Page 3787 - 3810 **DOI:** *https://doij.org/10.10000/IJLMH.11951*

INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 4 | Issue 3

2021

The Effectiveness of Mechanisms for the Prevention of Biopiracy and the Conservation of Biodiversity in Cameroon

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ABSTRACT

Biopiracy is a crime gaining grounds in Cameroon and is resulting in the deterioration of biodiversity; this is evident in the increase possibility of extinction of several species like the Prunus Africana (now endangered). The reason for this state in Cameroon's biodiversity to a large extent is the absence of a sui generis legislation for biopiracy. However, mechanisms do exist for the conservation of biodiversity and these mechanisms can be used to some extent to address biopiracy. These mechanisms are categorized under policies, legal and institutional mechanisms, it is evident that these mechanisms are properly structured despite having some weaknesses. In order for these mechanisms to properly conserve biodiversity they have to be properly implemented which to a large extent is a problem in Cameroon due to several reasons which will be examined in this article.

Keywords: *Effectiveness, Mechanisms, Prevention, Biopiracy, Conservation, Biodiversity*

I. INTRODUCTION

The paragraph focuses on the effectiveness of mechanisms for conservation of biodiversity in Cameroon and the challenges faced by the country in implementing measures or mechanisms aimed at conserving biodiversity. This work is deeply rooted in the Anthropocentric theory (Anthropocentrism) which believes in the superiority of mankind over his environment, hence should use the environment as he sees fit but equally should ensure that measures are kept in place to sustain the environment or conserve biodiversity

In order to protect the environment policies, laws, and institutions must effectively play their part, and for any damage caused to the environment there should be repercussions, which serve not just to compensate for harm but deter potential environmentally unfriendly behaviour.

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However, it should be noted that as much as punishment and repercussions are required to protect the environment, the aim of mechanisms for biodiversity conservation is to regulate usage of the environment and not quickly punish as this may hamper peaceful enjoyment of biodiversity.

A plethora of mechanisms exist for regulating environmental matters and conserving biodiversity, it is only because of the availability of these mechanisms that courts can exercise control over environment. The paragraphs that follow will be examining the mechanisms existing for the prevention of biopiracy and conservation of biodiversity in Cameroon by looking at the effectiveness of policies, the legal and institutional measures and end with a look at challenges in the implementation of these measures.

II. EFFECTIVENESS OF BIODIVERSITY CONSERVATION POLICIES

The bid to protect biodiversity from biopiracy always starts with some ethical considerations and procedures which act to control access to bioresources, these considerations include; polluter pays policy, Access and Benefit Sharing (ABS), sustainable development policies, prior informed consent, Environmental impact assessment (EIA), and many more. Some of these will be examined below. These policies are important because bioresources cannot (should not) be accessed without free informed prior consent (FPIC) as it leads to the dissatisfaction of custodians of bioresources. Also, Environmental Impact Assessment should always be carried out to ascertain how much damage the environment will sustain even if consent is given to access bioresources (this is to ensure sustainability and ease policy implementation).

(A) The Polluter Pay policy

The polluter pays theory is a broad term with various interpretations depending on circumstances. [4] The polluter pays principle is a legal and financial principle that states that polluting companies are legally and financially responsible for the negative effects of their emissions.[5] The Organization for Economic Cooperation and Development (OECD), on the other hand, prescribes a quasi-regulatory regime of environmental taxation for the

[4] Eric Larson, *Why Environmental Liability Regimes in the United States, the European Community, and Japan Have Grown Synonymous with the Polluter Pays Principle*, 38 VAND. J. Transnational Law., 2005, pp. 541, 545-50 (discussing how the polluter pays principle has been applied in the United States, the European Union, and Japan, among other areas.).

[5] Stefanie Sommers, *The Brownfield Problem: Liability for Lenders, Owners, and Developers in Canada and the United States*, 19 COLO. J. International Environmental Law. & Policy 259., 2008, pp. 266-67, 277-91 (comparing how the polluter pays concept is applied in the United States and Canada Sommers also talks about brownfield liability in Canada and the difficulties with implementing the *Comprehensive Environmental Response, Compensation, and Liability Act*. (CERCLA)).

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implementation of the polluter pays policy in international law. Companies are taxed based on the amount of waste they generate, according to the OECD.[6]

The polluter pays doctrine is a theoretical model for allocating and mitigating environmental harm that allows the liable person, firm, or country to bear the cost of pollution.[7] Without this process, the costs of environmental degradation are passed on to the general public, either by increased taxes to finance governmental clean-up or lower environmental quality. The polluter pays concept, in a legal context, encapsulates the general egalitarian notion that polluting companies should bear the costs of their emissions. As a result, in this amorphous form, the polluter pays theory has entered mainstream economics and environmental economics.[8] Not surprisingly, there is a lot of discussion about the broad principle's scope and the wisdom of its economic justifications. .[9]

1. Criticism of the polluter pay policy

The polluter pays doctrine first appeared in international law as a seemingly feasible method for cost allocation with several variations, and it was based on sound economic theory.[10] While the scope and consequences of this theory are still being discussed, the majority of academics support its economic justification.[11] But for the polluter, these researchers conclude that everyone is better off if the polluter pays for remediation.[12] The solution is Pareto efficient,[13] and the only remaining challenge is to put the polluter pays concept into action.

Regrettably, the case is not so straightforward. Underneath the surface, the conventional

[6] Polluter-pays programs have been negotiated at the highest levels of almost every major international body, from the United Nations to the European Union, as well as federal bodies, non-governmental organizations, and multinational companies. The World Bank's Investment Framework for Clean Energy and Sustainability, for example, lays out principles for "responsible development" and "sustainable" investment. World Bank, *An Investment Framework for Clean Energy and Development: A Progress Report* (Sept. 1, 2006) at 3, *available at* http://siteresources.worldbank.org/SOUTHASIAEXT/Resources/223546117148899471 3/3455847-1189621792

[7] Rio Declaration on Environment and Development, ¶ 16, U.N. Doc.A/CONF.151/26 (Aug. 12, 1992); *see also* Sumudu A. Atapattu, *Emerging Principles of International Environmental Law*, (Transnational Publishers 2006), p. *470* (Transnational Publishers 2006)

[8] Peter G. G. Davies, *European Union Environmental Law: An Introduction to key selected issues,* (Ashgate Publ'g, Ltd. 2004), pp. 52-55; Alan Griffiths & Stuart Wall, *Applied Economics*, (11th ed., 2007), p. 117 ("The move towards environmental taxes is in line with the 'polluter pays' principle"); László Zsolnai, *Responsible Decision Making*, (Transaction Publishers 2008), pp. 171-72 (The polluter pays theory is discussed in EU law, as it appears in the environmental acquis communautaire.).

[9] Michael Faure & Albert Verheij, *Shifts in Compensation for Environmental Damage.*, 2007, pp. 65-68 (discussing the ambiguity of the polluter pays concept, particularly when it comes to measuring actual pollution levels).

[10] Michael Ewing-Chow & Darryl Soh, "Pain, Gain, Or Shame: The Evolution of Environmental Law and the Role of the Multinational Corporations", 16 IND. J. GLOBAL LEGAL STUD., 2009, pp. 195, 215.

[11] *Cf.* Helen Endre-Stacy, "Sustaining ESD in Australia", 69 CHI.-KENT. L. REV., 1994, pp 935, 958.

[12] Although it may be argued that the end result is Pareto optimal because the polluter benefits from the clean atmosphere, which his cost internalization is expected to achieve. . Richard A. Posner, *Economic Analysis of Law*, 7th ed.., 2007, pp. 12-13.

[13] *Ibid.*

polluter pays mechanism incorporates a concept that is incompatible with international cooperation. In a domestic or local context, where environmental damage can be loosely quantified and an adverse party can recover remedies or avoid future emissions, the polluter pays concept makes sense. However, in today's dynamic global environment, the polluter pays concept makes less sense.[14] In a world where resources are dwindling and extinction is becoming more likely,[15] Since they depend on simple and narrow anthropogenic value sets, economic theories involving simplistic cost-benefit analysis, estimation of marginal utilities, cost-internalization, and static two-agent models simply do not function.

In essence, the polluter pays concept is based on incorrect assumptions about simple notions of productivity in the sense of the environment, and it ignores environmental principles and security.

(B) Prior informed consent (FPIC)

Prior informed consent is and has always been a key prerequisite for the access to genetic resources and law No.94/01 of 20 January 1994 laying down Forestry, Wildlife and Fisheries regulations gives emphasis to this step. Article 40(1) clearly states that forest resources shall be the prerogative of the state[16], the results of this survey will be necessary to determine revenue and essential in management planning[17]. The importance of article 40(1) and (2) rests in the fact that it lays the basis for prior informed consent it gives reason for why prior informed consent is necessary, article 40(3) directly states in relation to article 40 (1) and (2), "*in that respect, the exploitation of any forest shall require that a prior survey be conducted on such a forest in accordance with the norms laid down by the ministers in charge of forests and wildlife*."[18]

Generally Prior Informed Consent and Advanced Informed Agreement procedures provide for the regulation of international exchange of resources or products that could have adverse effects on human health and the environment. Such exchange may not proceed without the informed agreement or consent of, or contrary to the decision of, the competent authority in the recipient country.[19] However, when it comes to protecting TK relating to biodiversity, FPIC has three basic implications:

[14] George P. Smith, "Re-Validating the Doctrine of Anticipatory Nuisance", 29 VT. L. REV. 687., 2005, p. 717.
[15] Paul M. Wood, *Biodiversity and Democracy: Rethinking Society and Nature* ixx (2000).
[16] Article 40(1), law No.94/01 of 20 January 1994 to lay down Forestry, Wildlife and Fisheries regulations
[17] Article 40(2), *Ibid*.
[18] Article 40(3), *Ibid*.
[19] "prior informed consent" InforMEA available at, https://www.informea.org/en/terms/prior-informed-consent (accessed 10/09/2020)

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- The TK providers must have been given all the information relevant to the activity for which the consent is sought, in their native language;
- The TK holders must understand and agree in writing to the carrying out of the activity for which the consent is sought;
- the TK holders must understand that they have a right to revoke their consent.[20]

The terms Prior informed consent or Free, Prior informed consent otherwise known as (FPIC) in relation to biodiversity was coined or first mentioned in the convention of biological diversity (CBD),[21] Article 15(5) which states that *"access to genetic resources shall be subject to prior informed consent of the contracting party providing such resources, unless otherwise determined by that party."* Besides the CBD, The Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilisation (Bonn Guidelines),[22] as well as the Nagoya Protocol,[23] elaborate on this provision. Hence, PIC has been defined as;

"consent to an activity that is given after receiving full disclosure regarding the reasons for the activity, the specific procedures the activity would entail, the potential risks involved, and the full implications that can realistically be foreseen. Prior informed consent implies the right to stop the activity from proceeding and for it to be halted if it is already underway"[24]

FPIC is a golden thread running through attempts to protect indigenous peoples from exploitation, and curb biopiracy.[25] It implication of FPIC is that, in all situations where an indigenous people or a local community is involved in a TK related transaction,[26] there must be a full consultation and complete exchange of information, leading to a full and explicit consent *prior* to any appropriation of information.[27] PIC consequently seeks to empower provider countries and communities in determining activities associated with their biodiversity

[20] Gupta A 'The Conundrum of Creativity, Compensation and Conservation in India: How Intellectual Property Rights Help Grass-Root Innovators and Traditional Knowledge Holders? In McManis C (ed) *Biodiversity and the Law: Intellectual Property, Biotechnology and Traditional Knowledge* (2007) 346.
[21] G. Dutfield, "TRIPS-Related Aspects of Traditional Knowledge" The 'informed consent' principle had however earlier found its way into international environmental law through the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal., 2001.
[22] overall PIC strategy of the CBD is set out in IV.24 – IV.40 of the Bonn Guidelines.
[23] Articles 6 and 7 of the Nagoya Protocol, which mandate the principles of PIC to form the foundation of access to GRs and TK*a*GRs respectively.
[24] G. Dutfield *ibid*, "TRIPS-Related Aspects of Traditional Knowledge" argues that both the extraction of biogenetic material from lands occupied by traditional communities as well as the acquisition of knowledge from a person or people must be preceded by PIC and that requests for consent of the following should
[25] Oluwatobiloba Oluwayomi Moody, *THE NAGOYA PROTOCOL: A POSSIBLE SOLUTION TO THE PROTECTION OF TRADITIONAL KNOWLEDGE IN BIODIVERSE SOCIETIES OF AFRICA* (unpublished)
[26] Lewis-Lettington R & Mwanyiki S (eds.), *Case Studies on Access and Benefit-Sharing* International Plant Genetic Resources Institute (IPGRI), (2006). p. 419.
[27] Lewis W and Ramani V. *ibid*,

and knowledge.[28]

It is a fundamental principle of environmental law that Indigenous Peoples believe can protect their right to participation. It is embedded in the right to self-determination. The duty of States to obtain Indigenous Peoples' FPIC entitles Indigenous people to effectively determine the outcome of decision-making that affects them, not merely a right to be involved." FAO has developed a Policy on Indigenous and Tribal Peoples that ensures the organization makes all due efforts to respect, include and promote indigenous issues in relevant work. The core principles of the policy are:

- self-determination;
- the respect for indigenous knowledge, cultures and traditional practices that contribute to sustainable and equitable development; and Free, Prior and Informed Consent (this highlights the importance of prior informed consent in the battle against biopiracy).

the policy is operationally reflected on FAO Environmental and social Management Guidelines and the Guide to the project cycle which guide all field operations.[29]

Prior informed consent was brought about by the Rotterdam Convention, and was a treaty which strictu sensu was drafted with the purpose of controlling hazardous Certain Hazardous Chemicals and Pesticides in International Trade. The treaty came into force in February 2004. As of October 2014, 154 countries, called Parties, had ratified the Convention. It has the aim of protecting human health and the environment by promoting information exchange on pesticides and industrial chemicals that have been banned or severely restricted in Parties and by making the PIC procedure legally binding.[30] However, because of the flexibility in the application of FPIC; organizations like the FAO could use it to protect indigenous people's rights and inventions that is "Traditional knowledge" (relating to biodiversity).

The terms Free, Prior, Informed, Consent in FPIC is significant; each word emphasizes on a particular idea that runs through the treaty or in other words forms the basis of the Rotterdam Convention on FPIC. The United Nations Food and Agricultural Organisation has defined the concept of Free Prior Informed Consent as the following:[31]

[28] Bonn Guidelines on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising from their Utilization 2002

[29] "Free, Prior and Informed Consent", Indigenous peoples, Food and Agriculture Organization of the United Nations available at, http://www.fao.org/indigenous-peoples/our-pillars/fpic/en/ (accessed 10/09/2020)

[30] "The Rotterdam Convention on Prior Informed Consent (PIC)", CropLife International available at, https://croplife.org/crop-protection/regulatory/product-management/prior-informed-consent/ (accessed 10/09/2020)

[31] *Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities. Manual for Project Partitioners* (PDF). Food and Agricultural Organisation. (accessed 10/09/2020)

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Free: the consent is free, given voluntarily and without coercion, intimidation or manipulation. A process that is self-directed by the community from whom consent is being sought, unencumbered by coercion, expectations or timeliness that are externally imposed.

Prior: the consent is sought sufficiently in advance of any authorization or commencement of activities.

Informed: the engagement and type of information that should be provided prior to seeking consent and also as part of the ongoing consent process.

Consent: a collective decision made by the right holders and reached through a customary decision-making process of the communities.

A question that has always plagued FPIC is, "*when is FPIC actually required?*". The UN Declaration on the Rights of Indigenous Peoples requires that the Free, Prior and Informed Consent of Indigenous Peoples be obtained in matters of fundamental importance for their rights, survival, dignity, and well-being. As written in Article 19, "*States shall consult and cooperate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them*."[32]

In the context of the prevention of biopiracy and the protection of indigenous knowledge (TK), FPIC is required and is very vital when there is any relocation of Indigenous Peoples from their lands (because this relocation usually leads to massive loss in some customs and vital relics and practices relating to the use of nature); removal of cultural, intellectual, religious, and spiritual property; it is also required when large-scale development projects would have a major impact on the lands and survival of Indigenous Peoples. FPIC will also be very important when issues arise as to storage and disposal of hazardous waste on Indigenous Peoples' lands[33]

Some argue that FPIC is required in every case concerning Indigenous Peoples, their lands, or their resources, such as when new legislation is being considered.[34]

(C) Access and Benefit sharing (ABS)

In previous chapters, access and benefit sharing has been mentioned severally, in this section access and benefit sharing shall be examined in detail. Access and benefit sharing frameworks

[32] "Free, Prior and Informed Consent: Protecting Indigenous Peoples' rights to self-determination, participation, and decision-making", Cultural Survival, available at, https://www.culturalsurvival.org/publications/cultural-survival-quarterly/free-prior-and-informed-consent-protecting-indigenous (accessed 10/09/2020)
[33] *Ibid.*
[34] *Ibid.*

are usually created to fulfil some goals or aims, some of these goals include[35]; Predictable conditions[36], Legal certainty[37] ,Transparency[38] ,Fairness and equity in negotiations.[39]

Both the CBD and Nagoya protocol emphasize that the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, including (Art. 8j) the equitable sharing of the benefits arising from the utilization of knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for conservation and sustainable use of biological diversity.[40]

Simply put, an Access and Benefit Sharing Agreement (ABS) is an agreement that defines the fair and equitable sharing of benefits arising from the use of genetic resources. ABS usually arises in relation to bioprospecting where indigenous knowledge is used to focus screening efforts for commercially valuable genetic and biochemical resources. ABS recognise that bioprospecting frequently relies on indigenous or traditional knowledge, and that people or communities who hold such knowledge are entitled to a share of benefits arising from its commercial utilization.

Before ABS some bioresources like "Prunus Africana" are either stolen or obtained from the communities around the Mount Cameroon area with little or no remuneration in most cases. "Prunus Africana" is one of the most popular medicinal plants used in the Mount Cameroon area. Traditionally, prunus products like leaves and bark are used in many different ways, for example, in the treatment of malaria, regulation of blood pressure, stomach ache and fever. Apart from its medicinal use, the bark has a high value as it is used for example, by farmers to make axes and hoe handles, as firewood as well as in the fuel production, the numerous uses of Prunus Africana made it a priced commodity for biopirates and as a result has drastically reduced in amount due to over exploitation. During the last decade, the major actors involved in prunus exploitation were rural communities organised in harvesters' unions, a commercial company, the local forestry administration and a biodiversity conservation project.[41]

[35] Sirakaya, A., "Mutually supportive ABS system for users and providers: stakeholder perception on ABS goals," in press Special Issue on Sustainability and Law., 2019. (Wiley Journal on Sustainable Development)
[36] Nagoya Protocol Preamble
[37] Nagoya Protocol Article 6, COP Decision V/26, VII/19, VIII/4
[38] Nagoya Protocol, COP Decision V/26
[39] *Ibid.*
[40] Art. 1, Art 8j, Convention on Biological diversity
[41] GTZ, "Access and Benefit Sharing (ABS) in Africa, Cases of bioprospecting and ABS legislation in Eastern and Southern Africa" p.7

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The coming into force of the Nagoya protocol and ABS have been a blessing to the people of the mount Cameroon area, it resulted in signing of two ABS agreements between the local community and the commercial company present for the harvest and supply of prunus products with the community-based organisations in 1997. These agreements improved community benefits from prunus exploitation including monetary and non-monetary benefits, and contributed significantly to sustainable exploitation of prunus in the area. The income from prunus improved the livelihood of community members and helped them to realise some rural development projects.[42]

The concept of ABS sprung from the Convention on Biological Diversity (CBD) which, among other objectives, seeks to ensure the fair and equitable sharing of benefits arising from genetic resources.[43] ABS has However, been a concept with its share of controversy, there have been several debates surrounding ABS especially how it should be applied. The controversy surrounding the CBDs handling of ABS led to a lot of dissatisfaction amongst stakeholders.[44]

Because of the difficulties in handling ABS by the CBD, the Nagoya Protocol was born, it acted as a supplementary agreement to the Convention on Biological Diversity, and provided a legal framework for implementing that objective. Article 5 of the Nagoya Protocol requires that benefits arising from the utilization of genetic resources, as well as from subsequent applications and commercialization, be shared in a fair and equitable way with the party providing such resources. Article 5 also emphasizes that such sharing shall be upon mutually agreed terms.[45] An ABS can also be used to specify the terms on which the benefits will be shared in a particular case.

As aforementioned the concept of ABS arose to a large extent from the need to ensure that communities benefit from the use of their genetic resources and traditional knowledge that is, create a "win – win" relationship for both user and custodian of the resource in question. Communities can benefit from 'good' ABS in a number of ways, both monetary and non-monetary. For example, they have the right to determine whether the research will happen at all. If they feel that the research will violate their customary laws or cultural or spiritual values, they have the right to withhold their consent. If they proceed with negotiating mutually agreed

[42] *Ibid.*

[43] Kabir Bavikatte & Daniel F. Robinson. "Towards a People's History of the Law: Biocultural Jurisprudence and the Nagoya Protocol on Access and Benefit Sharing". 7/1 Law, Environment and Development Journal., 2011. p 35, available at: http://www.lead-journal.org/content/11035.pdf. (accessed 11/09/2020)

[44] Louafi, Sélim and Jean-Frédéric Morin, "International governance of biodiversity: Involving all the users of genetic resources", IDDRI, 2004, available at https://www.academia.edu/3809935/Louafi_S._and_J-F_Morin (accessed 11/09/2020)

[45] Article 5. The Nagoya Protocol. Accessed 11/09/2020 from: http://www.cbd.int/abs/text/default.shtml

terms, they can ensure that the research is carried out according to their values and in support of locally defined priorities and plans. Benefits can include participating in the research and analysis, gaining technical skills and experience, contributing to local economies and livelihoods, and building capacity of local institutions.[46] Frameworks emphasising on access and benefit sharing usually have three issues which act as the basis for the said framework which are: ACCESS, BENEFIT SHARING and COMPLIANCE. These three terms have distinct meanings and applicability within frameworks using the concept of access and benefit sharing within their operations, these terms will be examined in detail below in relation to some frameworks using these terms.

1. Access

The Nagoya Protocol generally sees access as some form of permit or authorisation to access whatever resource is needed. It requires that any access to genetic resources for their usage shall be subject to the prior informed consent of the party providing such resources.[47]Furthermore, each Party is tasked to take measures, as appropriate, with the aim of ensuring that the prior informed consent or approval and involvement of indigenous and local communities is obtained for access to genetic resources where they have the established right to grant access to such resources.[48]

The Nagoya protocol has specific provisions to access to Traditional knowledge associated to biodiversity. It states that, each Party shall take measures, as appropriate, with the aim of ensuring that traditional knowledge associated with genetic resources that is held by indigenous and local communities is accessed with the prior and informed consent or approval and involvement of these indigenous and local communities, and that mutually agreed terms have been established.[49]

The actual practice of ABS does not always live up to its stated aim. Communities can be excluded or even dispossessed due to conflicting claims or understandings of relationships with genetic resources and traditional knowledge. Formal negotiations are generally very difficult for communities to engage with, particularly if they are conducted in different languages and according to externally imposed timeframes. Sometimes researchers are so concerned about violating rights or standards that they don't even attempt to engage with communities in the

[46] "Access and Benefit Sharing", p 5. online at www.community-protocols.org. (accessed 11/09/2020)
[47] Article 6 (1) Nagoya protocol
[48] *Ibid*, Article 6 (2)
[49] *Ibid*, Article 7

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first place, thus excluding them from potential benefits.[50]

2. Benefit Sharing

Benefit sharing can be Non-monetary and monetary, based on whether the user pays benefits in monetary value or in action, it can also be Mandatory and voluntary, the choice of the nature of the benefit sharing is left at the discretion of the party involved or the government. Non-monetary benefits involve benefits can include: Raw data, sharing of research results, Capacity building (capacity to implement, and to comply with the obligations of this protocol; capacity to develop, implement, and enforce domestic legislative, administrative, or policy measures on access and benefit sharing; capacity to negotiate mutually agreed terms etc.) and many more[51] Monetary benefits involve; Joint ventures, access fee/fee per sample just to name a few.

There are instances where no benefit-sharing is required for certain types of use (for example, no benefit-sharing needed when the utilization is directed at biodiversity conservation, food security): countries like India exempts collaborative research projects (subject to approval by the competent authority) as well as non-commercial utilization for publication purposes from benefit-sharing. Norway on its part exempts private and non-commercial users from obtaining PIC and MAT for utilizing traditional knowledge associated with genetic resources.

3. Compliance

In terms of compliance, the Nagoya protocol provides that each party take appropriate, effective and proportionate legislative, administrative or policy measures to provide that genetic resources utilized within its jurisdiction have been accessed in accordance with prior informed consent and that mutually agreed terms have been established, as required by the domestic access and benefit-sharing legislation or regulatory requirements of the other party.[52]

Furthermore, parties are to ensure that appropriate, effective and proportionate measures are taken to address situations of non-compliance with measures adopted in accordance with Article 15 (1) of the Nagoya protocol.[53] Parties are also tasked to cooperate in cases of violation of domestic access and benefit sharing legislations.[54] Other provisions also ensure compliance to provisions on access and benefit sharing.[55]

[50] *Ibid*. p 6
[51] Frontiers, "Balanced Options for Access and Benefit-Sharing: Stakeholder Insights on Provider Country Legislation", Plant Science available at, https://www.frontiersin.org/articles/10.3389/fpls.2019.01175/full (accessed 12/09/2020)
[52] Article 15(1) Nagoya protocol
[53] *Ibid*, Article 15 (2)
[54] *Ibid*, Article 15 (3)
[55] See, Article 16, 18 Nagoya protocol

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III. VIABILITY OF THE LEGAL AND INSTITUTIONAL MECHANISMS FOR BIODIVERSITY PROTECTION FROM BIOPIRACY

This section takes a look at key legal and institutional mechanisms provided for by law for combatting biopiracy and conserving biodiversity analysing how effective they are in handling both biopiracy and biodiversity conservation. The analysis of these instruments will be done by taking a look at how they operate how they are enforced and loopholes or weaknesses in their operation.

(A) The Nagoya Protocol

The existence of biopiracy is only anecdotal, there is no clear evidence as to its existence according to many and there are no comprehensive estimates of its global costs, this makes it relatively easy to avoid detection when illegally accessing genetic resources (GR). Biopiracy is usually considered an illegal practice only under the domestic laws of many provider countries[56]. Calculating the frequency at which biopirated materials are used in different innovation processes is nearly impossible without a global monitoring system for the use of GRs in patent applications. Furthermore, biopiracy has a high level of problem malignancy, reducing the extent to which globally negotiated rules can lead to fair and equitable Benefit Sharing while creating incentives to apply certain rules in a way that reduces their regulatory reach and depth. Because of the uncertainties surrounding biopiracy, the Nagoya Protocol was created as an amalgamation of the Convention on Biodiversity (CBD) primarily to deal with biopiracy. The Nagoya protocol had as an objective to ensure proper access and benefit sharing (ABS), while ensuring the protection of traditional knowledge related to genetic resources and biodiversity. Nagoya actually recorded some successes in protecting biodiversity from biodiversity. However, just like other protocols is plagued by criticism this puts into question the effectiveness of this mechanism in the light of conserving biodiversity and properly protecting Traditional Knowledge associated to biodiversity (TK). The paragraphs that follow will examine some of these strengths and criticisms of the Nagoya protocol.

1. Strengths of the Nagoya protocol

The Protocol, according to Article 03, refers to all GR, Traditional Knowledge associated with GR, and advantages arising from their use that are covered by CBD Article 15. This includes "any material of plant, animal, microbial, or other origin containing functional units of heredity" that is "of real or potential value" and under the sovereignty of a member state

[56] Renner *et al*., "Import and Export of Biological Samples from Tropical Countries – Considerations and Guidelines for Research Teams". *Organisms Diversity & Evolution*. Vol. 12, Nº 01., 2012, pp. 81-98.

signatory of the CBD. It should be noted that this protocol excludes GR in Areas Beyond National Jurisdiction, such as Antarctica or the high seas. There had always been a controversy regarding patents on life, where several activists where of the opinion that human life should be excluded from patents, extremists even contested patents on animal life. A notable feat of the protocol resides in the fact that it bars and excludes human genetic resources from its scope, which therefore, places any kind of patent on human GR illegal and subject to sanction.[57]

Another notable exploit of the Protocol rests in its "user measures"[58] which imposes responsibilities on user countries to ensure that GR are used in accordance with the CBD's applicable standards and objectives within their jurisdictions. Furthermore, the "international access standards"[59] aim to make access in provider countries more effective. Such requirements are especially essential for ensuring compliance in situations where users are able to enter into negotiated benefit-sharing agreements but are prevented from doing so due to bureaucratic or discriminatory legislation.

2. Criticisms of the Nagoya protocol

The paragraphs above gave some notable achievements of the Nagoya protocol. However, as seen in the aforementioned paragraphs, the Nagoya protocol is also rigged with some criticism which is the focus of this section.

The protocol's key flaw is that it focuses primarily on compliance management while neglecting to provide the requisite enforcement provisions to prevent noncompliance through effective monitoring and sanctions. As such, parties can use the Protocol's legal ambiguities to mitigate the Protocol's regulatory effect on domestic industry. As a result, the Protocol only provides minor changes over the *status quo ante* in terms of both problem structure and regime design. It also fails to increase the costs of non-compliance in jurisdictions where a genetic resource obtained unlawfully was used, resulting in an inadequate restructuring of users' incentives to base their decision on a cost-benefit analysis. As previously stated, the Nagoya Protocol prioritizes management over compliance. The Nagoya protocol’s approach of favouring management over compliance may not actually be too problematic in some instances. It may help to alleviate problems of unintentional non-compliance, but it is insufficient to discourage users who weigh the costs of benefit-sharing, as well as the costs of transactions associated with benefit-sharing agreement negotiation, against the anticipated penalties of being found in non-compliance. When actors have well-defined priorities and awareness of the

[57] Decision II/11.
[58] Articles 15 to 18, Nagoya Protocol
[59] Article 06, Nagoya Protocol

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possible consequences of following those preferences, theory indicates that their behaviour tends toward reasonable cost-benefit calculations[60]. As a result, where commercial interests are at stake, the Protocol's relative lack of compliance requirements would matter more than when GR are used for non-commercial purposes, such as basic research.

Since access to GR in violation of a provider country's domestic laws and regulations cannot be effectively prevented, the Nagoya Protocol considers it difficult to effectively control biopiracy. Although a number of provider countries have legislation prohibiting the illegal export of domestic plant and animal species[61], many biotechnological applications only require the genetic code of a given GR rather than bulk commodities. Although customs officials can detect the illegal export of single plant samples in theory, modern information technology allows DNA to be sequenced within a provider country and the resulting sequence data to be digitally transmitted to third countries with little risk of detection.

Another protocol flaw was revealed by the ambiguity in the meaning of the word "access." For a protocol that emphasizes on the respect of Access and Benefit Sharing agreements; Surprisingly, neither the CBD nor the Protocol describe the concept. What exactly constitutes "access" in *ex situ* collections has huge consequences for GR. Despite the fact that some GR have been physically extracted from their countries of origin, access is still restricted due to the Prior Informed Consent (PIC) requirement. The term "access" can be interpreted in two ways: as the physical acquisition of a GR in its country of origin, or as its use in biotechnological innovation processes[62]. It's uncertain if the Protocol applies "at the point of access to GRs (in provider countries) or at the point of use (in consumer countries)"[63]. Large numbers of *ex situ* collections would fall beyond the Protocol's reach under the former interpretation, and their use would not cause benefit-sharing obligations subject to the Protocol's compliance provisions. In other words, the user measures outlined in Articles 15 to 18 will only refer to GRs acquired after October 12, 2014, from their respective countries of origin. The EU's enforcing law takes advantage of this uncertainty. Furthermore, several cases of biopiracy exist, such as the *hoodia* and *enola bean* cases, which are primarily the result of existing mechanisms' inability to properly handle biopiracy. It should also be noted that what these examples have in

[60] March and Olsen, "the Institutional Dynamics of International Political Orders". *International Organization*. 1998, pp. 952-953

[61] Renner et al 2012, *Op.cit*

[62] Tvedt and Schei, "Beyond Nagoya, towards a legally functional system of access and benefit sharing". In: OBERTHÜR, Sebastian and ROSENDAL, Kristine G. (Eds.), *Global Governance of Genetic Resources. Access and Benefit-Sharing after the Nagoya Protocol*. New York/London: Routledge., 2014, pp. 158-177.

[63] Wallbott et al., "The Negotiations of the Nagoya Protocol: Issues, Coalitions, and Process". In: *Global Governance of Genetic Resources. Access and Benefit Sharing after the Nagoya Protocol*. Edited by OBERTHÜR, Sebastian and ROSENDAL, Kristin G. Abingdon: Routledge., 2014, p. 37

common are conflicts arising from the intersection of sovereignty claims over GR and intellectual property claims based on their immediate parts or inventions resulting from their use. These divergent interests between provider and consumer countries further act to complicate the process for an effective international response to biopiracy, in addition to exacerbating a number of issues involving transnational private agent control.

(B) The Convention on Biological Diversity (CBD)

The CBD provides massive support for the spine of TK protection especially in matters relating to disclosure of the origin of inventions derived from TK and particularly when these matters relate to the conservation and sustainable use of biodiversity. The CBD prides itself on the "conservation of biodiversity, sustainable use of its components and the fair and equitable sharing of benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies."[64] Capital amongst all the CBD's goals when it comes to combatting biopiracy is the goal of achieving fair and equitable benefit sharing. This goal lays the groundwork for the usage of patents.

Despite the fact that the driving force of the CBD is on appropriate access to and benefit sharing of a country's genetic resources,[65] the preamble to the convention and article 8(j) refer directly to the role of TK in the access and benefit sharing process. In its preamble, the CBD acknowledges:

"*the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the urge to partake in the sharing of benefits arising from the use of TK, innovations and practices relevant to the conservation of biodiversity and the sustainable use of its components*"[66]

In a bid to actualise the goal of benefit sharing, article 8(j) states:

Each contracting party shall, as far as possible and as appropriate: (j) subject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval

[64] CBD, art. 1.
[65] For example, Article 15.4 of the CBD requires that access to genetic resources "shall be on mutually agreed terms...," and, in accordance with Article 15.5, "subject to the prior informed consent of the Contracting Party providing such resources ..... To ensure fair and equitable benefit sharing, Article 15.7 requires Contracting Parties to "take legislative, administrative or policy measures **...** 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." CBD, art. 15.
[66] *Ibid.* at Preamble para. 12.

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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.[67]

Under the CBD two things are important: Property and control of genetic resources, access and benefit sharing from usage of genetic resources and traditional knowledge. The CBD also encourages the usage of bioprospecting

1. Property and control of genetic resources

Talking about property and control, two distinctive historical periods are significant, A pre-CBD (convention on biodiversity) and a post CBD era. In, the pre-CBD era genetic resources were considered as being part of the common heritage of mankind and deemed to belong to everyone and no one at the same time. This fashioned some principles of the FAO international undertaking on plant and Genetic resources which accounts for the free, uncontrolled flows of biological and genetic resources from one continent to another.[68]

After the adoption of the CBD the flow of genetic resources became a little restrained and governed by international trade rules and practices, phytosanitary measures sometimes that is CITES regulations and, at the national level, by scientific research, collection and export/import permits. This was not the case pre-CBD when administrative and legal constraints were a significant burden only in the very worst of and exceptional cases, and mainly in scientific research.

With the recognition of the economic, ecological, policy and cultural value of genetic resources and biological derived materials especially since the adoption and entry into force of the CBD, has given rise to a scenario where sovereignty, property and control concerns have paved the way to new conceptual and practical policy and legal questions, dimensions and challenges. The “biologically poor but industrialised and technologically rich north in contrast to, the biologically rich but technologically poor South" paradigm has contributed to a large extent to forge this scenario.

What is notable about this new scenario or context is that unlike the pre-CBD administrative and legal constraints on movement of genetic and biological resources are now a norm.

2. Benefit sharing from access to biological resources (and related TK)

The exploitation of genetic resources related to TK usually amounts to some benefit to

[67] *Ibid.* at art. 8(j).
[68] Hobhouse, H. *Seeds of Change: Five Plants that Transformed Mankind*. Papermac. MacMillan, London. 1992.

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developing and developed countries alike, these benefits can be economic in nature[69]. Biotechnology and non-biotechnology developments over the past two decades have contributed significantly to the existence of these benefits. However, these developments have sparked numerous debates over the control of biological and genetic resources and the use of IPRs over biological and genetic resources on which biotechnology relies on to develop. The key issue sparked in terms of benefit sharing storms from the simple question of, "how benefit can should be shared equally".

New industrial sectors are now creating new possibilities for generating substantial benefits. These possibilities highlight the need for new options on the participation in these benefits by those countries which, have contributed to the material wealth of these sectors.

(C) The African Intellectual Property Organization's (OAPI) Patent system

The *Organisation Africaine de la Propriété Intellectuelle*, or OAPI (English: African Intellectual Property Organization), is a Cameroon-based intellectual property organization. The Bangui Agreement of March 2, 1977 established the organization. The Bangui Agreement was later amended in 1999.

OAPI has the following objectives or responsibilities conferred by The Bangui agreement:

- Implement and enforce a common administrative procedure derived from a uniform system for industrial property protection, as well as the provision of international agreements in this field to which the organization's Member States have acceded, and providing services relating to industrial property.
- Contribute to the promotion of literary and artistic property protection as a manifestation of cultural and social values.
- Encourage the formation of national author associations in those Member States where they do not yet exist.
- To centralize, organize, and disseminate all types of information relating to the protection of literary and artistic property, as well as to communicate that information to any state party to the agreement who requests it.
- To aid Member States' economic development, particularly through the effective protection of intellectual property and related rights.

[69] Ten Kate, K and Laird, S. *The Commercial Use of Biodiversity: Access and Benefit Sharing*. Earthscan, London. 1999.

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- To provide intellectual property training.
- To carry out any other task related to its mission that the Member States may entrust to it.

It's worth repeating that the aim of any patent system is to encourage and facilitate technological progress through sequential inventions arising from a sufficiently revealed patented invention, as people with ordinary skills in the art would be able to produce or use the invention after the patent's term has expired. The TRIPs Agreement (which is binding on all OAPI member states) stipulates: "*The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations."*[70] And "*Members shall require that an applicant for a patent shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art and may require the applicant to indicate the best mode for carrying out the invention known to the inventor at the filing date or, where priority is claimed, at the priority date of the application."*[71]

1. An Assessment of the OAPI Patent system (Its Limitations)

OAPI and the GCCPO are the world's only regional intellectual property entities to have successfully introduced the unitary patent system, pending the entry into force of the EU unitary patent. Unlike the EU unitary patent system, which would coexist with EPO and national patents, the OAPI system is unique in that it is exclusive. That is, it does not provide for any national patent systems, as the OAPI remains a national patent office to all its member states. [72] After four decades of existence, this paragraphs that follow will assess the OAPI patent system's current problems.

- **The Lack of National Patent Offices and A Patent Court**

OAPI acts as a national patent office for all of its member states, and there is no way to designate a specific member state as the only one for which protection is sought.[73] Individual national patent offices' exclusion or non-existence may not be a problem for viable foreign applicants, but it could be a big challenge for local SMEs who may not have the resources or

[70] TRIPS Agreement, Art. 7 and 8
[71] Art. 29 (1). The Bangui Agreement equally considers insufficient or lack of enabling disclosure are a ground for invalidating a patent. See the Bangui Agreement, Art. 14(1)(d)(i) &39(1)(c) of Annex I.
[72] The Paris Convention, Art. 4
[73] The Paris Convention, Art. 5

desire to defend their inventions in all OAPI member states. For example, a Cameroonian inventor who only wants to patent his invention in Cameroon might easily be unable to do so. He must defend his invention in all OAPI member states, including far-flung ones like the Comoros Islands, even though the inventor has no plans to invest there and there is no risk of patent infringement. Although filing an OAPI regional patent application is less expensive than filing applications in each of the member states, it would be prohibitively costly for an inventor who only wants to protect his invention in one or two states.

This situation may lead to inequity because the patentee would be required to pay annuities for the protection of the invention in countries where the patentee's ability to exploit the invention is hampered by socio-political factors. For example, during the Ivorian civil war from 2002 to 2007 and the subsequent insecurity that followed, OAPI patents equally covered the country, despite the fact that most patentees would not exploit their inventions in Ivory Coast at the time, and Ivorian companies would not be able to infringe on patents because almost all economic activities were halted at the time. The European Unitary Patent would coexist with national patents and EPO patents, referred to as "classic" European patents and national patents, in order to avoid this injustice.[74]

- **Substantive Requirements for Patentability**

The Bangui Agreement established the OAPI's patentability criteria, stating that *"a new invention that requires an inventive step and is industrially applicable may be the subject of an invention patent (hereinafter referred to as "patent")."*[75] The Agreement also states that a patent application must be examined to ensure that the invention described in the application is patentable[76] and that the claim or claims do not go beyond the detailed specification's contents. The Administrative Council decides on the extent to which these requirements can be met at the time of application, and the search is undertaken to ensure that the invention is new, includes an innovative step, and is helpful. However, as previously stated, the OAPI does not

[74] PO, "*What are Unitary Patents?* available at: https://www.epo.org/law-practice/unitary/unitary-patent/faq.html, retrieved on 12 February 2021.

[75] The Bangui Agreement, Arts. 2,3,4 and 5 of Annex I

[76] Art 6 of Annex I: "*Patents shall not be granted for the following: (a) inventions the exploitation of which is contrary to public policy or morality, provided that the exploitation of the invention shall not be considered contrary to public policy or morality merely because it is prohibited by law or regulation; (b) discoveries, scientific theories and mathematical methods; (c) inventions having as their subject matter plant varieties, animal species and essentially biological processes for the breeding of plants or animals other than microbiological processes and the products of such processes; (d) schemes, rules or methods for doing business, performing purely mental acts or playing games; (e) methods for the treatment of the human or animal body by surgery or therapy, including diagnostic methods; (f) mere presentations of information; (g) computer programs; (h) works of an exclusively ornamental nature; (i) literary, architectural and artistic works or any other aesthetic creation."*

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conduct substantive patent examination when examining these conditions.[77] Its formality examination is insufficient to ascertain an invention's novelty, non-obviousness, and utility. This allows the OAPI to issue patents quickly, and *Medecins Sans Frontieres* has confirmed several cases in which the OAPI quickly grants patents for a given set of applications, while the EPO refuses to grant patents after substantive examination of those same applications. [78] Although patents are territorial rights, and one territory's grant or refusal of a patent has no bearing on the decision of another, the swift grant of patents without substantive examination may result in patent misattribution. Such grants would be to the detriment of society, as it would be forced to pay exorbitant prices for the product for the duration of the patent. Despite the fact that the TRIPs Agreement and the Doha Declaration allow developed countries to shape their intellectual property policies to reflect their development goals, the exclusion of substantive examination may not be one of them.

Furthermore, insufficient disclosure, which is one of the grounds for refusing or invalidating an OAPI patent[79], is difficult to determine by a simple formal examination, which is typically performed by people with little technical knowledge. Only during the substantive examination will it be determined whether a person of ordinary skill in the art would be able to make or use the invention based on the patent requirements. If patents are granted without such expert determination, it will almost certainly result in patents being granted to inventions that are not properly disclosed, and thus may not be useful to the patentee's future rivals after the patent expires. In that case, the public would have been subjected to an unnecessary burden in the form of high prices, which would continue even after the patent had expired, since rival companies would be unable to manufacture and use the invention due to the lack of enabling disclosure.[80]

IV. CHALLENGES IN IMPLEMENTATION OF MEASURES CONSERVING BIODIVERSITY IN CAMEROON

(A) Population growth and increasing demand for biological resources

The increase in population only means the demands for natural resources will only keep skyrocketing, which in turn more often than not results in biopiracy, deforestation and

[77] the Patent Cooperation Treaty (PCT), Washington, 1970, Art. 3

[78] Medecins Sans Frontieres, "*Drugs Patent under Spotlight: Sharing practical knowledge about pharmaceutical patents",* 2003, 18, available at: http://apps.who.int/medicinedocs/pdf/s4913e/s4913e.pdf, retrieved on 12 February 2021.

[79] According to Art. 39(1) of Annex I of the Bangui Agreement, "Patents granted in the following cases shall be declared invalid... (c) if the specification attached to the patent does not conform to the provisions of Article 14(d)(i) above, or if it does not state in a complete and honest manner the true methods of the inventor..."

[80] The Bangui Agreement op.cit, Art 32

consequent extinction and endangerment of several species.[81] Cameroon is now facing a lot of problems like this, biopiracy is on the rise and resources like the commonly known "Alakata pepper" otherwise known as the alligator pepper are being over exploited for its medicinal value with little or no benefit sharing initiated with the local communities for the usage of this resource[82], other overexploited or biopirated biological resources in Cameroon include the African Mahogany, the African Walnut, African Pearwood these are just a few of the ever expanding list of endangered species in Cameroon.[83] Population growth accounts to a large extent for these endangerments and if nothing is done to control this growth Cameroon faces the imminent danger of a massive decrease in its biological resources especially given the fact that people are now aware of the economic value of these resources which fuels biopiracy.

As of now the world as a whole is losing its tropical forests at an alarming rate. Almost 42 million acres of tropical forests are lost every year, meaning averagely the world loses close to 1.3 acres of tropical forest every second which does not speak well of the state of the world's biodiversity going forward. Africa ranks second in the list of areas experiencing huge loss in its forests and the increasing population of the continent will just make the situation worst. It is estimated that at this rate tropical forests will be gone within 115 years.[84] Numerous studies like that carried out by the Environmental Biology and Biodiversity Laboratory (EBBL), University of Dhaka on the *Traditional and Cultural involvement of local people and the causes of deforestation* in some forest areas of Chittagong and Cox's-Bazar district discovered after taking into account the impact of population growth and increase, demographic statement of the local people involved, family affairs and tradition, and their education systems that indigenous communities (because of poverty and high illiteracy) are prone to survive off the forest by harvesting wood or undergrowth plants to sell in markets nearby and little or nothing is done in terms of afforestation.[85]

The research mentioned above was not conducted for Africa however, the results of the research hold true for indigenous communities in Cameroon as well who rank highest in terms of birth rates but relatively impoverished, these vast number of people in rural areas survive off natural (biological) resources. They use the resources for food, medicine, source of income, this continuous use without control imminently accounts for a decrease in the state of

[81] Dr M. A Bashar, "Challenges to biodiversity conservation and sustainable development | The Daily Star" available at, https://www.thedailystar.net/news-detail-143199 (accessed 28/09/2020)
[82] GIZ Cameroon Seminar in Douala 2015
[83] "Endangered species of Cameroon" List, Earth's Endangered Creatures, available at, http://earthsendangered.com/search-regions3.asp?search=1&sgroup=allgroups&ID=50
[84] Dr M.A Bashar, *ibid.*
[85] *Ibid.*

biodiversity and the rise of biopiracy in Cameroon.

(B) Lack of funding

Protecting biodiversity necessitates money or funding.[86] Cameroon just like other developing countries has no adequate funding for conservation of biodiversity or for technology that is environmentally friendly like Electric cars instead of fuel-based cars for example. Conservationists and sectors tasked with conserving biodiversity as their primary focus usually struggle to get adequate funding that can serve to ensure the long-term success of conservation initiatives. The funding models usually span in a three to five-year cycle, as stated by Laurance. Projects are usually started and expectations are for quick and, ideally long-term results. However, these expectations tend to be difficult to achieve without funding, as usually governments just grant some short-term financing for relatively complex environmental problems and expect long term solutions. Furthermore, it is noticed that when the funding does become available, it is often unevenly distributed or biased towards certain groups of species[87] (this does not speak well of the integrity and transparency of authorities tasked with funding), the persistence of corrupt officials makes obtaining funds even harder as most at times these funds are embezzled or misappropriated.

It should be noted that the availability of funds does not necessarily guarantee the success of a conservation effort. Figures like Pimm, pointed out that this position is especially true of large conservation groups, as in the long run their attention shifts from genuinely caring about conserving biodiversity to raising or earning funds. Small conservation groups tend to suffer the lack of funding as larger groups receive relatively most funds allocated to environmental protection. This is why organisations like "SavingSpecies" for example exists to combat any form of bias and uneven distribution of funds, it is one of their objectives.

(C) Lack of law and order

Besides biopiracy, poaching of rhinos and elephants is at its peak.[88] The continuous rise in these environmental crimes is accounted for by loopholes in existing laws and enforcement mechanisms, poor governance (to be discussed in detail as the work progresses) and lack of laws in some cases (like in the case of biopiracy in Cameroon). Enforcement has always been an issue in Cameroon as not only are the authorities tasked with enforcing laws corrupt, but

[86] "How to Save Tropical Rainforests" available at,https://rainforests.mongabay.com/1001.htm (accessed 03/10/2020)
[87] "The Society for Conservation Biology" available at, http://onlinelibrary.wiley.com/doi/10.1111/j.1523-1739.2010.01453.x/abstract (accessed 03/10/2020)
[88] Richard van Noorden, "Worst year ever for rhino poaching in Africa: Nature News & Comment", available at, https://www.nature.com/news/worst-year-ever-for-rhinopoaching-inafrica1.19225 (accessed 03/10/2020)

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most are not well trained and even lack equipment aiding them in carrying out their duties. These usually presents a significant difficulty in not only fighting biopirates and poachers, but criminals as a whole. Talking of the laws themselves most at times when laws do exist, they are soft as most environmental laws are not set to be harsh enough to dissuade people from using the environment but are rather soft to regulate usage of the environment.

Nowadays some of these environmental crimes are organized (professional) and not just limit themselves to breaking both national and international laws. A recent report from the international police (INTERPOL) reveals that wildlife crimes often intersect other offences such as murder, corruption, and trafficking of drugs and weapons, making law enforcement considerably challenging. Handling environmental crime these days as complex as they come, require collaboration between various environmental and policing agencies, anti-money laundering networks and anti-corruption authorities.

(D) Fragmentation of laws

Environmental laws in Cameroon are very fragmented and include various levels of application and cross references. Certain provisions will only be able to be implemented pursuant to other provisions, this complicates implementation of laws and makes it relatively monotonous to implement as laws which are similar and could have been harmonized into one legislation are spread across multiple legislations, which makes for a lot of referrals to multiple laws to pass a judgement on an environmental crime.

V. CONCLUSION

The paragraphs above focused on the effectiveness of mechanisms for the conservation of biodiversity in Cameroon and the challenges faced by the country in implementing measures or mechanisms aimed at conserving biodiversity. Being grounded in the Anthropocentric theory (Anthropocentrism) which believes in the superiority of mankind over his environment, it is clear than man can use the environment as he sees fit but equally should ensure that measures are kept in place to sustain the environment or conserve biodiversity, this accounts for the existence of laws for the conservation of biodiversity. In order to protect the environment policies, laws, and institutions must effectively play their part, and for any damage caused to the environment there should be repercussions, which serve not just to compensate for harm but deter potential environmentally unfriendly behaviour.

From an examination of the paragraphs above, it is clear that a plethora of mechanisms exist for regulating environmental matters and conserving biodiversity in Cameroon and it is only because of the availability of these mechanisms that courts can exercise control over

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environmental matters. Despite the existence of these mechanisms, it also is evident that the state of Cameroon's biodiversity is deteriorating and the reason for this regressive following from an analysis of how effective these mechanisms are stems from the fact that these laws are not properly implemented. This work also showed the difficulties and challenges of implementing these measures, it is paramount that the government and citizens of the country do everything in its power to address these challenges so biodiversity is conserved and biopiracy prevented.

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 [ISSN 2581-5369]