ADDRESSING BIOPIRACY THROUGH AN ACCESS AND BENEFIT SHARING REGIME-COMPLEX: IN SEARCH OF EFFECTIVE PROTECTION FOR TRADITIONAL KNOWLEDGE ASSOCIATED WITH GENETIC RESOURCES

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SYNOPSIS

The protection of traditional knowledge (TK) is a problem of central significance to developing countries. Several possible reasons, including economic reasons, environmental reasons, cultural reasons, and political reasons such as the protection of indigenous rights may offer explanations for this. A central reason though can be described as the seeming injustice arising from the allocation of rights and resources over inventions based on TK and genetic resources (GRs) through the mechanism of the intellectual property (IP) system. In this sense, addressing the incidence of ‘biopiracy’ as it is rhetorically termed, provides a central justification for the huge investments and attention being paid to the design of solutions for protecting TK in developing countries. Given the international nature of the problem of biopiracy, it has also emerged as a major issue area for which solutions are being pursued in international law. Two significant developments in international law which will guide the discussion in this paper are the successful emergence of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (the Nagoya Protocol), and the ongoing efforts to design a complementary system of protection within the frame of the World Intellectual Property Organization (WIPO). This paper suggests that the successful conclusion of the related WIPO negotiations is an important aspect of current efforts to implement the Nagoya Protocol to successfully address the incidence of biopiracy. It supports its claims through a reflection on the nature of biopiracy articulated through a regime analysis.
I. INTRODUCTION

The protection of traditional knowledge (TK) is an important issue which has divided policy makers, academics and a wide range of stakeholders. Beyond the question of whether or not TK should be protected, questions rather relating to the what, how, where, and why of TK protection have dominated the discussions on the protection of TK.¹ TK is considered a part of the cultural assets of indigenous peoples, and provides enormous possibilities for their daily lives. In this context, attention is consistently drawn to the economic and social value of TK.² Indeed, it plays a central role in the sustenance and livelihood of indigenous peoples. Furthermore, the importance of TK to modern society has been accentuated with an increased recognition of its role, inter alia, in the conservation and sustainable use of biodiversity, including as an input to both processes and products of innovation.³

Developing countries are particularly interested in the protection of TK for a number of reasons including, but not limited to: economic reasons associated with the loss of revenue; environmental reasons associated with the depletion of biodiversity and, as such, associated TK practices; cultural reasons associated with the preservation and respect for cultural practices of its indigenous peoples; and even political reasons associated with leverage and domestic populist views, amongst others. A central reason worth mentioning though, and which forms the core of this paper’s discussion, is

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² See Rebecca Crookshanks & Peter WB Phillips, “A Comparative Analysis of Access and Benefits-sharing Systems” in Tania Bubela & E Richard Gold, eds, Genetic Resources and Traditional Knowledge: Case Studies and Conflicting Interests (UK: Edward Elgar Publishing Limited, 2012) 69–70, who in noting the value of TK refer to estimates suggesting that if the US was forced to pay fair royalties on TK currently being used, it would owe developing countries $302 million USD annually for agricultural products and $5.1 billion USD annually for pharmaceuticals.

³ See Tania Bubela & E Richard Gold, “Introduction: Indigenous Rights and Traditional Knowledge” in Tania Bubela & E Richard Gold, eds, Genetic Resources and Traditional Knowledge: Case Studies and Conflicting Interests (UK: Edward Elgar Publishing Limited, 2012) at 1, noting the importance of TK in areas such as conservation and agricultural practices, classification systems, land use practices, sustainable management of natural resources, healthcare practices and medicinal properties of local species.
the seeming unfair distribution of rights and resources arising from the use of TK – a justification popularly discussed as biopiracy. Biopiracy may be construed as the result of the commercial/non-commercial drive to utilize the intellectual property (IP) system to acquire rights over inventions based on genetic resources (GRs) and/or its associated TK, without complying with existing national or international legal obligations governing the acquisition and use of such resources.

Arising from the importance of TK to indigenous groups and States and the real threat of biopiracy, several countries, especially developing countries, have taken on the difficult challenge of implementing regulations governing the use and protection of TK within their borders. Beyond such domestic measures, efforts to secure protection for TK have also been pursued at the international level. Two significant normative developments in international law – one concluded and the other ongoing – form the basis of this paper’s reflection on the effective protection of TK from biopiracy.

First, the Nagoya Protocol. The Nagoya Protocol was adopted in 2010 and entered into force in 2014. A subsidiary instrument to the Convention on Biological Diversity (CBD), the Nagoya Protocol was negotiated in response to calls for an international regime which would implement the third objective of the CBD that relates to the fair and equitable sharing of benefits arising from the utilization of genetic resources (GRs). The Nagoya Protocol establishes this international access and benefit sharing (ABS) regime, made up of the CBD, the Nagoya Protocol, and other complementary instruments including the Bonn Guidelines and the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA). “While the Nagoya Protocol does not specifically call for the protection of TK, its general provisions offer in

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4 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization to the Convention on Biological Diversity, 29 October 2010, [no UNTS Volume Number has yet been determined for this record] (entered into force 12 October 2014) [Nagoya Protocol].


6 See Nagoya Protocol, supra note 4, para 2 (Preamble to the Nagoya Protocol). Convention on Biological Diversity, 5 June 1992, [no UNTS Volume Number has yet been determined for this record] (entered into force 29 December 1993) [CBD].
practice,[sic] tools and mechanisms that are driven by this underlying objective.”⁷ In fact, an entire parallel set of provisions are contained within the Nagoya Protocol addressing access and benefit sharing arising from the use of an important subset of TK – TK associated with GRs (TKaGRs). Through its provisions, the Nagoya Protocol seeks an actualization of the CBD’s other two objectives: the conservation of biodiversity and the sustainable use of its components.⁸ The Nagoya Protocol thus exists within the broad framework of a biodiversity conservation regime. As of May 1st, 2017, a total of 95 ratifications had been received for the Nagoya Protocol.⁹ The majority of countries that have ratified the Nagoya Protocol are developing countries. This demonstrates the importance of the Nagoya Protocol, and indeed the international ABS regime, to the developing world.

The second development I draw attention to is the ongoing process within the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). Set against the backdrop of the IP regime, the IGC was established by the World Intellectual Property Organization (WIPO) in 2000 as a policy forum for the discussion of IP issues arising within the context of the protection of TK and traditional cultural expressions (TCEs), as well as the sharing of benefits arising from the use of GRs. The IGC has been fraught with major difficulties through its 16 years of work; a central tension which is generated by the difficulty in reconciling an IP-based protection of TK with the formal IP system.

The global IP system is a system of governance which, amongst others, seeks to incentivize innovation. IP is a term which broadly encapsulates proprietary rights arising from creations of the mind.¹⁰ It includes

⁷ See Muller, supra note 1 at 4.
¹⁰ The Convention Establishing the World Intellectual Property Organization, 14 July 1967, 828 UNTS 3 (entered into force 26 April 1970) [CEWIPO], notes that IP includes all rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields, including the rights relating to; literary, artistic and scientific works; performances of performing artists, phonograms, and broadcasts; inventions in all fields of human endeavour; scientific discoveries; industrial designs; trademarks, service marks, and commercial names and designations; and protection against unfair competition.
inventions, literary and artistic works, designs, symbols, names and images which are used in the fields of commerce. Underlying its prescriptions are two broad categories of justifications: the ethical/moral justifications and the instrumental justifications. The former category is premised on the natural rights that creators have in their creation, while the latter is premised on the rationale that the lack of IP protection would mean an insufficient production of intellectual products. It is in this latter context that the IP system is recognized as a simulant for innovation and creativity.

This underlying rationale, which draws its origins from the early European experience, has served to exclude TK (and its holders) from its protection framework. The exclusion of TK from the IP system presents a difficulty for the continued justification of the IP system as we know it today. This is on the basis that the IP system is not sufficiently representative of knowledge holders and creators all around the world. The innovative tendencies of indigenous and local communities, which are a significant driver of ‘modern’ innovation, are thus largely undermined. Arising from suggestions of incompatibility, this exclusion is due to the peculiarities of this knowledge which do not necessarily align with the general concept of knowledge recognized and catered for within the classical IP system. Sanjay Bavikatte notes the following anti-TK assumptions which underlie the IP system: the assumption that the progenitors of knowledge are clearly identifiable; the assumption that new knowledge is clearly distinguishable.

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11 CEWIPO Article 2 (viii).
14 Ibid.
from old knowledge; the assumption that knowledge creation and development is primarily motivated by the ‘potential of future rewards and [that creators] would be willing to share their knowledge with society in exchange for such rewards’; and the assumption that IP rights ‘adequately reward developers of ‘new’ knowledge by guaranteeing them exclusive and time-bound use of such knowledge in exchange for sharing the knowledge with society’.\(^\text{17}\)

Addressing the exclusion of TK from the IP system formed one of the core rationales underlying the formation of the IGC.\(^\text{18}\) Since the late 2000s, the IGC has continued to advance its work through text-based negotiations aimed at agreeing on the text(s) of an international legal instrument(s) which will address this exclusion by ensuring the effective protection of TK. However, though progress has been made, delegates remain divided on a number of core issues which are central to the conclusion of its normative efforts. My intention is not to examine these issues here, but rather is to emphasize the central role which the negotiators of the Nagoya Protocol projected for the IGC in the very implementation of the Nagoya Protocol as an effective solution to biopiracy. The relevance of the IGC to the efforts to implement the Nagoya Protocol is an area which has not received sufficient scholarly attention.

On the basis of the above, this article discusses the protection of TKaGRs from biopiracy as a central concern of the developing world. It highlights biopiracy as a trans-regime concern which requires solutions drawn from both the Nagoya Protocol and the IP regime. Drawing from aspects of regime theory, this article suggests a viewing of the Nagoya Protocol within the context of an evolving regime-complex for a meaningful solution to the problem of biopiracy. In support of this, it discusses the WIPO IGC as an elemental part of the evolving regime complex being advanced by developing countries to address the protection of TKaGRs. I justify a viewing of this regime complex as an ABS regime complex – one which seeks to address in an effective way the protection of TKaGRs from the rampant

\(^{17}\) Ibid.

\(^{18}\) See WIPO Background Brief No 2, “The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) (2016) at 2, noting that the IGC was ‘conceived as part of a larger and structured endeavour by WIPO to move towards a modern, responsive IP system that could embrace non-Western forms of creativity and innovation, be comprehensive in terms of beneficiaries, and be fully consistent with developmental and environmental goals’. 
incidence of biopiracy – on the basis of a third world approach to international law (TWAIL).19

This paper is broken down into five main parts. After this introduction, part two offers a contextual introduction to international regimes for the purpose of comprehending the purpose of an international regime on ABS. Part three introduces the issue area of biopiracy. As part of this discussion, considerable effort is made to introduce TKaGRs as a subject of appropriation within the biopiracy debate. In part four, I provide a discussion of the Nagoya Protocol as a regime complex aimed at addressing the incidence of biopiracy. Significantly, I highlight its open-ended nature and its evolutionary context which support a viewing of the WIPO IGC as an intended component of the Nagoya Protocol’s mechanism. In part five, I conclude by discussing the relevance of the WIPO IGC to the Nagoya Protocol’s regime, noting the importance of a complementary outcome as the defining precondition for such an inclusion. The significance of this article is contained in the viewing of fragmented international efforts as necessary complementary pieces for achieving the objective of TK protection from biopiracy.

II. A REGIME CONTEXT

International law is made up of normative and institutional fragments which interact in diverse ways.20 There really has never been a central

19 The TWAIL scholarship is channelled towards a ‘commitment to centre the rest rather than merely the west, thereby taking the lives and experiences of those who have self-identified as Third World much more seriously than has generally been the case’. See Obiora Okafor, “Critical Third World Approaches to International Law (TWAIL): Theory, Methodology, or Both?” (2008) 10 Intl Community L Rev 371 at 376. See also Antony Anghie & BS Chimni, “Third World Approaches to International Law and Individual Responsibility in Internal Conflicts” (2003) 2 Chinese J Intl L 77 at 78, noting that TWAIL scholarship bears a contextual undertone which views international law from the perspective of the lived history of third world peoples. Consequently, TWAIL draws its distinctiveness on the basis of a historically aware methodology – one which challenges the simplistic visions of an innocent third world and a colonizing and dominating first world. See James Thuo Gathii, “TWAIL: A Brief History of its Origins, its Decentralized Network, and a Tentative Bibliography” (2011) 3:1 Trade L & Dev 26 at 34.

20 Wilfred Jenks is attributed with providing the earliest background analysis on fragmentation of international law. See ILC Study Group, ‘Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of
international law – a homogenous instrument, negotiated centrally, which governs international relations from a unified perspective. Rather, international law has developed in response to specific needs, as a body of fragmented regulations governing various areas of state relations. Far from existing as independent isolated fragments of regulation, these fragments tend to overlap in several ways, creating a diverse range of new issue relationships in international law. The existence of normative fragments could serve, for instance, to provoke the emergence of counter-norms seeking to balance the effects of existing norms, or could serve as foundations for the emergence of strengthened norms aimed at the consolidation of existing norms. Yet again, normative fragments could emerge within an interpretive context, seeking to provide further clarification or explanation to existing norms. The emergence of international norms, as with international regimes, may therefore be said to be path dependent, and are generally reactive to, or predicated on, existing regimes.

21 See Margaret Young, “Introduction: The Productive Friction between Regimes”, in Margaret Young, ed, Regime Interaction in International Law: Facing Fragmentation, 1 at 2 noting that there has never been a single global legislature or appellate court to mould a unified body of international law. Nor has there ever been a uniform will for such a system by sovereign states. See also, Amir A Majid noting, with reference to formation of international institutions; ‘...the international legal regime does not have a pyramidal organization converging its ultimate authority in a universal legislature or government which can set up regulatory procedures or criteria...’. See Amir A Majid, Legal Status of International Institutions: SITA, INMARSAT and EUROCONTROL Examined (England: Dartmouth Publishing Company Ltd., 1996) at 119.

22 See Margaret A Young, “Regime Interaction in Creating, Implementing and Enforcing International Law” in Margaret A Young, ed, Regime Interaction in International Law: Facing Fragmentation (Cambridge, UK: Cambridge University Press, 2012) at 91, noting the interaction of regimes during the making, implementation and enforcement of international law.

23 See, for instance, Raustalia, who makes this argument, albeit within the context of international regime complexes. See Kal Raustiala & David G Victor, “The Regime
The concept of international regimes has been developed and popularized by scholars of international relations seeking “to capture the diversity and complexity of the cooperative arrangements that states use to address transborder issues of mutual concern.”\(^\text{24}\) Stephen Krasner is attributed with the canonical definition of the term, which he defines as implicit or explicit principles, norms, rules, and decision-making procedures around which actors’ expectations converge in a given area of international relations.\(^\text{25}\) Across and within the fields of international relations and international law, the understanding and use of the international regime concept has differed.\(^\text{26}\) The resulting imprecision and wooliness of the term, arising from such diverse usage of the concept, is a factor often cited as a criticism against the study of international regimes.\(^\text{27}\)

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\(^{25}\) This ‘consensus’ definition, as elaborated by Stephen Krasner in his introductory essay to international regimes, was one of the results of a conference convened to prepare the 1982 special issue of International Organization on international regimes. It has been widely criticized for its imprecision and the difficulty of distinguishing among its various components. According to Krasner, principles are beliefs of fact, causation, and rectitude. Norms are standards of behaviour defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice. See Hasenclever, Mayer & Rittberger, International Regimes, supra note 23 at 8.

\(^{26}\) See Young, “Productive Friction”, supra note 21 at 2. This difference is also closely linked to the difficult historical relationship between international relations and international law scholarship. See, for instance, John H Currie, Craig Forcese & Valerie Oosterveld, International Law: Doctrine, Practice and Theory (Toronto, Canada: Irwin Law, 2007) 29–38, who describe a tense relationship stemming from the questioning by international relations scholars (particularly those of the realist and non-realist school) of the relevance of international law to international affairs.

\(^{27}\) See, for instance, Susan Strange, “Cave! Hic Dragones: A Critique of Regime Analysis”, (1982) 36:2 Intl Organization, at 484–485, who argues that the problem with such woolly words like regimes is that, where they do not actually mislead and misrepresent, they only serve to disorient and confuse. See also Oran Young, International Cooperation: Building Regimes for Natural Resources and the Environment (New York: Cornell University
scholars, however, have largely shown an interest in the concept of international regimes within the context of its relevance, amongst others, to the development, interpretation, implementation, enforcement and application of international law.  

The international law scholarship is focused mainly on understanding how different branches of norms and institutions overlap on issues of global concern. As Margaret Young notes, this overlap “is not simply a matter of international judicial tribunals who seek to interpret conflicting norms, but is a constant feature in the setting of agendas for new negotiations[and] the ongoing norm elaboration within regimes...”.

A central part of international regimes which is of central importance to this paper’s analysis relates to articulation of regime issue areas. Hasenclever et al. have observed, that “issue-area specificity is an essential attribute of regimes, [and as such] the concept of regime can only be as clear as the concept of an issue-area has been made.” In other words, the clarity of an actual regime rests on the clarity of the issue-area for which cooperation is sought. The concept of ‘issue area’, though largely overlooked, is thus another important aspect of regimes that is worth mentioning. An issue area consists of one or more, in the perception of the actors, inseparably connected objects of contention and of the behavior directed to them. The boundaries of such issue areas are determined by the perceptions of the participating actors. This definition, amongst others,

Press, 1989) at 9, who notes that critics have reasonably questioned whether the concept of regimes is ‘anything but a woolly notion likely to produce more confusion than illumination’.

See generally Beth A Simmons & Richard H Steinberg, eds, International Law and International Relations (Cambridge University Press: 2006, UK), which covers a broad range of topics, authored by law practitioners as well as political scientists, dealing with international regimes, within the specific context of the interaction of international law and international relations. See also, Margaret A Young, ed, Regime Interaction in International Law: Facing Fragmentation (New York: Cambridge University Press, 2012).

See Young, “Productive Friction”, supra note 21 at 1.

Ibid.

See Hasenclever, Mayer & Rittberger, supra note 23 at 60.

See Hasenclever, Mayer & Rittberger, ibid at 60, who note that little attention has surprisingly been paid to the concept of issue area by students of international relations despite its centrality to the regime concept.

See Manfred Efinger & Michael Zurn, “Explaining Conflict Management in East-West Relations: A Quantitative Test of Problem-Structural Typologies”, in Volker Rittberger,
highlights the political nature of the circumscription of issue areas given its reliance on actors’ perceptions, as well as emphasizes the conflictual nature of issue areas.\textsuperscript{34}

The perception-dependency of issue-areas deserves to be stressed: it has the important implication that issue-areas can change without any corresponding change taking place in the objective facts to which policymakers are responding. Moreover, analysis is complicated by the fact that perceptions of actors as to which issues are indeed ‘inseparably connected’ can diverge: typically the formation of an issue-area is itself a highly political process.\textsuperscript{35}

The \textit{Nagoya Protocol’s} international ABS regime thus offers an interesting framework for which the determination of the issue-area may prove a challenge for reasons alluded to above. \textit{Prima facie}, the ABS regime seeks to ensure cooperation among Parties on the effective implementation of the CBD’s third objective – equitable sharing of benefits arising from the utilization of genetic resources (GRs) and traditional knowledge associated with such genetic resources (TKaGRs). The flip side to this issue of benefit sharing is the issue of access to the resources largely located in the Third World. Highlighting the conflictual nature of the two sides, the user-actors, mostly located within developed countries, are primarily concerned with issues of legal certainty surrounding the access terrain to resources, while the provider-actors are principally concerned with ensuring compliance with the terms of access especially as regards the sharing of benefits arising from use.

From the perspective of developing countries, the immediate issue area draws from a broad historical ancillary context of unfair access to and use of resources by user-actors, coupled with an inadequate or non-existent sharing of benefits with provider-actors. Given that the construction of issue areas is linked to the perception of actors and is largely a political issue, it would be a mistake to fail to acknowledge the underlying political sensitivities which benefit sharing has emerged to address within the third world – the eradication of biopiracy.

\begin{itemize}
\item \textbf{International Regimes in East – West Politics} (London: Pinter Publishers, 1990) 64 at 68.
\item See Hasenclever, Mayer & Rittberger, \textit{supra} note 23 at 61. Conflict is not used to refer to hostilities or violence, but is rather used to refer to incompatible preferences or differences in issue positions. The actions of actors in relation to these, is discussed as conflict management.
\item \textit{Ibid.}
\end{itemize}
Indeed, for developing countries, the search for solutions to biopiracy lies at the heart of the efforts to implement the *Nagoya Protocol*. The Government of India, for instance, upon ratification of the *Nagoya Protocol* noted in its press release:

India has been a victim of misappropriation or biopiracy of our genetic resources and associated traditional knowledge, which have been patented in other countries...it is expected that the ABS Protocol which is a key missing pillar of the CBD, would address this concern.\[^{36}\]

The Government of Mexico also noted upon ratification of the *Nagoya Protocol* that the *Nagoya Protocol*

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\text{would provide legal certainty regarding the use of genetic resources to indigenous and local communities, industries, pharmaceutical companies and researchers, by establishing measures to avoid misappropriation and misuse.}\[^{37}\]
\]

Again, in this context, the former Vice President of Indonesia, Prof. Boediono, in offering support for the ratification of the *Nagoya Protocol*, noted that

with the [Nagoya Protocol], Indonesia will have a firm legal basis to protect and preserve its genetic resources and traditional knowledge related to genetic resources...[i]n addition, the law will also lay a legal basis for the country to prevent theft and illegal utilization of biodiversity.\[^{38}\]

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\[^{36}\] Intellectual Property Watch, “Brief: India Ratifies Nagoya Protocol on Biodiversity Access And Benefit-Sharing” (5 October 2012) *IP Watch*, online: Intellectual Property Watch <https://www.ip-watch.org>. This can be contrasted with the press statement of the European Union on the signature of the *Nagoya Protocol* which stated: “The Nagoya Protocol should create the opportunities for biodiversity rich countries to conserve and sustainably use their biodiversity opportunities for fair and equitable sharing of benefits from their use. At the same time, the Nagoya Protocol should create a clear and transparent framework for user countries to use the same opportunities as a resource to increase scientific knowledge and understanding, or to develop commercial products.” EU Press Statement on the signature of the Nagoya Protocol (23 June 2011), online: <http://eu-un.europa.eu>.


What then these three megadiverse country\textsuperscript{39} views point to is an expectation that the implementation of the \textit{Nagoya Protocol} will significantly assist their respective governments in the quest to prevent the continued theft, misappropriation or misuse of TKaGRs and GRs from within their respective territories. These concerns, as expressed, are generally subsumed within the biopiracy rhetoric. Therefore, from the perspective of several developing countries, the \textit{Nagoya Protocol} is a central instrument for addressing biopiracy. In other words, the eradication of biopiracy represents an underlying expectation of benefit sharing arrangements within the concluded text of the Nagoya Protocol and, by extension, the ABS regime.

This implies that beyond explicit primary regime objectives, regime signatories could yet approach the implementation of specific regimes for the fulfilment of ancillary objectives. Indeed, the ability to address these ancillary objectives could serve to determine – negatively or positively – the potential effectiveness of the said regime. Understanding biopiracy as an ancillary Third World objective of the ABS regime assists with an understanding of the ABS regime and its implementation from the perspective of the developing world.

Characterizing biopiracy as the central aim of the Nagoya Protocol based on an ancillary interpretation may admittedly seem simplistic, especially given that the express objective of the \textit{Nagoya Protocol}, as noted earlier, relates to the fair and equitable sharing of benefits, aimed at ensuring the conservation and sustainable use of biodiversity. In making this characterization, I however wish to focus on biopiracy as an \textit{implicit} issue area of global governance. In reality, as explained above, the definition of regime issue areas is based primarily on the perceptions of actors within regimes and thus constitutes a largely political issue. Andrew Lang, through an analysis of the international trade regime, argues that each international regime contains “principles of vision – the particular implicit frameworks of visibility and invisibility...which reflect the politics of the regime above and beyond the regime’s expressed mandate.”\textsuperscript{40} This suggests that beyond

\textsuperscript{39} The Like-Minded Megadiverse Countries (LMMC) was established by the \texttt{Cancun Declaration of Like-Minded Megadiverse Countries}, 18 February 2002 [\texttt{Cancun Declaration}]. The LMMC today is a group of 17 countries “which hold more than 70% of all biodiversity, and 45% of the earth population.” See Group LMMC, \texttt{“Like Minded Megadiverse Countries”} (2009), online: <http://pe.biosafetyclearinghouse.net/actividades/2009/grouplmmc.pdf> at 2.

\textsuperscript{40} See Andrew T F Lang, “Leg\textsuperscript{1}al Regimes and Professional Knowledges: The Internal
an express regime mandate, the politics of the regime could actually devolve on ancillary objectives. As evidenced above, several developing countries have consistently referenced the issue of biopiracy in expressing their hopes and expectations for the implementation of the Nagoya Protocol. In other words, in adopting Andrew Lang’s analysis, Third World actors consider the issue of biopiracy to be an implicit ‘principle of vision’ underlying the express objective of the ABS regime. Consequently, while some countries like the United States have struggled to even acknowledge the existence of a phenomenon called biopiracy, Third World countries have placed the eradication of biopiracy as a core justification underlying the very existence of the Nagoya Protocol’s international ABS regime.

Does this then suggest an ‘issue’ shift in the core rationale of the ABS regime? Absolutely not. The ABS regime, founded on the principle of benefit sharing and aimed at conserving and using biodiversity in a sustainable way, remains an intact shared regime objective by all its signatories. However, while developed countries have sought to clarify the rules for access to GRs and TKaGRs, thus promoting legal certainty for research and investment through such a regime, Third World countries have sought to reclaim a terrain of exploitation, by which token their sovereign rights over their resources have often been compromised. In reasserting the rights over resources located within their territories, the


41 Through an analysis of the international trade regime, Andrew Lang argues that each regime contains what he terms, ‘inner principles of vision – particular implicit frameworks of visibility and invisibility – which reflect the politics of the regime above and beyond the regime’s expressed mandate. Understanding how these principles of vision are produced, contested and sustained is a necessary part of unearthing the internal politics of a regime. See Lang, “Legal Regimes & Professional Knowledges”, ibid at 116–117.

42 As summarized by the WTO Secretariat, the US observed, in response to the submission of India, contained in WT/CTE/W/156, “Protection of Biodiversity and Traditional Knowledge – The Indian Experience”, “whilst there were often disputed about whether something was patent-worthy, the US noted that the examples in India’s paper had been successfully addressed. The US was not sure it accepted that there was a phenomenon that could be termed biopiracy.” For a full summary of the exchanges, see Someshwar Singh, “US Not Sure What’s Biopiracy” (July 20, 2000) South North Development Monitor, online: GRAIN <https://www.grain.org/article/entries/2103-us-not-sure-what-s-biopiracy>.
biopiracy rhetoric has offered a useful framework through which the implementation of the ABS regime is perceived within the Third World. In the rest of this work, my analysis of the ABS regime will be pursued in the context of benefit sharing as a tool addressing the protection of TKaGRs from biopiracy.

A. Biopiracy

Biopiracy is the result of a commercial/non-commercial drive to utilize the IP system to acquire rights over inventions based on GRs and/or its associated TK, without complying with existing legal obligations, national or international, governing the acquisition and use of such resources. Principally, the regulations governing the acquisition and use of GRs and TKaGRs are contained within the access and benefit sharing (ABS) framework, which, at the international level, is comprised of the Nagoya Protocol, the CBD, the ITPGRFA, the Bonn Guidelines, and other complementary instruments. Not only do international regulations govern the use of GRs, but importantly, the domestic regulations of States form a core component of such regulations governing the acquisition and use of resources. Evading such regulations, while yet securing legitimate IP rights over inventions based on GRs and TKaGRs, lies at the heart of biopiracy’s conceptualization. As a first step in discussing biopiracy, I will turn first to offer an introductory discussion on TKaGRs - the subject of appropriation on which I primarily focus in this paper.

1. Traditional Knowledge Associated with Genetic Resources

The idea of ‘traditional knowledge’ (TK) as a terminology has been invented only recently.43 Currently, though widely recognized, there yet remains no authoritative and internationally agreed-upon definition for TK.44 Teshager Dagne suggests that the very “definitional venture of [TK] poses various theoretical and methodological dilemmas due to the

44 See Bubela & Gold, supra note 2 at 2–3, noting the varying approaches adopted at international fora with its definitions, and thus identifying that the concept of TK is used regularly to refer to different ideas, such as indigenous knowledge systems, innovations, customary laws or practices. See also Deepa Varadarajan, “A Trade Secret Approach to Protecting Traditional Knowledge” (2011) 36 Yale J Intl L 371 at 373 (identifying the lack of a definition as a problem for its protection).
complexity of issues surrounding the term.”\textsuperscript{45} WIPO, which is currently in the process of negotiating an international definition for TK,\textsuperscript{46} has attributed this complexity to the highly diverse and dynamic nature of TK. It identifies this as a central factor which challenges efforts to develop a single and exclusive definition of TK.\textsuperscript{47}

A combined reading of ‘traditional’ and ‘knowledge’, supports a basic understanding of TK as ‘a body of tradition-based knowledge\textsuperscript{48} which is handed down or transmitted (orally) from generation to generation’;\textsuperscript{49} “a


\textsuperscript{46} WIPO’s emerging definition, identifies three key characteristics of TK as: its creation and maintenance in a collective context by indigenous peoples; its direct link or association with the cultural and/or social identity of indigenous peoples, and its transmission from generation to generation. Other important characteristics are its dynamic and evolving nature, as well as its existence in codified, oral or other forms. See WIPO, “The Protection of Traditional Knowledge: Draft Articles”, WIPO Doc WIPO/GRTKF/IC/28/5, art 1 at 7. As a definition-in-progress, the text remains heavily bracketed around contested areas of the draft definition.


\textsuperscript{48} WIPO in its fact finding mission conceptualizes the term tradition-based in reference to knowledge systems that have generally been transmitted from generation to generation; are generally regarded as pertaining to a particular people or its territory; and, are constantly evolving in response to a changing environment. WIPO, Fact Finding Mission Report, supra note 47 at 25. See also Sumathi Subbiah, “Reaping what they Sow: The Basmati Rice Controversy and Strategies for Protecting Traditional Knowledge” (2004) 27 BC Intl & Comp L Rev at 532.

\textsuperscript{49} With regard to the generational transmission of TK, Martha Johnson observes that in contradistinction to western scientific knowledge, TK: is recorded and transmitted orally; is learned through observation and hands-on experience; is based on the understanding that the elements of matter have a life force; does not view human life as superior to other animate and inanimate elements but that all life-forms have kinship and are interdependent; is holistic rather than reductionist; is intuitive rather than analytical; is based on data collected by resource users themselves rather than specialised group of researchers; is based on diachronic rather than synchronic data; is rooted in a social context that sees the world in terms of social and spiritual relations between all life forms and; derives its explanations of environmental phenomena from cumulative, collective and often spiritual experiences. See Martha Johnson, “Research on Traditional Environmental Knowledge: Its Development and Its Role” in Martha Johnson, ed, Lore: Capturing Traditional Environmental Knowledge (Ottawa: Dene Cultural
product of age-long experience, generationally improved upon”; 50 “a collectively owned heritage as against an individually owned right”; 51 “an adaptive innovative lifestyle generated for survival”; 52 and “a largely unwritten body of instruction and belief”. 53

Institute & International Development Research Centre, 1992) 7–8.

See Graham Dutfield, “Legal and Economic Aspects of Traditional Knowledge” in Keith E Maskus & Jerome H Reichman, eds, International Public Goods and Transfer of Technology Under a Globalized Intellectual Property Regime (UK: Cambridge University Press, 2005) at 500–501, discrediting the widely held view that TK is antique, void of innovation and lacking in creativity. Rather TK is described as being progressive, highly innovative and involving a continuous reformation of knowledge handed down to meet up with the adaptive requirements of the present environmental realities by indigenous communities. “In short, knowledge held and generated within ‘traditional societies’ can be new as well as old ... TK has been adaptive because adaptation is the key to survival in precarious environments ... while TK is handed down from one generation to another, this does not mean that what each generation inherits is what it passes on ... TK develops incrementally with each generation adding to the stock of knowledge”. See also Bubela & Gold, supra note 2 at 2–3 and see, Krishna Ravi Srinivas, “Traditional Knowledge and Intellectual Property Rights: A Note on Issues, Some Solutions and Some Suggestions” (2008) 3 Asian J WTO & Intl Health L & Policy at 84.

Despite general acknowledgement that a major limitation in the quest for increased protection for TK in the IP sense, lies in its nature of collective ownership; See Javier Garcia, “Fighting Biopiracy: The Legislative Protection of Traditional Knowledge” (2007) 18 Berkeley La Raza LJ 7 [Garcia, “Fighting Biopiracy”]. See also Daniel Gervias, “Traditional Knowledge and Intellectual Property: A TRIPS Compatible Approach” (2005) Mich State L Rev at 140 [Daniel Gervias “Traditional Knowledge and Intellectual Property”]; many authors are quick to point out that it amounts to a generalization fallacy to conclude that all TK is communally owned. See, for instance, Graham Dutfield & Uma Suthersanen, Global Intellectual Property Law (UK: Edward Elgar, 2008) [Dutfield & Suthersanen, Global Intellectual Property Law] where the authors state that “the idea that traditional property rights are always collective or communal in nature while notions of western property are inherently individualist is an inaccurate cliche”. Significantly, several communities have well defined and established customary law practices which regulate intellectual property rights.

See WIPO IGCOR, WIP Doc WIPO/GRTKF/IC/5/7, 2003 (WIPO Secretariat Consolidated Survey of Intellectual Property Protection of TK, TK and Folklore) describing the concept of TK as: “ideas developed by traditional communities and indigenous people, in a traditional and informal way, as a response to the needs imposed by their physical and cultural environments”; a definition which emphasizes in clearer terms the strong relationship between indigenous communities and their environments; their TK and their quest for survival.

Srinivas, supra note 50 at 84. See Oluwatobiloba Moody, The Nagoya Protocol: A Possible Solution to the Protection of Traditional Knowledge in Biodiverse Societies of Africa (Cape
Indigenous peoples view their TK as a holistic concept which is inseparably connected to their indigenous culture, identity, spirituality, livelihood, location, environment and the natural conditions in which they live. This connectionism, from the perspective of indigenous peoples, serves to connect the skills and understandings of indigenous peoples with their medical remedies, plant and animal products, technologies and cultural expressions. TK is thus the totality of all knowledge and practices, whether implicit or explicit, used in the management of socio-economic and ecological facets of life. It constitutes a central component of the biocultural heritage of indigenous groups.

Despite this holistic nature of TK, it is often broken down into various categories to fit within western paradigms. Within WIPO’s negotiations,

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55 Stephen Munzer & Kal Raustiala, “The Uneasy Case for Intellectual Property Rights in Traditional Knowledge” (2009) 27 Cardozo Arts & Entertainment LJ 48, defining TK as an understanding or skill which is typically possessed by indigenous peoples and whose existence typically predates colonial contact (typically with the West), that relates to medical remedies, plant and animal products, technologies and cultural expressions.


57 Biocultural heritage refers to the “Knowledge, innovations and practices of indigenous and local communities that are collectively held and are inextricably linked to: traditional resources and territories, local economies, the diversity of genes, species and ecosystems, cultural and spiritual values, and customary laws shaped within the socio-ecological context of communities”. See Graham Dutfield, Alejandro Argumedo & Krystyna Swiderska, “Designing an Effective Biocultural Heritage Indication Labelling System” (August 2015) at 4.

58 From an indigenous perspective, this is often deemed inappropriate. Muller in this context observes, “applying western legal concepts to a very distinct reality has often been deemed inappropriate, in as much as these concepts and approaches are very utilitarian and anthropocentric – excluding variables and elements, which in the view of indigenous peoples and communities have to be part of the whole and clearly
for instance, the broad concept of TK is broken down into three main aspects: TK as such, traditional cultural expressions (TCEs) and genetic resources (GRs). According to WIPO, these categorizations are important for policy development and scholarship in the field of IP as the various categories raise distinct issues which require distinct solutions. A discussion of TCEs for this reason falls outside the scope of this paper. Rather, drawing from the Nagoya Protocol, elements of TK and GRs are merged to describe a subset of TK referred to as ‘TK associated with GRs’ (TKaGRs).

i. Genetic Resources

GRs are “biological resources”. The importance of biological resources cannot be overstated. “Forty percent of the world’s economy depends directly or indirectly on biological resources... The rural poor especially depend on biological resources for up to 90 percent of their daily needs”, with natural goods and services provided by biodiversity being a key source of food, water, shelter, incomes and livelihoods or billions of people globally. GRs are thus a valuable component of human livelihood and


60 TCEs are often viewed as reflecting the literary and artistic manifestations of knowledge of indigenous groups. Also called expressions of folklore, TCEs may include music, dance, art, designs, names, signs and symbols, performances, ceremonies, architectural forms, handicrafts and narratives, or many other artistic or cultural expressions. See WIPO, “Traditional Cultural Expressions”, online: WIPO <http://www.wipo.int/tk/en/folklore/>.

61 Specifically, the Nagoya Protocol, supra note 4, art 3, defines the TK to which the Nagoya Protocol applies as being that which is associated with GRs within the scope of the Convention on Biological Diversity, “Text of the Convention”, online: CBD <https://www.cbd.int/convention/text/default.shtml> at art 15 [CBD]. The scope offered by CBD, ibid, art 15 may be conceptualised as referring to TK associated with GRs held by Contracting Parties which are either countries of origin of such resources or in valid acquisition of the GRs according to the Convention.

62 See CBD, supra note 6, art 2. It defines biological resources as including GRs, organisms or parts thereof, populations or any other biotic component of ecosystems with actual or potential use or value for humanity.

63 International Centre for Trade and Sustainable Development, “Navigating Nagoya: Will CBD COP 10 Deliver an ABS Protocol” (2010) 4:3 ICTSD, online: ITCSD,
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existence. Within the CBD, GRs are defined as genetic material of actual or potential value. They are living components of plant, animal or microorganism species that possess functional units of heredity (genes). GRs are a potential source of income for biodiversity rich communities as well as biotechnology industries which rely on GRs as a major source of input for research into the development of a wide range of health, agricultural and cosmetic products. The consistent interaction and dependence of indigenous peoples on their environments offers them unique insight into the special properties and characteristics of GRs which occur within their domain. This knowledge provides useful pointers and leads for industry R&D and, as such, is an important resource which has been the subject of bioprospecting and biopiracy.

The association of TK with genetic resources (GRs) underscores the close relationship, often described as inseparable, of indigenous peoples with their environments. Furthermore, it points to the unique knowledge that indigenous peoples have developed over time regarding the properties and uses of GRs. This relationship is recognized as being important for the conservation of biodiversity, the sustainable use of its components, and for the sustainable livelihood of indigenous communities that depend on them. Highlighting the inseparability of TK and GRs in the articulation of TKaGRs, several authors and policy makers have viewed GRs as


64 See CBD, supra note 6, art 2. Furthermore, the preamble to the CBD recognises biodiversity as possessing high intrinsic value and identifies the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic value of its components (including GRs). See CBD, ibid, preamble at para 1. CBD, ibid, art 2 defines genetic material to mean any material of plant, animal, microbial or other origin containing functional units of heredity.


66 See Nagoya Protocol, supra note 4, Preamble at para 22, noting, inter alia, the interrelationship between GRs and TK and their inseparable nature for indigenous and local communities. See also CBD, supra note 6, Preamble at para 12.
constituting a tangible aspect of the intangible TK.67 In a tangible sense, it reflects GRs as an innovative output of the knowledge systems of indigenous peoples – a product – thus reflecting the role of indigenous peoples in maintaining and conserving GRs over generations. In an intangible sense, it draws attention to TKaGRs and its various ‘know-how’ subdivisions, such as traditional agricultural knowledge (TAK), traditional ecological knowledge (TEK) and traditional medical knowledge (TMK).68 TKaGRs form a sub-category of TK, and may also be seen as a sub-category of GRs. The admittedly simplified diagram below seeks to locate TKaGRs within the broad discourse of TK.

67 See, for instance, Protection of Biodiversity and Traditional Knowledge – The Indian Experience: Submission by India, WT/CTE/W/156; IP/C/W/198, WTOOR, 2000 [The Indian Experience] at para 2. Geertrui Overwalle “Holder and User Perspectives in the Traditional Knowledge Debate: A European View” in Charles McManis, ed, Biodiversity and the Law: Intellectual Property, Biotechnology and Traditional Knowledge (UK: Earthscan, 2007) 357, for instance, categorizes TK under two broad headings; tangible and intangible components. The tangible components are the GRs, the intangible aspects are subdivided into Traditional Medical knowledge (TMK), Traditional Ecological Knowledge (TEK) and Traditional Agricultural Knowledge (TAK). See, however, Zamudio et al, who contend that, contrary to the legal definitions of the CBD, GRs are not tangible material. They are rather intangible, coded information – a fact well understood by scientists but less so by politicians. Teodora Zamudio, Joseph Vogel & Muller Ruiz, “Logic Should Prevail: A New Conceptual and Operational Framework for an International Regime of Access to Genetic Resources” Research Document; Initiative for the Prevention of Biopiracy (2010) cited in Ruiz, “Shared Traditional Knowledge”, supra note 1 at 20 (note 3).

Within the WIPO negotiations, a further distinction is attempted between TKaGRs and ‘associated TK’. Associated TK is conceptualized as the entire body of knowledge of indigenous peoples that may be associated with or connected to GRs, including innovations, skills, practices and learning. TKaGRs, however, refer to the substantive knowledge of the properties and uses of GRs held by indigenous peoples. In practical terms, therefore, while associated knowledge may include, inter alia, ceremonies, songs, handicrafts and inventions that use or draw inspiration from GRs, TKaGRs would be limited to the know-how of indigenous peoples about the specific properties and uses of GRs – including medicinal, agricultural and even environmental uses.

In sum, the inseparable relationship between TK and GRs is an important one which draws into perspective the survival instincts of indigenous groups within the context of their unique environments. Furthermore, it highlights the cultural realities of indigenous life – one which bears immense relevance for the conservation and sustainable use of the earth’s biodiversity. Again, TKaGRs is the subject of appropriation from biotechnology industries and users of GRs mainly located in the

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69 Further subcategories of GRs could be mentioned, such as, plant GRs, animal GRs, and even human GRs. In line with the scope of the Nagoya Protocol, however, its use is aimed at capturing the scope of GRs as covered by the Nagoya Protocol – i.e. GRs within the scope of Article 15 of the CBD. See Nagoya Protocol, supra note 4, art 3.

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industrialized world, due to its valuable role in the identification of leads for inventions associated with GRs.\textsuperscript{71} Such inventions typically enjoy protection from the IP system, which advances a protection mechanism by which inventors are able to reap profits through the grant of exclusive time-bound commercial rights over the exploitation of their inventions. This has led to concerns over unfair wealth distribution arising from the use of TKaGRs, especially in those cases where TKaGRs are accessed and used without permission, or beyond the terms of the agreements permitting their use, or yet still, without adequate compensation being returned to the communities or States from which such TKaGRs were sourced. Such acts of misappropriation and/or misuse are broadly discussed as biopiracy. The Nagoya Protocol was negotiated to establish an international ABS regime, which would effectively address this concern.\textsuperscript{72}

2. Biopiracy: Defining a Contemporary Pattern

"The stylized story of biopiracy follows a simple pattern of misappropriation of resources located in developing countries by users located in industrialized countries through the mechanism of the IP system."\textsuperscript{73} David Castle & Richard Gold present this typical “wrongful exploitation scenario” of biopiracy as follows:

An indigenous group has traditional knowledge. Another group, typically but not necessarily members of an industrialized country, recognizes the potential utility of the knowledge and exploits it. When the latter does so, it gains access to and control over the benefits arising from the knowledge to the exclusion of the indigenous group. As a result, an objection is raised that this is an inequitable outcome [...] The situation is made more egregious when the industrial party asks

\textsuperscript{71} Surinder Kaur Verma, “Protecting Traditional Knowledge: Is a Sui Generis System an Answer?” (2004) 7:6 J World Intellectual Property, 765 at 768, notes that the valuable leads provided by TK save time, money and investment of modern biotech firms into any research and product development. It is estimated that a hit-rate of 80 percent or more can be achieved in developing medical drugs where the screening of plants is limited to species used by indigenous communities.


for compensation from developing country consumers for goods and services incorporating the exploited knowledge.\textsuperscript{74}

In supporting this stylization of biopiracy, Paul Heald offers two interesting hypothetical examples of biopiracy:

MegaPharmCorp [in collaboration with the University of the North], seek a new treatment for diabetes and sends researchers to a remote rain forest where the inhabitants suffer an unusually low incidence of the disease. After many interviews with local residents, they identify an enzyme in a variety of squash cultivated by them which seems responsible for the low rate of the condition. The researchers return home, isolate the gene that codes for the enzyme and mass produce a successful and valuable patented drug. The company never compensates any of the local residents.

MegaAgriCorp is developing a smut-resistant strain of corn and sends researchers around the world to identify varieties of plants worth studying. In the highlands of Mexico, they interview farmers who for hundreds of years have maintained a strain with significant smut-resistant characteristics. The researchers acquire several of the plants and embark on a successful cross-breeding program when they return home. The information acquired during the interviews saves them thousands of research hours. They do not share any of the profits earned from sales of their new patented hybrid seed with the Mexican farmers.\textsuperscript{75}

These stylized cases suggest biopiracy as arising within the context of unfair resource acquisitions as well as unjust distribution of economic benefits arising from its use. It also highlights the failure to rightly acknowledge the roles of indigenous peoples within the formal innovation chain. A common denominator in the above depictions and examples of biopiracy is the influence of multinationals and/or individuals based in the North that utilize the existing legal terrain to secure rights over resources and/or knowledge acquired from communities located in the poorer South. This dynamic on the use of GRs and TKaGRs, coupled with the fact that most of the earth’s biodiversity is located within and/or is endemic to developing countries of the South while the users are largely located in the technologically advanced countries of the North,\textsuperscript{76} has often supported the

\begin{footnotesize}
\begin{enumerate}
\item These two examples were slightly modified and have simply been adapted for use here. The originals are found in Paul Heald, ‘The Rhetoric of Biopiracy’ (2003) 11 Cardozo J Intl & Comp L 519 at 520–521.
\item Kate and Laird note that the world’s biodiversity is distributed largely in inverse
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consideration of biopiracy as a North-South issue – i.e. one in which the interests of the North are diametrically opposite to the interests of the South. This is not entirely accurate. However, as natural product research and development is driven principally by the innovation industry which is concentrated mainly within the industrialized world and which plays a major role in the shaping of government policies, there is analytical value in viewing the struggle as one of indigenous peoples within biodiverse developing countries’ for the protection of their TKaGRs from powerful corporations, states and systems which seek to exploit the actual/potential value inherent in such TKaGRs. Though this stylization accounts for the general outlook of most biopiracy cases as we understand them today, the peculiarities of individual cases often differ.  

A plethora of definitions for biopiracy thus exist, often highlighting various aspects of this injustice. However, for our purposes, a restrictive approach to biopiracy – one which aligns with the above stylization of biopiracy – is adopted. In its restrictive context, biopiracy is defined by linking the misappropriation of resources with the IP system. In this restrictive context, biopiracy has three major elements; the acquisition of resources (legally and/or illegally); the misappropriation and/or misuse of resources; and the acquisition/seeking the acquisition of IP rights over the proportion to scientific and technological capacity. Kate Ten Kerry & Sarah Laird, “Biodiversity and Business: Coming to Terms with the Grand Bargain” (2000) 76 Intl Affairs 241 at 241, quoting C Macilwain, “When rhetoric hits reality in debate on bioprospecting” (1998) Nature 392 at 535–41.

For a review of biopiracy cases, including an overview of their peculiar categorizations, see generally, Daniel F Robinson, Confronting Biopiracy: Challenges, Cases and International Debates (UK: Earthscan, 2010).

Based on a review of existing definitions of biopiracy in the literature, a broad scope of scenarios and activities could potentially qualify as biopiracy. Two main definitional approaches are noticeable, which I categorize along ‘restrictive’ and ‘inclusive’ lines. The inclusive approach tends to label practically all acts of unpermitted appropriation of GRs and/or TK (with inequitable, or without any form of compensation being returned to the providing country) as biopiracy. In this category, the parameters for an alleged biopiratical act is generally linked to the perception of injustice arising from appropriative acts. The restrictive approach however includes those definitions which involve a strict linkage between the violation of ABS obligations and the IP system. The acquisition of patents usually provides a symbol of the unjust appropriation.

Though there is no agreed definition of the terms “misappropriation” and “misuse” of GRs, misappropriation is linked to the acquisition of GRs in violation of domestic ABS legislation requiring prior informed consent (PIC) and mutually agreed terms (MATs)
resource-based inventions. This restrictive context provides insight into the nature of an emphasized relationship between IP and the appropriation of TKaGRs – a relationship which reflects a disproportionate power balance, thrives on the vulnerability of holders of GRs and TK and their regulatory institutions, and highlights, in several instances, the predatory tendencies of ‘individuals, global systems and institutions’ involved in their commercial use. The IP system, its institutions and its major users are, in this regard, often portrayed as the main culprits, while indigenous groups and Third World countries are typically viewed as the victims of biopiracy. It is little wonder that Philip Schuler, in summing up biopiracy, notes that the central criticism in the biopiracy literature is that businesses in industrial countries are getting rich off of poor people’s knowledge at developing countries’ expense.

A restrictive interpretation of biopiracy draws increasing significance from the fact that despite the seemingly recent labelling of biopiracy, acts of biopiracy have been in existence long before 1993. In fact, as Mgbeoji and other scholars point out, biopiracy may be traced to the early colonial expeditions and conquering of discovered lands by Christopher Columbus. The acquisition of exotic resources and the transferring of and may be understood as the unlawful appropriation of GRs. Misuse, on the other hand, arises out of contractual obligations and indicates the situations in which GRs are used in violation of MAT that were set up between the provider and the user i.e. the utilization of GRs in a non-agreed way, without sharing any benefits. See Greiber et al, An Explanatory Guide to the Nagoya Protocol, supra note 65 at 12.

Highlighting this predatory nature of biopiracy, see, for instance, Mgbeoji, who describes biopiracy as the asymmetrical and unrequited movement of plants from the South to the North through the processes of international institutions and the patent system. See Ikechi Mgbeoji, Global Biopiracy: Patents, Plants and Indigenous Knowledge (Vancouver: UBC Press, 2006) at 13.


Often described as the discoverer of the New World, Christopher Columbus was an Italian-born navigator and explorer, who sailed the world in the service of Spain. He was granted by the Queen Isabel and King Ferdinand of Spain, the privileges of ‘discovery and conquest’. Vandana Shiva, Biopiracy: The Plunder of Nature and Knowledge (South End Press: 1997, Boston, Massachusetts) 1–5. See also, Mgbeoji, supra note 80 at 96, noting that “for historical convenience rather than exactitude, the origins of the appropriation of plants may be traced to the ‘Columbian Exchange’ of 1492, when Christopher Columbus’s forays into the Americas with some plant germplasm marked
same to Europe were the first instances of biopiracy. In this early exchange, the appropriation of resources was seen as a natural right of the colonizer, and was fueled by a sense of entitlement by the European colonialists over the earth, its peoples and resources.\textsuperscript{84} The idea that GRs were part of the common heritage of mankind overtime served to justify this continued exchange with GRs being viewed as global resources which were freely available and to which no country could claim exclusive rights.\textsuperscript{85} This historical element of biopiracy reflects biopiracy as an international problem involving the expropriation of resources across jurisdictional borders. In this context, the trans-border nature of biopiracy – as a problem which transcends single state borders and which requires solutions that effectively monitor the trans-border appropriation of resources – is observable.

\textsuperscript{84} Shiva, in describing this state of affairs, remarks that the Pope as the vicar of God commanded the world, as if it were a tool in his hands and thus considered the world as his property to be disposed according to his will. He was thus able to ‘legitimately’ grant discovered and yet to be discovered portions of the earth to whomsoever he deemed fit. In effect, Christian monarchs of Europe were considered rulers of all nations, ‘wherever they may be found and whatever creed they may embrace’. See Vandana Shiva, \textit{Biopiracy: The Plunder of Nature and Knowledge} (South End Press: 1997, Boston, Massachusetts) 1–2.

\textsuperscript{85} According to Doris Schroeder and Thomas Pogge argue the idea of the common heritage of humankind entered into the canon of international law in the late twentieth century with the conclusion of two UN treaties: \textit{The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies} (1979) and \textit{The Convention on the Law of the Sea} (1982). See Doris Schroeder & Thomas Pogge, “Justice and the Convention on Biological Diversity” (2009) 23:3 Ethics & Intl Affairs 268. In explaining the common heritage principle within the context of GRs, Brush points out that ‘common heritage refers to the treatment of genetic resources as belonging to the public domain and not owned or otherwise monopolised by a single group or interest’. Brush maintains that, reference to crop genetic resources as a common heritage appeared in the 1980’s in association with the establishment of the Commission of Plant Genetic Resources at the Food and Agricultural Organisation of the United Nations (FAO Commission) and the launching of the International Undertaking of Plant Genetic Resources. The 1983 conference establishing the FAO Commission and International Undertaking affirmed a resolution stating that ‘Plant genetic resources are a heritage of mankind and consequently should be available without restriction’. See Brush S, “The Demise of ‘Common Heritage’ and Protection for Traditional Agricultural Knowledge” in Charles McManis, ed, \textit{Biodiversity and the Law: Intellectual Property, Biotechnology and Traditional Knowledge} (UK: Earthscan, 2007) 298–299. See also Srinivas, supra note 50 at 89.
By focusing however on the restrictive explanation of biopiracy, the historical phenomenon of biopiracy is placed within a contemporary frame. In this context, beyond a mere trans-border problem, biopiracy sits at the intersection of two major regimes: the ABS and IP regimes. I term these the sore spots of emphasis within the biopiracy discourse – on the one hand a failure to share benefits adequately and/or equitably, and on the other, an effective IP system which could be used to assign ownership rights over TK-based inventions/discoveries. Acts of biopiracy are thus facilitated by the working of the IP regime in disregard for standards of resource use laid out in the ABS regime. In other words, the ability of users to secure private IP rights over inventions which make use of GRs and/or TKaGRs, while yet failing to secure the prior informed consent of providers of TKaGRs, as well as establish mutually agreed terms for benefit sharing with providers, explains the challenge of biopiracy which most developing countries have had to contend with.

Consequently, while the content of appropriation of resources has continued through generations, the nature of biopiracy has changed over time. Notably, the mechanisms facilitating the appropriation of resources, as well as the motivations underlying such appropriations, have gradually changed. The conquering of foreign territories underscored the early appropriation of resources; however, in more recent times, the institutional structures that have risen to reward and stimulate innovation have served to continue this exchange. According to Daniel Robinson,

Although the colonial enterprise of plant and animal collecting has been ongoing for centuries, the biopiracy discourse was generated to illustrate that more recent technological and institutional changes have encouraged new inequities and compounded old ones. In the context of the new global intellectual property rules, biopiracy has essentially been wielded as a counter-discourse to intellectual property ‘piracy’.86

In essence, moving away from a strict trans-border problem of resource expropriation, the problem of biopiracy today is closely linked to a similar trans-border problem, albeit in the context of international regimes. It is for this reason that biopiracy can be viewed as a trans-regime issue area; one which finds its articulation and manifestation within the overlap of independent regimes. Consequently, this restrictive context also importantly describes a contemporary expression of a historical problem by drawing attention to the trans-regime nature of biopiracy.

86 Robinson, supra note 77 at 14.
By trans-regime, I refer to biopiracy as an issue area which is articulated through the interaction of independent elemental regimes. As a terminology, “biopiracy” was coined in 1993; an important year in which global attention was focused on two main novel introductions to the international regulatory system: the CBD, and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). The CBD’s entry into force in 1993 ushered in the firm entrenchment of benefit sharing principles in international law. Its emergence also played a central role in clarifying the principles of state sovereignty over GRs. On the other hand, within the sphere of international trade, the Uruguay Round of the multilateral trading system had since 1986 continued to make progress on the largest and most comprehensive trade negotiations. In late 1993, agreement was reached on virtually all issues, including the text of the TRIPS agreement. The adoption of the TRIPS agreement the following year signified that the efforts of industrialized countries, driven by major industry representatives, to incorporate IP rules within the multilateral trading system as a way of addressing concerns of counterfeit (pirated) goods in international trade had been successful. Through the TRIPS agreement, an era of globalization for IP rights emerged, one in which obligatory minimum standards of protection for intellectual property rights were exported to all Members of the trading system and backed with real teeth.

For activists like Pat Mooney, this strengthening of the intellectual property system was in fact hypocritical as it failed to acknowledge that piracy was also perpetuated by several corporations that had acquired the

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87 This was by Mr. Pat Mooney of the Canadian NGO, Rural Advancement Foundation International (RAFI), now known as the ETC Group. See Robinson, supra note 77 at 14.
88 CBD, supra note 6, art 15.1.
resources and/or knowledge of indigenous peoples without due permission, recognition or even acknowledgment. The term biopiracy thus emerged within this context. Explaining this point, Graham Dutfield observes that the term biopiracy was developed as part of a counter attack strategy on behalf of developing countries that had been accused by developed countries of condoning or supporting 'intellectual piracy', but who felt that they were hardly as piratical as corporations which acquire[d] resources and traditional knowledge from their countries, use[d] them in their research and development programs, and acquire[d] patents and other intellectual property rights – all without compensating the provider countries and communities.91

The difficult relationship between the IP system and the conservation of biodiversity thus underlies the biopiracy rhetoric. On the basis of the above, three closing points are worth noting regarding the biopiracy terminology:

First, it was principally designed for developing countries and their local and indigenous communities. Though the victims of biopiracy cases are not limited to this identified category, its use has grown to define a problem which, until now, stereotypically portrays developing countries and their indigenous groups as the significant biopiracy victims. Second, the term biopiracy emerged as a counter-attack. In other words, it emerged as a defensive strategy against the allegations of piracy which, at the time, were principally being channeled towards the developing world. These allegations were widely regarded as justifications for the need for a globalized and strengthened regime of IP through TRIPS. In a wider sense, therefore, the biopiracy terminology emerged as an attack on the core rationale and expansionist basis of the global IP system; and third, it bore within it an effort to expand the standard conceptualization of piracy – the commercial violation of legally sanctioned IP92 – to include acts which centered on the uncompensated commercial exploitation of biodiversity and related knowledge.

92 See Adrian Johns, Piracy: The Intellectual Property Wars from Gutenberg to Gates (University of Chicago Press: 2009, USA) at 6. Though he identifies this definition of piracy as “the standard definition”, he notes that it falls short of what piracy is in that it fails to recognize cases of piracy which occur without IP being in issue pointing out that cases of piracy had existed before the IP system as we know it emerged.
In sum, embodied within the context in which biopiracy emerged and continues to thrive is an emotive response on behalf of the developing world to the unilateral attack on developing countries by the developed world for failing to hallow the western-styled IP system *viz-a-viz* the protection of GRs and their associated TK. From its humble beginnings as a privately developed rhetoric in 1993, biopiracy has today grown into a widely accepted public and diplomatic tool, occupying a sensitive place in modern discourse, particularly within the ABS and IP regimes. It today stands as a recurring theme within these multilateral discussions – one which generally pitches the developing world against the industrialized world. In practice, its use has also been aimed at securing political leverage within related and unrelated negotiations.\(^93\) Through its use, several developing countries as well as indigenous groups continue to advocate for reform in a global state of affairs within which they feel disadvantaged.\(^94\)

### III. THE NAGOYA PROTOCOL AS AN ABS REGIME COMPLEX

The *Nagoya Protocol* was adopted in 2010 and entered into force in 2014. Its adoption brought to a close a sustained and intensive six years of negotiation by the Parties to the *CBD* for an international regime on access and benefit sharing. The *Nagoya Protocol* was negotiated in direct response to the call by the World Summit on Sustainable Development (WSSD) to negotiate within the framework of the *CBD*, bearing in mind the *Bonn Guidelines*, an international regime which would promote and safeguard the “fair and equitable sharing of benefits arising from use of [GRs]”.\(^95\) As a direct consequence of this call, the *CBD* mandated the Ad Hoc Open-ended Working Group on Access and Benefit Sharing to negotiate and elaborate

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\(^94\) *Ibid.* Robinson contends that the biopiracy discourse has emerged as a powerful counter to the perception of new hegemonies imposed by IP rules with global reach such as the TRIPS Agreement.

\(^95\) This call was contained in the Johannesburg Plan of Implementation; see Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August – 4 September 2002, ch I, Resolution 1, Annex, para 44, online: *<www.unmillenniumproject.org/documents/131302_wssd_report_reissued.pdf>*.
an international regime on access to GRs and benefit sharing in collaboration with the Ad Hoc Open-ended Intersessional Working Group on Article 8(j) and Related Provisions. This was to be aimed at adopting an instrument/instruments to effectively implement the provisions of Article 15 and Article 8(j) of the Convention, as well as the Convention’s three objectives. Consequently, the Nagoya Protocol’s central objective is the fair and equitable sharing of benefits arising from the utilization of GRs, as well as TKaGRs.

A subsidiary instrument to the CBD, the Nagoya Protocol contains a 27-paragraph preamble, 36 substantive articles, and an Annex. The preamble offers a context for interpretation of its Articles and Annex, and references key provisions of the CBD which must be understood for a deeper and contextual understanding of the Nagoya Protocol. It also refers to other international agreements and treaties that relate directly to the issues dealt within the Nagoya Protocol. Though a single instrument was therefore adopted, it yet sat at the center of what was to be known as the international regime on ABS made up of the CBD, the Nagoya Protocol, and complementary instruments including the International Treaty on Plant

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96 See Decision VII/19 D 1.
97 See Nagoya Protocol, supra note 4, arts 1 & 3.
98 The singular annex of the Nagoya Protocol relates to the monetary and non-monetary benefits which could form the basis of negotiations in benefit sharing agreements.
99 The Vienna Convention on the Law of Treaties provides that the preamble to a treaty must be construed as forming a part of the treaty. See Article 31(2) United Nations “Vienna Convention on the Law of Treaties 1969” (2005) UN Treaty Series, Vol 1155 at 331 [Vienna Convention]. The Nagoya Protocol, by the general rules of interpretation of the Vienna Convention forms an appendage to the CBD. See Vienna Convention, ibid, art 31 (2)(a). It must therefore be read as a part of the CBD. Though it therefore constitutes a separate instrument in its own self, in a wider perspective, it forms a part of the CBD and should therefore be interpreted within the context of the CBD. See Vienna Convention, ibid, art 31 (3)(a).
100 See direct references for instance made in Par 2 (which refers to Article 3 of the CBD), Par 4 (which refers to Article 15 of the CBD), Par 5 (which refers to Articles 16 and 19 of the CBD), and Par 21 (which refers to Article 8(j) of the CBD).
101 Examples of these include the International Health Regulations (2005) of the WHO, the International Treaty on Plant Genetic Resources for Food and Agriculture, the UN Declaration on the Rights of Indigenous Peoples, and a section which, in a blanket fashion, acknowledges “ongoing work in other international forums relating to access and benefit sharing”. Nagoya Protocol, supra note 4.
Genetic Resources for Food and Agriculture (ITPGRFA) and the Bonn Guidelines. The international regime was opened for signature between February 2, 2011, and February 1, 2012, a period within which it amassed a total of 92 signatures. It entered into force on October 12, 2014, which was the ninetieth day after the deposit of the fiftieth instrument of ratification/accession. As of May 1, 2017, a total of 95 ratifications have been received for the Nagoya Protocol.

**A. A Legal Regime or a Regime’s Law**

Consequently, while the outcome of the negotiations of the international ABS regime is correctly cited as the Nagoya Protocol, in accordance with the WSSD call the Nagoya Protocol exists within the framework of the CBD and draws extensively from the Bonn Guidelines. A preliminary question worth asking, however centers on the status of the Nagoya Protocol: is the Nagoya Protocol the international ABS regime? In a sense it is; in another it is not. Given that it reflects the outcome of the direct negotiation for an international ABS regime, it could be viewed as the international regime. This is to the extent that it contains the principles, norms, rules and decision making procedures which the ABS regime ascribes to. The decision adopting the Nagoya Protocol, however clarifies that this international ABS regime is made up of several instruments. According to the decision, “the international regime is constituted of the CBD, the Nagoya Protocol, as well as complementary instruments, including the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the Bonn Guidelines.” Therefore, the implication is that the above-mentioned instruments align with a series of principles, norms, rules and decision making procedures embodied within the Nagoya Protocol’s ABS mechanism. The alignment with the central ABS objective is a golden thread running through all the instruments. For this reason also,

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102 See COP 10 Decision X/1, Preamble, at para 6.
103 See COP 10 Decision X/1 I.2. See also, Nagoya Protocol, supra note 4, art 32.
104 For a full listing, see CBD, “Parties to the Nagoya Protocol”, online: CBD <https://www.cbd.int/abs/nagoya-protocol/signatories/>.
105 See Nagoya Protocol, supra note 4, art 33.
106 For a full listing, see CBD, supra note 104.
107 See para 6, preamble to Decision X/1, UNEP/CBD/COP/DEC/X/1 at 1.
the Nagoya Protocol could be viewed as the core international ABS law upon which the ABS regime is anchored.

It is particularly significant that, as part of the terms of reference for the negotiation of the international ABS regime, it was stipulated that this international regime could consist of one or more instruments within a set of principles, norms, rules and decision making procedures.\(^{108}\) Bearing in mind that regimes are social institutions which unite actors and/or participants towards common objective(s) with respect to specific international issue-area(s),\(^{109}\) the significance of the open-ended terms of reference draws from the diversity of the instruments which are mentioned as forming part of the regime. It also offers a basis for determining further instruments which could possibly be a part of the regime.

**B. Complementarity and an ‘Open-Ended’ Regime**

As a regime, the mentioned instruments exist in harmony or complementarity towards the attainment of a set ABS objective. The CBD as one of the component regime instruments, for instance, adopted the benefit sharing principle as a market-based strategy to achieving objectives linked to the conservation and sustainable use of biodiversity. It remains the foundation for the ABS regime. The *Bonn Guidelines*, adopted in 2002,\(^{110}\) served as the first step of the evolution of measures to implement these benefit sharing objectives of the CBD.\(^{111}\) Interestingly, the idea of a binding ABS regime had been considered at the time of the negotiation of

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\(^{108}\) See Decision VII/19 D, Annex (b). This decision’s base requirement (principles, norms, rules and decision making procedures) draws directly from Krasner’s regime definition earlier stated. See Bavikatte, *supra* note 16.


\(^{110}\) The *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits arising out of their Utilization*, 19 April 2002 [Bonn Guidelines], were adopted pursuant to Decision VI/24 (2002) at the Sixth Session of the Conference of the Parties to the CBD (COP-6) held in The Hague. Its designation as ‘Bonn Guidelines’, was derived from the location of the intergovernmental meeting which held in Bonn, Germany in October 2001 and which prepared the first draft of the eventual agreement.

\(^{111}\) See para 6, Decision VI/24 A, and para 7, preamble to Decision VII/19 D, UNEP/CBD/COP/DEC/VII/19, at 4. This evolutionary approach to the Guidelines which forms one of its central features, envisaged a review, revision and improvement of the Guidelines based on experience from ABS. See I.A.7(f) of the *Bonn Guidelines*. 
the *Bonn Guidelines*.\(^{112}\) However, this idea had been jettisoned at the time in favour of a set of guidelines which set forth broad principles within which varying national approaches to the ABS challenge could be pursued.\(^{113}\) The *Bonn Guidelines* were therefore negotiated as an alternative to a binding regime as the majority consensus within the negotiations had been that ABS was an issue more contingent on national regulation than on international regulation.\(^{114}\) The *Bonn Guidelines* were thus designed to serve as voluntary non-binding inputs to national efforts to develop and draft legislative, administrative or policy measures relating to ABS.\(^{115}\) Importantly, the Parties were of the view that the *Bonn Guidelines* merely represented a useful first step of an evolutionary process in implementing the ABS provisions of the *CBD*.\(^{116}\) Further developments to the *Bonn Guidelines*, arising from experience gained in the implementation of ABS provisions, were consequently envisaged.\(^{117}\) If anything, the *Bonn Guidelines* were therefore an international experiment in operationalizing the ABS principles of the *CBD*, given the limited experience available to negotiators and the international community in developing and implementing ABS provisions.

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\(^{112}\) It had, for instance been discussed at the COP 4, where it was decided to set up an expert group on ABS which could discuss all the options for ABS arrangements (see *CBD* Decision IV/8). Further, it was discussed at two meetings of the *CBD*’s Panel of Experts on ABS in San Jose, Costa Rica (October 1999) and Montreal, Canada (March 2001). The discussion also took place within the *CBD*’s Scientific Body on Technology and Technological Advice (SBTTA) as well as in the final deliberations at COP-6 where the *Bonn Guidelines* were formally adopted. W Bradnee Chambers, “WSSD and an International Regime on Access and Benefit Sharing: Is a Protocol the Appropriate Legal Instrument?” (2003) 12:3 Rev European Community & Intl Environmental L 310.

\(^{113}\) Ibid.

\(^{114}\) Ibid.

\(^{115}\) See COP 6 Decision VI/24 at para 4; see also *Bonn Guidelines*, I.A.1. See also Evanson Chege Kamau, Bevis Fedder & Gerd Winter, “The Nagoya Protocol on Access to Genetic Resources and Benefit Sharing: What is New and what are the Implications for Provider and User Countries and the Scientific Community?” (2010) 6:3 L Environment & Development J 246 at 249.

\(^{116}\) See COP 6 Decision VI/24 at para 6. See also, para 8, preamble *Cusco Declaration on Access to Genetic Resources, Traditional Knowledge and Intellectual Property Rights of Like-Minded Megadiverse Countries*, 29 November 2002 (*Cusco Declaration*).

\(^{117}\) This evolutionary approach to the Guidelines forms one of its central features. This approach envisaged a review, revision and improvement of the Guidelines based on experience from ABS. See *Bonn Guidelines*, *supra* note 110, art I.A.7(f).
Both of these instruments (CBD and the Bonn Guidelines) have not, however, enjoyed a successful implementation for differing reasons. While the CBD has often been cited as hard law characterized by a soft nature, evidenced by its lack of an effective enforcement mechanism,\textsuperscript{118} the weak implementation of the Bonn Guidelines has generally been attributed to the voluntary nature of its undertakings.\textsuperscript{119} Addressing the weaknesses of these prior instruments, the Nagoya Protocol is drafted in conformity with the Bonn Guidelines, albeit with binding obligations, and is expected to further aid the implementation of the CBD, with a specific emphasis on its benefit sharing objective. While the complementary relationship between the CBD, the Nagoya Protocol and the Bonn Guidelines within the context of the international regime on ABS is clear, the ITPGRFA offers an interesting dynamic, especially because, as an instrument, it was negotiated on another platform and its benefit sharing structure slightly differs from that obtainable under the CBD.

The ITPGRFA was negotiated within the framework of the Food and Agriculture Organization of the United Nations. Similarly to the above mentioned instruments, it pursues the objective of fair and equitable sharing of benefits arising out of the use of GRs, albeit with a focus on a specialized category of GRs – plant GRs relevant for food and agriculture (PGRFA).\textsuperscript{120} It seeks to ensure the conservation and sustainable use\textsuperscript{121} of PGRFAs, and pursues its objectives through a harmonization and close linkage with the CBD.\textsuperscript{122} Despite the ITPGRFA being mentioned as constituting a part of the ABS regime, it is worth noting that it adopts a substantially different approach to benefit sharing from that obtainable

\textsuperscript{118} This has been attributed to its strict natured provisions which use mandatory language to describe obligations of Parties, yet fail to accompany such mandatory obligations with requisite enforcement measures in case of breaches. See Stuart Harrop R, “Living in Harmony with Nature! Outcomes of the 2010 Nagoya Conference of the Convention on Biological Diversity” (2011) 23 J Environmental L 117–128.


\textsuperscript{120} See International Treaty on Plant Genetic Resources for Food and Agriculture, 2001, [no UNTS Volume Number has yet been determined for this record] [entered into force 29 June 2004], \textsuperscript{1.1} online: FAO <ftp://ftp.fao.org/docrep/fao/011/i0510e/i0510e.pdf> [ITPGRFA].

\textsuperscript{121} \textit{Ibid.}

\textsuperscript{122} See \textit{ibid}, art 1.2.
under the above mentioned CBD-based instruments. Under the ITPGRFA’s Multilateral System of Access and Benefit Sharing, the ITPGRFA pools a total of 64 crops which account for 80 percent of plant-derived food into an easily accessible global pool of GRs. It facilitates access to these resources for purposes of research, breeding and training pursuant to a standard Material Transfer Agreement,\textsuperscript{123} and ensures that benefits arising from their use are shared through four benefit-sharing mechanisms, under the guidance of the treaty’s governing body.\textsuperscript{124} With respect to TK, it requires Contracting Parties to take measures to promote and protect farmers’ rights, including the protection of TK relevant to PGRFA as well as the right to equitably participate in sharing benefits arising from the use of PGRFAs.\textsuperscript{125} It is important to note here that the benefit sharing mechanism of the ITPGRFA differs considerably from the benefit sharing mechanism of the Nagoya Protocol.

Despite this difference in approach, the ITPGRFA yet exists as part of the international regime. This is also despite the fact that the ITPGRFA was not negotiated on the platform of the CBD, and despite the clear differences which exist between the Food and Agricultural Organisation’s driving objectives and those of the CBD. On what basis is it then included as a part of the international regime? Its inclusion is on the basis of complementarity. Noted in the decision, “the international regime is constituted of [...] complementary instruments, including the ITPGRFA[sic]...”. Complementarity then does not necessarily indicate similitude, exactness of approach, or overriding objectives, but rather implies coherence and harmony among relevant international instruments in the operation of the regime’s principles, norms, rules and decision making procedures. It is again important to note that the decision adopting the Nagoya Protocol suggests that the above mentioned list of international instruments which comprise the ABS regime does not constitute an exhaustive or closed list. Rather, other relevant instruments are eligible for inclusion within this regime, also

\textsuperscript{123} See \textit{ibid}, art 12.4.

\textsuperscript{124} See \textit{ibid}, art 13.2. The four benefit sharing mechanisms proposed relate to the exchange of information, access to and transfer of technology, capacity building, and the sharing of the benefits arising from commercialization. For the detailed framework of the ITPGRFA’s Multilateral System of Access and Benefit Sharing, see generally, \textit{ITPGRFA, ibid}, arts 10–13.

\textsuperscript{125} See generally \textit{ITPGRFA, ibid}, art 9.
on the basis of complementarity. This potential of the ABS regime to further incorporate other instruments is important in what may be considered as the continuing evolutionary context of the ABS regime. In this vein, the inclusion of the ITPGRFA suggests that further possible constituents of this ABS regime are not limited to instruments negotiated on the CBD platform, nor are they limited to instruments which are similar or exact, or even share common objectives with the Nagoya Protocol. Rather, the ABS regime is evolving, from the perspective of developing countries, to incorporate a complementary set of ABS-related instruments in the fight against biopiracy.

It is this evolving nature of the ABS regime on the basis of complementarity that offers a basis for a consideration of its present and future construct as a regime complex. Raustiala and Victor identify the existence of multiple, overlapping elemental regimes as the defining characteristic of a regime complex.126 These elemental regimes overlap in scope, subject, and time, with events in one affecting those in others.127 Consequently, regime complexes are marked by the existence of several legal agreements that are created and maintained in distinct fora with participation of different sets of actors.128 Indeed, one of the central features of regime complexes is regime shifting.129 Regime shifting is an interest-based shifting of negotiations by States and NGOs from one venue to another within a single regime (intra-regime shift) or across regimes (inter-regime shift).130 Reiterating the link between regime shifting and regime complexes, Helfer suggests that ongoing interactions between separate regimes

promot[es] the formation of networks among formerly disparate state, intergovernmental, and non-state actors and linkages among formerly discrete issue areas. The result is a “conglomerate type of regime” or a “regime complex” – a multi-issue, multi-venue mega-regime in which states and NGOs shift negotiations from one venue to another within the conglomerate...131

126 See Raustiala & Victor, supra note 23 684 at 703.
127 Ibid at 686.
128 Ibid.
129 Ibid at 686–687, noting that the distinct negotiating fora within the regime complex spurs forum shopping.
130 Laurence Helfer, supra note 24 at 16–17.
131 Ibid.
What we are then witnessing through the Nagoya Protocol is an important initiative by the CBD to channel a “multi-venue mega-regime” (regime complex) anchored on the Nagoya Protocol; one that from the perspective of developing countries advances a protection mechanism for TKaGRs from biopiracy. This important clarification lends strength to the concluding segment of this paper, which involves a consideration of WIPO’s Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) as an elemental constituent in this evolving ABS regime complex.

IV. WIPO AS AN ELEMENTAL CONSTITUENT OF THE ABS REGIME-COMPLEX.

The decision adopting the Nagoya Protocol hints at an evolutionary context for the international ABS regime. For this reason, a strong review mechanism is built into the Nagoya Protocol. The Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol (COP/MOP),\(^{132}\) for instance, which meets biennially, is expected to keep the Nagoya Protocol’s implementation under regular review.\(^{133}\) Furthermore, an inbuilt review of the Nagoya Protocol’s mechanism to ensure effective compliance with domestic regulatory requirements regarding TKaGRs will be undertaken in 2018.\(^{134}\) The decision notes that this review of Article 16 will be carried out “in light of developments in other relevant international organizations, including...[WIPO], provided that [such developments] do not run counter to the objectives of the Convention [CBD] and the [Nagoya Protocol].”\(^{135}\) It is particularly telling that though an insinuation is made to the related developments in several other relevant international organizations, for which it is possible the negotiators of the ABS regime could not predict, WIPO is the only intergovernmental organization specifically mentioned. It is worth mentioning here that the

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132 The Conference of the Parties Serving as the Meeting of the Parties to the Nagoya Protocol (COP/MOP), serves as the meeting of the Parties to the Nagoya Protocol. It is the institutional arm which makes decisions and keeps under review the implementation of the Nagoya Protocol. See Nagoya Protocol, supra note 4, art 26.

133 Nagoya Protocol, supra note 4, art 26.4.

134 See ibid, art 31.

135 COP 10 Decision X/1 I.6
specific reference to WIPO and indeed the IP regime is an indication of the central relevance of WIPO in the design and the projected evolution of the international regime on ABS. This relevance is specifically with regard to the implementation of the ABS regime and the attainment of the regime’s effectiveness in addressing the incidence of biopiracy. Of course, this is not to suggest that WIPO’s developments will actually end up complying with the expectations of the ABS negotiators, but it does provide a basis for explaining the emerging related developments within WIPO.

It is important to note that despite the above, the relevance of WIPO is made subject to a proviso. This proviso in the decision of the Committee seems to align with the complementarity test that is expected to guide the addition of further instruments to the ABS regime. In essence, therefore, the expectation is that the review of the Nagoya Protocol will be conducted in the light of developments within WIPO, as long as these developments are complementary with the objectives of the Nagoya Protocol. I should restate here that the express objective of the Nagoya Protocol is the fair and equitable sharing of benefits arising from the use of GRs and TKaGRs with an implicit objective of addressing biopiracy. In the next few paragraphs, my intention is to outline broadly a few aspects of the WIPO developments which point to a push, particularly by developing countries, to secure a complementary outcome – an outcome which supports the Nagoya Protocol’s mechanism to address the incidence of biopiracy.

In the year 2010, when the Nagoya Protocol was adopted and the decision of the COP adopting the Nagoya Protocol was crafted, the relevant ongoing work within WIPO which bore central relevance to the Nagoya Protocol was the work of the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). This continues to be the case. Established in 2000, the IGC is a policy forum within WIPO established for the discussion of IP issues arising within the context of access to GRs and benefit sharing, as well as the

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136 According to Simon West, a textured interpretation of the Nagoya Protocol requires its interpretation within the context of the broader political economy of IP. This, he argues, is because the Nagoya Protocol is imbued with obligations which are subservient to the IP system, thus leaving its beneficiaries in a state of dependence on the IP system for the actuation of their rights. Simon West, “Institutionalized Exclusion: The Political Economy of Benefit Sharing and Intellectual Property” (2012) 8 Law Envt & Dev J 21 at 21.

137 Ibid.
protection of TK and TCEs. WIPO justifies the creation of the IGC on three main grounds: to address the IP protection of GRs, TK and TCEs; to accord recognition to GRs, TK and TCEs as forms of innovation located within indigenous communities and developing countries – new players within the IP policy space; and to respond as an organization to the need to make the IP system more representative of all global forms of innovation.

Interestingly, at the time of the adoption of the Nagoya Protocol, the IGC had just entered a new phase within its evolution. This is significant as 2010 marked the commencement of a new era within the IGC in which attention was focused on text-based negotiations directed at the development of an international legal instrument which would ensure the effective protection of TK and GRs. Two main phases which had preceded this phase were the proposal/fact finding phase (1998 – 2003) and the international dimension phase (2004 – 2009). At the inception of the international dimension phase, the delegation of Philippines speaking on behalf of the Asian group remarked, “the Asian group is pushing for a move beyond academic work to a discussion on the international dimension of the issues with a view to establishing norms and a legally binding instrument”. This neatly summarizes the drive of developing countries within the 2004 – 2009 period. It involved an expansion of the discussion from mere concepts and academic understandings to a reflection on the possibility of international normative work and possible outcomes from the Committee. With the adoption of the mandate of the Committee in 2009 for the 2010-2011 biennium, however, a text-based negotiation phase was ushered in 2010

138 See WIPO Background Brief No 2, WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (2016) at 1.

139 See WIPO Background Brief No 2, WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (2016) at 2.

140 Aimed principally at setting the agenda of the Committee’s work, this phase involved the identification and prioritization of issues for discussion within the Committee. It was characterized by a flurry of proposals seeking to define the scope and work of the Committee, including studies, sharing of Member experiences. The main success of this phase was the formalization and concretization of discussions on GRs and TK within WIPO.

141 See Document WO/GA/30/8 at para 59.
with the specific direction of arriving at an international legal instrument(s) for the protection of TK.\footnote{142}{Seeking to clarify the import of this phase, the then WIPO Director General, Dr. Idris, confirmed, in response to the Delegation of Pakistan, that the phase is principally aimed at arriving at an international legal instrument. See WO/GA/38/20, paras 233–34.}

What the foregoing suggests is that right from the outset, the very conception of the IGC was linked to the ABS regime, albeit from an IP perspective. Consequently, while GRs are not being focused on as subjects of IP protection, IP issues which arise within the context of the protection of GRs (through the ABS regime) are. In this connection, the central questions which the Committee has sought to address within the text of the GRs instrument are issues of complementarity between the IP system and the ABS system. One of its core objectives is stated as the promotion of complementarity/mutual supportiveness with other international agreements relating to the protection of GRs.\footnote{143}{See Document WIPO/GRTKF/IC/29/4, Policy Objectives, at 6.} The Nagoya Protocol, as an instrument primarily negotiated to address the protection of GRs and TKaGRs, clearly fits into this bracket.

This consideration of ways in which the IP system could be made to support the implementation of ABS obligations significantly harbors the central normative tussle within the IGC negotiations – a central question on the insertion of a mandatory disclosure requirement within the patent system, by which patent applications must be accompanied with a disclosure of the source of origin of GRs, as well as evidence of compliance with ABS principles before the grant of a patent. This is a sensitive issue which has continued to divide the negotiators. Developing countries on the one hand have generally placed the development of this disclosure requirement as a central priority within the negotiations, while the majority of developed countries have generally opposed this idea, on the basis of lack of evidence and concerns over the implications of such a requirement on the IP system’s principal objective of innovation, amongst others. The centrality of this issue to the completion of the work of the Committee, coupled with the wide gap which still yet exists within the divergent policy views of negotiators on this issue, has continued to raise doubts over a soon-to-be conclusion to the normative work of the Committee. Developed countries have continued to request studies and examples which offer empirical clarity to the negotiations.\footnote{144}{A proposal for the Terms of Reference for the Study by the WIPO Secretariat on
factual studies (including the time required to undertake such studies) with the progress of the Committee is addressed by mandating that studies and examples should not serve to delay or establish preconditions for the negotiations.\footnote{145}

Another important aspect of the Committee’s work relates to its efforts with respect to defensive protection strategies for GRs. Defensive protection of GRs involves the development of measures which prevent the grant of patents over GRs which do not fulfill the requirements of novelty and non-obviousness. This defensive consideration is a shared objective by both developed and developing countries. Developed countries have an interest in ensuring that patents are only issued to innovators in line with the patentability criteria, thus preserving the integrity of the system. On the other hand, developing countries seek a defensive solution to biopiracy as a lot of biopiracy cases have actually arisen due to the grant of patents over inventions based on TKaGRs and GRs which form part of the ancient traditions and cultures of such developing countries. India, for instance, has had to contend with a number of biopiracy cases, prominent ones of which include the controversies surrounding the erroneous patents granted on the neem tree,\footnote{146} the basmati rice plant,\footnote{147} as well as the turmeric plant,\footnote{148} to name but a few. Thailand has had to contend with erroneous patents

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Measures Related to the Avoidance of the Erroneous Grant of Patents and Compliance with Existing Access and Benefit Sharing Systems submitted by the Delegations of Canada, Japan, Norway, the Republic of Korea, the Russian Federation and the United States of America remains on the floor of the Committee. See Document WIPO/GRTKF/IC/30/8/.


\footnote{148}{Philip Schuler, “Biopiracy and Commercialization of Ethnobotanical Knowledge”, supra note 73 at 166-169.}
granted on the Kwao Krua (*Pueraria mirifica*) plant, as well as the Plao Noi plant, another medicinal herb with early local documentation records.

One of the key suggestions being explored in this regard is the development of databases which will support patent examiners in their search of prior art. Of course, this is not a straightforward discussion as it remains fraught with concerns over accessibility to the database; implications of system hacks as well as court orders; infrastructure and capacity to develop and document such databases within developing countries; and concerns from indigenous groups over the documentation of aspects of their knowledge, particularly the secret and sacred aspects of their TK practices. India has taken the lead, and has developed a digital library for its TK which is accessible to registered patent offices to assist with their search functions. A recent proposal by a group of developed countries within the WIPO IGC for the development of a TK database managed centrally by WIPO also continues to be deliberated on. It is worth mentioning here that these two aspects of the work (the normative and the administrative) are increasingly being considered as being mutually

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149 A local herb whose medicinal use was first documented in Thai scriptures as far back as 1931. See Robinson, *Confronting Biopiracy*, supra note 77 at 55–59.

150 See *ibid* at 63–66.

151 According to the Indian Council for Science and Industrial Research (ICSIR), the TKDL is a “pioneer initiative of India to prevent misappropriation” inspired by significant incidents of biopiracy between 1990 and 2000. See Saikat Sen & Raja Chakraborty, “Traditional Knowledge Digital Library: A Distinctive Approach to Protect and Promote Indian Indigenous Medicinal Treasure” (2014) 106:10 Current Science at 1341, who also note that the instances of biopiracy witnessed between 1990 and 2000, particularly patents on the turmeric (No. 5,401504 in 1995), basmatic rice (No. 5663484 in 1997) by the USPTO, and the neem (No. 436257) by the EPO, led to the formulation of a collaborative and multi-agency task force to prevent misappropriation of Indian TK at international patent offices. The TKDL was the outcome.

152 See the Joint Recommendation on the Use of Databases for the Defensive Protection of Genetic Resources and Traditional Knowledge associated with Genetic Resources, submitted by the Delegations of Canada, Japan, the Republic of Korea and the United States of America in document WIPO/GRTKF/IC/30/7 (first submitted as document WIPO/GRTKF/IC/23/7 to the Twenty-Third Session of the Committee in February 2013) at para 14. This proposed recommendation acknowledges the complementarity between the IP system and the CBD, and proposes the use of a one-click database system for the defensive protection of TKaGRs and GRs. It however notes that the patent office has no business in ensuring or determining whether inventions which make use of TKaGRs or GRs are made in compliance with the CBD or not. See para 14.
supportive solutions. In other words, they can both be developed in support of the ABS regime.

V. CONCLUSION

Without a clear end yet in sight for the WIPO negotiations, questions consequently still remain on the ability the Nagoya Protocol to effectively address the incidence of biopiracy. The realization of this objective is hinged on a complementary outcome within the WIPO IGC. In conclusion, four key reasons drawn from the analysis in this paper are advanced below.

First, there exists an antecedent of weak implementation for instruments agreed on the platform of the CBD, especially those within the issue area of the Nagoya Protocol. Prior to the Nagoya Protocol, the CBD and the Bonn Guidelines were negotiated to address, inter alia, the fair and equitable sharing of benefits arising from the utilization of TK and GRs. Neither of these instruments have, however, enjoyed a successful implementation for differing reasons as noted above. A further instrument, and indeed an international regime built on these instruments, will likely arrive at the same fate if the key questions related to the IP system are not made a part of its elaboration and implementation.

Second is the nature of the issue area to which the Nagoya Protocol is addressed. As mentioned above, while the stated objective of the Nagoya Protocol is the fair and equitable sharing of benefits arising from the utilization of GRs, the underlying subtext to the Nagoya Protocol relates to the protection of GRs and TK from the increasingly rampant incidence of biopiracy. It is to this end that the sharing of benefits is aimed and thus constitutes, from a Third World perspective, the raison d’être for the Nagoya Protocol. Indeed, this was the key issue that prompted the call by demandeurs, most of which were megadiverse developing countries, for an international regime on ABS. Given that biopiracy has thrived due to the incentives and overall normative dominance of the global IP system specifically in relation to the acquisition of rights over the use of TK and GRs, the issues, problems and solutions relating to biopiracy, cannot be fully understood without an understanding of the IP system.\footnote{Amanda J Landon, “Bioprospecting and Biopiracy in Latin America: The Case of Maca in Peru” (2007) Nebraska Anthropologist 64.} This brings into focus the contrasting norms inherent within the IP system and the ABS system, and the effect of
these on efforts to develop solutions to biopiracy. Within the context of the Nagoya Protocol’s implementation, the effect that counter-regime IP norms have on the implementation of the Nagoya Protocol forms an important consideration while assessing the potential efficacy of the instrument.

Third is the diversity of the stakeholders and power relations that have prompted the emergence of the Nagoya Protocol, and upon/through which the implementation drive of the Nagoya Protocol will be sustained. Scholars of international relations have extensively debated the formulation and efficacy of international regimes from the perspectives of power, interest and knowledge. The proliferation of international regimes addressing specific issue areas, amongst others, has led to questions relating to the role of non-state actors in the global governance of specific issue areas. Given that the central non-state beneficiaries of the protection of TK and GRs are indigenous peoples as against the major non-state beneficiaries of IP protection – multinational corporations – the respective roles and/or influence that these respective non-state actors have had and continue to exert on the formulation of public policy and/or state choices has a direct bearing on the implementation of the Nagoya Protocol.

Finally, an underlying uncertainty regarding the potential implementation of the Nagoya Protocol is decodable through an analysis of the ongoing related work in the IP regime. Within the World Trade Organization (WTO) and WIPO, negotiations which address elements that directly impact or inform the implementation of the Nagoya Protocol’s main provisions are progressing. In contrast to the WTO’s characteristic state-centric negotiations, WIPO offers an accessible forum, similar to the CBD, which draws participation from all major stakeholders. WIPO’s negotiations are aimed at developing a sui generis IP system which will ensure the effective protection of TK (including traditional cultural expressions) and GRs. Despite the fact that most of the same actors within the IP

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154 Hasenclever, Mayer & Rittberger, supra note 23 at 9.

155 Negotiations within the WTO are undertaken strictly by Members and observer states that intend to, or are in the process of negotiating membership to the WTO. Decisions on outcomes are, however, only taken by Member States. See World Trade Organization, “How the Negotiations are Organized”, online: WTO <https://www.wto.org/english/tratop_e/dda_e/work_organize_e.htm>.

156 WIPO’s negotiations are open to participation from states, indigenous peoples, relevant intergovernmental organizations (IGOs), non-governmental organizations (NGOs), corporate actors (including multinationals and research institutes) etc.
negotiations, and WIPO’s in particular, are those that agreed to the adoption of the *Nagoya Protocol* on the platform of the *CBD* (excluding the United States), the WIPO negotiations have been remained difficult. The differing postures from the actors within the sphere of the IP discussions *vis-à-vis* the development of the *Nagoya Protocol*’s provisions raises a genuine concern about the political will backing the *Nagoya Protocol*’s core provisions, its implementation, and its ultimate potential to achieve its desired objective.

Should the efforts of developing countries prevail within the WIPO negotiations, we will definitely be ushering in an international legal instrument(s) which complements the *Nagoya Protocol* through a disclosure mechanism. It is probably only in this context that the IGC outcomes can be said to offer a complementary system of protection and as such could be viewed as one of the instruments within the ABS regime-complex. For now, however, it is clear that ongoing IGC process represents a part of the regime-complex, based on its representations and stated objectives. It remains to be seen if this will translate into substantive outcomes which reinforce the *Nagoya Protocol*. 