IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 21, Issue 11, Ver. 5 (Nov. 2016) PP 33-52
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

The epistemology of interface management model of Indigenous based Knowledge and Intellectual Property Rights: A Review.

T. A. BRIGGS[1] and J.U.L NWOSA[2]
[1](*Mechatronic Engineering Department, / University of Port Harcourt, Nigeria)*
[2](*METI/ University of Port Harcourt, Nigeria)*

Abstract:- This study is to review developed knowledge management model which will aid in effective management of Indigenous Knowledge (IK) and Intellectual Property Rights (IPR) in Nigeria. In reviewing related literature, several conclusions and assertions reached by many researchers' shows that both fields of knowledge are limited in their abilities to manage development, preserving and safeguarding Indigenous Knowledge risks inadvertently placing them in the public domain; thereby exposing them against the wishes of the owners. The review shows further, that to revolutionize the Intellectual Property Rights (IPR) and Indigenous Knowledge (IK) situation - 'localizing' the deliberate in the social, economic and political perspective in which native popular are in reality living and recognizing that. So far the contest has been based on generalizations, assumptions and implied indirectly presumption that indigenous peoples have to catch up, or else acclimatize to the western property model.

Keywords - *Management Model, Indigenous Knowledge (IK), Intellectual Property Rights (IPR), culture-interference.*

I. INTRODUCTION

Indigenous Knowledge (IK) has defied a generally definition, and as a result means different things to different group of people. Attempts made by various scholars' shows that Indigenous Knowledge is broadly acknowledged as knowledge that is possessed by local people, used for their decision making. Indigenous Knowledge was elaborately looked at by UNESCO & CIRAN (2003). The backbone of local decision-making in food and nutrition, health care agriculture, education, control and management of natural resource management and a host of other activities in rural communities. The knowledge that indigenous people have unrelenting to developed over time - it is experience-based, frequently tested for usage in centuries, and engrossed by the culture. It is dynamic. According to Nakata and Langton (2005), "Indigenous Knowledge refers to knowledge, innovation, and practices of indigenous communities around the globe, developed from experiences over time, and adapted to the local culture and transferred through the word of mouth from generation to generation".Indigenous knowledge is seen as the complete bodies of knowledge, expertise, practices and representations that are sustained and developed by people with long histories of close communication with their natural environment. These levels of understandings, interpretations, and senses are part of the complexity cultural faced with. Hence, includes language, naming and classification of systems, ways of resources usage, rituals, spirituality and a world view (Sachs cited in Nwokoma, 2012)Ermine (cited in Hammersmith, 2007) agrees with the above position that "systems Indigenous Knowledge are a body of knowledge of the indigenous people of particular geographical areas that they have survived on for a very long time". Ermine went on to say that, their knowledge forms survived the racial and colonial onslaught suffered at the hands of Western imperialism and arrogance. Kaiku and Kaiku (2008) states that, "Indigenous Knowledge cannot be taken out of the individually beneficial or communally life-enhancing body of information transmitted and accumulated by humans through the processes of co-participation, observation, trial and error, and oral instructions, or believed to be acquired through spiritual intercession". They believe it is not connected entirely to the natural environment only; but, there is a spiritual foundation, reinforced through the mythological and supernatural means that only the custodian of kind of knowledge can give explanations on it. It is obvious that their works are mere superstitious or 'backward' people, but it serve as a detailed institution for the functioning of an observant community where communal respect for the 'art' of Indigenous Knowledge practitioners give them an edge in the dictation on how care towards nature and the environment is embarked on.Jabulani (2007), in his work conforms with the view that Indigenous Knowledge based on experiences and local cultural adaptation and the environment to its relevance for development especially in agriculture, arts, crafts, medicine, music, natural resources management and theater. Indigenous Knowledge is used to uphold the community and its culture. Giving premium value on such knowledge would reinforce cultural identity and enhancement in

achieving social and developmental goals, such as sustainable agriculture, affordable and appropriate public health, and conservation of biodiversity. Jabulani also affirmed that "Indigenous Knowledge is a crucial resource for any human development process". Dei (2000), further explained that, Indigenous Knowledge is about the common sense ideas and cultural knowledge of locals with respect daily life activities. It is significant to the way communities regard and live in their environment and presents communities with ways of managing their environment – be it natural, cultural or political.

Dei (2000), citing Castellano (1999), enumerated three open phases of Indigenous Knowledge:

1. Traditional knowledge that goes through from generation to generation, that is inter-generational knowledge;
2. Empirical knowledge which is anchored on observations of the immediate environment (nature, culture, and society); and
3. Revelational knowledge gotten through intuition dreams and visions.

Therefore, holistically Indigenous Knowledge has the physical and spiritual aspect of life. According to Tella (2007) statements; "Indigenous Knowledge is essential for a number of reasons which includes providing problem-solving strategies for communities; contributing appreciably to global development knowledge; being pertinent for the development procedures, and being an under-utilized resource in the development process". The enormous applicability of Indigenous Knowledge was outlined in the study of Tella, on which premise was affirmed that Indigenous Knowledge includes all human communication that can be featured, shared and used for advancement purposes. Nevertheless, Ocholla (2007) stated that the continual marginalization Indigenous Knowledge is responsible for the inadequate use in developmental process. One of the grounds that Indigenous Knowledge is marginalized is due to its tacit nature. It exist in people's memories and is mostly passed on through word-of-mouth; this implied that it is endangered in most cases as its custodians are mostly elderly and die off with time, which is the basic concern of this review work.

II. THE RETROSPECTION OF INTELLECTUAL PROPERTY RIGHT

The Business Dictionary (2014) state that, "Intellectual Property Right (IPR) is a right that is had by a person or by a company to have exclusive rights to use its own plans, ideas, or other intangible assets without the worry of competition at least for a specific period of time. These rights can include copyrights, patents, trademarks, and trade secrets, etc. These rights may be enforced by a court via a lawsuit". The reasoning behind the intellectual property is with a view to encouraging invention/innovation devoid of fear that competitors will steal the idea and / or take the credit for it. While, The European Intellectual Property Right Helpdesk (2014) defines the term "Intellectual Property Rights" as "the legal rights granted with the aim to protect the creations of the intellect. These rights include Industrial Property Rights (e.g. patents, industrial designs and trademarks) and Copyright (right of the author or creator) and Related Rights (rights of the performers, producers and broadcasting organizations)".As quoted from The Free Dictionary, (2014), "it is proposed mainly to support the development of art, science, and information by granting certain property rights to all artists, which include inventors in the arts and the sciences". "These rights permit artists to protect themselves from infringement, or the unauthorized use and misuse of their creations. Trademarks and Service marks protect distinguishing features (such as names or package designs) that are associated with particular products or services and that indicate commercial source". Others like, The World Intellectual Property Organization (WIPO) defines Intellectual Property as "…creation of the mind, inventions, literary and artistic works and symbols, names, images and designs in commerce. It is the creation of the mind, manifested or interpreted in a form that has a physical existence and possesses exclusive property rights recognized by the corresponding fields of law. Under intellectual property law, owners are granted certain exclusive rights to a variety of intangible assets, such as musical, literary and artistic works, discoveries and inventions, words, phrases, symbols, and designs, etc., barring any use of the work by other persons without the owner's prior consent". It overlaps with several other areas of law, such as patent law, copyright law, contract law, tort law, trademark law etc.

Wusu (2012) considered that Intellectual Property Right protects the inventions, information and utilization of ideas that are of commercial and proprietary value, which means some of it can't be protected. For an idea to be protected under the legal government intellectual property, it must be exploited or at least reduced into a fixed form for it to come under a head of protection under the Intellectual Property Right regime in Nigeria. In most cases, people have great ideas for new products or services but don't have the resources to commercialize it, rather looking for large investor to help them out.The term Intellectual Property Right is the globally recognized word which is given to creations of the mind and the label used for assigning ownership to protect human creativity. The word Trademarks, Patents, and Copyright are the legal medium the rights are enforced, that will ensure that the products we buy are genuine, and that our inventions and works are attributed correctly. Copyright laws support the creation of artistic and literary works, computer programs, and expressions of national culture. Then, Patent laws encourages the invention of new and improved products and processes,

while ensuring the public access to information regarding those new products and processes, while Trademark laws support the development and maintenance of high-quality products and services, and help companies to promote customer loyalty. So, Intellectual Property Right protects the consumer whose safety depends on product reliability as well as the inventors and creators in every part of the world (McCulley, 2013). In other world, Intellectual Property Right entails putting all the subsidiary litigations in place and that law vests rights in the creators and owners of certain works enabling them to enjoy copyright of their work for a number of years, and that if such work is infringed upon, the owner can take up the matter by suing the infringer and demand for damages for an account and then ask for exchange (Ilesanmi, 2012).

III. THE EPISTEMOLOGY OF INDIGENOUS KNOWLEDGE

Theories on Knowledge have been viewed from multiple perspectives: abstract, philosophical, religious, and practical (Aje 2012). Theories of Indigenous Knowledge are rooted within indigenous epistemologies, worldviews, cultures and traditions. Indigenous peoples throughout the world have maintained their unique worldviews and associated knowledge systems for millennia, even while undergoing major social upheavals as a result of transformative forces beyond their control. Many of the core values, beliefs and practices associated with those worldviews have survived and are beginning to be recognized as having an adaptive integrity that is as valid for today's generations as it was for generations past (Barnhardt and Kawagley, 2005). Indigenous Knowledge has been with societies all along. They remain as painstakingly tedious to acquire as today's knowledge pool. Indeed, it may be argued that they have a deeper depth than today's pool which is constantly changing as new and better insights are received. The Indigenous Knowledge remains time tested and holds the potential of being the bedrock of contemporary knowledge. Given the life span and the persistent presence of the concepts of Indigenous Knowledge, academic researchers have theorized on the subject matter.Kathy Absolon, the proponent of the "**Indigenous Wholistic Theory"**, establishes a knowledge set for indigenous social work practice using, as a framework, the circle and an illustrative four directions. The term, Wholistic, indicates 'whole' meaning complete, balanced or circular. Indigenous Wholistic theory is ecological, relational, holistic and multifaceted, and entails the spiritual, emotional, mental and physical fundamentals of being. Here, our past, present and future are acknowledged. By implication, the past as well as the future, seven generations apart, is put in perspective in order to indigenize our thoughts and actions towards an active healing process. The theory also proposes that indigenous theory is focused on earth and consequently from the teachings of the land, sun, water, sky and all of creation. The following diagram (Figure 1) symbolizes a level of being and demonstrates the mutual interconnections of self, individual, family, community, nation, society and creation (Absolon, 2010).

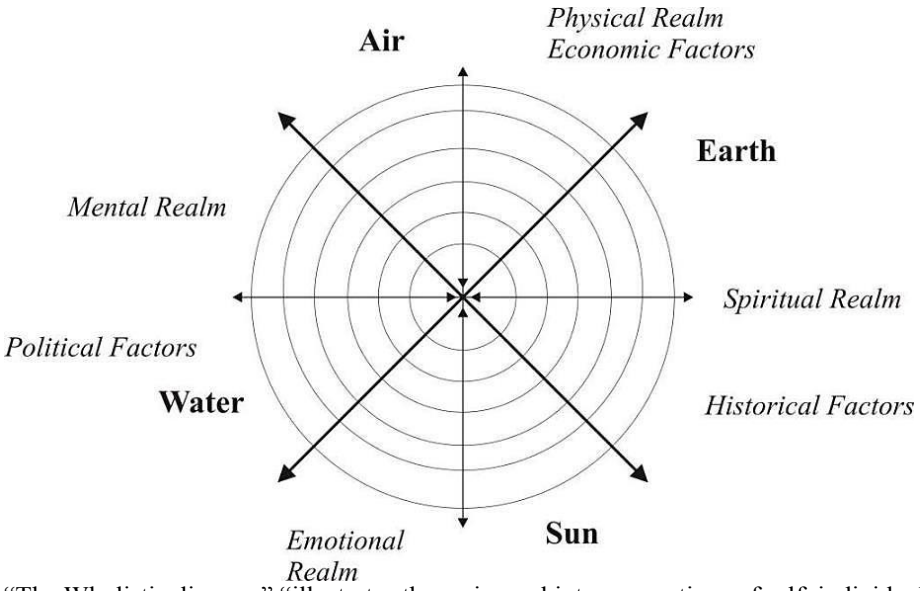

Figure 1 "The Wholistic diagram" "illustrates the reciprocal interconnections of self, individual, family, community, nation, society and creation". (Absolon, 2010)

The aim of Wholistic practitioners is to remember and reconnect with holistic knowledge, 'pick up our bundles' and activate them again. Picking up our bundles means to relearn, reclaim, pick up and personalize the teachings and practices that emanate from Wholistic theory and knowledge. This to a large extent expresses the basis of most indigenous knowledge, necessarily emphasizes the interrelationship in creation.

IV. CULTURAL INTERFACE THEORY

Professor Martin Nakata in their work refers to Indigenous/non-Indigenous inter-cultural space and accepts that all knowledge systems are ethnically rooted (Taylor, 2003; Nakata, 2002). The term inter-cultural is defined by Taylor (2003) as: "the meeting of two distinct cultures through processes and interactions which retain the distinctive integrity and difference of both cultures and which may involve a blending of elements of both cultures but never the domination of one over another." Effective intercultural understanding requires more than having knowledge of another's differences and is more than identifying similarities between cultures (Phillips & Lampert, 2005). Nakata argues that in this inter-cultural space, boundaries are unclear and separation of cultural domains "leads to simplifications that obscure the very complexities of cultural practices in both domains". This idea of interfacing or amalgamating is symbolized in the given model in which knowledge depth is seen to viaduct the fissured between two parallel cultures.

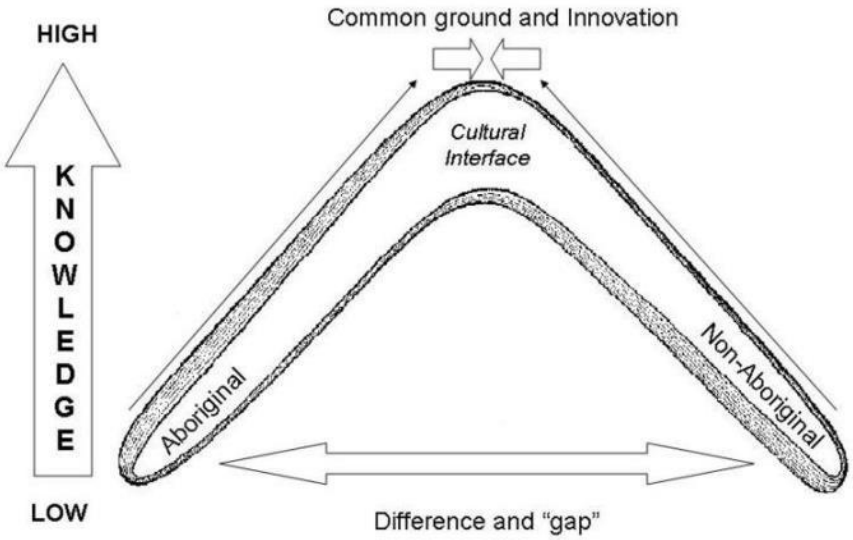

Figure 2 The 8 Way-Representation of Cultural Interface (Nakata, 2002)

Figure 2 shows representations that obviously depict the Nigerian situation. There was no overlap at the inception of the colonial era; however, as time passes the procedures and interactions changes, a common ground for innovation can be established as result of the inter-cultural space overlapped to a certain point.
Cultural Interface suggests bringing face to face the different rudiments of culture like language, religion, arts and styles, customs (e.g. etiquette), morality, (cultural relativism), cuisine (views on what counts as food and what does not), tastes and standards of beauty/aesthetic norms, family structures and notions of kinship, attitudes towards sex and gender, attitudes towards property, attitudes towards the boundaries of the self-etc. Two possible standpoints from which to view culture are the subjective standpoint of the participant in culture and the objective standpoint of the outside observer, who can compare features of one culture with another. The very practice of participant observation, which is supposed to be the methodology distinctive to ethnography, offers the best analysis of culture.
As diverse as Indigenous Knowledge is, so it is complex but wealthy in its circumstance of usage and, if one may quarrel, is all applied knowledge. Looking at Richards' (1993) account of knowledge as performance and a simple list of rules and decisions, Richards's comments that in northern Nigeria the Hausa farmers adapt to drought by making adjustments to their cropping pattern, sowing and re-sowing until a safe planting is instantiated or they drain their resources. However these "cropping patterns" are hardly the product of a previous body of "indigenous technical knowledge", according to Richard (1993), "instead requiring interactive decision-making within a constantly changing historical context, idiosyncratic for each farmer and where that historical context constrains or directs the appropriate usage". Then, Ellen and Harris (2000) proposed that recognized knowledge is grounded in multiple domains, logics and epistemologies.

V. POST-COLONIAL SUPPOSITION ON INDIGENOUS KNOWLEDGE SYSTEMS

Franz Fanon and Edward in their work looked at Indigenous Knowledge system and the theory spotlight mostly on the way the colonizers distorts the experience and realities of the colonized, and engraves the inferiority of the colonized while at the same time promoting the superiority of the colonizer (Mapara, 2009). The Post-Colonial theory is also about the colonized announcing their presence and identity as well as

reclaiming their past that was lost or distorted because of being murdered by colonialism. The theory attempts to straighten the record on several Indigenous Knowledge problems, in the areas their history, education, architecture, philosophy, language and science, showing that the colonized have been either misunderstood or were deliberately ignored (Mapara, 2009). For instance, it is believed education was brought to Africa through the missionaries but that is only partially true because Africans had other means of coaching their young. These included proverbs, riddles, folktales, songs, legends and myths. According to Mapara (2009), songs, for instance, are tools used as a form of education. They could be used to memories the qualities of a good wife/husband as is given in the songs "Sarurawako" (Take your pick) or "Udarapuwe" (Cherry fruit grow) to teach about the dilemma/fortune of an orphan. On medical knowledge, over 80% of the world's population healthcare depends on medicinal plants through indigenous. This employ at least 20,000 plant species for medicines and related purposes (Melchias, 2001). In Nigeria for instance, plants and herbs like dongoyaro, lemon grass, utazi, lime etc are used to treat malaria, bitter kola seeds are used as digestive agents and poison antidote while liquid extraction from bitter leaf was used to stop bleeding on fresh wounds and treat people suffering from stomach ailments. Though the above instances were mostly prevalent in the pre-colonial times, they are still very much in use today by people (ironically represented by the "80% global population mentioned above) who strongly believe and depend on their effectiveness. While most of these plants and herbs are used as food, shelter and decoration, they all have many different medicinal values which help to increase their economic, cultural and social importance.

Emeagwali (2003) highlights African Traditional Medicine (ATM) as holistic since it creates efforts to go beyond the limitations of the physical body into the spiritual. Emeagwali (2003) further differential the two types of medicine, stating that bio-medicine is mechanistically derived from the germ theory of disease, while on the other hand ATM can be classified as mind-body medicine. In the same vein, Gadzirayi, Mutandwa & Chikuvire (2006) in looking at the effectiveness of maize cob in controlling stored maize grain found that there is a statistical difference in effectiveness between the conventional and traditional approaches of preserving maize where higher levels of cob powder are associated with lower incidence of weevils in any given sample. Emeagwali also argues, as also opined by Eyong (2007), that Western pharmaceutical companies often send their agents to tap the medical knowledge of Africa's traditional pharmacologists. In the opinion of "Out of Africa", the world has benefited from plants such as the African willow (South Africa), the hoodia plant (Namibia and Iboga; Gabon and Cameroon) to treat ailments such as cancer, obesity and drug addiction. The World Health Organization (WHO) has recognized these contributions Mapara, (2009). This position is corroborated by Table 1 below of drugs and preparations for medical relief of various ailments compiled from "Out of Africa" Below are typical examples of the above scenario as adapted from "Out of Africa".

Table 1: Extract of modern pharmaceutical products based on African Indigenous Knowledge from "Out of African"

S/N	TREATMENT OF	DRUG NAME	BOTANICAL NAME	SOURCE COUNTRY	PATENT INFORMATION		PROCEEDS
					FILED BY	FILING DATE	
1	Diabetes	Glucobay	Microbe	Kenya	Bayer	2004	$ 379 m
2	Diabetes		Artemisia Judaica	Libya	Phytopharm	2004	
3	Antibiotics	Rapamycin	Streptomyces	Gambia	Glaxo	2001	
4	Antifungal		SporormiellaMinimoides	Namibia	Merck	1996	
5	Infections		Acanthamoeba	Mauritius	Amoebics	2004	
6	Impotency	Viagra	AframomumStipulatum	Congo Brazzaville	Oasis Biotech	1999	
7	Diarrhea	HoloVaxEtec		Egypt	Acambis	2004	
8	-Breast Cancer -Viral	-Lotus Sweetjuice -Fringed Rue	-GlinusLotoids -RutaChalepenis	Ethiopia &Neighboring	A Researcher in	2004	

S/N	TREATMENT OF	DRUG NAME	BOTANICAL NAME	SOURCE COUNTRY	PATENT INFORMATION		PROCEEDS
					FILED BY	FILING DATE	
	Infections -Diabetes -Fungal Infections			Countries	Tennessee		
9	-Appetite Suppressing &-Gastric Disorder	Hoodia		S. Africa, Namibia & Angola	Phytopharm	2004	$40 m
10	Staphylococcus Aureus	Achatina Snail	Achachatina Genus	W. Africa	Max Planck	2002	
11	Drug Addiction	Iboka	TabernantheIboka	C. Africa & W. Africa	Univ. of Miami	1997	$4.5 m
12	Arthritis	Kombo Butter	PycnanthusAngolensis	C. Africa & W. Africa	Univ. of Rutgers	2005	
13	Skin (Melanin)	Aleo White		S. Africa & Lesotho	Unigen	2000	
14	Wounds	Okoume	AucoumeaKlaineana	Gabon & west C. Afr.	Dior Group	2004	$18.3 b
15	Skin & Hair	Argan	ArganiaSpinosa	Morocco	Cognis	2000	$4.1 b
16	Skin	Skin Care Plus	Pharaoh's Wheat	Egypt	Cognis		
17	Skin & Hair	Bambara Nut	VignaSubterranea	Sub-Saharan Africa	Cognis	2002	
18	Skin	Resurrection Plant	MyrothamnusFlabellifolius	South Eastern Africa	Cognis	2004	
19	Insect Resistance	EndoPhytes	Neotyphodium	Algeria & Morocco	AgResearch	2000	
20	Insect Resistance	Endophytes	Neotyphodium	Tunisia	Univ. of Florida	2000	
21	Gall Nematodes	Nematocidal Fungi	ArthrobotrysConoides	Burkina Faso	Casale Group	2005	
22	Peanut Butter	Groundnut	Arachis Hypogea	Malawi	Univ. of Florida	2000	
23	Leaf Spot & TSWV	Groundnut	Arachis Hypogea	Senegal, Nigeria, Mozambique &	US Dept. of Agriculture	2003	

S/N	TREATMENT OF	DRUG NAME	BOTANICAL NAME	SOURCE COUNTRY	PATENT INFORMATION		PROCEEDS
					FILED BY	FILING DATE	
				Sudan			
24	Used as Decoration	Impatiens	Walleriana	Tanzania	Syngenta	2005	$148 m
25	Snails Inhibitors	Slug Barrier	MyrrMolluscicide	Somalia, Ethiopia & Egypt	Compton	2002	$80 m
26	Sun Burned Skin	Tamarind	TamarindusIndica	Africa	Univ. of Texas & Geo.	2001	
27	Cancer	Bitter leaf	VernoniaAmygdalina	Sub-Saharan Africa	Univ. of Jackson	2005	
28	Chronic Viral Infections	Mycobacterium	Mycobacterium Vaccae	Uganda	SR. Pharma	2003	
29	Clothe Fading	Protees Enzymes		Kenya	Genecore	2000	$10.5 b
30	Intellectual Property for Growing Teff Tree	Teff		Ethiopia	Soil & Crop	2005	
31	Infections from Yeast, Fungi &Bactria	SwartziaMadagascariensis	BobgunniaMadagascariensis	Zimbabwe	Univ. of Lousanne	1999	
32	Parasites & Fungal Infections		UvariaKlaineri	Gabon & Nigeria	Sanofi-Aventis	2003	
33	Skin	Coco-de-mer	LodoiceaMaldivica	Seychelles	Kao Corporation		
34	Skin, Hair, Eyelashes & Nails	Baobab	AdansoniaDigitata	Africa	Cognis	2001	

According to Mapara (2009), "in agriculture there are certain practices that were dependent on in the past, which have to some extent persisted to this day. The colonialists brought with them the practice of monoculture whereby one crop is planted in one field. This practice was imposed on most indigenous farmers as one that was modern and effective. Although most of the farmers fearing possible arrest followed this 'new' method, some continued to practice polyculture where more than one crop was planted in one field". Experience has shown that polyculture has a better agricultural application when measured up to to monoculture due to the advantages it has in maintaining soil moisture and reduce soil erosion caused by run-off water. Matowanyika et al. (cited in Kunnie 2000:35) amplified the significance of polyculture thus:"The way that extremely different crops are grown together on the same plot of land [maize, plantain, taro, groundnuts etc.] strike Western agronomists as something deeply primitive and archaic. However, on closer examination one notes that the soil is under permanent cover, thus reducing sun exposure and heating of the surface soil; the variety of different

root systems probably ensures a better utilization of the soil volume; the succession of plant growth cycles means that cover is provided during heavy [and most erosive] rains, when the large leaves [of crops] protect the soil; utilization of solar energy is probably higher while the risks of parasite infections are reduced."Yet another advantageous farm method is intercropping which helps maximize land use and control weeds. According to Altieri, (1995:215) research that has been documented on polyculture has recorded successes in practice in Nigerian cropping systems. Akobundu (cited in Altieri 1995) reported "that in terms of crop yields and weed suppression, smother crops of Egusi (melon) and sweet potatoes could replace three hand weeding if these crops were sown into sole-cropped yam, sole cropped maize as well as polyculture combinations of yams, maize and cassava".In Nigeria, among the Igbos, soot was used as seed preservative. As stated by Mapara, (2009), "after harvest, farmers, (especially women) who had acquired skills of identifying good seed varieties would collect grain and maize cobs that they would tie and hang inside their kitchens". As smoke wafted from the hearth, it would coat the grains. "In this manner, the grains were protected from grain borers and rats because of the bitter test that would result from the soot. By employing this method, the people ensured that they could use the seed even after two or three seasons". In the same vein, farmers would often preserve meat and vegetables by drying them especially when these crops are in abundance. In Zimbabwe, the Shona tribe cut meat into long stripes, sprinkled with salt or the ash of certain plants that were used as a substitute for salt. The meat will be hung to dry without being boiled as way of preservation (Mapara, 2009). The remedy for poor soil fertility is wood ash from kitchens or manure from livestock waste. These biodegradable fertilizers have unfavorable effects on the food chain compared to chemical fertilizers (Eyong, 2007). Indigenous people, through observation of the weather and birds' behavior, dabbled effectively into weather forecasting without the aid of present day modern technology. They can tell if it will drizzle, rain or not and for how long.The Centre for International Earth Science Information Network (CIESIN) also asserted that indigenous farmers implement a good number of indigenous farming practices which were born from tons of experiences and local experiments within their environments. And these were knowledge indigenous to them which functioned and carried them on before the invasion of the colonial masters. This therefore re-echoes the aim of the Wholistic practitioners to 'pick up our bundles, reclaim, relearn and teach them' because they are complete, valuable and efficient.The Indigenous Knowledge System stresses the essential interrelatedness and interdependence of all phenomena - biological, physical, psychological, social and cultural. The co-evolution of the spiritual, natural and human worlds is based on the Indigenous cosmology. Thus many indigenous peoples in Africa still practice the ritual of burying their umbilical cords and immediately planting trees on the spot in order to institute a connection with plant life. Family histories make reference to some animal totem to be conserved. Indigenous Knowledge holds that there are sacred places that have to be avoided and must be conserved. There are places where people are not permitted to fell trees, hunt wildlife or collect wild fruit for commercial purposes. Natural phenomena like rivers and mountains play a significant role in the psyche and constitution of communities. Experiences from indigenous global communities indicates knowledge is relationship, and relationship brings with it responsibilities and obligations and extends into ecological practice (Peat, undated and 1987).

VI. INDIGENOUS KNOWLEDGE AND CULTURE

According to the "UNESCO" Universal Declaration on Cultural Diversity (2009), "culture is the whole complex of distinctive spiritual, material, intellectual and emotional features that characterize a society or social group, including not only the arts and letters, but also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs. Culture, despite its diversity, exerts a powerful influence on our daily lives, our relations with our background, value systems and views. Globally, knowledge sets, often referred to as indigenous knowledge, comprise the understandings, skills and philosophies that span the interface between ecological and social systems, and they intertwine nature and culture" (Nakashima, 2010). An African proverb has it that "When a knowledgeable old person dies, a whole library vanishes". This is largely because Indigenous Knowledge by nature is passed on by word of mouth with specific examples, and through culture, some of these examples being songs, folktales, proverbs, dances, myths, rituals etc.There is definitely a link between Indigenous Knowledge and indigenous languages as a medium for dissipating knowledge. UNESCO (2005) tackled the subject of learning of culture how it associates with Indigenous Knowledge and language for effective pass on knowledge. All inclusive approach must be practice that is instruction on values and identity through mother tongue and education policies and practices which will promote indigenous culture. The "UN Development Group Guidelines on Indigenous Peoples" Issues (2008) define inclusive education as "a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education". Local languages are the medium for dissipating, preserving, and applying Indigenous Knowledge. Language is a vital part of culture and a vehicular means for our Indigenous Knowledge. Transfer of Indigenous Knowledge from generation to

generation is done mostly in our mother tongue. As stated by UNESCO, "the necessities of global and national participation and the specific needs in particular, culturally and linguistically distinct communities can only be deal with by multilingual education". The 1976 Recommendation on the "Development of Adult Education" strengthen the role of the mother-tongue and clearly advocates mother tongue teaching in Article 22 in which it adopts a wider viewpoint on language learning: "With respect to ethnic minorities, adult education activities should enable them to educate themselves and their children in their mother tongues, develop their own cultures and learn languages other than their mother tongues". The sure medium for preserving, dispensing and applying indigenous knowledge in schools is through local languages. To create a platform for all learners to acquire knowledge from their community and others, bilingual or multilingual education should be encouraged. The UNESCO publication "The Challenge of Indigenous Education: Practice and Perspectives," (in Nakashima, 2010) clearly states that "instruction in the mother tongue offers initial literacy; initiates the learners into the simple complexities of their culture; provides skills specific to indigenous cultures, such as hunting, trapping or weaving, as well as the more general skills of knowledge, attitudes, values and beliefs". Language is also of value in using and incorporating formal and non-formal learning styles and teaching methods as a channel of recognizing indigenous ways of procreating and dispersing knowledge and adding quality to oral wisdom and non-verbal communication in education.Critics may beg to disagree but Nakashima opined that "people who no longer speak in their mother tongue have inadequate access to indigenous knowledge and are likely to be barred from very important information about subsistence, health and sustainable use of natural resources". Nakashima further states that "cultural and religious beliefs and traditional spiritual ideals expressed in indigenous languages often serve to stop overexploitation of resources and sustain the systems in which indigenous societies live for their own benefit and that of future generations".Within our diverse African ethnic nationalities, children, especially in the rural areas, were thoroughly equipped with traditional ecological knowledge because of the immense presence of culture. According to Nwosa (2014), three-to-five year olds are conversant with the names and characteristics of the local plant and animal life. At fourteen, they were proficient in domestic chores and social responsibilities. This way, a young bride, adequately coached or mentored by her mother turns out a sumptuous pot of soup without going to a catering school to learn to cook a 'polished' version of same soup. She manages marital trifles without blowing them out of proportion or reading tons of books on techniques of home management. In the same vein, Africans in the Diaspora constantly look forward to eating their indigenous foods because of the unique culinary taste influenced by their distinct cultures. In every culture, Indigenous Knowledge is ever present and ever sustainable though, in some quarters, it is termed backward and crude but they are actually the foundation for technological innovations.Grenier (1998) discussed the "article on sustainability and technology transfer" by Richard Wilk, an American anthropologist; found a file contained 25 separate project proposals, consisting of feasibility studies, implementation of plans, and project assessments that have been studied for several years. This was submitted over a period of a century, all these studies focused on commercializing the production of edible palm oil from a tree native to the Belizean rainforest. In all of these schemes, imported cracking and rendering technologies developed for use in other tropical palm-oil industries were tried. Despite easy access to dense, high-yield tree stands, all these projects failed, even those with direct government subsidies. All through this period, household production of edible oil by indigenous people, using a variety of simple, local technologies, never been impeded. It has been said in some quarters that technology is power. This assertion is empowered by local, cultural technologies.

VII. INDIGENOUS OPERATIONAL METHODS

Indigenous knowledge is born out of the surrounding environment. Children learn all about biology and so many relevant issues of life in order to explore their environs and meet other needs. They learn how to handle and manage farm and domestic tools. They are taught how to farm, hunt, fish, prepare food, build houses and run a home (Ocitti, inEze and Mba, 2013). In this knowledge transfer process, there are methods that are "useful from an indigenous perspective" (Kovach, 2010; Wilson, 2001). According to Wilson (2001) position on indigenous operational model which says "indigenous methodologies are a paradigmatic approach based upon an indigenous philosophical positioning or epistemology". Hence it is not just the method, rather decisive characteristic of indigenous methodologies, but also the interaction between the method and paradigm and the degree to which the method, itself, is congruent with an indigenous worldview. While using the term 'paradigmatic' in relation to Indigenous methodologies, it implies that these methods flow from an Indigenous belief system (Steinhauer, 2001; Wilson, 2001). A postmodern scholar has acknowledged that the belief system is an impotent component of learning and teaching of indigenous knowledge. According to Merriam "indigenous or non-indigenous, are able to benefit from knowledge in a culturally sensitive manner that draws upon, utilizes, promotes, and enhances consciousness of indigenous traditions, beyond the standard Western curriculum of reading, writing, and arithmetic" (Merriam et al, 2007). Archibald, (2008), in his remark stated that "knowledge is transferred through oral history and storytelling and knowledge is co-created within the

relational dynamic of self, others and nature". Thomas (2005) concluded from his studies that "orality is a holistic nature that provides a means for sharing remembrances that evoke the spiritual, emotional, physical, and mental equilibrium of the individual". The learning styles in Indigenous Knowledge transfer often include observation, imitation, use of narrative/storytelling, collaboration and cooperation as seen among American Indians, Alaskan Natives and Latin American communities (UNESCO, 2009; Pewewardy, 2002). This is practical approaches that emphasize direct knowledge and learning through inclusion whereby the child feels that he/she is a very important member of the community, and he/she is encouraged to participate in a meaningful way by community members (Pewewardy, 2002). Children essentially learn skills through this system, without being taught detailed or in a formal manner (UNESCO, 2009). To illustrate this, Opata (1998), in his study of Igbo culture, added new light on the tradition of presenting the kola nut in Nigeria via the Igbo. The exchange of the kola nut (Oji) according to Opata, represents: "(1) goodwill between friends, (2) a formal signal of the beginning of a meeting, (3) greeting a visitor in peace, (4) respect between a younger person and an elder, and (5) most importantly, the itakoojionu (sharing and eating the kola nut in oneness) represent an instrument of reconciliation". Instructively for the Igbo indigenes this "iwaoji" (breaking the kola nut) process embodies lessons of "…mutual respect for the opinions of others, lessons of deference to elders, lessons about the importance of dialogue, lessons about conflict negotiation, the spirit of tolerance and forgiveness, and the spirit to face the future with an open mind". Though, like UNESCO stated, this information is not explicitly taught formally, it forms part of the whole pack of knowledge acquired by man and cannot be denied. Likewise, in some communities, local skills and abilities have been developed by indigenes to predict flooding and prepare for it. Over the ages, the Niger Delta communities, through their interactions with the environment and their yearly and monthly experiences with flood, have realized the significance of some signs that precede flooding in Nigerian coastal areas. These signs enhance their ability to read the weather conditions. Their knowledge about the peculiarity of each month in their local calendar, the state of the moon, the consultation of local gods and some ecological indicators enable them to correctly forecast the weather. For example, after a particular storm, some elders in a community, based on their experience, can predict flooding. Also some admit that when the moon is full, the community should expect ocean flooding and prepare for it. Ecological indicators include the scarcity of some vegetation species like opepe (Sarcocephalus latifolius) and abura (Mitragyna ciliate). When these species are scarce in a particular season, floods are likely to occur in the area mainly in Abereke and Awoye communities in Nigeria (Fabiyi & Oloukoi 2013). Examples hitherto mentioned are basically learning by oral transmission by the teacher and observation on the part of the learner. Some of the fundamentals of peaceful living and co-existence are learnt in the former and ecological features and their implications are passed on in the latter. So, in closely probing indigenous learning, it is observed that it entails seeing education as a means to an end; social responsibility; spiritual and moral values; involvement in ceremonial activities, imitation; recitation; demonstration; sport; epic; poetry; reasoning; riddles; praise; songs; story-telling; proverbs, folktales; word games; puzzles; tongue-twisters; dance; music; plant biology; etc are all learning centered activities. The main challenge that Indigenous Knowledge faces however, is that its transmission is closely knitted. This means that transfer of knowledge is generally inclusive but mostly exclusive because according to Parajuli and Das (2013), Indigenous people are conserving their biodiversity in order to survive themselves.Indigenous Knowledge is seen to be closed, parochial, un-intellectual, primitive and emotional (Ellen & Harris (2000); Herbert, 2000). The dominance of western knowledge dictated the marginalization of non-western knowledge systems. Ellen and Harris (2000) take this further, arguing that the 'term indigenous' almost invites an oppositional 'us and them' scenario between the two knowledge systems. Aina, (2008) observed that, sometimes local people's knowledge (and methodologies) can be wrong and harmful, since practices based on beliefs, faulty experimentation, or inaccurate information can be dangerous and become a barrier to people. Sometimes well-adapted and effective practices in a particular environment reflected in existing Indigenous Knowledge become inappropriate in another environment under different conditions. Indigenous Knowledge in Nigeria communities is still holistic, oral, and dependent on observations, past experiences, unrecorded tales and rumors and it is particularly linked to spiritualities, local customs and social values.

VIII. INDIGENOUS KNOWLEDGE MANAGEMENT AND PROTECTION IN NIGERIAN ETHNIC NATIONALITIES

The process of Indigenous Knowledge acquisition, exploitation, transfer and protection is not commercial in nature but more importantly is the fact that Indigenous Knowledge had and still has forms. Managing indigenous learning is likened to inculcating a spiritual approach to living. Generally, religion is consistent of morals and therefore gives credence to laws, customs and established mode of conduct of the communities. Long before western influence, indigenous people managed knowledge basically in two ways: informal and formal. They learnt informally in the course of play and imitation. Children made play toys from local materials using their initiative. According to Ocitti, cited in Eze and Mba (2013) "they molded them from

mud and clay and made use of articles which were of little use to adults. They enjoyed imitating their parents or other grown-ups, and especially those activities in which they themselves would pursue in later years". Enry, also cited in Eze and Mba (2013) stated that "boys, for example, imitated activities which were appropriate to their sex. These included; the building huts of grass, as well as digging and hunting. While the Girls, participated in activities of the family and life in the home. They therefore imitated their mothers in activities as cooking, grinding, sweeping, fetching water and firewood". For instruction, oral literature was mostly employed to teach the children using myths, folklores, legend and so on.Parents also had their ways of morally molding the children in order to keep their behavior in check in line with the customs and traditions of the respective communities. Children are warned verbally and oftentimes punishment is meted out to deter the child from repeating the offense. Beating, denial of food and infliction of pain is equally used in very severe cases of disobedience, cruelty etc. Such punishment was regarded as reformatory (Eze and Mba, 2013). Other ways of instructing is by mentoring them through manual labor. They are encouraged to walk alongside the adult, cultivating their skills and mannerisms. Males acquire masculine types of skills while the females engage in feminine related tasks. This therefore prepares them for future career roles and this obviously went on from generation to generation.Theoretical and practical inculcation of skills has been a formal method of instructions. According to Eze and Mba (2013) learning "through apprenticeship, for example, was formal and direct". Parents send their children to acquire skill through craftsmen, such as; potters, blacksmiths and basket makers. The same was true with hereditary occupations". For instance, herbalist would train his child to become well-informed and capable in ritual and traditional medicine practice. Children emulate or taught on every-day customs and manners of eating, greeting and how to behave with relatives and important people, as well as parental and marital obligations.Clearly, as concluded by Eze and Mba (2013), Indigenous Knowledge has a philosophical dimension which incorporated communalism or group cohesion in which parents required to bring up their children within the community for their own welfare and that of the broader community. Therefore, Children brought up by socialization as opposed to individualization. Most visitors to most indigenous nationalities in Nigeria will be fooled by the seemingly open society that welcomes them but contrary to that, most of the indigenous ethnic nationalities are in fact closed. Right from the beginning, knowledge exploitation and transfer is done on the basis of the need to know. This explains why such simplistic information as the age of one's parent or their income for that matter is kept a secret from the children. One never grows old enough to ask his/her elders (or parents) how old they are or how much they earn. There is 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, membership, gender, et cetera, could participate in and more importantly, speak authoritatively about. This therefore means that, only those members of society that participate in the inner workings and dynamics of various aspects of a society could speak with authority on how that aspect or dimension of society is configured or ordered. For instance, unless one was a titled chief and had participated in the rituals, that is, ceremonies and protocols that chiefs participate in, by virtue of their office, one may 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 that group. (Mgboji, 2006) Knowledge protection is not alien to indigenous nationalities in Nigeria. Indeed, Indigenous Knowledge has been so well protected that several of them have become extinct. Knowledge is released to members of the society on the need to know basis. Knowledge in most Nigerian societies is acquired and handed down along individual and group lines because the indigenes fear the loss of their heritage to outsiders. In spite of the numerous benefits of sustainable ecotourism, Ofodile (2013) exposed that tourism poses a threat to indigenous people, to their environment, and to local cultures. One of the furthermost fears is the loss of valuable cultural property through misuse/stolen by outsiders. Therefore, tourism boosts the possibility for invasive impact on cultures, communities and the environment. Custodians chose instead to seek out and mentor specific individuals for knowledge transfer. Mentoring as a method of knowledge preservation is therefore very prominent and students regarded themselves as fortunate to be chosen for a particular knowledge or skills acquisition. Firstly they had to be initiated into that particular knowledge bearing group. Such initiation rituals carried with them high spiritual contents that gave the new entrant the impression that the secrecy of the group is broken by any member at the cost of the person's life in this life and the life after.

IX. THE INTELLECTUAL PROPERTY RIGHTS REPLICA

According to Huges (1988) and Moore (2008), "Intellectual Property Rights have widely taken one of three forms. Personality theorists maintain that Intellectual Property is a wing of individual personality. Utilitarian's ground Intellectual Property Rights in social progress and incentives to innovate". Personality theorists maintain that we are self-owners because we are entitled to lay claims on our talents, traits experiences and so on. Such control becomes necessary for self-actualization-by expanding our selves outward into tangible and intangible items and thus defining ourselves and obtaining the management of our goals and projects. Hegel stated that "the external actualization of the human will require property" (Hegel, 1821 cited in Moore, 2011).

By producing intellectual works, authors and inventors put themselves on know. Hence, incur certain risks. Intellectual Property Rights provide innovators and inventors a reasonable level of control over this risk.Another form of Intellectual Property Rights theory is the incentive-based and utilitarian approach (Palmer 1997; Moore 2001, 2003). Hence, the needed condition for promoting the creation of valuable intellectual works is granting limited rights of ownership to authors and inventors. The absence of certain guarantees may discourage authors and inventors not to engage in producing IP. Consequently control is approved for inventors and innovators of Intellectual Property Rights by granting such control which will make available incentive needed for social advancement. In Moore (2001) argument rights granting is not a success but worse when investor did not spend money to grab and reproduce the intellectual effort of others, (Moore 2001, 2003). Implementing protective systems such like copyright, patent, and trade secrets, etc, give way for a most advantageous amount of intellectual works being produced, and a corresponding best possible amount of social utility. In addition, Calandrillo theoretical claims that society should to maximize social utility, and arrived at clearly prevailing argument for the protection of Intellectual Property Rights which will give an incentive to the inventors supported government intellectual labor (Calandrillo, 1998). The government of the day can fund research projects and allow the results to be become public property. But the question becomes: "can government support of intellectual labor provide enough incentive to innovators and inventors so that an equal or greater amount of intellectual products are created compared to what is produced by conferring limited property rights"? Then, to encourage better results from higher quality intellectual work that may be distributed to more people for quality productivity.The Lockean View, in its claims stated that inventors and innovators are entitled to control the fruits of their labor (Moore 1998, 2001; Palmer 2005; Himma, 2008). Persons who engaged voluntary in Laboring, producing, thinking, and persevering should be entitled to the outcome of the produce. Respect to some set of limitations rights are arose due to mixture their labor with an un-owned object. The perception is that the person, who clears un-owned land, cultivates crops, builds a house, or creates a new invention gains property rights by engaging in these activities. Locke further emphasized argument is that individuals are self-owners that is they own their own bodies and labor. This implies that one cannot separate an individual labors on an un-owned object because the labor has been inculcated in the object. This clearly shows that there is an extension of rights: once our labor is mixed with objects in the commons; our rights are extended to incorporate the outcome of the goods.A not-so-popular theory is the Social Planning Theory which is rooted in the idea that property rights widely - and Intellectual Property Rights in specific - can and should be fashioned in order to assist to promote the success of the now and gorgeous culture. Theorists got their inspiration from an eclectic cluster of political and legal theorists including Jefferson, the early Marx, and the Legal Realists. With the revelation that, information is a social product and enforcing access limitations excessively benefits innovators and inventors. Persons are raised in societies that bestow them with knowledge which these classes of persons used to craft intellectual works of all kinds. Knowledge is seen as the institution of intellectual works is a social product. As a result, such persons should not have exclusive and lasting forever ownership of the products that they create because these works are put together upon the collective knowledge of society. According to Moore "granting rights to intellectual works would be similar to granting ownership to the individual who placed the last brick in a public works dam. The dam is a social product, built up by the efforts of hundreds, and knowledge, upon which all intellectual works are built, is built up in a similar fashion (Moore, 2011)".

Fisher (2001) "tenders his own reduced outline of an eye-catching intellectual culture as being one that includes:

i. Consumer welfare (we should seek a combination of Intellectual Property rules that maximize consumer welfare by optimally balancing incentives for creativity with incentives for dissemination and use)
ii. A cornucopia of information and ideas (citizens should have access to a wide and varied array of information, ideas and forms of entertainment)
iii. A rich artistic tradition (the more complex and resonant the shared language of a culture, the more opportunities it affords its members for creativity and subtlety in communication and thought)
iv. Distributive justice (to the greatest extent practicable, all persons should have access to all informational and artistic resources)
v. Semiotic democracy (in an attractive society, all persons would be able to participate in the process of making cultural meaning)
vi. Sociability
vii. Respect"

According to Adewopo (2012), the brick-and-mortar economy (of yester years) is being replaced with that of ideas in which Intellectual Property Rights has become one of the most essential currencies. In the new global economy, wealth is generated through creating and harnessing the value of knowledge. This is the idea of creative enterprise which crystallized in the 'harvesting of innovation and invention.'

X. INTELLECTUAL PROPERTY RIGHTS AND INDIGENOUS KNOWLEDGE INTERFACE

Indigenous Knowledge was largely ignored or suppressed as a result of colonization and the trend to modern civilization; and in many places, because of dislocation from our land and way of life, most of it was lost (Nakata, 2002). Besides this, the method of transfer which was basically oral tended to be ineffective. With all the surrounding hiccups, protecting Indigenous Knowledge was a challenge. Amongst these challenges, Wendland (2005) insisted that conserving and protecting Indigenous Knowledge risks in advertently placing "traditional cultural expressions" (TCEs) in the public domain; thereby exposing them against the wishes of the owners. From the foregoing, it is obvious that Indigenous Knowledge has been mismanaged even as copyrights, patents and trademarks etc (Wendland, 2005, Andanda, 2012). The question is, "How functional is the Intellectual Property Rights system and its capability to integrate Indigenous Knowledge and the interests of the Indigenous peoples where the Indigenous Knowledge originates from? As alluded to earlier by the Post-Colonial theorists, the transportation of the western institutions into African indigenous areas has imposed the Intellectual Property Rights system upon the Indigenous Knowledge system. Though, the Intellectual Property Rights system has come to stay because of its invaluableness, Young-ing (2006) pointed out that many issues have arisen in the past years regarding problems resulting from the existing Intellectual Property Rights system's apparent inability to protect Indigenous Knowledge. According to Young-ing, the main problems with Indigenous Knowledge protection in the Intellectual Property Rights system are:

1. Expressions of Indigenous Knowledge often cannot qualify for protection because they are supposedly in the Public Domain;
2. The "author" of the material is often not identifiable and there is thus no "rights holder" in the usual sense of the term; and,
3. Indigenous Knowledge is owned "collectively" by Indigenous groups for cultural claims and not by individuals or corporations for economic claims.

Using Intellectual Property to protect knowledge is not customary to indigenous peoples; and so Indigenous Knowledge is often just out there. Generally, the Intellectual Property system pays more attention to individual creations. The difficulties eschew crop up from the fact that traditional creativity is marked between dynamic interaction of collective and individual creativity (Dutfield, 2004). It is thus recommended that the holders' customary laws be taken into consideration when the Intellectual Property mechanism is used for protecting Indigenous Knowledge. And the Customary Law in this context, has been defined by the "Convention of Biological Diversity's" (CBD, 2000)secretariat as "written and/or unwritten (including oral traditions) rules, usages, customs, practices, beliefs, traditionally and continually recognized and accepted as legal requirements or obligatory rules of conduct and consequently treated as if they were laws, by the group concerned'. All of society must eventually be able to benefit from that genius. Therefore, according to this aspect of Intellectual Property Rights theory, all knowledge and creative ideas must eventually enter the Public Domain. Under Intellectual Property Rights theory, this is the reasoning behind the time period limitations associated with copyright, patents and trademarks. The guideline that all Intellectual Property, plus Indigenous Knowledge, will eventually enter the Public Domain is a challenge because Customary Law helps to shield certain parts of Indigenous Knowledge from external access and use in any form. Examples of this include, sacred ceremonial masks, songs and dances, various forms of shamanic art, sacred stories, prayers, ceremonies, art objects with strong spiritual significance such as scrolls, masquerades, decorated staffs, medicine bundles and clothing adornments, and various sacred symbols, designs, crests, and motifs. On the other hand, in protecting Indigenous Knowledge through Intellectual Property, two problems was faced with; Firstly, the "Cross-cultural" problem which involves the Intellectual Property needs of Indigenous Knowledge possessors are formed by their get in touch with the formal Intellectual Property mechanism on one side, while the informal Intellectual Property rules that triumph in their societies and communities on the other perspective' (WIPO, 2001). The informal Intellectual Property regimes consist of various but unwavering societal structures that regulates the gush of knowledge and innovations (WIPO, 2001) while the formal Intellectual Property scheme is focused on document-intensive, codified and governmentally administered structures and procedures (WIPO, 2001). The procedure of the Intellectual Property mechanism makes it unreachable to Indigenous Knowledge possessors, also find the essential paperwork difficult to fulfill and the cost excessive. This challenge can be helped, as suggested by Hansen and VanFleet (2003), if Intellectual Property offices recognize of the survival of Indigenous Knowledge through an established working relationship. With such a liaison and a documented Indigenous Knowledge, Intellectual Property offices should be given access to the database in order to use the information defending the rights of the Indigenous Knowledge possessor against unsuitable usage by third parties. In a bid to create an indigenous knowledge database, it must be understood that there could be resultant effects which can be both positive and negative. Furthermore, the "United Nations" (UN) General Assembly adopted the UN Declaration on the Rights of Indigenous peoples on 17th September, 2007, which can be used

for sui generis protection of Indigenous Knowledge. Sui generis protection involves an acquisition of an alternate right that is detached from the rights that are acknowledged under the formal Intellectual Property structure, by the Indigenous Knowledge possessors, as provided by the structure. The Declaration focuses on the rights of indigenous people but it has provisions, specifically Articles 11 and 31 which can be used for protecting Indigenous Knowledge. Article 11(1) provides that "indigenous people have the right to practice and revitalize their cultural traditions and customs", while Article 11(2) "obliges states to provide redress through effective mechanisms with respect to indigenous peoples' cultural, intellectual, religious and spiritual property taken without their free, prior and informed consent or in violation of their laws, traditions and customs". The safeguard of the holistic character of Indigenous Knowledge, which Indigenous Knowledge possessors are longing for, is obviously foreseen in these Articles. Article 31 is even more comprehensive in its scope. Article 31(1) "provides, in part, that indigenous people 'have the right to maintain, control, protect and develop their Intellectual Property over such cultural heritage, traditional knowledge and traditional cultural expression". Article 31(2) "obliges states to use effective measures, in conjunction with indigenous peoples to recognize and protect the exercise of these rights" (Andanda, 2012). WIPO member states in July, 2013, concluded the biennium work of the committee tasked with finding agreement on international legal tools to prevent misappropriation and misuse of genetic resources, traditional knowledge and folklore (Saez, 2013). Work on Indigenous Knowledge is undertaken in various inter-governmental bodies like Convention on Biological Diversity (CBD), World Intellectual Property Organization (WIPO), Food and Agriculture Organization (FAO) and United Nations Conference on Trade and Development (UNCTD). The efforts of these bodies are continually focused on the place and needs of all concerned (Suri and Sharma, 2008).

XI. CONCLUSION

From the above it is obvious that, the fundamental philosophy that has driven Intellectual Property Rights has been and will still be the commercialization of knowledge. Intellectual Property acquisition is a complete system, with distinct stages namely; the generation, the protection and the commercialization or exploitation stages. At the generation stage, acquisition of technology encounters several obstacles that may include: the inability of the researcher to carry out patentable and demand driven research; limited access to information on patents, lack of state of the art equipment for research, lack of infrastructural facilities, lack of adequate funds, lack of linkages with other researchers and Research Institutes, absence of a focused research into areas of national need due to the absence of a National Research Council that can drive the entire National System of Innovation (NSI). At the protection stage, major obstacles at this stage include, lack of knowledge on patent filing, lack of interest in patent, more emphasis on publishing with little or no regards to patent and weak linkage between National and International Patent Offices.At the commercialization level, challenges relating to Intellectual Property commercialization include among other things: quality and relevance of research results, limited sources of funds, insufficient knowledge of Intellectual Property commercialization, lack of Intellectual Property contract negotiation skills, under-developed infrastructure base for proper commercialization and developed vs. developing countries rivalry/sabotage. This is diametrically opposed to the protection methodologies of indigenous knowledge which continuously regards knowledge as an asset that should not to be sold to the highest bidder but be prudently managed for the good of all. All agencies set up by government in connection with Intellectual Property have been characterized by activities focusing on policy development and government at all levels should be engaged in implementing the policies. Various consultation/advisory instruments should be designed and established to support IP policy development and implementation for sustainable interface with Indigenous Knowledge Possessors.

REFERENCES

[1] Absolon, K (2010), Indigenous Wholistic Theory: A Knowledge Set for Practice. First Peoples Child & Family Review Volume 5, Number 2, 2010, pp 74-87

[2] Adewopo, A. (2012) According To Intellectual Property: A Pro-Development Vision Of The Law And The Nigerian Intellectual Property Law and Policy Reform In The Knowledge Era Nigerian Institute of Advanced Legal Studies, Lagos

[3] Agrawal, A. (1995). Indigenous and scientific knowledge: some critical comments. Indigenous Knowledge and Development Monitor, 3, p. 314. Retrieved 25 July, 2002,

[4] Aina, L.O. (2008)-Intellectual Property Rights in the Digital age, in L.O.Aina, S.M. Mutula and M.A. Tiamiyu. (eds). Information and Knowledge Management in the Digital Age.Concepts, Technologies and African Perspectives. Ibadan: Third World Information Services Ltd. 336-368pp

[5] Ajibade, L. T (2008).The Case for Indigenous Knowledge in Sustainable Development.retrieved from www.ajol.info/index.php/afrrev/article/viewFile/41051/8475

[6] Altieri, M.A. (1995). Agroecology: The Science of Sustainable Agriculture. 2nd Edition. London: IT Publications.

[7] Amadi-Echendu, JE (2007). Thinking Styles of Technical Knowledge Workers in the Systems of Innovation Paradigm. Journal of Technological Forecasting & Social Change, 74, 1204 – 1214.

[8] Amadi-Echendu J . (2014). Domiciling the management of indigenous common wealth of ethnic nationalities. Retrieved 15 December, 2014 from repository.up.ac.za/bitstream/.../AmadiEchendu_Proposed_2014.pdf?...1by JE

[9] Anastasiadou, S. D. (2011). Reliability and Validity Testing of a New Scale for Measuring Attitudes Toward Learning Statistics with Technology. Acta Didactica Napocensia, 4(1), 1–10.

[10] Andanda, P. (2012). Striking a Balance between Intellectual Property Protection of Traditional Knowledge; Cultural Preservation and Access to Knowledge.Journal of Intellectual Property Rights, Vol 17, p.547-558.

[11] Archibald, J. (2008). Indigenous Story work: Educating the heart, mind, body, and spirit. Vancouver: UBC Press.

[12] Arinze, F (1970). Sacrifice in Ibo Religion. Ibadan University Press, Ibadan

[13] Arowolo, A. L. (2011). Copyright Law and the Recognition of 'Folkloric Creations' and 'Folk Medicine' in Africa (January 1, 2011). Journal of Black and African Arts and Civilization, Vol. 5, No. 1, p. 33, 2011 . Available at SSRN: http://ssrn.com/abstract=1858987

[14] Barnhardt, R., &Kawagley, A. O. (2005).Indigenous Knowledge Systems and Alaska Native Ways of Knowing. Anthropology and Education Quarterly, 36(1), pp. 8-23. Bay-Dole (2004-2008) P.L. 96-517; The Bayh-Dole Act. www.ipo.uc.edu/index.cfm?fuseaction=policies.bayh-Dole

[15] Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. Human Relations. doi:10.1177/0018726708094863

[16] Berkes, F., and M. K. Berkes.(2009). Ecological Complexity, Fuzzy Logic, and Holism in Indigenous Knowledge. Futures 41(1):6-12.

[17] http://dx.doi.org/10.1016/j.futures.2008.07.003

[18] Bindir, U.B (2011). Managing Research for Impact on Social and Economic Development. A presentation at 2011 UNESCO-WTA International Training Workshop, 16 – 18 Nov. Daejeonea

[19] Bohensky, E. L., and Y. Maru. 2011. Indigenous knowledge, science, and resilience: what have we learned from a decade of international literature on "integration"? Ecology and Society 16(4): 6.http://dx.doi.org/10.5751/ES-04342-160406

[20] Briggs, J. (2005). The use of indigenous knowledge in development: problems and Retrieved from eprints.gla.ac.uk/1094/01/JBriggs_eprint1094.pdf

[21] Business Dictionarry.Intellectual Property Rights. Retrieved 26th June, 2014 from http://www.businessdictionary.com/definition/intellectual-property-rights.html

[22] Calandrillo, S. P., (1998), "An Economic Analysis of Intellectual Property Rights: Justifications and Problems of Exclusive Rights, Incentives to Generate Information, and the Alternative of a Government-Run Reward System," Fordham Intellectual Property, Media, & Entertainment Law Journal, 9: 301.

[23] Carlson, N. R (2010).Physiology of Behaviour. Pearson Press, Boston.

[24] Carlsson, B, Jacobsson, S, Holmen, M, Rickne, A, (2002). Innovation Systems: Analytical and methodological issues. DRUID Conference, Rebild Bakker, Denmark.

[25] Castro-Gomez, S. and Johnson, A. (2000) Traditional and Critical Theories of Culture Nepantla: Views from South Volume 1, Issue 3, 2000 pp. 503-518 | http://muse.jhu.edu/journals/nepantla/summary/v001/1.3castro-gomez.html

[26] CBD Secretariat (2000). Elements for the Development of Sui Generis Systems for Protection of Traditional Knowledge, from http://www.cbd.int/doc/meetings/tk/wg8j- 05/information/wg8j-05-inf-16-en.doc

[27] Chavajay, Pablo; Barbara Rogoff (2002)."Schooling and Traditional Collaborative Social Organization of Problem Solving by Mayan Mothers and Children". Developmental Psychology 38 (1): 55–66.

[28] Christie, M. (2005).Aboriginal knowledge traditions in digital environments. The Australian Journal of Indigenous Education, 34, 61-66.

[29] Levine, D. & Boldrin, M. (2006) Economic and Game Theory Property Rights and Intellectual Monopoly http:///levine.sscnet.ucla.edu/general/intellectual/coffee.htm

[30] Dei, G. S.(2000) "Rethinking the role of IKS in the academy", International Journal of Inclusive Education 4.2: 111-32

[31] Durie, M. (2005). Indigenous Knowledge Within a Global Knowledge System; Higher Education Policy, International Association of Universities; 18, 301-312

[32] Dutfield, G. (2004). Intellectual Property,Biogenetic Resources and Traditional Knowledge. London, EarthscanPublishiing, p. 100-109.

[33] Dutfield, G. (2006). Proptecting Traditional Knowledge: pathways to the Future. International Center for Trade and Sustainable Development.Issue paper No. 16, Geneva, Switzerland, p. 22-32.
[34] Ellen R & Harris H (2000) Introduction. In Ellen R, Parkes P and Bicker A (eds) Indigenous environmental knowledge and its transformations (Harwood Academic Publishers, Amsterdam), 1-33.
[35] Emeagwali, G. 2003. African Indigenous Knowledge Systems (AIK): Implications for the Curriculum, in ToyinFalola (ed), Ghana in Africa and the World: Essays in Honor of AduBoahen. http://www.africahistory.net Retrieved on 08 May 2009.
[36] European IPR Helpdesk; European Commission. (2014) What is the meaning of the term "Intellectual Property Rights (IPRs)"? Retrieved 26th June, 2014.
[37] Export-Import Bank of India (1997). Indian Medicinal Plants: A Sector Study. Occasional Paper No. 54: 26-27.
[38] Eyong, C. T. (2007). Indigenous Knowledge and Sustainable Development in Africa: Case Study on Central Africa Kamla-Raj Enterprises 2007 Indigenous Knowledge Systems and Tribes and Tribals, Special Volume No. 1: 121-139 (2007
[39] Eze, U.T. and Mba, I.N. (2013). Integrating African Indigenous Knowledge in Nigeria's Formal Education System: It's Potential For Sustainable Development Journal of Education and Practice Vol.4, No.6, 2013
[40] Fabiyi, O. O. &Oloukoi, J. O. (2013).Indigenous Knowledge System and Local Adaptation Strategies to Flooding in Coastal Rural Communities of Nigeria.Journal of Indigenous Social Development.vol 2 (1) p 1-19.
[41] Fink, A. (2003). How To Design Survey Studies. Design (Vol. 6, pp. 9–10). doi:10.4135/9781412984447
[42] Fischer, M. (2004) Powerful Knowledge: Applications in a Cultural Context "Indigenous knowledge and Expert Knowledge in Development".The contribution of indigenous knowledge to economic development, ed. Sillatoe and Bicker.London, Harwood 2004.
[43] Fisher, W. (2001)."Theories of Intellectual Property" New Essays in the Legal and Political Theory of Property.Cambridge University Press.
[44] http://wikijuris.net/articles/fisher_theories_of_ip_2001
[45] Forest Department, Government of Madhya Pradesh (1998). Gene Campaign and CEAD Convention of farmers and Breeders, A draft treaty presented as an alternative to UPOV. Personal communication:
[46] Gadzirayi, C. T., Mutandwa, E. &Chikuvire T.J. (2006).Effectiveness of `Maize Cob in Controlling Stored Maize Grain. African Studies Quarterly, Vol 8(4) http://web.africa.ufl.edu/asq/v8/v8i4a1.htm
Gair, S., Miles, D. and Thompson, J. (2005).Reconciling Indigenous and Non-Indigenous Knowledges in Social Work Education: Action and Legitimacy.Journal of Social Work Education; 41, 2.
[47] Gene Campaign (1998). Collection and Characterization of Traditional Varieties of Crop Plants in Selected areas of U.P and M.P. Visit: www.genecampaign.org/index.html
[48] Gene Campaign (1998). A Report on the Documentation of Indigenous Knowledge in the Chotnagpur Region of Bihar. Visit: www.genecampaign.org/index.html
[49] Gene Campaign (2000). Indigenous Knowledge Amongst the Tharus of the Terai Region of Uttar Pradesh. Visit: www.genecampaign.org/index.html
[50] Gene Campaign (2000). Indigenous Knowledge in the Jhabhua District of Madhya Pradesh.Visit: www.genecampaign.org/index.html
[51] Gene Campaign (2000). Survey and Documentation of Wild Varieties of Crop Plants in National Parks and Sanctuaries of Upper Western Ghats. Visit: www.genecampaign.org/ index.html
[52] Gene Campaign (2001). Genetic Diversity in Indian Trees. Visit: www.genecampaign.org/index.html
[53] Government of India Bill No. 123 of 1999, "The Protection of Plant Varieties and Farmers' Rights, Bill 2000"
[54] Grenier, L., (1998). Working with Indigenous Knowledge: A Guide for Researchers, International Development Research Centre, Ottawa, Canada.
[55] Greenough, W.T. (1999, April). Experience, Brain Development, and Links to Mental Retardation. Paper presented at the meeting of the Society for Research in Child Development, Albuquerque.
[56] Greenough, W.T., Klinstsova, A.Y., Irvan, S.A., Galvez, R., Bates, K.E. and Weiler, I.J. (2001).Synaptic Regulation of Protein Synthesis and the Fragile X Protein. Proceedings of the National Academy of Science, USA, 98, 7101-7106.
[57] Gottlieb, G. (2004). Normally Occurring Environmental and Behavioural Influences on Gene Activity. In C. G. Coil, E. L. Bearer & R. M. Lerner (EDs), Nature and Nurture. Mahwah, NJ: Erlbaum.
[58] Hammersmith, J.A. (2007). Converging Indigenous and Western Knowledge Systems: Implications for Tertiary Education.Unpublished Doctoral Thesis. Pretoria: University of South Africa (UNISA)
[59] Harman, H. H. (1976). Modern Factor Analysis.University of Chicago Press.pp. 175, 176.ISBN 0-226-31652-1.

[60] Hansen, S. A. &VanFleet, J. W. (2003).A Handbook on Issues and Options for Traditional Knowledge Holders in Protecting their Intellectual Property and Maintaining Biological Diversity. New York, AAAS, p. 24
[61] Herbert, S. (2000) For ethnography. Progress in Human Geography, 24, 550-568.
[62] Hettinger, Edwin C. (1989) "Justifying Intellectual Property," Philosophy and Public Affairs, 18: 31–52. Reprinted in Intellectual Property: Moral, Legal, and International Dilemmas, A. Moore (ed.), Lanham, MD: Rowman and Littlefield, 1997.
[63] Hilpert, J., Stump, G., Husman, J., & Kim, W. (2008). An exploratory factor analysis of the Pittsburgh Freshman Engineering Attitudes Survey. In Proceedings - Frontiers in Education Conference, FIE. doi:10.1109/FIE.2008.4720400
[64] Himma, K. (2008) "The Justification of Intellectual Property Rights: Contemporary Philosophical Disputes" (Perspectives on Global Information Ethics), Journal of the American Society for Information Science and Technology, 59: 2–30.
[65] History World: History of Nigeria. (Ret 23rd Feb 2011) http://www.historyworld.net/wrldhis/
[66] Hughes, Justin, 1988, "The Philosophy Of Intellectual Property," Georgetown Law Journal, 77: 287–366; reprinted in Intellectual Property: Moral, Legal, and International Dilemmas, A. Moore (ed.), Lanham, MD: Rowman and Littlefield.
[67] Iberiyenari, L. (n.d) The Lawyers Chronicle. A brief analysis of intellectual property law in Nigeria. Retrieved 20th June, 2014 from http://thelawyerschronicle.com/a-brief- analysis-of-intellectual-property-law-in-nigeria/
[68] Ilesanmi, F. (August, 2012) FG Not Serious in IP Law Enforcement – Aponmade. Nigeria http://www.nigeriacommunicationsweek.com.ng/e-guest/fg-not-serious-in-ip-law- enforcement-aponmade#sthash.fysfh5r6.dpuf
[69] Jacob M. (2009). Indigenous Knowledge Systems in Zimbabwe: Juxtaposing Postcolonial Theory. The Journal of Pan African Studies, vol.3, no.1, September 2009
[70] Kaiku, P. &Kaiku, T.W (2008). Indigenous knowledge for community benefit: examples from Lavongai (New Hanover) Island in the Pacific Region. Retrieved 21st June, 2014 from http://www.thefreelibrary.com/Indigenous+knowledge+for+community+ benefit%3A+examples+from+Lavongai...-a0188424186
[71] Kenna& Associates (2010) Intellectual Property Rights in Nigeria http://nigeria.smetoolkit.org
[72] Klooster D J (2002) Toward adaptive community forest management: integrating local forest knowledge with scientific forestry. Economic Geography, 78, 43-70.
[73] Kovach, M. (2010). Conversational Method in Indigenous Research First Peoples Child and Family Review Vol5 (1) p. 40-48
[74] Kunnie, J. 2000. 'Developing indigenous Knowledge and Technological systems' in Chiwome, E.M. et al. (eds) Indigenous Knowledge and Technology in African and Diasporan Communities. Harare: Southern African Association for Culture and Development Studies. Pp 33-44.
[75] Langton, M. & Ma Rhea, Z. (2005).Traditional Indigenous Biodiversity-related knowledge. In M. Nakata & M. Langton (Eds.), Australian Indigenous Knowledge and Libraries (pp. 47-72). Kingston, ACT: Australian Academic & Research Libraries, Australian Library and Information Association.
[76] Lwoga, E. T., Ngulube, P., & Stilwell, C. (2010). Managing indigenous knowledge for sustainable agricultural development in developing countries: Knowledge management approaches in the social context. The International Information & Library Review, 42(3), 174-185.
[77] Makinde, O. O. & gbShorunke, O. A. (2013). Exploiting the Values of Indigenous Knowledge in Attaining Sustainable Development in Nigeria: the place of the Library. Library Philosophy and Practice (e-journal)
[78] Marker, M. (2006). After the Makah Whale Hunt: Indigenous Knowledge and Limits to Multicultural Discourse; Urban Education; 41, 5; 482.
[79] Marapa, J. (2009). Indigenous knowledge systems in Zimbabwe: juxtaposing postcolonial theory. Retrieved 21st June, 2014 from
[80] http://www.thefreelibrary.com/Indigenous+knowledge+systems+in+ Zimbabwe%3A+juxtaposing+postcolonial...-a0306757721
[81] McCormick, R and Paechter, C (1999). Learning and Knowledge, Paul Chapman Publishing Ltd, London
[82] McCulley, T.P (2013) Creativity: The Next Generation in Nigeria. United States Diplomatic Mission to Nigeria. http://nigeria.usembassy.gov/oped_04292913.html
[83] Melchias, G.(2001). Biodiversity and Conservation. Enfield: Science Publishers, Inc.
[84] Merriam et al. (2007). Learning in Adulthood: A Comprehensive Guide

[85] Mgboji, I (2006). Lost in Transition? Traditional healers of South-East Nigeria, and the Delegitimisation of Traditional Knowledge and Cultural Expressions in the Age of Modernity. A paper presented to World Intellectual Property Organization, Geneva.
[86] Michie, M. (1999). Where are Indigenous peoples and their knowledge in the reforming of learning, curriculum and pedagogy? Paper presented at the Fifth UNESCO-ACEID International Conference "Reforming Learning, Curriculum and Pedagogy: Innovative Visions for the New Century", Bangkok, Thailand, 13-16 December 1999.
[87] Moller, H., F. Berkes, P. O. Lyver, and M. Kislalioglu.(2004). Combining science and traditional ecological knowledge: monitoring populations for co-management. Ecology and Society 9(3): 2. [online] URL: http://www.ecologyandsociety.org/vol9/iss3/art2/
[88] Moore, A. D. (2011). "Intellectual Property", The Stanford Encyclopedia of Philosophy (Summer 2011 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/sum2011/entries/intellectual-property/>.
[89] Moore, A. D. (2008), "Personality-Based, Rule-Utilitarian, and Lockean Justifications of Intellectual Property," in H. Tavani and K. Himma (eds.), Information and Computer Ethics, Hoboken, N.J.: John Wiley & Sons, 105–130.
[90] Moore, A. D. (2003), "Intellectual Property, Innovation, and Social Progress: The Case against Incentives Based Arguments," The Hamline Law Review, 26: 602–630.
[91] Moore, A. D.(2001), Intellectual Property and Information Control: Philosophic Foundations and Contemporary Issues, New Brunswick NJ: Transaction Publishing.
[92] Moore, A. D.(1998) "A Lockean Theory of Intellectual Property," The Hamline Law Review, 21: 65–108.
[93] Moore, J. D. (2009). "Franz Boas: Culture in Context". Visions of Culture: an Introduction to Anthropological Theories and Theorists. Walnut Creek, California: Altamira. pp. 33–46.
[94] Nakashima, D. (ed.),(2010). Indigenous Knowledge in Global Policies and Practice for Education, Science and Culture UNESCO: Paris.
[95] Nakata, M. (2007). The Cultural Interface; Australian Journal of Indigenous Education; 36,7.
[96] Nakata, M. (2002). Indigenous Knowledge And The Cultural Interface: Underlying Issues At The Intersection Of Knowledge And Information Systems. ifl.sagepub.com/content/28/5-6/281.refs
[97] Nakata, M. & Langton, M. (2005).Australian indigenous knowledge and libraries. Available: http://www.alia.org.au/publishing/aarl/AARL_vol36_no2_2005(reprint).pd
[98] Nigeria (2012).Encyclopædia Britannica.Encyclopædia Britannica Ultimate Reference Suite. Chicago: Encyclopædia Britannica.
[99] NOTAP (2009, 2010).Surveys on Intellectual Property Rights.National Office for Technology Acquisition and Promotion. Abuja, Nigeria.
[100] Nwankwo O.C (2010) Practical Guide to Research Writing
[101] Nwokoma, A. (2012).Nigerian Indigenous Knowledge Application in ICT Development. Journal of Educational and Social Research Vol. 2 (7) October 2012
[102] Nwosa, L (2014). Sociological and Psychological Factors as Correlates of Spousal Abuse among Couples in Tertiary Institutions in Rivers State: Implications for Counselling. Unpublished doctorial thesis. University of Port Harcourt, Nigeria.
[103] Ofodile, E.U. (2013). Tourism, Cultural Heritage & Indigenous Knowledge: is effective legal protection possible? Business Day Newspaper
[104] September 19, 2013
[105] Overton, W.F. (2004).Embodied Development: Biology, Person, and Culture in a Relational Context. In C. G. Coil, E. L. Bearer & R. M. Lerner (EDs), Nature and Nurture. Mahwah, NJ: Erlbaum.
[106] Palmer, T. G., 2005, "Are Patents and Copyrights Morally Justified? The Philosophy of Property Rights and Ideal Objects," Harvard Journal of Law and Public Policy 13(1990): 817–866. Reprinted in Information Ethics: Privacy, Property, and Power, A. Moore (ed.), Seattle: University of Washington Press, 2005.
[107] Palmer, T.G. (1997), "Intellectual Property: A Non-Posnerian Law and Economics Approach," Hamline Law Review, 12: 261–304
[108] Parajuli, D. R & Das, T. (2013). Indigenous Knowledge and Biodiversity: Interconnectedness for Sustainable Development. International Journal of Scientific & Technology Research Vol 2, (8) August 2013, issn 2277
[109] Pathak, S., Xavier-Oliveira, E. &Laplume, A. (2012).Influence of Intellectual Property, Foreign Investment, and Technological Adoption on Technology Entrepreneurship.Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2333853

[110] Peat, F.D. (Undated). Blackfoot Physics and European Minds. Online Available url:http://www.fdavidpeat.com/bibliography/essays/black.htm.Accessed March 2003.
[111] Peat, F.D. 1987. Synchronicity: The Bridge Between Matter and Mind. New York: Bantam
[112] Pewewardy, Cornel (2002). "Learning styles of American Indian/ Alaska Native Students: A Review of the Literature and Implications for Practice". Journal of American Indian Education 41 (3).
[113] Phillips, J. &Lampert, J. (2005). Introductory Indigenous Studies in Education: The Importance of knowing. Frenchs Forest: Pearson
[114] Plomin, R., Defries, J.C., McClearn, G.E., & McGuffin, P. (2001). Behavioural Genetics.(4th Edition), New York: Worth.
[115] Pushpangadan P (1999). IPR and benefit sharing in drug and gene prospecting: An Indian experiment. Paper presented at the First Commonwealth Science Forum, Goa, September.
[116] Räihä, O. (2010). A survey on search-based software design. Computer Science Review, 4, 203–249. doi:10.1016/j.cosrev.2010.06.001
[117] Reid, W.V (1983). Sorcerers and Healing Spirits. In Indigenous Peoples and Drug Discovery Research: A Question of Intellectual Property Rights, Huft, JM, 89 (4), Northwestern University Law Review 1695.
[118] Richards, P. (1993). Cultivation: knowledge or performance. In An anthropological critique of development. (ed.) M. Hobart. London: Routledge.
[119] Roth, R. 2004. Spatial organization of environmental knowledge: conservation conflicts in the inhabited forest of northern Thailand. Ecology and Society 9(3): 5. [online] URL: http://www.ecologyandsociety.org/vol9/iss3/art5
[120] Saez, C. (2013, August) Interviews: What Protection Of Traditional Knowledge Means To Indigenous Peoples. Intellectual Property Watch from http://www.ip-watch.org/2013/08/20/interviews-what-protection-of-traditional-knowledge-means-to- indigenous-peoples/
[121] Sahai S (1998). Genetic resources, intellectual property rights and the rights of local communities Paper presented at the ICIMOD conference on Indigenous Knowledge, Kathmandu, Nepal.
[122] Sahai S (1998). Incorporating the intellectual property rights of mountain farmers over native crop resources in the agenda for management of mountain agrobiodiversity. In Farmers'Changes: Perspectives And Institutional Responses in HinduKush- Himalayan Region.
[123] Sahai S (1998). Indigenous knowledge is technology. Paper presented at the Regional Conference, Gender and Technology in Asia, Bangkok, August.
[124] Sahai S (2000). Possible systems of protection of indigenous knowledge in India. Paper presented at the Workshop on the Commercialization and Use of Genetic Resources and Traditional Knowledge in Viet Nam, Hanoi, September.
[125] Sampath, P.G (2004). Intellectual Property Rights on Traditional Medicinal Knowledge, Journal of World Intellectual Property, WIPO Vol. 7 No. 5 – Geneva.
[126] Santrock, J. W. (2006) Life-Span Development McGraw Hill, New York.
[127] Scheffler, I (1999).The Nature of Knowledge and Learning; Epistemology and Education. In Learning and Knowledge, McCormick, R and Paechter, C , Paul Chapman Publishing Ltd, London
[128] Steinhauer, P. (2001). Situating Myself in Research. Canadian Journal of Native Education, 25(2), 183-187.
[129] Suminguit, V. J. (2005) Indigenous Knowledge Systems and Intellectual Property Rights: an Enabling Tool for Development with Identity
[130] http://www.ifad.org/english/indigenous/pub/documents/Indigeknowledge.pdf
[131] Suri, G. & Sharma, P. C (2008).Intellectual Property Rights for Traditional Healers: Indian Perception p.217
[132] Taylor, R. (2003). An Indigenous Perspective on Evaluations in the Inter-Cultural Context: HowFar Can One Throw a Moree Boomerang? Evaluation Journal of Australasia 3(2) 44 – 51.
[133] Tella, R. D (2007).“Towards promotion and dissemination of indigenous knowledge: a case of NIRD”, International Information and Library Review39. 3-4: 185-93.
[134] The Editor (2011) God, Geography and History; Why Kenya and South Africa Could Rule Africa. Retrieved 21st June, 2014 from http://www.africapedia.com/boards/topic/28
[135] The free Dictionary.(2014). Intellectual Property. Retrieved 26th June, 2014 from http://legal-dictionary.thefreedictionary.com/Intellectual+Property
[136] Thomas, R (2005) Honouring the oral traditions of my ancestors through storytelling. In Brown &Strega (eds). Research as Resistance –Critical, Indigenous and anti-oppressive approaches (pp. 237-254). Toronto: Canadian Scholars Press
[137] Torsen, M. & Anderson, J. (2010).intellectual Property and Safeguarding of Traditional Cultures: Legal Issues and Practical Options for Musuems, Libraries, Achives. (WIPO, Switzerland, Geneva) p.18
[138] UN Development Group. 2008. Guidelines on Indigenous Peoples' Issues. United Nations.

[139] UNESCO, 2005, The Canoe Is the People. Indigenous navigation in the Pacific. Interactive CD-ROM. UNESCO: Wellington
[140] UNESCO, 2009, Learning and Knowing in Indigenous Societies Today Edited by P. Bates, M. Chiba, S. Kube& D. Nakashima, UNESCO: Paris, 128 pp
[141] UNESCO & CIRAN (2003). Best Practices in Indigenous Knowledge. Retrieved 21st June, 2014 from http://www.unesco.org/most/bpindi.htm
[142] UNIDO (2005). Technological Development in Low-income Countries: Policy Options for Sustainable Growth. Vienna.
[143] Vermeylen, S. (2007). Intellectual Property Rights and Indigenous Peoples; A Case Study of the San in Southern Africa
[144] http://www.surrey.ac.uk/ces/files/pdf/0705_WP_Intellectual_Property Rights and Indigenous Peoples.pdf
[145] Verran, H. (2005). Knowledge traditions of Aboriginal Australians: Questions and answers arising in a data basing Project, Retrieved 15 May, 2006 from
[146] Warren, M (1998). Indigenous Knowledge and Development Monitor, Vol. 6 (3), p.13.
[147] Warren D M (1995) Indigenous knowledge, biodiversity conservation and development. Keynote address at the International Conference on Conservation of Biodiversity in Africa: Local Initiatives and Institutional Roles, Nairobi, Kenya.
[148] Wendland, W. (2005). Safeguarding Cultural Heritage, Protecting Intellectual Property and Respecting the Rights and Interests of Individual Communities: What Role for Museums, Archives and Libraries? Paper Presented for the Conference "Can Oral History Make Objects Speak?" Nafplion, Greece, 18021, Oct., 2005, p.2
[149] Wenwei, G. (2014) The British Statute of Anne 1710. Retrieved 29 January, 2015 from https://books.google.com.ng/books?isbn=364255265X:
[150] WIPO (1999).Intellectual Property Needs and Expectations of Traditional Knowledge Holders. Report on Fact-Finding Missions on Intellectual Property and Traditional Knowledge, World Intellectual Property Organization, Geneva, 1998-1999.
[151] WIPO (2001). Intellectual Property Needs and Expectations of Traditional Knowledge Holders: WIPO Report on Fact-Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999) p.57
[152] WIPO (2001). Integrated Committee on Intellectual Property and Genetic resources, Traditional Knowledge and Folklore, Report, First Session, (March 16, 2001) p.20
[153] Wordpress (n.d) Intellectual property organizations in Nigeria. Retrieved 20th June, 2014 from http://legalistiq.wordpress.com/2012/06/25/intellectual -property-organizations-in-Nigeria/
[154] Wusu, O. (May, 2012) Legal protection for Intellectual Property.The Punch. Retrieved 26th June, 2014 from http://www.punchng.com/feature/the-law-you/legal-protection-for-intellectual-property/
[155] XLSALT. (2013). Logistic regression in XLSTAT- Modeling software Statistics package for Excel-XLSALT. Retrieved from www.xlstat.com
[156] Yarradamarra Centre (2007). Cultural Awareness Course Materials; Dubbo TAFE; Dubbo, NSW.
[157] Young-Ing, G. (2006). Intellectual Property Rights , Legislated Protection , Sui Generis Models And Ethical Access In The Transformation Of Indigenous Traditional Knowledge . eprints.rclis.org/9411/1/Young-Ing_Greg__thesis__-_Oct_10-06.pdf
[158] Yunkaporta, T. (2009).Aboriginal Pedagogies at the Cultural Interface.Draft Report for DET on Indigenous Research Project in Western NSW Region Schools, 2007-2009. Retrieved 19 March, 2015 from https://8ways.wikispaces.com/file/view/draft%2Breport.doc