

BIO PROSPECTING IN NIGERIA: EVALUATING THE ADEQUACY OF LAWS AND PRACTICES AND THE IMPLICATIONS FOR THE ENVIRONMENT

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ABSTRACT

Bio-prospecting is a subject of interest especially as to its utility in environmental protection. It is the purposeful evaluation of wild biological materials in search of valuable new products and involves the application of advanced technologies to develop new pharmaceuticals, agrochemicals, cosmetics, flavorings, fragrance, industrial-enzymes and other products from biodiversity. On the face of it, bio-prospecting is a major threat to the continuous flow of genetic resources. However when substituted with other consumption patterns or when properly regulated such that benefits derived from it are invested in technologies geared towards conserving the databank of the bio resources, or the provision of the needs of the local peoples whose practices mount undue pressure on the resources, it becomes a viable tool for resource conservation.

This paper examines the regulatory regime of bio-prospecting in Nigeria from international and national perspectives to evaluate their adequacy. It also examines the environmental implications of the state of affairs and recommends the protection of the local peoples' interest, and their involvement in strategic planning and policy formulation on bio prospecting, amongst others as a way of bio conservation to profit bio-prospecting.

Keywords: Bio-prospecting, environment, biodiversity

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1. INTRODUCTION

Biodiversity prospecting or bio-prospecting is the exploration of biodiversity for commercially valuable genetic and biochemical resources, or the search for economically valuable genetic and chemical resources. The adoption of the *United Nations Convention on Biological Diversity, 1992* coupled with the growth of biotechnology processes have led anthropologist into the challenging field of exploring biological diversity for commercially valuable genetic and biochemical resources.¹ The goals of the Convention on Biological Diversity (CBD), introduced in Rio de Janeiro during the 1992 Earth Summit, are (1) the conservation of biological diversity, (2) the sustainable use of its components, and (3) the fair and equitable sharing of the benefits arising out of its commercial use.² The Convention places emphasis on Sovereignty of Nations over their bio-resources and their rights to share in the benefits that accrue from commercialized bio-products,³ thereby regulating access to genetic resources and ensuring benefit sharing among stakeholders.⁴ The overall priority of the Convention on Biodiversity is ensuring global biodiversity conservation and sustainable development.

Critical questions hinging on conservation are posed; some of these revolve around whether active exploitation of genetic resources can be done in a sustainable and beneficial way⁵. What are the environmental implications of bio-prospecting? Can bio-prospecting actually be a mechanism for environmental conservation?

This paper explores the concept of bio-prospecting, its environmental implications, the legal regimes - international and national - touching on the conservation of biodiversity in Nigeria and their adequacy in the face of the surging growth in bio-prospecting. The need for this study arises because given the vast array of natural resources Nigeria is endowed with, and the potentials for increases on active bio-prospecting, the wealth of the nation ought to be increasing. This can serve as an active tool or incentive for sustainable utilization of environmental resources. In this paper, comparisons will be made to jurisdictions like India, with a view to adopting

1 K Moran and K Kings: "Biodiversity Prospecting: Lessons and Prospects" (2001) Annual Review of Anthropology 1.

2 Moran Katy, "Lessons from Bioprospecting in India and Nigeria" CSQ Issue: Commodity. Available at <http://www.culturalsurvival.org/ourpublications/csq/article/lessons-bioprospecting-india-and-nigeria>[accessed 14 Nov 2013]

3 Article 15 of the Convention on Biodiversity 1993 (herein after referred to as CBD).

4 Art. 15 and 19 of Convention on Biodiversity.

5 *Ibid.*

some useful lessons. It was found among others that extant legal regimes in Nigeria pay little attention to the needs of indigenous or local peoples who are the key players in resource conservation by reason of their proximity to the natural resources. Instead, too much emphasis is placed on “State sovereignty over bio-resources” without corresponding legal obligation to protect the economic interest of the local peoples.

2. WHAT IS BIO-PROSPECTING?

Bio-prospecting is subject to different varying definitive approach, however for purposes of this work, the definition proffered by *Arturo* will be adopted. According to him, bio-prospecting is the purposeful evaluation of wild biological materials in search of valuable new products. It involves the application of advanced technologies to develop new pharmaceuticals, agrochemicals, cosmetics, flavorings, fragrance, industrial-enzymes and other products from biodiversity.⁶ The development of new capacities in the field of biology, chemistry, genomics and information technology has given impetus to the pace of change in the industry which has in turn created greater demands for adequate supply of bio-resources. This trend has further encouraged bio-prospecting activities,⁷ thereby increasing the value of genetic resources.⁸

The most active area of biodiversity prospecting is in the search for medical compounds.⁹ In some countries, a large percentage of prescriptions are filled with drugs whose active ingredients are extracted or derived from plants. Examples of some important recent discoveries of plants with medical properties are *Okubaka aubrevilleli*, which exhibits anti-microbial and immune-stimulating activities and *Dysoxylum lenticellars*, which shows promise in treating cardiac ailments, etc.¹⁰ Another area of importance is

6 Ibid.

7 Bio-prospecting covers a wide range of commercial activities that have applications in different industrial sectors including pharmaceuticals, food and beverages; biotechnology etc.

8 A genetic resource encompasses all species of plants, animals and microorganisms. The exact number of terrestrial species is unknown; scientists have arguably given an estimate of between 5 and 30 million. See Rayfuse, R., “Biological Resources” in Bodansky, D., Brunnee, J., and Hey, E., (eds.) *The Oxford Handbook of International Environmental Law* (New York: Oxford University Press, 2007) 362-363.

9 Soe Jarto, et al, “Challenges in Developing a new drug from Tropical Rain Forest Plants” proceedings of the Symposium on the Industrial Utilization of Tropical Plants and Conservation of Biodiversity; February 14-19, 1993.

10 *Ibid.*

the utilization of genetically engineered plants to improve crops strains and produce biodegradable plastics.¹¹

Genetic resources are unequally spread amongst nations of the world. No country is self-sufficient in terms of biological endowment. As a result, nations seek for bio-resources needs from other parts of the world.¹² These bio resources comprise of staple foods and high value cash crops and have in recent times been moved from one part of the world to another for several industrial purposes.¹³ This results in constant exploitation of genetic resources.

3. MANAGING THE BENEFITS OF BIO-PROSPECTING

It appears that bio-prospecting puts untold pressure on bio-resources; however it also appears that bio-prospecting may yield huge economic gains to the nations involved. How then can a balance be struck between these divergent concerns, that is, the concern on one hand to conserve biodiversity and the quest that their exploitation contribute to economic development? The quest for economic development remains the main cause of unsustainable utilization of bio-resources resulting in a constant loss of biodiversity. What role can law play in balancing these growing concern in order to ensure that the ability of the future generations to meet their needs is not jeopardized?

Scholars have maintained¹⁴ that bio-prospecting is one of the several economic tools of conserving biodiversity. However bio-prospecting may have a maximum positive impact on conservation. Only within certain institutional and socio-economic context .A fundamental element requisite to ensure that bio-prospecting will result in conservation is by ensuring that the people or institutions that own or control the environmental resources derive adequate benefits from prospecting to the extent that they are willing to consent rather than deplete the resources for other purposes.¹⁵ For bio-prospecting to be successful as a conservation mechanism, it will need to compete with other activities like cattle grazing and logging. On the other

11 Collin, M., "An Intellectual Property Rights Framework for Biodiversity Prospecting" *Biodiversity Prospecting: Using Genetic Resources for Sustainable Development* (Baltimore World Resource Institute, 1993) P. 159-198.

12 African, S., and Abraham, B., "Bio-prospecting: Promoting and regulating Access to Genetic Resources and Benefit Sharing", *Decision*, Vol. 36, No.3 (2009) P.2.

13 *Ibid.* For example, Pharmaceuticals, food and beverages, biotechnology, seed, crop protection, horticulture, botanical medicines and cosmetics and personal care.

14 See Moran K "Returning benefits from ethno-biological drug discovery to native communities"(1977) *Bio diversity and Human Health* (1977) P. 243 - 263

15 *Ibid.*

hand, an unlimited and open access to bio resources will result to unsustainable harvesting and eventual decline in biodiversity. It is also argued that bio-prospecting could result in local people losing future access to their bio resources if harvesting of these resources is done in an unsustainable way or if the economic gains derivable from it is not shared among local communities to serve as an incentive for conserving their resources.

Aside economic gains from bio-prospecting, there are non-monetary benefits that take social and scientific forms. Social benefits include the conserving of primary source health care, participation of nationals in research on tropical diseases through technology transfer, training and joint research publication¹⁶. Such training supplies income-producing opportunities to rural communities or local people who are best located to manage collect and protect species¹⁷. Training also generates employment. National governments also benefit from training programs by gaining a technological infrastructure for science and commerce, yielding jobs and taxes. Such taxes could be imposed on outsiders interested in bio resources, thereby increasing profits and encouraging nations to forgo short term profits from logging, cattle-grazing, monoculture, development projects that destroy forest¹⁸.

Therefore bio-prospecting is a viable conservation tool only with certain institutional, socio-economic and regulatory framework geared towards sustainable exploitation of resources and benefit sharing of resources so exploited amongst rural dwellers that are the major actors in forest exploitation.

4. INTERNATIONAL LEGAL FRAMEWORK ON BIO-PROSPECTING

*The Convention on Biological Diversity*¹⁹

The adoption of the Convention on Biodiversity in 1992 was instrumental in resolving to a large extent, the environment conservation issues relating to bio-prospecting.²⁰ First it recognizes the Sovereignty of States

16 Moran K., "Bio-prospecting: Lessons from Benefit sharing experience" (2000) *International Journal of Biotechnology*, Vol. 2. P.12.

17 *Ibid.*

18 Moran K., "Returning benefits from ethno biological drug discovery to native communities" (1977) *Biodiversity and Human Health*, P. 243-263.

19 Nigeria is a signatory to this international treaty, however it has not re-legislated it or incorporated it into the corpus of Nigerian laws as required by section 12 1999 Constitution (as amended 2011)

20 The framework of the CBD has as its objectives the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources. See CBD art.1.

over their biological resources,²¹ while also imposing on them the obligation of regulating access to bio-resources. In Pre-CBD era, controversy between the global north and south centered on access to both genetic resources and the technologies that exploit them. While the North believed that genetic resources are “common heritage of mankind” which must be unregulated and freely accessible to all,²² it was the contention of the South that the benefits derived from the use of these resources be shared with their country of origin.²³ Thus the Pre-CBD regime witnessed no regulatory scheme of benefits sharing from the use of bio-resources, rather, the industries in the North relied heavily on intellectual property rights regimes to establish monopoly results which aimed to provide fair reward to industries for their investment and to encourage innovations,²⁴ thereby also monopolizing most of the benefits derived from the use of bio resources.

Ironically, in perpetuating intellectual property rights, the traditional knowledge of indigenous people regarding the use of such resources was not protected. These nagging issues were intensely debated at the negotiations leading up to the Convention. Developing countries perceived a great inequality in the accumulation of wealth by companies in the North as a result of the use of genetic resources freely obtained from within their borders.²⁵ On the other hand, the North called upon developing countries to ensure the conservation and sustainable use of their bio-resources for the benefit of the world.²⁶

21 For the purposes of the CBD, Art. 2 define Biological resources to include “genetic resources, organisms or parts thereof, populations or any other biotic component of ecosystems with actual or potential use or value for humanity.

22 Jeffery Q., “Bio-prospecting: Access to Genetic Resources and Benefit-Sharing Under the Convention on Biodiversity and the Bonn Guidelines” (2002) *Singapore Journal of International and Comparative Law*, P. 12.

23 *Ibid.* The wealth of the world’s biodiversity is primarily located in the developing countries of the South, while the capacity and the biotechnology to exploit these genetic resources belong primarily to institutions of the developed countries of the North. While the biological resources in the South were governed by the common heritage doctrine, new cultivations developed by commercial plant breeders in the North where increasingly protected by industrial patents and the like.

24 Intellectual Property Rights (IPRS) are private legal rights that apply to intangible human contribution that goes into producing a particular technology. See Glowka, L., *A Guide to Designing Legal Frameworks To Determine Access to Genetic Resources* (Coland, Switzerland, Cambridge and Bonn: LUCN, 1998) P. I. Biotechnology and the products developed from its use were also protected by the IPR regime.

25 Jeffery, *Supra* note 23. They saw few economic benefits from conserving their biodiversity which was often done at the expense of promoting other profitable activities such as logging and agriculture.

26 Ntambieweki, J., “Biotechnology and International Law within the North-South Context”, *Transnat International Law*, 14 (2001) p. 103; Kadidal, S., “Plants, Poverty and Pharmaceutical Patents”, *Yale Law Journal*, 103 (1993) p. 223.

Developing countries rejected the common heritage doctrine,²⁷ maintaining that they had right to benefit from their own resources, and affirming that biodiversity fell within their national sovereignty to regulate and manage. They maintained throughout the negotiations that in return for allowing industries to bio-prospect within their borders, benefits from the product developed as a result of bio-prospecting must be shared with them, in addition to access to the technology (including biotechnology) that would enable them add value to genetic resources domestically.²⁸ In contrast, the developed countries sought but to no avail to maintain free and open access to genetic resources and were unrelenting about their Intellectual Property Rights regimes in fear that technology transfer requirements could undermine their industry.²⁹

At the end of the negotiations, the CBD codified a balance between the competing self-interests of the countries of both poles in the spirit of preserving global biodiversity.³⁰ The main objective and goal of the CBD is to combine the goals of the conservation and sustainable development of biodiversity with the fair and equitable sharing of benefits resulting from the utilization of genetic resources and reflect the tradeoff between access to genetic resources and the transfer of relevant technology.³¹

27 They argued that it were unfair to treat their contributions to genetic diversity as common property while the seed lines developed by the North were protected by Law. The North believed that unlike the raw biological resources in the South, their improved seed variety involved a considerable time and financial risk, and if these commodities were to be put in the public domain there will be no incentive for innovation and they will be unable to recover their investment cost. See Noah, Z., "Biodiversity Conservation and Traditional Knowledge", *Carnets ducentric de philosophie du Droit*, (2003) 106.

28 Jeffery, *Supra* note 23, Jeffery notes that if nations add value to genetic resources domestically and build technical capacity for improving the resources themselves, bio-prospecting could become an important component of a nation's economic development strategy.

29 Hunter, D., et al, *International Environmental Law and Policy*, 2nd edn. (New York: Foundation Press, 2002) P.944.

30 Art 6. CBD places obligation on countries to develop plans, programs and policies for biodiversity conservation and sustainable use.

31 Article 1 and 15 CBD deals with Access to Genetic Resources; Article 16 deals with access to and transfer of technology; Art. 19, deals with handling of Biotechnology and distribution of its benefits.

Access to Genetic Resources

The CBD proceeds on the basis of the Sovereign rights of States over their natural resources.³² Article 15 recognizes the authority of a State to control access to their genetic resources through national legislation. Sub Paragraph (4) and (5) provides for the requirement and necessity of “prior informed consent” which must be obtained from the providing country in order to gain access to genetic resources and where granted will be subject to “mutually agreed terms”.³³ Laudable as this provision may seem,³⁴ it has been faulted in various respect.

First, it does not treat genetic resources as property like any other natural resources.³⁵ Secondly, National control over genetic resources is limited by the obligation to facilitate access by other contracting parties and not to impose restrictions that run counter to the Convention’s objectives.³⁶ Thirdly, the Sovereign right to genetic resources is limited to those collected after the entry into force of the Convention (i.e. December 29, 1993). Plants, animals or microorganisms that have been removed to *ex situ* collections prior to this date are exempt from the operations of the CBD.³⁷

Provisions On Benefit Sharing

The preamble to the CBD highlights the “desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components”. Furthermore Article 8(1)³⁸ provides that:

32 Art. 3 CBD. This article incorporate Principle 21 of the 1972 United Nations Conference on the Human Environment held in Stockholm. The Principle provides that states have in accordance with the charter or the United Nations and Principles of International Law, the Sovereign right to exploit their own resources pursuant to their own environmental policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of the other states or areas beyond the limits of national jurisdiction.

33 Art. 15(4) and (5) empowers Nation states to condition access to their genetic resources on informed consent and other terms, which provides the potential for capturing most aspects of bio-prospecting within enforceable and bilateral agreement.

34 This brought about a definitive move away from the “common heritage” doctrine.

35 Despite its acknowledgement of the intrinsic value of biodiversity, the convention has been criticized for its overbearing emphasis on conservation of resources for their utilization.

36 Art. 15(2) CBD.

37 Jeffery queries these provisions stating that it is a coup for the North because many of genetic resources already collected and stored in *ex situ* collections are situated in the North and access to these resources have traditionally been freely obtained. *Supra* note 23.

38 See other relevant provisions e.g. Art. 15(6) 15(7), 16 and 19(1)(2).

Each contracting party shall, as far as possible and as appropriate *subject to its national legislation*, respect, present and maintain knowledge innovating and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

The rationale for benefit sharing under the CBD is that Genetic resources are often developed and conserved by local and indigenous communities.³⁹ It has also been submitted that as long as society will continue to benefit in the future from the preservation and application of traditional knowledge and practices, it is equitable to ensure that they benefit from the proceeds of bio-prospect.⁴⁰

Benefits can either be monetary or non-monetary such as results of research and development, together with the benefits arising from the commercial and other utilization of genetic resources.⁴¹ For instance, Art. 19(1) provides for the transfer of scientific research capacity. This is however, subject to mutually agreed terms. Art. 15(7) also provide that:

Each contracting party shall take legislative, administrative or policy measures as appropriate, and in accordance with Article 16 and 19 and, where necessary through financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the contracting party providing such resources. Such sharing shall be upon mutually agreed terms.

Generally, there is no “model” for the processes of benefit-sharing; states are required, as with the access to genetic resources regulations, to take legislative, administrative or policy measures to ensure that benefits from bio-prospecting are shared amongst stake holders. To this end, trust funds have become the choice method to return monetary benefits from

39 Jeffery, *Supra* note 23. It is also an undeniable fact that ethno-botanical knowledge of indigenous communities (e.g. forest dwellers, who live near tropical forests) possesses information on the use of plants for medicine. This traditional knowledge is embedded in forest peoples’ cultural systems and is passed down from generation to generation.

40 Dutfield, G., *Intellectual Property Rights, and Trade and Biodiversity: Seeds and Plant Varieties* (London: Earth scan Publications, 2000)12

41 Art. 15(7), 16(3) and 19(1) and (2) CBD. It also provides for the sharing of technology, participation in biotechnological activities based on the genetic resources and access to results and benefits arising from biotechnological use of genetic resources.

bio-prospecting to culture groups.⁴² They take the form of foundation, common-law trust, etc. In Nigeria, for instance, there is the Fund for Integrated Rural Development and Traditional Medicine, an Independent Trust Fund established by the Bio-resource Development and Conservation Programme (BDGP) as the financial mechanism to distribute bio-prospecting benefit among Nigerian stakeholders for sustainable development in rural areas.⁴³ The stakeholders include traditional healers' associations, senior government officials, and representatives of village councils from ethnic groups, and technical experts from scientific institutions. Diverse culture groups in Nigeria receive funds through traditional healers' organization. Those receiving the fund follow the criteria of promoting conservation of biodiversity and drug development, as well as the socio economic well being of rural cultures.⁴⁴

In the spirit of resource conservation, Article 8(j) CBD imposes an obligation on contracting parties to preserve the practices of people embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity, this is to ensure the continuous process of bio-prospecting.

5. THE RELEVANCE OF INDIGENOUS PEOPLE IN BIODIVERSITY CONSERVATION

One major way of ensuring the continuous flow of bio-resources is through sustainability and biodiversity conservation. This poses a major challenge to anthropologists, ethno-botanists, physicians, and entrepreneurs who are constantly in need of bio-resources. From the widely recognized role indigenous people have played and still play in biodiversity conservation, there is a good measure of support for the fact that "biodiversity cannot be conserved in the long run without the support of indigenous people and without attention to their views and needs".⁴⁵ In spite of this

42 Moran K., "Mechanism for benefit sharing: Nigerian case study for the Convention on Biological Diversity" (1998) 4th Meeting Conference of Parties to the Convention on Biological Diversity, held in Slovakia, <http://www.biodiv.org/chm/techno/ger-rcs.html> (Accessed 24 September 2013)

43 Moran K. et al, "Biodiversity Prospecting: Lessons and Prospects", *Annual Review Anthropol.* (2001) P. 13.

44 Moran. K. Supra note 43; Iwu, M., "Biodiversity Prospecting in Nigeria: Seeking equity and reciprocity in Intellectual Property Rights through Partnership arrangements and Capacity Building" cited in Moran K., Supra note 43. See also Laird S., "Equitable Partnership in Practice: The tools of the Trade", *Biodiversity and Traditional Knowledge, A People and Plant Programme Conservation Manual* (2000).

45 McNeely, J., et al "Human Influence on Biodiversity" in Heywood, V. (ed.) *Global Biodiversity Assessment* (Cambridge University Press, 2005) P. 766. See also Art.3 and 15(1) CBD.

undeniable fact, it is argued that the ‘sovereignty’ provisions of the CBD⁴⁶ largely disregard indigenous peoples ancestral rights to the land and territories held by them even before the creation of the State⁴⁷ this has aided many states in sustaining the practice of treating indigenous peoples as squatters or illegal occupants in the lands which they have occupied for generations.⁴⁸ This practice according to Uzuazo⁴⁹ sets up the stage for consequential erosion of culture, due to the severance of indigenous peoples from the environment which informed their culture and a resultant negative effect on biodiversity conservation. It has been alluded to, that cultural diversity contributes to biodiversity and its preservation.⁵⁰

It is further contested that the sovereignty regime of CBD is unjust because it places the ownership of all biological resources in States when in fact, the lot of plant varieties were developed solely by indigenous peoples.⁵¹ Such placement leaves indigenous people at the mercy of State policies which are usually focused on maximizing profit from available resources and denying indigenous people the fruit of their labour in locating and conserving biodiversity.⁵² Of course without the indigenous peoples, the knowledge of and the efficacy of most plants as medicinal, may have been lost, or discovered at a greater cost. Their pioneering, preservation and conservation efforts ought to be legally recognized and rewarded.

With the enormous rights centered on the states in relation to bio-resources within its territory, the CBD regime by failing to provide a correlative

46 Art. 3 CBD provides that states have in accordance with the Charter of the United Nations, and the Principles of International Law, the Sovereign right to exploit their own resources, pursuant to their own environmental policies and the responsibility to ensure that activities with their Jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

47 Uzuazo, E., “The Convention on Biological Diversity Regime and The Interest of Indigenous Peoples”, *UNIBEN Law Journal* (2012). Vol 2, P.202.

48 Ibid. The CBD in AA 8(1) empowers States to establish “protected areas” as a means of conserving biodiversity. This is argued to go contrary to the right of indigenous peoples to their land. Sinafasi Makelo Adrien of the Network of Indigenous Pygmy Association in Ethiopia revolted against the Sovereignty Policy to reserve park to reserve park from 76,000 hectares of their land which they had occupied for many years. They insisted that the government cannot force people to move just for conservation”. This leads to the loss of their culture and sacred sites. See Tan C. “Indigenous Rights” the star online, February 12, 2004, retrieved from, the star.coming/lifestyle/story.asp?file=/2004/2/12/features/7298/58&see=features. [Accessed on August 6, 2010].

49 Supra note 48.

50 Ibid. Aside the loss of cultural diversity, states interference with the right to access of land, has forced indigenous peoples, taking up farming in unsuitable terrains. Serious ecological degradation is also occasioned due to over grazing of the remaining land.

51 Cullet, P., *Differential Treatment in International Environmental Law* (Aldershot: Ashgate Publishing Ltd., 2003) P. 139. See also S.1 of *Land Use Act 2004*.

52 Coombe, R., “*The Recognition of Indigenous Peoples and Community Traditional Knowledge in International Law*”, in *St. Thomas Law Review* 14 (2001) P. 275, 281.

obligation on the same state to provide restoration or compensation in the event that its actions or policies cause damage to biodiversity leaves the indigenous people at the mercies of the national governments. This could easily be used by states as “open sesame” for the plundering of indigenous territories.⁵³ The benefit sharing provision of the CBD regime is also faulted on the ground that no provision exists obliging states to ensure that the indigenous peoples who have contributed so much to the formation and preservation of biodiversity and whose territories mainly inhabits these resources also share in this benefit.⁵⁴

In recognition of this lacuna, *The Bonn Guidelines on Access to Genetic Resources and Fair and Equitable sharing of the Benefits Arising out of their Utilization*⁵⁵ stipulates that “benefits should be shared fairly and equitably with all those who have been identified as having contributed to the resource management, scientific and/or commercial process. The latter may include... indigenous and local communities”.⁵⁶ However major fallout of this provision is that it is not binding on the parties though members are encouraged to develop their own legal frameworks taking the Guidelines into consideration.⁵⁷

Strengthening the right of indigenous peoples, to benefit from benefit sharing regimes of bio-prospecting is *The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization on the Convention on Biological Diversity*, adopted on 29 October 2010 which provides that legislative measures be taken “with the aim of ensuring that benefits arising from the utilization of genetic resources

53 International Alliance of the Indigenous Peoples of the Tropical Forests, “The Biodiversity Convention: The Consensus of Indigenous Peoples”, In Australia Indigenous Law Reporter, (1996) retrieved from www.austlii.edu.au/au/Journals/ALLR/1996/84.html. accessed on August 5, 2010.

54 In exchange for Art. 15(2) CBD which obliges countries of origin of genetic resources to “facilitate access to genetic resources” by other parties and not to “impose restriction that run counter to the objectives of the CBD, the country accessing the genetic resources is obliged to share the benefits arising out of the utilization of the genetic resources with the country of origin (Art. 1, CBD).

55 Secretariat of the Convention on Biological Diversity, *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization* (Montreal: Secretariat of the Convention on Biological Diversity, 2002).

56 S. 48, Bonn Guidelines. See also Article 23(10) of 1998 Organization of African States’ (OAU) Model Legislation for the Protection of the Rights of Local Communities, farmers and Breeders, which requires states to take steps to ensure that at least 50% of the benefits obtained from resources are “channeled to the concerned local community or communities in a manner which treats men and women equitably”.

57 As a result of the non-binding nature of the Bonn Guidelines, the impacts of its provisions are yet to be seen. See UZUAZO, E. *Supra* note 48.

that are held by indigenous and local communities be shared in a fair and equitable way within the communities concerned”.⁵⁸ However this provision is to be made “in accordance with domestic legislation regarding the established rights of these indigenous and local communities”.⁵⁹ It is argued that the Nagoya Protocol has done little in locating the required security for indigenous peoples interest, by providing that such benefit sharing should be in accordance with domestic legislation. It is submitted that this can lead to state abuses.⁶⁰ Instead the protocol should have stated unequivocally that the relevant indigenous peoples interest be protected through national legislation.⁶¹ Also the concept of “established rights” is held to be discriminatory by the UN Committee on the Elimination of Racial Discrimination because it could be used to exclude rights based on customary use.⁶²

It is therefore apparent from the above provisions that CBD regime largely denies indigenous peoples reasonable form of entitlement to their lands and resources. How then does the CBD intend to realize its aim of biodiversity conservation where the people who are the main actors in conserving biodiversity are subject to unjust treatment? Article 22 of the CBD states that the Convention “will not affect rights and obligations of contracting parties derived from any existing international agreement”. Drawing from this, Uzuazo opines that for the sake of justice to indigenous peoples and the consequential positive impact on biodiversity that comes from preservation of cultural diversity, it is important that States be mindful of other international regimes such as the UNDRIP, the ILO Convention⁶³ and the International Convention on the Elimination of All Forms of Racial Discrimination (CERD)⁶⁴ in their relationship with indigenous people as regards biological resources⁶⁵. This will mitigate the injustice on indigenous peoples and ultimately encourage sustainable use of biodiversity by such indigenous people.

58 Art. 4 of Nagoya Protocol.

59 Ibid.

60 Because one cannot be sure of the position states would take when drafting their implementing legislation.

61 Joseph, R., “international Regime on Access and Benefit Sharing: Where are we now? *Asian Biotechnology and Development Review* 12 (2010) P.77.

62 Uzuazo, noted that the “Established” rights might only refer to situations where a particular indigenous people or local community can demonstrate that its right to genetic resources is affirmed by domestic legislation agreement or judiciary from such an obligatory approach which is inconsistent with the convention.

63 The UNDRIP recognizes indigenous Peoples rights to their lands, territories and resources, including resources which they have traditionally owned, occupied or otherwise used or acquired (Art 26);; ILO Convention recognizes their rights to the “Ownership and Possession” of the “total environment” which they occupy.

6. BIO-PROSPECTING AND BIO-DIVERSITY CONSERVATION IN NIGERIA

The founding pillars of the legality of bio-prospecting are the concepts of “access to genetic resources” and “Benefit Sharing”. According to CBD both concepts are conceived and regulated primarily at the national level. This part explores the national legal regimes for bio conservation and bio-prospecting in Nigeria. The entire legal framework is founded on the Constitution which is the basis for valid enactment of Legislations some of which will be briefly examined.

In spite of the genetic resources available in Nigeria⁶⁶, little or no concerted effort is made towards their conservation; resultantly, these resources are depleting and declining at an alarming rate owing to several anthropogenic factors such as increasing deforestation, soil degradation and desertification. The primary cause of loss of biodiversity is habitat destruction resulting from the expansion of human population and activities. The expansion of agricultural and commercial harvesting has led to the destruction of forests, while overgrazing has significantly altered natural habitat.⁶⁷ Biodiversity conservation is at the heart of bio-prospecting and the CBD regime, thus the emphasis on “States” to regulate “access to genetic resources”. Therefore to achieve any meaningful conservation, the need not only to have laws enacted, but also to implement the various legislations aimed at preventing wanton destruction of bio-resources becomes a clarion call

There is no comprehensive law regulating benefit sharing arising from the utilization of bio-resources in Nigeria; this is unlike India which has a comprehensive biodiversity Act regulating both access to genetic resources and benefit sharing. Thus, if access to genetic resources is not regulated, incessant exploitation and unsustainable utilization of bio-resources becomes inevitable; in the same vein, if benefit sharing scheme does not exist, or is discriminatory or unjust, it will lead to animosity, and grievance which

64 Which requires states to recognize and protect the rights of indigenous people to own, develop, control and use their communal lands territories and resources

65 There is a clarion call for a revision of the CBD in the light of other international treaties especially as it relates to states sovereignty over bio-resources. It is suggested that this could be interpreted as referring strictly to state lands to the exclusion of land and resources of indigenous peoples.

66 The bio-resource status of Nigeria reveals a total of 5,081 plant species, 22,090 animals species, of which 20,000 are insects and 487 species of microorganisms.

67 http://www.bookrags.com/research/the-emergenceofbiodiversity_as_an_sctet07/21.

would in turn affect the attitude of the people towards their resources.⁶⁸ Both concepts are therefore interrelated and relevant in conserving our biodiversity.

A. The Constitution of the Federal Republic of Nigeria⁶⁹

Section 20 provides that the State shall *protect* and *improve* the Nigerian Environment and shall *safeguard* the Air, water, land, *forest* and wildlife of Nigeria. Thus, the environmental policy of the Government empowers it to not only protect and improve, but also to safeguard the land, and forests of the country. This is achieved through the enactment and enforcement of relevant laws. Apart from this general provision there is nothing else in the Constitution which makes specific mention to activities bothering on our subject of discourse.

B. The Land Use Act⁷⁰

In Nigeria, there are two methods of land holding recognized under the law: Customary Land Ownership and Statutory. The Customary Land Tenure System vests ownership of land in families, and is portrayed as a systematic and coherent management structure; biological diversity conservation practices were paramount attributes of Customary Land Tenure system⁷¹. However this system was constrained by the Land Use Act which vests management, control and ownership in the government of a state and local government.⁷² In the exercise of his powers, the governor of a state may designate and acquire any land for forestry and conservation purposes. The Act recognizes communal right to land subject to compulsory acquisition of such land for overriding public purposes.

Unfortunately, the Act does not appear to address the allocation of land from a resource conservation perspective. This has resulted to wanton ex-

68 The tendency for the people to over exploit the resources, and even destroy them would be maximized if they are not adequately compensated for their contributions to biodiversity conservation as in the case today in rural areas.

69 1999 as amended in 2011..

70 Cap L.5, L.FN, 2004.

71 In many traditional societies there existed and still exist traditional forests where several species of plants and herbs are conserved and which cannot be desecrated without penalty. These forests serve the medicinal needs of the people.

72 S.1 of the Land Use Act vests all land in the territory of each state in the Federation in the Governors of that State, and shall be responsible for allocation of land in all urban areas to individual's resident in the state and to organizations for residential, agricultural commercial and other purposes. Similar powers with respect to non-urban areas are conferred on local government

ploitation and mismanagement of bio-resources. Also the practical implementation of the Act has been characterized by official corruption leading to indiscriminate grant of permit to lumberjacks who often cut trees without adequate supervision resulting in loss of important medicinal trees. Perhaps any future review of the Act can take into account the need for bio conservation issues to be addressed when approvals for Land Use are made. This will ensure that essential forest areas which are rich in bio resources are not allocated for housing or agricultural purposes or such other purposes which will not augur well for conservation.

C. National Environmental Standard Regulation Enforcement Agency (Establishment) Act 2007

NESREA is the principal environmental regulatory law in Nigeria. It stipulates standards, restrictions, limits for man-made activities with a view to conserving and preserving Nigerian's natural resources. Section 34 empowers the Minister of Environment to make regulations for specific areas of biodiversity. To this end several regulation were made in 2011 to cater for specific aspect of environmental concern (the loss of biodiversity, relevant in bio-prospecting).

I. National Environmental (Protection of Endangered Species in International Trade) Regulation, 2011.

This regulates the export, import, re-export of certain wildlife species. Reg. 6(1) provides that any person desiring to trade in specimens of any wildlife species listed in the schedule to the regulation shall be registered with the Federal Ministry of Environment. Species in the Regulation, means species threatened by extinction whose numbers are so few or are declining so quickly that the animal, plant or other organism may soon become extinct⁷³. By virtue of Reg. 7(3), it is an offence for any person to have in his possession or under his control, or to offer or expose for sale or display to the public, any of these endangered species. Any person found guilty of contravening this provision shall be guilty of an offence and shall on conviction be liable to a fine not exceeding 5 million Naira and to imprisonment for a term not exceeding three years or to both such fine and imprisonment.⁷⁴

⁷³ See the Miscellaneous provisions in Part v of the Regulation.

⁷⁴ Res. 7(4), by (11) where a body corporate is found guilty of contravening any of the provisions of these regulations, such body corporate, or any person who was purporting to act in any such capacity, shall on conviction be liable to a fine not exceeding 20 million and its principal officers liable to a term of imprisonment not exceeding 7yrs or both such fine and imprisonment.

These provisions are akin to those of the *Endangered Species (Control of International Trade and Traffic) Act*.⁷⁵ Like the regulation, the Endangered Species Act, is aimed at the conservation and management of Nigeria's wildlife and the protection of some of the species in danger of extinction as a result of over-exploitation. S.1 prohibits the hunting of or trading in wild animals which are threatened with extinction. This provision is an absolute prohibition of hunting of or trading in wild animals being threatened with extinction. However, with regard to animals which are not necessarily now so threatened but which may become threatened unless trade in it is controlled, the prohibition is less stringent as hunting of or trading in such categories of animals is subject to a permit or license issued under the Act⁷⁶

II. National Environmental (Access to Genetic Resources and Benefit Sharing) Regulation 2009.

The thrust of this law, which is by far the most important and most relevant law impacting bio-prospecting in Nigeria, is to ensure the sustainable use of bio-resources. It prohibits any activity that may have any adverse impact on biodiversity. To ensure this objective, prospectors are required to carry out an Environmental Impact Assessment (EIA) before engaging in any of their activities. It imposes restrictions on the access and use of any threatened species in order to ensure its regeneration and sustainable management. In addition the NESREA by this regulation is to monitor the status and components of biological diversity in Nigeria and take necessary measures to prevent and control their depletion.⁷⁷

However, the Agency which is entrusted with the implementation appears not fully able to grapple with the requirements of implementation, a situation which has continued to affect access to genetic resources in a fair and equitable manner as envisaged under the Nagoya Protocol on Access to Genetic Resources.

⁷⁵ Cap E. 9, LFN 2004.

⁷⁶ S.1.(2) Endangered Species (Control of International Trade and Traffic) Act 2004

⁷⁷ See regulations 1, 2, 3 and 4. Penal sanctions for contravention of the rules are provided for in Regulation 23 which provides for a fine of not less than 1 million Naira and not more than 10 million Naira or imprisonment for a term not exceeding one year or to both fine and imprisonment. Where the offence is committed by a corporate body, it shall on conviction be liable to a fine not less than 10 million Nigerian Naira or not more than 100 million. The penal sanctions in relation to fines appear commendable however the imprisonment term seems like a mockery to the spirit and intentment of the regulation.

III. National Environmental (Desertification Control and Drought Mitigation) Regulation 2011

The Regulation aims to encourage and ensure sustainable agricultural management practices, promote cooperation with relevant international and non-governmental organizations through partnership, knowledge sharing and the domestication of Conventions like the CBD, and to sustain and expand forest areas and trees cover through conservation, protection, rehabilitation of natural vegetations, tree planting and control of forest exploitation with a view to reversing desertification trend.⁷⁸ By its provision it encourages reforestation, reseedling, afforestation and conservation in order to attain the 25 per cent national forest cover as prescribed by the United Nations Food and Agricultural Organization (FAO).⁷⁹

IV. National Environmental (Control of Bush/Forest Fire and often Burning), Reg. 2011.

This regulation is aimed at conserving forest resources which is a major component of biodiversity and a major bio-resource for prospecting. According to Reg.3, no person shall burn any forest or engage in any activity that may cause forest fire except in accordance with the provisions of the regulation which requires permit from the Agency to cause fire. Permit is given subject to certain condition which the Agency may deem necessary.⁸⁰ Unfortunately, bush burning continues unabated perennially. In many localities this traditional farming method not only destroys the forests but the ecosystem and the bio-resources.

7. ADEQUACY OF THE REGULATING REGIME: LESSONS FROM INDIA

One of the major challenges to biodiversity conservation in Nigeria is the fragmented and uncoordinated regulatory framework on biodiversity and bio-prospecting. The relevant laws such as the Land Use Act, NESREA, and its regulations as well as forestry laws of the various states aim at protecting separate components of biodiversity. Furthermore, these laws appear to

78 Reg. 2(g) (h)(i).

79 Reg. 2(8).

80 From the provision of this regulation, it appears that NESREA has a discretionary power to determine conditions subject to which permit can be given. This could create room for corrupt practices.

have failed to produce the desired result because they are largely vestiges of colonial and governmental interests without addressing the conservation requirements of the local people.⁸¹

The laws are fraught with problems akin to those of the CBD as they relate to the interest of indigenous peoples, who are the major actors of biodiversity. There are no specific provisions made regarding benefit sharing even with local peoples; conservation policies are imposed on them without regard to the importance of sustaining their development.⁸² Because the laws and regulations coercively prevent the local people from having access to their own resources without alternative source of income, there is an increase in illegal poaching, illegal logging and unsustainable agricultural practices. These no doubt result from the non-involvement of the locals in policy formulation and implementation.

Too often, when the importance of biodiversity conservation is discussed especially with respect to its value to human health, it is discussed with respect of the health of residents of industrial nations, less is discussed about the vitality of biodiversity to the health of 80 per cent of the world population that depend solely on medicinal plants for their primary health care. Preserving biodiversity must be double edged, to benefit those in the tropics already using it as well as distant population that may know it only in some refined form.

No doubt, strategies like bio-prospecting bring added financial support for conserving research funding and valuable training and technology in exchange for supply of bio resources. On October 20, 1997, Nigeria launched *The Fund for Integrated Rural Development and Traditional Medicine (FIRD-TM)*,⁸³ as a vehicle to receive and channel benefits in an equitable and consistent manner. Funds are directed to source communities from which commercially useful bio-resources and ethno-botanical knowledge is derived. However the utilization of the fund is always politicized and clouded with corrupt practices.

The situation in Nigeria differs greatly from countries like India which has a system which is more coordinated, unified⁸⁴ and largely just towards

81 Aberé A., and Taspar, E., "Evaluation of Forests Resources Conservation Laws in Nigeria", (2011) 2 Mediterranean Journal of Social Sciences 51.

82 Ibid..

83 The Bio-resources Development and Conservation Programme (BDCP), a multiethnic international NGO based in Nigeria, facilitated the establishment of the fund. The Fund has an independent board composed of leaders of traditional healing association, senior government officials, and multiethnic representatives of village councils.

indigenous local peoples, which no doubt, contributes to her great wealth in biological and cultural diversity. The Indian Biological Diversity Act of 2003 reaffirms the sovereign rights of states over their biological resources. It provides for conservation and sustainable utilization of bio-resources as well as equitable sharing of benefits arising out of the utilization of the resources, and also distinguishes between resident Indian nationals, foreigners and Indian non-residents; while applying separate rules to them with respect to access to biological resources.⁸⁵ The foreign groups require the approval of the National Biodiversity Association (NBA) Authority in order to be able to obtain biological resources.⁸⁶ It is prohibited to transfer research results to this group of persons without approval from NBA is prohibited except for academic purpose and for certain collaborative research projects outlined in the Central government guidelines.⁸⁷ This ensures the prioritizing of the needs of local peoples above those of foreigners. Nigeria can draw significant lessons from there.

8. CHALLENGES TO BIOPROSPECTING IN NIGERIA

Undoubtedly, bio-prospecting is an economically and technologically viable project that has the potency of increasing the foreign earnings of a nation. It has received heavy investment from corporate sector, universities and research institutions all over the world. However if such activities are not regulated it can result in “bio-plundering” a term associated with wanton disregard and destruction of the biodiversity.⁸⁸ Among the challenges on the path of effective bio-prospecting include the suspected connivance by the local people with foreign prospectors to unlawfully exploit bio-resources in return for pittance. Also, in harvesting these resources, local peoples are often careless, stripping tracts of flora indiscriminately resulting in rapid depletion of those resources. This attitude can only be curbed if local peoples are enlightened, and afforded avenues to participate in a properly

84 It has a comprehensive Biodiversity Act 2002 which strictly regulates international access to bio-resources for both research and commercial use with heavy fines for breach of the Act. India houses over 45,000 species of plants, 38% that are higher plants and 400 unique ethnic groups, 75% of which are tribally organized

85 For this purpose, the Act locates a retinue of state agencies responsible for permits, guidelines and supervision of the implementation of the Act. They include the National Biodiversity Authority (NBA), various States Biodiversity Board (SBB) and at the local level, Biodiversity Management Committee (BMC). The NBA is largely constituted by Scientists, Conservationists, industry representatives etc. [see S.8 of the Act.]

86 Section 3 of *Biodiversity Act of India 2002*.

87 *Ibid.* Sections 4 and 5

88 Sunma, S., “Bio-prospecting or bio-plunder?” [www. Genecampaign.org](http://www.Genecampaign.org). [Accessed on the 5th of December 2013]

articulated and executed development policy on bio prospecting.

Another issue is the absence of a comprehensive law regulating access to bio-resources and benefit sharing in Nigeria. This poses a major challenge to conservation spirit and consciousness of the people. Therefore, there is need for Nigeria to strengthen national laws to protect bio-resources and save them from looters and plunderers. The ineffectiveness of *NESREA* and the inadequacy of bio-diversity laws are hampering the Nation's quest to reap the benefits of bio-prospecting

Another major challenge facing the successful implementation of all conservation policies in Nigeria is lack of strategic planning. Strategic planning in conservation policies involves strategic thinking about access to genetic resources; formulating a body to co-ordinate the strategy process which will involve a technical team to facilitate the strategy process and adequate finance and capacity to manage the strategy process and the translation of the strategies to an action plan.

9. RECOMMENDATIONS

As a signatory to the CBD there is a need to adopt the procedures prof-fered by the treaty with respect to "legislative" and "administrative" measures to ensure the observance of its principles in Nigeria. This can be done either by re-enacting the CBD,⁸⁹ or by enacting a fresh legislation like the Indian comprehensive Biodiversity Act. This unified approach towards bio conservation would enhance implementation and co-ordination of policies geared towards reaping the benefits of bio-prospecting.

As regards the security of local peoples, providing incentives and alternatives such as subsidies (and compensations from proceeds of bio prospecting) for agricultural practices that are eco-friendly; alternative income generating jobs can also be steps to reducing dependence on some of these bio-resources as well as lowering the rate of illegal logging and connivance with illegal prospectors within the country.

There is also the need to respect, preserve, maintain and promote the wider use of traditional knowledge and other innovations and practices of local communities and as far as possible encourage traditional and cultural practices that are compatible with conservation and sustainable use of resources in accordance with the CBD.⁹⁰ Strategic and Action plans are im-

89 Nigeria being a dualist state, such provisions can have direct application only when it is re-enacted as a Nigerian Law. See section 12 of the 1999 Constitution (as amended 2011)

90 UN-Hero (2006) Institutional Structure Policies and Legal Frameworks.

portant. This requires the active participation of both private and public institutions which have the capacity and resources to design and implement the action plan.⁹¹ Implementation of such action plan requires proper funding, capacity building and cooperation from all stakeholders. The various tiers of government in Nigeria should provide adequate funding for the plan of action towards bio-resource conservation and prospecting, which if properly harnessed is a viable alternative to overdependence on oil as the sole revenue earner for the country.

10. CONCLUSION

It has been shown that bio-prospecting can become a viable tool for sustainable development only if certain socio-economic and legal issues are dealt with. Issues relating to the interest and needs of local peoples as well as the institution of proper regulatory mechanisms to checkmate bio-plundering in the guise of bio prospecting must be addressed. We have noted that although the CBD blazed the trail for state responsibility for bio management; it failed to make copious and adequate protection of the interests of local peoples because of its constant reference and conferment of wide discretionary powers on the “State”. As a result, selfish states have taken cover under that cloak to continuously disregard the interest of local peoples who actually ‘own’ and control these bio-resources. Therefore continuous abusive practices such as illegal logging and trade in bio-resources and even connivance with foreign prospectors to illegally exploit these bio-resources have become the order of the day. It is to this end that the paper recommended for a proper framework that would meet the needs of these local peoples since the state of our bio-resources is practically in their hands.

The provision of a trust fund like that launched in 1997 (Fund for Integrated Rural Development and Traditional Medicine, FIRD-TM) to receive and channel benefits in an equitable manner, is one way out. The funds should be directed to the communities from which bio-resources are derived, and to be facilitated by an independent body like the Bio-Resources Development and Conservation Program, (BDCP) a multiethnic international NGO based in Nigeria. States must rise up to this onerous task of bio-resource conservation to ensure that bio-prospecting activities do not affect the capacity of future generation to meet their own need. This is in

91 Karyten and Adrain, “Preparing a National Strategy on Access to Genetic Resources and Benefit Sharing” Available at www.Teebforbusiness.Earthmind.net/preparing_a_national_strategy. [Accessed on the 5th December 2012].

tune with intergenerational equity canvassed under the National Policy on Environment. The CBD provisions on “Access to Genetic resources” and “Benefit sharing” are viable principles of resource conservation if applied strategically with strong political will, shunning all forms of corrupt practices. If things are right, then the benefits of bio-prospecting will be realized. The other side of the coin will result in unhealthy employment of bio resources in ways that damage biodiversity and make a mess of conservation efforts thus endangering the environment.