingredient" in any given medicinal plant, native healers tend to conceive of the plant as part of a holistic repertoire for the alleviation of illness.

Further, another fundamental philosophical difference between patents and the indigenous protocol for the protection of TKMP is that while patent system is designed to recompense investors by its offer of a temporary monopolization of the commercial benefits of an invention, indigenous protocols for the protection of TKMP are deployed in the service of status and division of labour in a traditional economy. However, the crux of the matter here is whether the patent system is inherently universal in its philosophy and if so, whether it offers the best economic incentive for protecting and rewarding inventions and innovations in the realm of TKMP.

In resolving these difficult questions, Part Three queries whether certain factors such as the passage of time and contemporary realities have modified the jurisprudence on property ownership, the social nature of the inventive process, legal personality, *et cetera*, which underpin the indigenous protocols of TKMP protection among native healers in southern Nigerian. The crucial task thus is to locate the areas and scope of modifications and thus synthesize a realistic solution to the "patent question." Hence, the issue for analysis and resolution in this paper may be framed as follows: assuming but without conceding that the patent system offers a workable and equitable paradigm for TKMP, are indigenous knowledge systems on the medicinal uses of plants protectable under the norms of contemporary patent system? If the answer is in the negative, what then is the best manner in which TKMP may be protected in contemporary times?[12]

In sum, it is argued that inasmuch as the patent system has shown itself to be eminently flexible[13], further expansion of the doctrines and principles of patent law to accommodate the demands of TKMP is unhelpful and counter-productive. Ultimately, the best method or regime for the protection of TKMP is by giving juridical efficacy and recognition to indigenous knowledge systems. Thus, a conception of intellectual property rights (IPRs) as a policy instrument of states[14] is crucial in fashioning a juridical response to the TKMP problematique.[15] Neither the indignant outrage against "biopiracy"[16] nor the

sporadic protests against questionable patents on TKMP would yield an institutionalized solution to the problem of appropriation of TKMP.

Unlike the powerful industrialized countries who can shape international intellectual property regimes to serve their own agenda,[17] African countries lack the economic and political machinery needed to create a parallel and effective global regime on intellectual property. The most realistic response would then be a continent wide treaty or convention, designed in a manner that respects indigenous protocols of knowledge protection.[18] Until such a continental response is made, TKMP may continue to languish in the peripheries or at best would continue to attract mere scholastic interest as part of the African exotica.

WHAT IS A PATENT?

Although there is no universal patent law *per se*, Article 27 (2) of the TRIPS Agreement defines patents in terms of a legal protection for products or processes, which are *new, involve an inventive step*, are *useful* and *capable of industrial application*.[19] The Patent Act of the United States provides that "whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor."[20] Machlup has defined a patent as "that which confers the right to secure the enforcement power of the State in excluding unauthorized persons, for a specified number of years, from making commercial use of a clearly defined invention."[21]

The purpose of patents as defined above is that notwithstanding the criteria of novelty, utility and industrial applicability, patents are essentially, discretionary grants by states. For example, the invention may pass all the outlined tests for patentability and yet the state may refuse to grant a patent thereto.[22] Although, patents are designed to reward invention, it does not offer any guarantee that the inventor would in fact be adequately recompensed. There are three basic types of patents: utility patents which are for utilitarian inventions; design patents which are used for protecting new, original and ornamental designs, and plant patents. However, the controversy on patents has centred largely on utility and plant patents.

Certain inferences may be made from the above conception of patents. First, in spite of several theories[23] on patents, especially those from the propertarian schools, attempts to couch the arguments for and against patents in the discourse of human rights, there is no such thing as a human right to patents. Accordingly, the "human right"[24] argument on patents has no firm anchor in the law of patents. Since it is not a "human right", a patent does not confer a lifetime property right on the patent-holder. Second, a patent is designed to exclude others from making unauthorized commercial use of the invention during the prescribed duration. It is a temporary economic rent which the State imposes on the society with the ostensible aim of enabling the inventor recoup his expenses and labour in the invention. In sum, a patent is a discretionary grant of state on an invention, which excludes unauthorized persons, for a specified number of years, from making commercial use of that invention.

The Origin of Patents

The philosophical features of the patent[25] system derive from the circumstances in which Filippo Brunelleschi successfully "blackmailed"[26] the medieval Italian City-state of Florence. In 1421, Filippo Brunelleschi, the Italian architect and painter, announced his invention of an iron-clad vessel, the "Badalone" which he claimed could carry marble across the lake Arno for the construction of the now famous cathedral of Florence. Contrary to scientific tradition,[27] he refused to disclose the "Badalone" to the public nor put it at the service of the city unless he was granted a limited right to an exclusive commercial exploitation of the vessel. Florence yielded to his unprecedented demands and on June 19, 1421, the City issued him the first recorded patent in history. To Brunelleschi's embarrassment, the "Badalone" sank on its inaugural trip and with it, the Florentine idea of limited monopoly over inventions.

Recovering from the rather inauspicious debut in Florence, the concept of patents migrated to Venice where it acquired legislative imprimatur and substantive features. For instance, the Venetian patent law of 1474 provided for patent duration of ten years, examination of patent applications for novelty, and punishment for infringement of patent rights. However, with increasing papal intolerance and the frequent

political conflicts in the Italian peninsula, Italian artisans and craftsmen began a process of migration to central and Western Europe.[28] Naturally, they did not leave the concept of patents behind them in Italy. They took the patent concept with them.

Thus, it is fair to say that the modern patent concept owes its original inspiration to the Italian City-States of medieval times. As patent historian, Maximillian Frumkin noted, "Italian influence shows like a thread in all incipient patent systems in Europe."[29] From central Europe, the patent concept spread with European immigrants to North and South America; and by colonialism and diffusion, to the rest of the world.[30] However, in its internationalization, the medieval patent system had a particularly "unsavoury" [31] reputation, especially in Britain.

Colonialism and the Patent System

Without any question, the colonization of non-Europeans, especially Africans, was partly justified on the hypothesis of racial superiority of Europeans and the inferiority of "the savages and primitives" of Africa (and Asian, natives of the Americas, aboriginal Australian and the Maoris, et cetera of New Zealand). Needless to add, the other anchor and justification of colonialism was economic: to loot and dispossess the colonized.[32] It was largely on the former, that is, to civilise and redeem the savage that the colonialist enterprise justified the acquisition and colonization of large swathes of lands and cultures occupied by peoples considered by the colonizing European Christians as "backward territories"[33] and primitive peoples.

It is one of the mysteries of the dominant scholarship in patent law that few scholars bother to address the racist nature of the encounter of indigenous and traditional peoples with patent law. This oversight or amnesia often assumes that the patent system is culturally neutral and untainted with cultural or epistemological biases. But the truth of the matter is that colonialism, properly understood and construed, was not only an affirmation of a racist construction and or interpretation in which cultures were arranged on a hierarchy favourable to European civilization, but a violent imposition of foreign legal norms and institutions on conquered peoples and cultures.[34]

Consequently, as a matrix of "western civilization", the institution of patents has been promoted as one of the hallmarks of development, progress, and economic modernization. The obvious implication is that the patent system, like similar aspects of European values, norms, institutions, et cetera must be internalized by colonized societies if such colonized societies are to be regarded as worthy of membership in the elect club of "developed" and "civilized" society.

Despite its current reinvention as a non-racist concept,[35] the idea of "civilizing" or bringing "development" to the "savages"[36] was as its core a racist mantra that operated upon the notion that colonized peoples and cultures had no civilization, no body of knowledge, no science, and no culture worthy of respect, let alone deserving of legal protection.[37] It was thus on the notion or mindset that the colonized territories and peoples was a cultural and legal *tabula rasa*,[38] that the colonial enterprise proceeded to inscribe European institutions, norms, and systems, including the patent system, on the cultural and legal landscape of conquered peoples of Africa and elsewhere. Aided or sanctioned by spurious doctrines such as "discovery" and "*terra nullius*," European colonialists[39] engaged in an unpre-cedented robbery of Africa[40], and almost complete annihilation of native[41] legal systems and protocols. In the process, non-Western knowledge frame-works, epistemologies, and epistemic schools were thoroughly ridiculed and delegitimized as "folk knowledge", "quackery", "black-magic" and "voodoo." [42]

The patent system, as imposed on African peoples, was part of the colonial project to remodel non-Western peoples and cultures in the image of Europe on the hypothesis that indigenous peoples had no pre-existing institutions worthy of respect. Thus, while non-Western epistemologies, cultures, and value systems were dismissed as irrational, mystical, natural and undeveloped, Western norms of civilization, world-view, epistemology and culture were uniquely positioned as rational, empirical, and universal ideals and attainable by all regardless of differences in culture.[43]

As Makau Wa Mutua notes, within this prevailing logic of progress, "history is a linear, unidirectional progression with the "superior" and "scientific" Western civilization leading and paving the way for others to follow."[44] In this bizarre re-ordering of the world, Western forms of intellectual property protection, for example, became the only recognized and enforceable

mechanisms for articulating and protecting intellectual property. In consequence, indigenous knowledge systems, largely dismissed and ridiculed as the noxious notions "inferior creatures of God,"[45] lost its place in the panoply of knowledge systems.

The dominant narrative of development proceeded on all fronts as if there were no alternative frameworks for articulating and protecting intellectual property among the colonized peoples of Africa.[46] It is therefore understandable why the consensus of human rights activists and traditional knowledge practitioners is that the patent system has not been respectful of the dignity and rights of indigenous and traditional peoples and other cultures outside the prevailing Western cultural regime. Most of the critics argue that the patent system is incompatible with the values and culture of traditional and indigenous peoples.[47] In addition to its inherent racism, the patent system is deeply immersed in the ideology of excessive consumption, symptomatic of capitalism. The question that arises therefore is whether having regard to the ideological impulses of the patent system, there is any reasonable prospect of making the patent system compatible with the needs or requirements of native healers in southern Nigeria, whose expert knowledge of the medicinal uses of plants may be appropriated by an aggressive global patent regime.

The Protection of TKMP among Native Healers in Southern Nigeria

Southern Nigeria is occupied by hundreds of nations and cultures.[48] Pottery shards, stone tools, rock shelter, et cetera, show that southern Nigerian territories were peacefully occupied at about 12,000-15,000 B.C. The major ethnic groups include the Edo, Igbo, Ijaw, Ishan, and Yoruba. Igbo civilization is distinct from those of the Ife and Benin civilizations.[49] Despite their diversity, a major commonality is that the languages of the southern peoples seem to derive from the Kwa family of languages. Linguists have posited that three of the major languages of southern Nigeria, Edo, Igbo, and Yoruba began to diverge 4,00-5,000 years ago.[50] Needless to say, the various nations and cultures of southern Nigeria are of ancient origins.[51] In addition, there are shared similarities,[52] especially of worldviews and medicine in particular.[53]

The worldview of many southern Nigerian cultures is "predominantly holistic rather than analytic. The cultures tend to see the total picture, not parts of it."[54] The central thrust of such holistic conception of the world is that southern Nigerian cultures are inspired by the concept of dynamic duality and balance between opposites and the interactive roles of the entities and spiritual forces in both cosmic and temporal realms. The spirit world, an animate and inanimate place, is also the abode of both the creator and the ancestral spirits.

The temporal world is construed as a marketplace for both the dead and the living, who are in a constant state of birth, death, and rebirth. In this dynamic equilibrium, the dead are expected to come back to life to join the lineage. Life is thus a cycle in which all created beings-animate and inanimate-are in a constant cycle and interaction. Violations of traditional laws constitute a disturbance of the harmony between the spiritual and the temporal. Events that could upset the equilibrium include natural disasters, like long continuous droughts, famine, epidemic, sorcery and other antisocial forces, litigation, homicide, violation of taboo, and other incidents which are deemed to be infractions of the natural balance of life forces.[55] As Francis Cardinal Arinze observes, maintaining the social and cosmological equilibrium may take the form of several types of sacrifices (*ichu aja*),[56] and other means of rearranging social and cosmological order. Precolonial southern Nigerian worldview and culture often distinguished the subtle differences between custom, law, and good morals or admirable conduct.

Another radical feature of most southern Nigerian cultures is that despite the appearance of "openness", most of the societies were in fact "closed." Consequently, only those members of society that participated in the inner workings and dynamics of various aspects or parts of society could speak with authority on how that aspect or dimension of society was configured and ordered. [57] For example, unless one was a chief, one could not actually know exactly how chiefs conducted their businesses. Similarly, unless one was initiated into a particular cult or group, it is difficult to speak knowledgeably about the workings of such cult or group.

In effect, southern Nigerian societies, contrary to the extravagant claims by some colonial historians was bifurcated and often secretive in

its imagery and operations. On the one hand, there was the façade, which everyone could see but beyond the veil or façade, were several layers of exclusion and excluding levels of social ordering which only those who by age, class, cult-membership, gender, et cetera were members of could participate in and more importantly, speak authoritatively about. As Professor Anene aptly observed, concerning the Igbos,

> *[T]heirs' is essentially a participatory society. You can't know the inside facts about Mmanwu (masquerade) unless you are admitted to Mmanwu and partricipate in operating Mmanwu. You cannot say much about the various Ozo titled societies unless you are admitted to them and participate in their rituals and activities. You can't know the implications of various socialization rites, ceremonies, including rites of passage unless you participate in them."*[58]

With particular reference to the issue of whether TKMP is capable of being protected by the dominant patent system, two immediate consequences arise from the preceding discussion of the nature of southern Nigerian societies. The first immediate consequence of these two radical attributes of southern Nigerian societies was that disease and infirmity was largely construed as a symptom of spiritual imbalance or disorder; a psychosomatic phenomenon. Therapies were therefore designed to restore the balance in the spiritual realm, which will in turn restore the sick person to a state of good health. It must be understood here that good health was not merely the absence of disease but the totality of physical, emotional, and psychological well-being. As Chidi Oguamanam has rightly pointed out, this is a radical departure from Western allopathic medicine, which conceives of illness, no matter how complex that illness may be, as a biological process or condition,

> *[r]equiring a directly targeted course of treatment. As such, a medical condition is generally perceived as Newtonian, mechanical and organismic in nature. For this reason, allopathic or orthodox medical science is divided into several major disciplines which in turn are divided into various sub-disciplines, based on organismic conception. Thus…part of the diagnostic process is to break down the situation, including the human body, into component parts. Effort is directed at tracing a single causal agent responsible for the ailment. When identified, treatment is administered on the implicated organ or targeted at the causal agent now isolated…the overtly mechanistic approach is a consequence of the philosophical revolution of the Renaissance and the success of the germ theory."*[59]

This approach has been very successful despite the fact that more than seventy percent of illnesses are in fact psychosomatic in origin.[60] In contrast with the dominant allopathic approach to medicine, cultures in southern Nigeria, like many other non-Western paradigms of healthcare and medicine, emphasize the psychosomatic dimension of illness. An individual's health is construed or interpreted in relation to a harmonious relationship with community and other supernatural forces. Given this holistic conception of health, the germ theory of disease, which is the mainstay of western medicine was not well regarded in southern Nigerian indigenous medical system. In this conception of illness, spiritual, emotional, and psychological factors constitute the primary focus of the diagnoses as well as the location of the remedy for the illness. The restoration of sick persons to good health often involved sacrifices, prayers, incantations, and other rituals ostensibly designed to restore order and harmony in the spiritual realm.[61]

The obvious logic of this paradigm as it implicates medicinal plants is that when plants are used in the treatment of a sick person, the healer does not really rely or focus on the so-called "bioactive" part of the plant but conceives the plant as part of a complex and holistic regime deployed towards the alleviation of illness. Herbs and other material forms of treatment were then used or applied to supplement the spiritual and psychological aspects of the treatment offered by the native healer. This approach is quite different from allopathic medicine in which the primary focus is on the "active" component of the plants or materials used in conjunction with the plant. In some cases, the plant itself is representative of a beneficial spirit entity. Such a view is quite at odds with the patent regime which seeks to protect the isolated "active" chemical found in a medicinal plant.

The second radical consequence of indigenous worldview of medicine and the "closed" nature of southern Nigerian societies is

that contrary to the assertions of many scholars, knowledge and practice of TKMP by healers was not always in the public domain. The common or general knowledge by a large segment of the local populace of the medicinal properties of certain plants has led to the unfounded notion that TKMP is always in the public domain. Such a notion is in fact unfounded and perhaps arises from a misconception of the character and functions of native healers. While many local people may have common knowledge of the medicinal properties of certain plants or parts of a plant, the practice of native healing is not an all-comers affair. As in Western medicine, common knowledge that aspirin could alleviate pain does not everyone with such knowledge expert in the subject of the causes and alleviation of body pain.

The reality in southern Nigerian societies, and by analogy in many traditional African societies, is that the native healer is both a complex person and an institution of itself.[62] Generally speaking, there are two classes of native healers. Both classes often undergo different types of tutelage, training, and socialization. Both classes also perform different functions and in each class, there are different levels of skills, competence, knowledge, specialization, experience and prowess; much like the classifications in western orthodox medicine. One group of native healers are those whose training and calling is in the field of mediating between human beings and spiritual entities such as gods/goddesses, spirits, natural forces, supernatural elements, et cetera.

These are the healers whose forte is in the performance of rituals, making of incantations, divination, removal or placement of curses, and such other functions that are largely meditative and focused on the spiritual realm. As intercessors and diviners, these groups of healers are trained to diagnose the spiritual causes of ailments, ill luck, tragedies, et cetera and then prescribe remedies such as sacrifices, removal of curses, et cetera. Of course, in their ministration, it is possible that they use some plants believed to possess spiritual qualities but there area of core competence is not in medicinal herbs, per se.

Such healers are often "called" to their professions by the "spirit" or deity that they serve. It is not unusual for a famous healer with many children to die without any of his children being called to serve the deity in question. In addition to those who have been "called" by spirits and deities, it is also possible for individuals to choose, on their own volition, to be trained in "schools" designed for apprentice native healers. The training often lasts seven (7) to fourteen (14) years and requires the performance of remarkable feats of endurance, many years of tutelage under experience native healers, et cetera. At the end of the apprentice's training, whether s/he was called or chose by himself/herself to be a diviner, the new graduate native healer is "given" or inherita his/her tools of trade, which would include idols, deities, various charms, amulets, et cetera.

It must be emphasized that admission to the "school" where native healers are trained, is not an all comers affair. Rigorous admission tests are often administered. Certain "signs" and "manifestations" of admissibility are often taken into consideration. It is not unusual for certain body features such as a physical deformity to be a disqualifying feature. On the other hand, there are institutions that prefer candidates with certain body features, for example, albinos and persons with hunchback. Moreover, the length of time and stress of the apprenticeship has been known to deter many a dilettante. Apprentice healers often have to memorize thousands of different incantations, learn how to perform thousands of different sacrifices to hundreds of deities and above all, master the ethics of their job. It must be emphasized that there are thousands of deities with varying levels of "power". Before an apprentice would become a "powerful" native healer, s/he must have acquired enormous experience and probably "taken" many other deities.

Furthermore, the deities that are "taken" do not all possess equal amount of power or have equal authority over all ailments. In effect, the deity that a native healer serves plays a role in determining whether that native healer is reputed to have expertise in curing certain types of ailment. For example, a native healer who worships the "god of insanity" is far more likely to be efficacious in dealing with patients with mental illnesses than a healer who worships the "goddess of infertility." It is not unusual for a native healer who is expert in one field to refer his/her patient to another or a senior colleague with expertise in the pertinent field. Consequently, a lack of appreciation by many scholars of the complexity of the institution of native healing has led to some terrible generalizations made in contemporary literature on the subject. Generally

speaking, native healers who are primarily diviners are not as knowledgeable in medicinal plants as those healers who are primarily herbalists. As I observed earlier, there are few cases where both categories intersect or tend to converge but the primary distinction between both categories remains generally valid.

The other group of native healers are those whose expert knowledge of the medicinal properties of thousands of plants is simply legendary. It is this group of healers that has largely drawn the attention of both individual Western scholars and institutions. Conversely, diviners are treated with immense skepticism by Western researchers and bioprospectors. The practices of herbalists has been defined by the World Health Organization (WHO) as "the sum total of the knowledge, techniques, skills and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not to Western science, used in the maintenance of health, as well as in the prevention, diagnoses, improvement or treatment of physical or mental illness".[63]

Like native healers with expertise in divination, healers in this category often receive many years of training and tutelage from older and more experienced healers. The tutelage and training often takes the shape of the apprentice watching the experienced healer ply his/her trade, helping the experienced healer gather various plants and mixing the pertinent plants either with other plants or with other materials. As I have repeatedly cautioned, there are instances where it would be invidious to separate the work of the diviner from that of the herbalist. There are cases where the healer is also a diviner and vice versa but the point remains that native healing, whether in the field of divination and sacrifices or in herbal medicine is a complex and sophisticated institution as opposed to the pedestrian practice that it is portrayed to be in contemporary literature.

Western Science, Patents, and Native Herbalists

It is therefore not a coincidence that of the two main categories of native healers, the diviner is the least popular and has thus been banished to the peripheries while the herbalist has largely become the darling of the biotechnology industries, WHO, and many Western scholars. The diviner is virtually feared as well as despised by many Western institutions. Dismissed as a quack, a fraud, and a relic of a devilish, primitive age, recent discussions on the patenting of medicinal plants have focused on the knowledge possessed by herbalists. The emphasis has thus been on the "active" ingredients of medicinal plants.

Such focus by the industry, scholars, and WHO, on the herbalist's phenomenal knowledge of the medicinal uses of plants has tended to dissociate that knowledge from the wider cultural and holistic context in which both the diviner and the herbalist operate.[64] As rightly pointed out by Professor Chidi Oguamanam, "the emphasis on active ingredients ….advances not only the Western scientific culture but also advocates "mercantilism" and "extractivism" with which Western science and its intellectual property allies have besieged indigenous knowledge systems."[65] Although the dominant notion that patents propels the march of technological progress by offering an incentive to inventors,[66] is largely unproven,[67] the ascendancy of the patent system is beyond question.[68]

The question then that arises is whether TKMP, in spite of the epistemic divide between Western allopathic medicine and holistic conceptions of illness, is protectable by the patent system. Proponents of the TRIPS Agreement contend that the idea behind the agreement is to "harmonize" global approach to the patent system. While this argument may have its own force of logic, the question remains as to whose version of "harmonization" is being forced down on others and at what costs to marginalized cultures?[69] The ideological or perhaps philosophical issue is that a conception of all TKMP as "raw materials" for Western biotechnology denies and delegitimizes the enormous intellectual contributions made over the centuries by breeders, farmers and native healers.

In attempting to apply patent-like protections to TKMP, various jurisprudential hurdles have to be crossed. Some of the issues of jurisprudence pertain to misconceptions and exaggerations about patent law vis-à-vis indigenous peoples. These include the notion that indigenous knowledge of the medicinal uses of plant is a body of knowledge in the public domain. The other pertains to the notion that indigenous knowledge is knowledge about the "natural" workings of nature. The implication here is that

natural healers or herbalists do not make intellectual inputs in identifying, preparing, and prescribing herbal remedies. References to the innovations and knowledge of traditional societies, especially on the issue of TKMP as "traditional" are often misconstrued to imply or mean that such inventions and innovations are static and antiquated. The notion of trite antiquity associated with traditional knowledge, especially, on TKMP is a misconception of the nature of TKMP. As the Four Directions Council points out,

[W]hat is 'traditional' about traditional knowledge is not its antiquity but the way it is acquired and used. In other words, the social process of learning and acquiring which is unique to each indigenous group, lies at the heart of its 'traditionality.' Much of this knowledge is actually quite new, but it has a social meaning and legal character, entirely unlike the knowledge indigenous people acquire from settlers and industrialized societies. [70]

Article 8 (j) of the CBD also recognizes the dynamic and living character of traditional knowledge. The second common misconception about traditional knowledge is the notion that indigenous knowledge of the medicinal uses of plants are mere discoveries of "natural phenomena" waiting for the fortunate discoverer. As Gurdial Nijar has observed,

[T]traditional uses, although based on natural products, are not 'found in nature'; as such. They are products of human knowledge. To transform a plant into a medicine, for example, one has to know the correct species, its location, the proper time of collection (some plants are poisonous in certain seasons), the part to be used, how to prepare it (fresh, dried, cut in small pieces, alcohol, the addition of salt, etc.), the way to prepare it (time and conditions to be left in the solvent). And finally the posology (route of administration and dosage.)[71]

The mere fact that TKMP is natural does not necessarily mean that there is an absence of human intellectual input. As already noted in the preceding pages, native healers undergo many years of rigorous training and apprenticeship. Native healers vary in their skills, competence, and knowledge. Some native healers are less knowledgeable than others. The difference in skill is often a function of their research abilities, experience, and willingness to experiment or innovate. It is therefore no coincidence that a decisive number of drugs derived from plant resources have done been with the help of the most knowledgeable and innovative native healers.[72]

However, other misconceptions exist as to whether patents constitute an appropriate mechanism for the protection of TKMP. Regrettably, the incompatibility of the patent system with the inventive process in traditional communities is a subject that has generated more heat than light.[73] A commonly held notion is the alleged absence of novelty in TKMP. This notion rests on two faulty assumptions; to wit,

a. individual character of the inventive process,
b. absolute and global criterion of novelty and prior art.

An evaluation of these assumptions as the following pages will demonstrate, reveals a misapprehension of the modern character and dynamics of the contemporary patent system. The social processes by which native healers acquire, transmit and modify knowledge has been posited as one of the grounds why such indigenous knowledge systems are not eligible for patent protection for their intellectual contributions to TKMP.[74] In contrast to the traditional processes, the process of inventorship in the Western paradigm is portrayed as individualistic. The contention is that the patent system is partly predicated on the concept of the inventor as an individual and the inventive process itself, as an exercise in solitude.[75] While I cannot recommend the institution of patents to southern Nigeria herbalists, neither of these assumptions can hold much water.

The notion that the inventive process in Western societies is a solitary work is not only antiquated, but also erroneous. It is a romanticisation of the inventive process to depict the modern inventor as the "garage" recluse working alone and the resulting invention, a product of *his* or *her* own individual genius. The mythic image of the inventor hardly squares with the contemporary reality of inventorship as largely a group effort.[76] In the modern world, communities of scientists and researchers work in teams in huge laboratory complexes where ideas are exchanged.[77] According to David Safran,

[I]n this age, most inventions result from corporate research efforts…a growing number of these research efforts are the result of the work of several research and development teams that are located in different countries.[78]

Corporate institutions and public-funded research institutions including universities, where researchers and inventors routinely work in groups, own an overwhelming proportion of patents issued in the last forty years. The transformation of the inventive process in Western societies is in several material respects similar to the inventive process in indigenous knowledge systems practiced by native healers in southern Nigeria. The inescapable conclusion is that like the "scientists" in the laboratories of the industrialized states who exchange information, collective groups of native healers, whether as apprentices or as qualified native healers also exchange ideas to resolve and find solutions to deep and complex medical problems. As the Crucible Group recently observed, "farmer's fields and forests are laboratories. Farmers and healers are researchers. Every season is an experiment."[79]

Furthermore, the alleged boundary between individual and collective creativity is a conflation of communalism with the notion of collective inventions. Oftentimes, a native healer in the community may derive inspiration from pre-existing knowledge, just like his western counterpart, and from thence, invent or innovate something "of intricate detail and complexity, reflecting great skill and originality."[80] The short point here is that generalizations about the complex nature of native healers often lack requisite sophistication and intellectual rigor necessary to identify genuine similarities and differences between the patent system and TKMP.

On the issue of the alleged public character of TKMP, the general argument is often made that TKMP is a matter of common knowledge and resides in the public domain in sub-saharan African societies. Quite frankly, only those who are ignorant of the secrecy and layered protocols surrounding native healing by herbalists and diviners can make such wild claims. The notion that all TKMP is in the public domain is flawed on several grounds. First, it is incorrect to assert that all traditional or informal TKMP is in the public domain. For instance, native healers, in particular, hardly reveal the secrets of their medicinal or herbal remedies. As the preceding pages have demonstrated, herbalists under many years of tutelage and training. While training, some undergo various rites of initiation, "fortification",[81] and socialization. The skills and knowledge they acquire are not in the public domain.

Secrecy of their knowledge ensures their power and influence in the community. Indeed, the rituals, magic and spirituality which often surrounds the practice of traditional healing is, in addition to their other myriad societal functions, a crucial aspect of the "secrecy regimes"[82] imposed on TKMP and herbal remedies by herbalists and healers. Second, native healing is not necessary limited to or about the so-called "bio-active ingredients" of a plant or mixture of plants.

The art and science of native healing often embraces a holistic approach to well being that transcends the chemical composition of the concoction or herbal decoction. Most times, herbs are prayed upon, praised as if they were living entities, sacrifices are made, et cetera. In traditional healing with biological resources such as plants, healers often maintain a monopoly of their knowledge by "tying" their biological remedies to requirements for physical objects, which the inventor can monopolize "or elaborate procedures that are hard to copy without initiation. It is not unusual for a herbalist, in the course of preparing medicine for a patient, to demand articles that only he or she can provide, as for example, asking a patient to provide the carcass of a rare bird that died during a lunar eclipse! Such difficult or impossible demands ensure that the healer is in control of the condiments of the pertinent medicinal preparation. Needless to add, the concept of public domain is an occidental legal principle, which has little or no relevance under most customary law in the jurisprudence of traditional societies.

On the issue of whether the knowledge possessed by herbalists lacks novelty or not, it must be borne in mind that neither the TRIPS Agreement, nor any other relevant international legal instrument contains any definition of the concept of novelty. As the United Nations Conference on Trade and Development (UNCTAD) recently observed, "there is no agreed international standard of absolute novelty and, *within limits*, member countries may apply the different approaches recognized in domestic patent laws."[83] The problem is that no binding international custom or legislative instrument has yet demarcated the boundaries of the acceptable "limits" of domestic jurisdictional prerogative in defining novelty and prior art. [84] Needless to say, a world standard of novelty is imperative for a reputable patent system.[85]

It has also been argued that TKMP is not amenable to patent protection on the grounds that traditional societies such as southern Nigeria have legal persons unknown to Western jurisprudence. It is suggested as an answer that current laws could consummate and give juridical effect to the already existing forms and types of legal personalities under customary law jurisprudence of traditional communities. The relevant legal personalities often include families, villages, clans, and/or any other recognized legal personas under the jurisprudence of traditional communities. Unfortunately, traditional societies have hardly been allowed to define for themselves and grant formal legal efficacy thereto, of those myriad forms of legal personalities, which their societies recognize. Rather, Western society and its jurisprudence have always insisted on defining for them conceptions of legal personality molded in the social crucibles of Europe.

Hence, such legal persons as Stools, Families, Kindreds, Clans, Age-grades, the spirits of the unborn, ancestral spirits, and other forms and categories of legal personality; despite their time-proven legal efficacy in traditional societies, have become mere exotic curiosities or examples of social anarchy or savage superstition in the eyes of Western jurisprudence. In Brazil, for instance, pursuant to a proposed bill, PL[86] N. 2.057, of 23 October 1991, indigenous peoples have legal personality and their legal existence would not depend upon any type of registration or any act of government. Under the proposed legislation, "indigenous communities, or any of their members, have the right to apply for a patent of invention, utility model, industrial model or industrial design which has been developed utilizing their traditional collective knowledge."[87]

Ultimately, the incompatibility of the patent system with TKMP, is in the epistemic schism[88] rather than in the purported areas of antiquity, openness, and stagnation of indigenous knowledge on the medicinal uses of plants. Arguments that dwell heavily, but erroneously on the alleged antiquated and public character of indigenous knowledge simply misapprehend the cultural and epistemological gulf between patent systems and indigenous knowledge systems. While there are broad similarities, the difference in how both regimes conceive of illness makes the patent regime an inappropriate response to the problem of appropriation of indigenous peoples knowledge on the medicinal uses of plants.

CONCLUSION

The foregoing pages have shown that there are differences of cultural outlook and epistemic worldview between the dominant patent system and native healing. Given the problems with adjusting the patent system to suit the demands or requirements of TKMP, some suggestions have been made by scholars to deal with the question of loss or appropriation of indigenous knowledge systems, with particular reference to the issue of medicinal plants. One of the major suggestions and trend in this regard has been the establishment of a so-called Register of Uses.[89] This body of documented knowledge is designed to form the basis of contracts for the commercial exploitation of TKMP and inventions.[90] This concept has found root in India,[91]Uganda, and South Africa. Unless states are willing to invalidate patents on TKMP obtained in any manner inconsistent with the letter and spirit of the CBD[92] on Prior-Informed-Consent (PIC) and equitable sharing of benefits derived from PRRK, there are some difficulties associated with a mere registration of traditional TKMP.

First, the documentation of TKMP implies that such resources are an ancient and static phenomenon. Traditional knowledge, as already pointed out, is an evolving and living experience. Save perhaps for the cases of genocide and extermination of some distinct traditional societies, especially indigenous peoples, the ideal focus ought to be on maintaining the ecosystem and lifestyles of native healers. Second, in the absence of what the Crucible Group has termed convincing "Global Morality", it is doubtful whether such documentation would escape the reach of some bio-prospectors who may not have much regard for the emerging norms on the need for the Prior Informed Consent (PIC) of traditional PRRK holders and practitioners. As the cases of patents from *Neem* Tree, *Turmeric*, and other controversial patents indicate, mere publication may not debar the emergence of such patents. Third, the Registry-of-Uses approach, unless it specifically details the level of traditional innovation involved, is an implicit acceptance of the mistaken notion or generalization that all TKMP is raw material.[93] This attitude denies the intellectual effort and input by traditional knowledge practitioners; a position inconsistent with modern international law.[94] The case of traditional healers is not merely a claim for

monetary profits; it also encompasses a claim for global recognition of their contributions, both historical and modern to healthcare needs of billions of people.[95] As the WIPO report notes, "they (PRRK practitioners) do not wish to be confined to the role of mere purveyors of resources and know-how for the benefit of commercial interests in which they would have no participation."[96]

Fourth, registration of TKMP for bio-prospecting contracts may open the way for the exploitation of unwary native healers. Indeed, an unexpected result may well be emergence of a paternalistic bureaucracy to oversee the transactions. The problems of the immense bargaining advantages possessed by influential bio-prospectors and the undesirability of a distant bureaucracy deserve serious consideration.[97] Fifth, contracts which are based upon the Register-of-Uses may raise problems of privity as disgruntled members of the local community may raise legal objections to frustrate the contract.[98]

In sum, the present writer disagrees with the emerging view that "we must mold and expand existing regime to the needs of indigenous peoples."[99] The better view, I think, is to grant legal effect to the existing indigenous protocols for the protection of the knowledge possessed by innovative native healers. Tinkering with the dominant regimes of intellectual property regimes perpetuates the colonial mind-set that indigenous peoples did not have autochthonous and effective legal regimes for the propagation, transfer, sharing, and alienation of knowledge. It is not too late in the day to accord native healers the legal cover for autochthonous and familiar protocols by which they have protected, transmitted, and improved upon their knowledge for thousands of years.

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NOTES

1 See for example, *Draft Report of the World Intellectual Property Organization (WIPO) Fact-Finding Missions on Intellectual Property and Traditional Knowledge* (1998-1999) Geneva, Switzerland, at 28. Hereinafter, *WIPO Report*.

2 See for example, *Convention on Biological Diversity*, done at Rio de Janeiro on 5 June 1992, entered into force 29 December 1993, *reprinted* in 31 I.L.M. 818 (1992).

3 See generally, Ikechi Mgbeoji, *Global Biopiracy: Patents, Plants, and Indigenous Peoples* (UBC Press, Vancouver: 2005)

4 On indigenous peoples, see *The International Labour Organization Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries*, 7 June 1989, *reprinted* in 28 I.L.M. 1382; *Commission on Human Rights, Preliminary Report on the Study of the Problem of Discrimination Against Indigenous Populations*, UN Doc.E/CN.4/sub.2/L.566 [1972]; *Chapter 2 paragraph 34, UN Declaration of the Rights of Indigenous Peoples*, UN. Doc. E/CN.4/1995/2, reprinted in 34 I.L.M. 541 (1995); Rudiger Wolfrun, "The Protection of Indigenous Peoples in International Law" (1999) 59 *Zaorv-Heidelberg Journal of International Law* 369.

5 Patrick Twumasi, "Aging, Illness, and Traditional Medicine in Ghana" in Wilburn Watson., ed., *Black Folk Medicine: The Therapeutic Significance and Faith and Trust* (Guildford Press)

6 *Agreement on Trade-Related Aspects of Intellectual Property Rights*, 33 I.L.M 1197.

7 Anthony Stenson & Tim Gray, *The Politics of Genetic Resource Control* (London: Macmillan, 1999); Ulf Anderfelt, *International Patent Legislation and Developing Countries* (The Hague: Martinus Nijhoff, 1971).

8 Jack Kloppenburg, *First the Seed: The Political Economy of Plant Biotechnology, 1492-2000* (Cambridge University Press, 1988).

9 Owen Lippert, "One Trip to the Dentist is Enough-Reasons to Strengthen Intellectual Property Rights Through the Free Trade Area of the Americas Now" in Owen Lippert, (ed.,) *Competitive Strategies for the Protection of Intellectual Properties* (Vancouver: The Fraser Institute, 1999) at 129.

10 Bruce William Bugbee, *The Early American Law of Intellectual Property: The Historical Foundations of the United States Patent and Copyright Systems* (Ann Harbor: Michigan, 1961) at 76.

11 Carlos Correa & Abdulqawi Yusuf, (eds.,) *Intellectual Property and International Trade* (The Hague: Kluwer, 1998); Michael Gadbaw & Timothy Richards (eds.,) *Intellectual Property Rights: Global Consensus, Global Conflict*? (Boulder: Westview Press, 1988); Michael Goldman (ed.,) *Privatizing Nature-Political Struggles for the Global Commons* (London: Pluto Press., 1998).

12 The literature on this burgeoning school of thought is quite remarkable. See generally, Tom Greaves, (ed.,) *Intellectual Property Rights for Indigenous Peoples: A Source Book* (Oklahoma: Society for Applied Anthropology, 1994).

13 Moureen Coulter, *Property in Ideas: The Patent Question in Mid-Victorian Britain* (Missouri: The Thomas Jefferson University Press, 1991).

14 David Vaver, "Intellectual Property Today: Of Myths and Paradoxes" (1990) 69 *Canadian Bar Review* 98.

15 Edith Penrose, *The Economics of the International Patent System* (Connecticut: Greenwood Press, 1973).

16 Ikechi Mgbeoji, *Global Biopiracy: Patents, Plants, and Indigenous Peoples, supra*.

17 For example, when it became obvious to the

industrialized states that the existing patent regime could not protect computer chipmakers, the Washington Semi-conductor treaty was quickly concluded and ratified. Meanwhile, as Peter Drahos has noted, "…in contrast, the issue of protection for indigenous knowledge has largely remained just that, an issue." See Peter Drahos, "Indigenous Knowledge and the Duties of the Intellectual Property Owners" (1997) 11 *Intellectual Property Journal* 201.

18 Lara Ewens, "Seeds Wars: Biotechnology, Intellectual Property and the Quest for High Yield Seeds" (2000) 23 *Boston College International and Comparative Law Review* 285 at 307.

19 TRIPS agreement, *supra* note 6.

20 35 U.S.C. 101; Michael Gollin, "Using Intellectual Property to Improve Environmental Protection" (1991) 4 *Harvard Journal of Law and Technology* 193.

21 Fritz Machlup, *An Economic Review of the Patent System, Study of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary* (United States Senate, 85th Congress, 2nd Sess, Study No. 15) at 2.

22 For instance, in the United States and other countries certain types of inventions cannot be covered under the patent regime. Inventions solely directed to the use of special nuclear material or atomic energy or weapon cannot be patented. See *Atomic Energy Act* of 1954 (42 USC 2011)

23 There are several theories of patents. The leading theories include the contract theory/ disclosure theory, the natural right theory and the encouragement of invention theory.

24 In the wake of the French Revolution, the French Patent Law of 1791 provided that it would be "a violation of the rights of man" if the innovative products of individuals were not recognized as their individual property and were not legally protected. For a brief account of the rise and fall of the natural law theory of patents, see, Brad Sherman & Lionel Bently, *The Making of Modern Intellectual Property Law-The British Experience, 1760-1911* (Cambridge: 1999); Peter Drahos, *A Philosophy of Intellectual Property* (Dartmouth: Aldershot, 1996). It is interesting that Debouffre, the French jurist who drafted the French patent law of 1791 later recanted and argued that the natural law theory lacked jurisprudential basis.

25 The term "patent" as an adjective derives from the Latin word "patere" which means, "to be open". When used as a noun, it means an open letter addressed to the public.

26 Owen Lippert, note 9, *supra.*

27 Prior to the modern era of serious inroads by the patent system into scientific discourse, open exchange of scientific discoveries and ideas was the norm. As Stephen Brush has noted, "science is the long conversation among members of …community…the glitter of science to many practitioners is its alternative to pecuniary reward." See Stephen Brush, "Is Common Heritage Outmoded?" in Stephen Brush & Doreen Stabinsky, (eds.,) *Valuing Local Knowledge—Indigenous People and Intellectual Property Rights* (Washington: Island Press, 1996) 143 at 149.

28 Christine Macleod, *Inventing the Industrial Revolution: The English Patent System, 1660-1800* (Cambridge: Cambridge University Press, 1988).

29 Macleod, Ibid, at 11.

30 C. Macleod, "The Paradoxes of Patenting: Invention and its Diffusion in 18th and 19th Centuries Britain, France and North America" (1991) *Technology and Culture* 905.

31 Frank Prager, "The Early Growth and Influence of Intellectual Property" (1952) 34 *Journal of the Patent Office Society* 106

32 Makua wa Mutua, "What is TWAIL?" (2000) 94 ASIL Proceedings 31.

33 Mark Lindley, *The Acquisition And Government Of Backward Territory In International Law: Being A Treatise On The Law And Practice Relating To Colonial Expansion* (New York, 1969)

34 Note 3, *supra* at 82.

35 Douglas Sanders, "The Re-Emergence of Indigenous Questions in International Law" (1983) *Canadian Human Rights Yearbook* 1.

36 Mark Javis, ed, *The Influence Of Religion On the Development Of International Law* (Martinus Nijhoff, 1991)

37 Mohamed Bedjaoui, "Poverty of the International Order' in R. Falk, F. Kratochwil & S. Mendlovitz, eds., *International Law: A Contemporary Perspective* at 153.

38 Phillip Jessup, "Non-Universal International Law" (1973) 12 *Columbia Journal of Transnational Law* 415; Rosemary Coombe, "The Cultural Life Of Things: Anthropological Approaches To Law And Society In Conditions Of Globalization" (1995) 10 *American University Journal of International Law and Policy* 791.

39 Keith Nunes, "We Can Do…. Better: Rights of Singular Peoples and the United Nations Declaration on the "Rights of Indigenous Peoples" (1995) 7 *St Thomas Law Review* 521.

40 Lagos Observer, February 19, 1885, quoted in U.O. Umozurike, "International Law and Colonialism" (1970) 3 *East African Law Review* 47.

41 Makua wa Mutua, *supra.*

42 Given the dominance of the Western paradigm of "science", there is a tendency to ethnicize and consider as culture-specific, unsophisticated and inferior, non-Western paradigms of knowledge. Philosophers like Karl Polanyi, Alfred Kuhn and other have however demonstrated that non-Western forms of knowledge have their own internal logic and are not necessarily crude or inferior. Moreover, Western science, like all other structural forms of knowledge is also cultural and not inherently global. See D. Michael, (ed.,) *The Cultural Dimension of Development: Indigenous Knowledge Systems* (London: Intermediate Technology Publications, 1995); John Dewey, *Philosophy and Civilization* (New York: 1931); Harold Dorn, *The Geography of Science* (Baltimore: John Hopkins University: 1971); N. Ezeabasili, *African Science: Myth or Reality* (New York: Vantage Press, 1977). See also, The Crucible Group, *People, Plants, and Patents: The Impact of Intellectual Property on Trade, Plant Biodiversity, and Rural Society* (Ottawa: IDRC, 1994). But see Barbara Ward, The Rich Nations and the Poor Nations

(Toronto: Canadian Broadcasting Corporation, 1961) at 3 (arguing that "…traditional societies had virtually no science.")

43 Vandana Shiva, *Staying Alive: Women, Ecology And Development* (London: Zed Books Ltd, 1988)

44 Makau Wa Mutua, "Savages, Victims and Saviours: The Metaphor Of Human Rights" (2001) 42 *Harvard International Law Journal* 201.

45 Brian Easlea, *Witch-Hunting, Magic, And The New Philosophy: An Introduction To Debates of The Scientific Revolution, 1450-1750* (Brighton, Sussex: Haverfield Press, 1980)

46 Felix Cohen "The Spanish Origin of Indian Rights In The Law Of The United States" (1942) 31 *Georgetown Law Journal* 12.

47 Lakshmi Sarma, "Biopiracy: Twentieth Century Imperialism In the Form of International Agreements" (1999) 13 *Temple International and Comparative Law Journal* 107.

48 J.A.B. Horton, *West African Countries and Peoples,* [reprint], Edinburgh, 1969 at 157; J. A. Umeh, *Igbo People: Their Origin and Culture Area*, Enugu, 1999; J.H. Jennings & S.O. Oduah, *A Geography of the Eastern Provinces of Nigeria,* Cambridge, 1966 at 10

49 P. Okigbo, *Toward a Reconstruction of the Political Economy of Igbo Civilization* Ahiajoku Lecture, 1986, Owerri, Ministry of Information, 1986 at 10.

50 Igbo language broke away from the Kwa sub-family circa 600 B.C. G.M. Umezurike, *Amamife na Ako na Uche: The Hub of Igbo Culture Renaissance in the Scientific Age,* Ahiajoku Lecture 1992, Owerri: Ministry of Information, 1992; I. Amadiume, *Male Daughters, Female Husbands: Gender and Sex in an African Society,* London, 1987.

51 A. Afigbo, *Ropes of Sand: Studies in Igbo History and Culture,* London, 1981, 1-50; J.N. Oriji, *Traditions of Igbo Origin A Study of Pre-Colonial Population Movements in Africa,* New York, 1994 (Peter Lang: New York, 1994) at 3

52 M. Echeruo, *Ahamefula: A Matter of Identity,* Inaugural Lecture Ahiajoku, 1979, Owerri: Ministry of Information, 1979, at 7.

53 M.A. Onwuejeogwu, *A Brief Survey of Anambra Civilization in the Igbo Culture Area*, Onitsha, 1972; M.A. Onwuejeogwu, *An Igbo Civilization: Nri Kingdom and Hegemony,* London, 1981 at 14; T. Agbasiere, *Women in Igbo Life and Thought,* London, 2000, at 2.

54 Anya O. Anya, The Environment of Isolation, 1982 Ahiajoku Lecture, Ministry of Information, Owerri at 9.

55 V.C. Uchendu, *The Igbos of South Eastern Nigeria,* 1965 at 11.

56 Francis Arinze, *Sacrifice in Ibo Religion* (Ibadan University Press, 1970)

57 Azuka Dike, *The Resilience of Igbo Culture* (Enugu, 1985) at 157.

58 John Anenechukwu Umeh, *Igbo People: Their Origin and Culture Area* (Enugu, 1999)at ii.

59 Chidi Oguamanam, Between Reality and Rhetoric: The Epistemic Schism in the Recognition of Traditional Medicine in International Law (2003) 16 St. Thomas Law Review 59.

60 Oguamanam, *Ibid.*

61 A.O. Ekwunife, "Integration of Traditional African Values in Priestly Formation" (1997) 39 # 4 *African Ecclesial Review* 7.

62 A.N. Okoro, *Chukwu ka Dibia*, Ahiajoku Lecture 1988, Owerri, Ministry of Information and Culture, 1988.

63 WHO, General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine

64 Chidi Oguamanam, *supra* note 59 at 56.

65 *Ibid*.

66 Robert Sherwood, "Human Creativity for Economic Development: Patents Propel Technology" (2000) 33 *Akron Law Review* 351.

67 See Machlup, note 21 supra. See also, C.T.Taylor & Z.A. Silberston, *The Economic Impact of the Patent System-A Study of the British Experience* (Cambridge: Cambridge University Press, 1973).

68 Van Zyl Smit, *The Social Creation of a Legal Reality: A Study of the Emergence and Acceptance of the British Patent System an a Legal Instrument for the Control of New Technology* (Ph.D Thesis, University of Edinburgh, 1980)

69 Charles McManis, "The Interface Between International Intellectual Property and Environmental Protection: Biodiversity and Biotechnology" (1998) 76 *Washington University Law Quarterly* 255.

70 Graham Dutfield, "The Public and Private Domains: Intellectual Property Rights in Traditional Ecological Knowledge" *Oxford Electronic Journal of Intellectual Property Rights* <http//users.ox.ac.uk/~mast. Accessed on 9/21/99.

71 Gurdial Nijar, *TRIPS and Biodiversity: The Threat and Responses-A Third World View* (Malaysia: Third World Network, 1996) at 16.

72 Naomi Roht-Arrioza, "Of Seeds and Shamans: The Appropriateness of the Scientific and Technical Knowledge of Indigenous and Local Communities" (1996) 17 *Michigan Journal of International Law* 940.

73 Shiva, *ibid.* See also, Ruth Gana, "Has Creativity Died in the Third World? Some Implications of the Internationalization of Intellectual Property" (1995) 24 *Denver Journal of International Law and Policy* 109

74 Ruth Gana, "Has Creativity Died in the Third World? Some Implications of the Internationalization of Intellectual Property" (1995) 24 *Denver Journal of International Law and Policy* 109; Curtis Horton, *supra* note 88.

75 Kirsten Petersen, "Recent Intellectual Property Trends in Developing Countries" (1992) 33 *Harvard International Law* 277; Mark Hannig, "An Examination of the Possibility to Secure Intellectual Property Rights for Plant Genetic Resources Developed by Indigenous People's of the NAFTA States: Domestic Legislation Under the International Convention for New Plant Varieties" (1996) 13 *Arizona Journal of International and Comparative Law* 175.

76 In virtually every patent jurisdiction in the world, an employer owns the patent right to an employee's invention if the employer is hired to invent or the invention is made in the course of the employment using his employers' tools. However, under some narrow circumstances, the employee may own the invention. Similarly, governments and its research

institutions can own acquire the inventions of its employees. See David Vaver, *Intellectual Property* (Concord, Ont.: Irwin Law, 1997) 147-149.

77 Machlup, *supra* note 21 at 78.

78 David Safran, "Protection of Inventions in the Multinational Marketplace: Problems and Pitfalls in Obtaining and Using Patents" (1983) 9 *North Carolina Journal of International Law and Commercial Regulation* 117

79 The Crucible Group, *supra* note 14, at xviii.

80 See Justice Von Doussa, in *Milpurrurru v. Indofurn (Pty) Ltd* (1995) 30 IPR 209 at 216.

81 This is usually a process or processes of making the native healer spiritually strong.

82 WIPO Report, *supra* at 69. Furthermore, in traditional healing with biological resources, healers often maintain a monopoly of their knowledge by "tying" their biological remedies to requirements for physical objects which the inventor can monopolize "or elaborate procedures that are hard to copy without selective initiation.

83 *The TRIPS Agreement and Developing Countries* (Geneva: UNCTAD, 1996) at 32.

84 Richard Gardiner, "Language and the Law of Patents" (1994) 47 *Current Legal Problems* 255 at 256.

85 David Harbutt, "Fixing the Biodiversity Convention: Toward a Special Protocol for Related Intellectual Property" (1994) Vol. 34 No.2 *Natural Resources Journal* 379.

86 PL is the acronym for "projeto de Lei" or legislative bill, in English. See also, Stenson & Gray, *supra* note 4 at 78.

87 Art. 19 of PL 2057/91 (As cited in Silva, *supra*)

88 Oguamanam, *supra* note 59.

89 William Lesser, *Sustainable Use of Genetic Resources Under the Convention on Biological Diversity: Exploring Access and Benefit Sharing Issues* (Oxford: CAB International, 1997) at 129. The register is to constitute of knowledge of the occurrence, practices, propagation, and varied uses of biological resources in local communities.

90 R. V. Anuradha, "In Search of Knowledge and Resources: Who Sows? Who Reaps?" (1997) 6 *Review of European Community and International Law* 263.

91 Lyle Glowka, *A Guide to Designing Legal Frameworks to Determine Access to Genetic Resources* (IUNCN, 1998).

92 Article 75 of Decision 486 of the Andean Community on a Common Industrial Regime which entered into force on 1 December 2000 nullifies any such patents. See Manual Ruiz, "The Andean Community's New Industrial Regime: Creating Synergies Between the CBD and Intellectual Property Rights" 2000 *Bridges* 12.

93 Daniel Putterman, "Model Material Transfer Agreements for Equitable Biodiversity Prospecting" (1995) 7 *Colorado Journal of International Environmental Law and Policy* 149.

94 Articles 10, 8, 15, and the Preamble of the CBD.

95 *The Declaration of Belem*, Brazil, 1988. Available online <http://users.ox.ac.uk/~wgtrr.belem.htm. Accessed on 9/2/99.

96 *WIPO Report, supra* note 1 at 165.

97 Negotiations between highly unequal negotiators can often yield strange results. Perhaps, the most sensational instance of such bargains for knowledge of PRRK occurred in the Ecuadorian Amazon. According to Vogel, "In May 1986, a chief from the Secoya community of Ecuador exchanged some *Banisteriopsis caapi* ("yage" in the local language) for two packs of Marlboro cigarettes to a person whom he would later describe simply as a "gringo." That 'gringo' was Loren Miller of the International Plant Medicine Corporation who was interested in *Baristeriopsis caapi* for its known psychoactive properties as an hallucinogenic. Miller applied for a plant patent from the U.S Patent and Trademark Office and was subsequently granted Plant Patent no. 5,751." See Vogel, *supra* note 86 at 11. But see, *Edmonds Institute, et al., v. Bruce Babbit, In His Official capacity as Secretary of the Department of the Interior, et al*. 42F. Supp. 2d 1. Compare with the Merck/Inbio Agreement.

98 *The Relationship Between Intellectual Property Rights and the Relevant Provisions of the Agreement on TRIPS Agreement and the Convention on Biological Diversity*, UNEP/CBD/ISOC/5, 11 May 1999 at 2. On draft contracts, see Alan Putterman, "Model Material Transfer Agreements for Equitable Biodiversity Prospecting" (1995) 7 *Colorado Journal of International Environmental Law and Policy* 149.

99 Hannig, *supra* note at 197.

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KEYWORDS Patents; native healers; indigenous peoples' knowledge; epistemy; intellectual property rights

ABSTRACT The patent system has long been promoted as a universal verity detached from local impulses and peculiarities. This paper argues that patents originated from a European worldview and as such contains certain characteristics that make it incompatible with some other worldviews. With particular reference to native and traditional healing methods among local populations in Southern Nigeria, the patent system is an inadequate and inappropriate mechanism for the protection of the knowledge and innovations of traditional healers in Southern Nigeria.

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Indigenous Knowledge Systems and Sustainable Development: Relevance for Africa
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