THE 2024 WIPO TREATY ON GENETIC RESOURCES: DAWN OF A NEW DAY?

SHUWEN XU*

On May 24, 2024, the World Intellectual Property Organization ("WIPO") adopted the Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge ("GRATK Treaty"). It introduces an international requirement for patent applicants to disclose the origin or source of genetic resources ("GRs") and associated traditional knowledge ("ATK"). This Note reviews its main provisions and considers their broader implications. It concludes that, while the GRATK Treaty is a step in the right direction for addressing the misappropriation of GRs and ATK, it leaves critical issues unresolved. These include ambiguities in the trigger, scope, and enforcement of the disclosure obligation; the optional status of information systems; ongoing tensions with other instruments; and the exclusion of digital sequence information ("DSI"). Whether the Treaty truly marks the "dawn of a new day" will depend on how these problems are handled in practice.

* Ph.D. Student in Law, University of Technology Sydney; J.D., University of Iowa College of Law 2022. I am indebted to Professor Wei Shi for his continued insights and guidance. Special thanks to Kyrylo Korol for his thoughtful feedback, Daniel Sharp and the members of the Stanford Journal of International Law for their meticulous editorial support. I would like to dedicate this Note to my parents and to Piper Zhang, with gratitude for their unwavering love and support.

ABBREVIATIONS

ABS	access and benefit-sharing
ATK	traditional knowledge associated with genetic resources
CBD	Convention on Biological Diversity
COP	Conference of the Parties
DSI	digital sequence information
GRs	genetic resources
GRATK Treaty	Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge
IGC	Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore
IPLCs	Indigenous Peoples and Local Communities
IP	intellectual property
IPRs	intellectual property rights
MAT	mutually agreed terms
PCT	Patent Cooperation Treaty
PIC	prior informed consent
TK	traditional knowledge
TRIPS Agreement	Agreement on Trade-Related Aspects of Intellectual Property Rights
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

I. INTRODUCTION

The Earth's rich biodiversity gives researchers, scientists, and innovators access to a wide range of genetic resources ("GRs").[1] Traditional knowledge[2] associated with GRs ("ATK") also contributes to the cultural and economic resilience of Indigenous Peoples and Local Communities ("IPLCs").[3] With the rise of biotechnology, the commercial potential of GRs and ATK has grown significantly, making them increasingly attractive for exploitation.[4] Instances of biopiracy persist,[5]

---

[1] According to Article 2 of the Convention on Biological Diversity ("CBD"), genetic resources are defined as "genetic material of actual or potential value," with genetic material referring to "any material of plant, animal, microbial or other origin containing functional units of heredity." Convention on Biological Diversity art. 2, June 5, 1992, 1760 U.N.T.S. 79 [hereinafter CBD].

[2] Currently, there is no universally recognized definition of traditional knowledge ("TK") on a global scale. According to the World Intellectual Property Organization ("WIPO"), broadly speaking, TK includes both the "content of knowledge" itself and the cultural expressions connected to it, such as "distinctive signs and symbols associated with TK." In a narrower sense, TK refers to "knowledge resulting from intellectual activity in a traditional context, and includes know-how, practices, skills, and innovations." *Traditional Knowledge*, WORLD INTELL. PROP. ORG. [WIPO], https://www.wipo.int/en/web/traditional-knowledge/tk/index [https://perma.cc/7DB2-N2QX] (last visited Nov. 27, 2025). TK can be found in diverse contexts, such as scientific knowledge, agricultural knowledge, technical knowledge, medicinal knowledge, including related medicines and remedies, and biodiversity-related knowledge. WORLD INTELL. PROP. ORG. [WIPO], Intellectual Property Needs and Expectations of Traditional Knowledge Holders, at 225 (2001), https://www.wipo.int/edocs/pubdocs/en/tk/768/wipo_pub_768.pdf. The term "traditional knowledge associated with genetic resources" means "traditional knowledge which is specific or general in its relationship to genetic resources." *Report of the Meeting of the Group of Technical and Legal Experts on Traditional Knowledge Associated with Genetic Resources in the Context of the International Regime on Access and Benefit-Sharing*, AD HOC OPEN-ENDED WORKING GROUP ON ACCESS AND BENEFIT-SHARING, annex ¶ 12, UNEP/UNEP/CBD/WW, UNEP/CBD/WG-ABS/8/2 (July 15, 2009), https://www.cbd.int/doc/meetings/abs/abswg-09-2nd/official/abswg-09-2nd-abswg-08-02-en.pdf [https://perma.cc/7HAA-LP8F].

[3] TK held by Indigenous Peoples and Local Communities ("IPLCs") is often closely connected to genetic resources ("GRs"). It provides insights into their use and conservation that can guide scientific research and commercial development. In the pharmaceutical sector especially, TK can significantly enhance the likelihood of identifying valuable compounds. Marie-Denise Vane, *Questioning the Potential of the Forthcoming WIPO's Diplomatic Conference on Intellectual Property and Genetic Resources: Endless Negotiations Coming to a Successful End?* 9 LSE L.REV. 48, 52-53 (2023); *see also* Wend Wendland, *International Negotiations on Indigenous Knowledge to Resume at WIPO: A View of the Journey So Far and the Way Ahead*, WIPO MAG. (Feb. 14, 2022), https://www.wipo.int/en/web/wipo-magazine/articles/international-negotiations-on-indigenous-knowledge-to-resume-at-wipo-a-view-of-the-journey-so-far-and-the-way-ahead-55953 [https://perma.cc/64YR-BWBL].

[4] *See* Thomas Cottier, *The Protection of Genetic Resources and Traditional Knowledge: Towards More Specific Rights and Obligations in World Trade Law*, 1 J. INT'L ECON. L. 555, 557 (1998); Vane, *supra* note 3, at 49, 53.

[5] Jonathan Carr, *Agreements that Divide: TRIPS vs. CBD and Proposals for Mandatory Disclosure of Source and Origin of Genetic Resources in Patent Applications*, 18 J. TRANSNAT'L L. & POL'Y 131, 131 (2008); Paul Kuruk, *Regulating Access to Traditional Knowledge and Genetic Resources: The Disclosure Requirement as a Strategy to Combat Biopiracy*, 17 SAN DIEGO INT'L L.J. 1, 4 (2015); Itsuki Shimbo, Yoko Ito & Koichi Sumikura, *Patent Protection and Access to Genetic Resources*, 26 NATURE BIOTECHNOLOGY 645, 645 (2008); Chidi Oguamanam, *The WIPO Treaty on Genetic Resources and Associated Traditional Knowledge: A Negotiating, Contextual and Conceptual Appraisal*, 43 B.U. INT'L L.J. 321, 331-32 (2025). The term "biopiracy" still lacks a consensus definition. Canadian environmentalist Pat Roy Mooney first coined the term in the early 1990s to describe the misappropriation of GRs and TK from IPLCs through the IP system. Ghanashyam Sharma & Bharat Kumar Pradhan, *Exploring Traditional Knowledge: Bio-Prospecting and Biopiracy in India and*

such as the appropriation of turmeric[6] and neem,[7] the exclusion of Madagascar from profits generated from the rosy periwinkle,[8] and South Africa's accusation against Nestlé over its use of Rooibos and Honeybush.[9] These recurring instances highlight structural injustices in the global patent regime and raise concerns about equitable access and benefit-sharing ("ABS") from the use of GRs and ATK. A number of international legal frameworks have emerged as a result.

Traditionally, access to GRs has been regulated through bilateral ABS agreements involving the physical exchange of biological materials. The United Nations Convention on Biological Diversity ("CBD") and its Nagoya Protocol set the baseline framework for equitable exchange of GRs.[10] Other international instruments also contribute to this framework.[11] Both governments and private entities have strong interests in ensuring access to GRs, yet intellectual property rights ("IPRs") have made this access more complicated.[12] The Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS Agreement") is probably one of the most contentious instruments in this domain.[13] Scholars have also

---

Southeast Asian Mega-Diversity Nations in BIODIVERSITY AND BUSINESS 447, 448 (Laladhas Krishna Panicker, Prakash Nelliyat & Oommen V Oommen eds., 2024).

[6] Turmeric has long been used as a natural remedy in India, whereas the United States Patent and Trademark Office granted two scientists a patent for its use as a wound-healing agent in 1995. Subsequently, the Indian government successfully challenged the patent as it did not meet the requirements for novelty. Sanjay Kumar, *India Wins Battle with USA Over Turmeric Patent*, 350 LANCET 724, 724 (1997); Vane, *supra* note 3, at 62.

[7] Similarly, the 1994 patent for a neem tree seed extract used in the antifungal spray Neemex by American multinational corporation is another classic biopiracy case. Neem extracts had been utilized for centuries by Indian farmers, and after years of fighting, the neem patent was overturned in 2000 on the grounds that it lacked "novelty and innovative step." Daniella Silva, *Biopiracy: The Largely Lawless Plundering of Earth's Genetic Wealth*, THINK LANDSCAPE (Dec. 15, 2020), https://thinklandscape.globallandscapesforum.org/48905/biopiracy-the-largely-lawless-plundering-of-earths-genetic-wealth/ [https://perma.cc/2Z5S-VGF6].

[8] The rosy periwinkle from Madagascar is the source of a commonly used leukemia drug. Eli Lilly, a multinational company, is reportedly making $100 million a year from this plant, with Madagascar being excluded from the profits. G. Kristin Rosendal, *Regulating the Use of Genetic Resources – Between International Authorities*, 16 EUR. ENV'T 265, 267 (2006).

[9] Rooibos and Honeybush, long used for their medicinal purposes and native to South Africa, were the subject of five patent filings by Nestlé in 2009. These applications raised concerns about violating South African law and the CBD. It also highlighted how large companies may sidestep obligations around prior informed consent ("PIC") and benefit-sharing. *Dirty Business for Clean Skin: Nestlé's Rooibos Robbery in South Africa*, NATURAL JUSTICE & BERNE DECLARATION (May 27, 2010), at 9, https://www.cbd.int/abs/side-events/resumed-abs-9/id2114-berne-policy-brief.pdf [https://perma.cc/BM28-5JBR].

[10] *See generally* CBD, *supra* note 1; 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, Oct. 29, 2010, 3008 U.N.T.S. 3 [hereinafter Nagoya Protocol].

[11] For example, the International Treaty on Plant Genetic Resources for Food and Agriculture aims to support wider access to a list of plant GRs that are important for food security. Katie Bass, *The Battle over Plant Genetic Resources: Interpreting the International Treaty for* [sic] *Plant Genetic Resources*, 16 CHI. J. INT'L L. 151, 151 (2015); Christiane Gerstetter, Benjamin Görlach, Kirsten Neumann & Dora Schaffrin, *The International Treaty on Plant Genetic Resources for Food and Agriculture within the Current Legal Regime Complex on Plant Genetic Resources*, 10 J. WORLD INTELL. PROP. 259, 259 (2007).

[12] *See* Rónán Kennedy, *International Conflicts over Plant Genetic Resources: Future Developments?* 20 TUL. ENV'T L.J. 1, 3 (2006).

[13] Agreement on Trade-Related Aspects of Intellectual Property Rights pmbl., art. 27.3(b), Apr. 15, 1994, 1869 U.N.T.S. 299 [hereinafter TRIPS].

examined GRs and ATK through other lenses, like human rights[14] and marine biodiversity governance.[15] More recently, the emergence of digital sequence information ("DSI") has added new layers of complexity, challenging these legal frameworks originally designed for physical access.[16]

The widespread occurrence of misappropriation points to a persistent divide between biodiversity-rich developing countries and technology-advanced industrialized countries within frameworks like the TRIPS Agreement and the CBD.[17] In response, governments and IPLCs have advocated for the disclosure of origin requirement to help prevent biopiracy.[18] After years of fruitless negotiations,[19] the World Intellectual Property Organization ("WIPO") Member States adopted a groundbreaking Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge ("GRATK Treaty") on May 24, 2024.[20] It requires the disclosure of the country of origin of GRs, the IPLCs providing ATK, or the source of those materials in patent applications.[21] This is expected to help patent examiners

---

[14] *See* Graham Dutfield & Uma Suthersanen, *Traditional Knowledge and Genetic Resources: Observing Legal Protection through the Lens of Historical Geography and Human Rights*, 58 WASHBURN L.J. 399, 399 (2019).

[15] *See* Claudio Chiarolla, *Intellectual Property Rights and Benefit Sharing from Marine Genetic Resources in Areas Beyond National Jurisdiction: Current Discussions and Regulatory Options*, 4 QUEEN MARY J. INTELL. PROP. 171, 171 (2014); Efthymios Papastavridis, *The Negotiations for a New Implementing Agreement under the UN Convention on the Law of the Sea Concerning Marine Biodiversity*, 69 INT'L & COMP. L.Q. 585, 585 (2020).

[16] *See* Ian Goss, *25 Years in the Making: The WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge*, 66 HARV. INT'L L.J. 35, 46 (2025). There is currently no agreed-upon definition of digital sequence information ("DSI"). The term is used as a placeholder for various types of digital data derived from GRs. Most often, it refers to DNA or RNA sequences that have been digitized and shared online for research. Some definitions go even further, including data on proteins or metabolites produced by cells. Others limit DSI to just DNA, RNA, and protein sequences. Due to variations in opinion, it is difficult to determine what DSI covers. Wael Houssen, Rodrigo Sara & Marcel Jaspars, *Digital Sequence Information – Clarifying Concepts,* Deep-Ocean Stewardship Initiative (DOSI) Policy Brief (based on *Digital Sequence Information on Genetic Resources: Concept, Scope and Current Use*), at 2-3, https://www.dosi-project.org/wp-content/uploads/070-DSI-Policy-brief-V4-WEB.pdf (Mar. 2020). In the past, researchers used to need direct access to GRs because they had to collect physical plant samples to extract useful compounds. But that is not always the case anymore. With new technology, researchers can use genetic data without ever accessing the physical material. DSI now plays a key role in medicine, farming, biotech, and environmental research. But countries still have not reached clear agreement on how it should be regulated or how benefits should be shared. Margo A. Bagley, *"Just" Sharing: The Virtues of Digital Sequence Information Benefit-Sharing for the Common Good*, 63 HARV. INT'L L.J. 1, 5 and 19 (2022).

[17] Carr, *supra* note 5, at 132; Goss, *supra* note 16, at 38.

[18] Kuruk, *supra* note 5, at 42; Dominic Keating, *Access to Genetic Resources and Equitable Benefit Sharing Through a New Disclosure Requirement in the Patent System: An Issue in Search of a Forum*, 87 J. PAT. & TRADEMARK OFF. SOC'Y 525, 533-34 (2005); Vane, *supra* note 3, at 57.

[19] *See* Wendland, *supra* note 3; Carr, *supra* note 5, at 131; Joshua D. Sarnoff & Carlos M. Correa, *Analysis of Options for Implementing Disclosure of Origin Requirements in Intellectual Property Applications*, UN CONF. ON TRADE AND DEV. iv (2006), https://unctad.org/system/files/official-document/ditcted200514_en.pdf; Dennis Crouch, *WIPO Adopts Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge*, PATENTLYO (May 26, 2024), https://patentlyo.com/patent/2024/05/intellectual-associated-traditional.html.

[20] WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, May 24, 2024, WIPO Lex No. TRT/GRATK/001, https://www.wipo.int/edocs/mdocs/tk/en/gratk_dc/gratk_dc_7.pdf [https://perma.cc/Z5G4-N683] [hereinafter GRATK Treaty].

[21] *Id*. art. 3.

assess novelty and inventive steps more accurately,[22] hence reducing the risk of erroneously granted patents.[23] Since its adoption, scholars and practitioners have discussed its background, scope, implementation, and implications for international law.[24]

This Note examines the GRATK Treaty and explores aspects that could complicate future efforts to protect GRs and ATK on a global scale. Unlike much of the existing literature, this Note approaches reforms with an eye towards better alignment between the Treaty and the CBD's ABS framework. Part II reviews the global governance of GRs and ATK under the ABS and IP regimes. Part III then looks at the core provisions of the GRATK Treaty and examines challenges in its existing design. Finally, Part IV proposes potential changes to the GRATK Treaty so it can serve as a blueprint for a more equitable future for provider countries and IPLCs.

II. THE INTERNATIONAL FRAMEWORK GOVERNING GRS AND ATK

The regulation of GRs and ATK has developed through overlapping legal areas, including environmental law, ABS systems, and intellectual property ("IP"). This Part begins with a review of the CBD. It then analyzes how the TRIPS Agreement has influenced IP protection in biotechnology and how it conflicts with the CBD. Finally, it outlines past efforts to introduce disclosure obligations as a means of reconciling these regimes, which eventually led to the signing of the GRATK Treaty in 2024.

A. The Convention on Biological Diversity ("CBD")

The CBD was adopted in 1992 and has been ratified by 196 states.[25] The Convention sets out a global framework for conserving biodiversity and ensuring fair

---

[22] *E.g.,* TRIPS, *supra* note 13, art. 27(1) (establishing a test for patentable subject matter that requires patent protection for inventions that are "new, involve an inventive step and are capable of industrial application.").

[23] *See* Goss, *supra* note 16, at 38.

[24] *See* Jessica C. Lai, et al., *Intellectual Property at a Crossroads: The Knowledge and Resources of Indigenous Peoples and Local Communities*, J. WORLD INTELL. PROP. 1 (2025) (criticizing the GRATK Treaty's limitations, warning that it may neglect deeper IPLCs interests, and arguing that common solutions risk reinforcing colonial patterns); Goss, *supra* note 16, at 35 (offering an insider perspective on the process behind the GRATK Treaty's adoption, highlighting key challenges faced during its negotiation, and drawing lessons for ongoing discussions on TK and traditional cultural expressions at the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore ("IGC")); María Vásquez Callo-Müller, Diego F Ortega Sanabria, and Alejandro Matsuno Remigio, *The WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge: Situating a Landmark Development in International Intellectual Property Governance*, 73 GRUR INTERNATIONAL 1128, 1128 (2024) (reviewing the core elements of the GRATK Treaty, its relationship with other international legal instruments, and its role within the broader context of IP law, particularly in light of developments at bilateral and regional levels); Oguamanam, *supra* note 5, at 2-3 (placing the GRATK Treaty in historical context and analyzing its evolution, tensions, and implications for the global governance of GRs and TK).

[25] CBD, *supra* note 1.

ABS of GRs.[26] It has three main objectives: "the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits resulting from the utilization of genetic resources."[27] Article 15 marks a significant departure from treating GRs as the common heritage of humankind toward recognition of national sovereignty over such resources.[28] Access is contingent upon prior informed consent ("PIC") of the providing country[29] and mutually agreed terms ("MAT").[30] Furthermore, Article 15.7 requires measures to ensure that research outcomes and resulting benefits are shared fairly and equitably with the provider country.[31]

However, the Convention leaves key concepts like PIC, MAT, and benefit-sharing largely undefined.[32] In response, the 2002 Bonn Guidelines were introduced to assist countries in developing their own domestic ABS rules.[33] In 2010, the Nagoya Protocol further offered a more detailed structure for implementation.[34] The Protocol allows Parties to ask for permission for access to GRs and places benefit-sharing obligations on users.[35] It includes both monetary and non-monetary benefits resulting from the utilization of GRs or ATK.[36]

In short, while creating an important starting point for the international regulation of GRs, the CBD regime has not been as successful as it could have been.[37]

---

[26] Rosendal, *supra* note 8, at 266. The concept of access pertains to the availability and utilization of GRs. The principle of benefit-sharing entails the fair and equitable distribution of the benefits derived from the use of those resources. Accordingly, it falls within the sovereign rights of each state to regulate access to its genetic materials, including the authority to establish the terms and conditions under which such access may be granted. CBD, *supra* note 1, art. 15.

[27] CBD, *supra* note 1, art. 1.

[28] *Id*. art. 15.1. One of the CBD's most important shifts was its recognition of states' sovereign rights over GRs. This moved away from the older idea of the common heritage of humankind that treated certain resources as belonging to no one and open to everyone for use.

[29] *Id*. art. 15.5.

[30] *Id*. art. 15.4.

[31] *Id*. art. 15.7.

[32] Kuruk, *supra* note 5, at 21.

[33] *See generally* SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, BONN GUIDELINES ON ACCESS TO GENETIC RESOURCES AND FAIR AND EQUITABLE SHARING OF BENEFITS ARISING OUT OF THEIR UTILIZATION (2002), https://www.cbd.int/doc/publications/cbd-bonn-gdls-en.pdf [https://perma.cc/NMY7-X3HV] [hereinafter Bonn Guidelines].

[34] Nagoya Protocol, *supra* note 10, art. 4.4.

[35] *Id*. arts. 5.1, 6.

[36] *Id*. arts. 1, 5; Mark Eccleston-Turner & Michelle Rourke, *Arguments against the Inequitable Distribution of Vaccines Using the Access and Benefit Sharing Transaction*, 70 INT'L & COMP. L.Q. 825, 826 (2021). Monetary benefits may take the form of access fees, royalties, or license payments, while non-monetary benefits can include capacity-building, technology transfer, and the dissemination of research findings. Nagoya Protocol, *supra* note 10, Annex.

[37] Kennedy, *supra* note 12, at 21 (stating that "the CBD has not yielded the expected benefits."); s*ee* Michael Heinrich, et al., *Access and Benefit Sharing Under the Nagoya Protocol–Quo Vadis? Six Latin American Case Studies Assessing Opportunities and Risk*, 11 FRONTIERS IN PHARMACOLOGY 1 (2020) (based on six Latin American case studies, the authors found that the expected benefits under the CBD and the Nagoya Protocol have not reached all parties, especially local communities); Joseph Henry Vogel, *Ending Unauthorised Access to Genetic Resources (aka Biopiracy): Bounded Openness*, INTELL. PROP. WATCH (June 4, 2018), https://www.ip-watch.org/2018/04/06/ending-unauthorised-access-genetic-resources-aka-biopiracy-bounded-openness/ [https://perma.cc/4E3L-3TYV] (providing that the Nagoya Protocol has led to very few ABS contracts that legally specify the fair and equitable distribution of benefits from GRs; the financial benefits derived are so small that Contracting Parties are generally reluctant to publicly disclose them.); Callo-Müller, Sanabria & Remigio, *supra* note 24, at 1129 (arguing

A key problem is the absence of clear benefit-sharing mechanisms.[38] The Bonn Guidelines are voluntary and limited in impact, particularly in jurisdictions that do not recognize Indigenous rights or have strong ABS systems.[39] The Nagoya Protocol tried to fix this, but implementation has proved difficult. Many resource-constrained countries like Guinea face significant administrative and legal barriers and lack the resources to build effective ABS systems.[40] At the same time, some user countries with major biotechnology industries, such as the European Union and Japan, tend to apply the rules narrowly and do not enforce them robustly.[41] The United States' refusal to ratify the CBD exacerbates these challenges.[42] These issues have raised concerns about how IP systems can support benefit-sharing and biodiversity conservation. Although neither the CBD nor the Nagoya Protocol is an IP treaty *per se*, they both connect to the IP systems in important ways.[43] The following Section examines these links more closely.

B. The Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS Agreement")

The CBD started a global conversation on the intersection of biotechnology, trade, and IPRs.[44] But stronger IP rules are needed to protect GRs and ATK more effectively.[45] In particular, patent rights have played a key role in shaping innovation in fields like life sciences and biotechnology.[46] In this context, the TRIPS Agreement

---

that the core objectives of the CBD and the Nagoya Protocol remain only partially achieved, largely due to the limited capacity of biodiverse countries to track and monitor the use of their GRs and ATK).

[38] Kuruk, *supra* note 5, at 26.

[39] *Id*.

[40] Setting up strong domestic ABS systems takes more than just passing laws. It involves clear access rules, solid institutions, and enforceable benefit-sharing agreements. A recent study highlights the difficulties EU countries face in implementing the EU ABS Regulation, despite strong legal and institutional support. Therefore, it is unsurprising that resource-constrained countries like Guinea, which ratified the Nagoya Protocol but still lack a legal ABS framework, continue to face "technical, human, and financial" barriers. *See* Bagley, *supra* note 16, at 17.

[41] Pedro Henrique D. Batista, *The WIPO IGC Chair's Draft on IP and Genetic Resources – Reasons for concer*n, 19 J. INTELL. PROP. L. & PRAC. 328, 329 (2024).

[42] The U.S. has not ratified the CBD, largely due to concerns about how it might affect its interests. Some argue the Convention does not do enough to safeguard the IPRs of American companies. Others fear it could place domestic environmental and natural resource policies under international scrutiny. There are also concerns about the potential financial costs. Anya Wahal, *On International Treaties, the United States Refuses to Play Ball*, COUNCIL ON FOREIGN RELATIONS (Jan. 7, 2022), https://www.cfr.org/blog/international-treaties-united-states-refuses-play-ball.

[43] For example, Article 16.5 of the CBD acknowledges patents and other IPRs may have an influence on the implementation of the CBD and gives the Contracting Parties the discretion to choose how to proceed with implementing its objectives. CBD, *supra* note 1, art. 16.5.

[44] Carr, *supra* note 5, at 135.

[45] GRs and ATK in their natural state without human modification or innovation do not constitute IP. However, inventions derived from or developed through the utilization of GRs and ATK may qualify for IP protection.

[46] A patent can be considered a legally granted monopoly that allows the holder to exclusively utilize a novel invention for a specified duration. It allows inventors to reap the benefits of having exclusive rights to their inventions during that time. Although copyright and other IPRs may also be important, most discussions on GRs and ATK focus on patents because of their significant pharmaceutical, economic, and industrial value. *See* Luo Li, *The Saviour of Chinese traditional cultural*

and the Patent Cooperation Treaty ("PCT") are particularly important.[47] Both require that a patentable invention be novel, involve an inventive step (non-obvious), and be capable of industrial application (useful).[48] When it comes to GRs and ATK, there may be additional ethical and legal considerations, particularly when inventions come from materials or knowledge linked to IPLCs.[49]

The PCT took effect in 1978 and now has more than 155 contracting parties.[50] It provides a unified process for international patent applications.[51] Since 1995, the TRIPS Agreement has been binding on all World Trade Organization ("WTO") Member States and has set a global minimum standard for IP protection.[52] Article 27.1 requires that patents be available "in all fields of technology," if the invention meets other criteria.[53] Article 27.3(b) provides one of the three exceptions to the patentability rule.[54] It lets member countries exclude "plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes" from patentability.[55] This requires countries to give patent protection to microorganisms and to non-biological and microbiological processes, both of which are integral to biotechnological developments.[56] It prevents anyone from obtaining a patent solely for discovering a new plant or noticing new traits in one that is already known. Members must also establish legal protection for plant varieties, either through patent systems, *sui generis* systems, or a combination thereof.[57]

The TRIPS Agreement can support CBD goals, such as through technology transfer, but it can also cause problems. The CBD prioritizes fair and equitable sharing of benefits from biological resources,[58] whereas the TRIPS Agreement

---

expressions? Analysis of the Draft Regulations on Copyright Protection of Folk Literary and Artistic Works, 6 QUEEN MARY J. INTELL. PROP. 27, 31 (2016).

47 TRIPS, *supra* note 13; Patent Cooperation Treaty, June 19, 1970, 28 U.S.T. 7645; 1160 U.N.T.S. 231; 9 I.L.M. 978 (1970) [hereinafter PCT].

48 TRIPS, *supra* note 13, art. 27(1); PCT, *supra* note 47, art. 33.

49 Claudio Chiarolla & Burcu Kilic, *Developing Patent Disclosure Requirements Related to Genetic Resources and Traditional Knowledge – Key Questions*, WIPO (2017), at 20, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2987820.

50 *Protecting your Inventions Abroad: Frequently Asked Questions About the Patent Cooperation Treaty (PCT)*, WIPO, https://www.wipo.int/pct/en/faqs/faqs.html [https://perma.cc/Q6Y4-CH42] (last visited Apr. 7, 2025).

51 *Id*. Filing a single international patent application under the PCT, as opposed to multiple separate national or regional patent applications, allows one to simultaneously seek patent protection for an invention across numerous countries.

52 *Overview: the TRIPS Agreement*, WTO, https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm (last visited Apr. 7, 2025); *see also* Shuwen Xu, *To Waive or Not to Waive: The Debate and Analysis of TRIPS Waiver,* 18 ASIAN J. WTO & INT'L HEALTH L. & POL'Y 423, 427 (2023).

53 TRIPS, *supra* note 13, art. 27.1.

54 *Id*. art. 27.3(b).

55 *Id*.

56 *Id*.

57 *Id*.

58 CBD, *supra* note 1, art. 1. The language in Article 16(5) of the CBD reflects the Convention's stance for respecting and sustaining "diverse cultures and indigenous peoples in their roles as conservators of biological diversity." Ikechi Mgbeoji, *Patents and Traditional Knowledge of the Uses of Plants: Is A Communal Patent Regime Part of the Solution to the Scourge of Bio Piracy?*, 9 IND. J. GLOBAL LEGAL STUD. 163, 168 (2001).

focuses more on robust IP protection.[59] While the CBD acknowledges the role of IPRs, it affirms the sovereign authority of states over their biological resources and seeks to ensure that IPRs are exercised in a manner consistent with ABS objectives.[60] Critics have argued that the TRIPS Agreement, especially Article 27.3(b), ignores ABS principles.[61] The TRIPS Agreement does not require disclosure of origin, PIC, or benefit-sharing for patents based on GRs. Many countries claim it favors patent holders and overlooks Indigenous rights.[62] It also does not address traditional knowledge ("TK"), nor does it incorporate the interests of IPLCs within its legal framework.[63] Moreover, Article 27.1's broad wording that patents apply to "any inventions…in all fields of technology" may also enable companies to claim IPRs over GRs or ATK with little modification, often resulting in misappropriation of community-held resources. Oguamanam adds that the vague language in Article 27 has made it easier to patent ATK without proper consent or benefit-sharing, thereby facilitating biopiracy.[64]

That disconnect has prompted efforts to bridge the TRIPS Agreement and the CBD framework. Paragraph 19 of the 2001 Doha Ministerial Declaration calls on further examination of their relationship.[65] The Bonn Guidelines also "encourage the disclosure of the country of origin" of GRs in IP filings.[66] One of the earliest proposals came from India in 1996, calling for an amendment to the TRIPS Agreement to require such disclosure.[67] This requirement has since been seen as a possible mechanism for bridging the two systems.[68]

C. International Progress on Patent Disclosure Requirements

At the TRIPS Council meeting on September 27, 2004, Brazil, Cuba, Ecuador, India, Pakistan, Peru, Thailand, and Venezuela jointly requested that the TRIPS Council include a rule requiring patent applicants to disclose the origin of GRs.[69] In a subsequent proposal submitted in July 2006, a broader group of countries, including China, Colombia, and Tanzania, called for the introduction of Article 29bis

---

[59] *See* TRIPS, *supra* note 13, art. 7 (acknowledging the role of IPRs in promoting innovation and economic benefits). *See also id*. arts. 27-34 (providing minimum patent standards).

[60] CBD, *supra* note 1, arts. 15, 16.5.

[61] *See* Carr, *supra* note 5, at 136; *see also* Vane, *supra* note 3, at 56 (providing that the TRIPS Agreement does not protect TK, nor does it impose any minimum standard for its protection in national laws).

[62] *Id*.

[63] Oguamanam, *supra* note 5, at 4.

[64] *Id*. at 13.

[65] WTO, Ministerial Declaration of 20 November 2001, WTO Doc. WT/MIN(01)/DEC/1, 41 I.L.M. 746 (2002).

[66] Bonn Guidelines, *supra* note 33, § 16(d)(ii).

[67] Keating, *supra* note 18, at 533-34.

[68] Vane, *supra* note 3, at 57.

[69] *See generally* Submission from Brazil, India, Pakistan, Peru, Thailand, and Venezuela, *Elements of the Obligation to Disclose the Source and Country of Origin of Biological Resource and/or Traditional Knowledge Used in an Invention*, IP/C/W/429 (Sept. 21, 2004), https://docsonline.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/IP/C/W429.pdf&Open=True [https://perma.cc/5GXX-X9A8].

to mandate the disclosure of the origin of biological resources and ATK used in inventions.[70]

Although first introduced in the TRIPS Council, the proposal for a disclosure requirement made little progress there and was pursued in parallel negotiations at WIPO.[71] In 1999, prior to the WIPO Diplomatic Conference on the Patent Law Treaty, Colombia suggested incorporating a disclosure-of-origin requirement for GRs and TK in patent applications.[72] The proposal met with strong opposition, prompting WIPO to establish the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore ("IGC").[73]

In 2003, Switzerland proposed a change to the WIPO PCT, allowing contracting parties to require patent applicants to "declare the source of genetic resources and/or traditional knowledge" when their applications entered the national phase.[74] The African Group campaigned for a stricter rule during the sixth session of the WIPO IGC in 2004.[75] They supported adding a mandatory disclosure requirement to patent law, requiring applicants to identify the source and country of origin of GRs and ATK and to show that they had followed national ABS rules.[76]

Even with these efforts, countries were unable to reach agreement for decades.[77] Developing countries generally advocated for a mandatory global disclosure requirement for GRs and ATK, while others, especially those with major patent-holding industries, largely opposed it.[78] In 2001, the United States declared that there was no conflict between the TRIPS Agreement and the CBD and opposed adding a disclosure requirement to the Agreement.[79] Critics claimed that tracing the

---

[70] Communication from Brazil, China, Colombia, Cuba, India, Pakistan, Peru, Thailand and Tanzania, *Doha Work Programme – The Outstanding Implementation Issue on the Relationship between the TRIPS Agreement and the Convention on Biological Diversity*, WTO Doc. WT/GC/W/564/Rev.2 (July 5, 2006), ¶ 2 [hereinafter Article 29bis Proposal].

[71] *See* Oguamanam, *supra* note 5, at 13; Council for Trade-Related Aspects of Intell. Prop. Rts, *Note by the Secretariat: The Protection of Traditional Knowledge and Folklore; Summary of Issues Raised and Points Made*, WTO Doc. IP/C/W/370/Rev.1 (Mar. 9, 2006), at ¶ 14.

[72] Goss, *supra* note 16, at 40.

[73] *Id*. at 37 and 40. *See also* Peter K. Yu, *WIPO Negotiations on Intellectual Property, Genetic Resources and Associated Traditional Knowledge*, 57 AKRON L. REV. 277, 278-79 (2024); Marcus Goffe, *Recent Developments in the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore*, 1 QUEEN MARY J. INTELL. PROP. 90, 90 (2011). The IGC was created in 2000. Beginning in 2001, its early discussions were about national practices related to ABS, protection of GRs, TK, and IP frameworks. Over time, the IGC expanded its work to include databases, comparative studies, and disclosure requirements. These efforts, together with parallel national initiatives such as India's TK database and Peru's institutional reforms, helped prepare for the 2024 Diplomatic Conference. Callo-Müller, Sanabria & Remigio, *supra* note 24, at 1130.

[74] Communication from Switzerland, *Article 27.3(b), The Relationship between the TRIPS Agreement and the Convention on Biological Diversity, and the Protection of Traditional Knowledge*, WTO Doc. IP/C/W/400 (May 28, 2003).

[75] *See generally* Submission by the African Group, *Objectives, Principles and Elements of an International Instrument, or Instruments, on Intellectual Property in Relation to Genetic Resources and on the Protection of Traditional Knowledge and Folklore*, WIPO Doc. WIPO/GRTKF/IC/6/12 (Mar. 15, 2004), at Annex.

[76] *Id*.

[77] Carr, *supra* note 5, at 131-32.

[78] *Id*.

[79] Council for Trade-Related Aspects of Intell. Prop. Rts., World Trade Org., *Article 27.3(b), The Relationship Between the TRIPS Agreement and the Convention on Biological Diversity, and the*

origin of GRs could increase patent costs, delay research, and potentially deter innovation.[80] The United States also warned that global trade makes source tracing difficult and could lead to "legal uncertainty."[81] Others saw it differently. Researchers in Brazil argued that disclosure could actually improve legal certainty and help innovation.[82] The disclosure requirement would not be more burdensome than what patent law already requires.[83] In many cases, the cost of disclosure would be lower than correcting erroneously granted patents.[84]

This divergence reflected deeper tensions over fairness in how GRs are accessed. After years of discussion, progress finally came. In December 2023, the WIPO Secretariat released a Basic Proposal for an International Legal Instrument Relating to Intellectual Property, Genetic Resources and Traditional Knowledge Associated with Genetic Resources ("Basic Proposal").[85] This document formed the basis for later negotiations. On May 24, 2024, the Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge was adopted by the WIPO Member States.[86] The next Part analyzes its core provisions and broader implications.

III. THE GRATK TREATY ON GRS AND ATK: DAWN OF A NEW DAY?

The 2024 adoption of the GRATK Treaty is a significant step forward in addressing global concerns over GRs and ATK. It brings IP and sustainability together, formally recognizes the role of IPLCs for the first time,[87] and addresses the complex relationship between IP, GRs, and TK.[88] However, as the following analysis shows, there are still questions about whether it can meet its goals. This Part presents an overview and evaluation of its key provisions.

A. Text of The GRATK Treaty

The first Article lists two main objectives of the Treaty: to improve the patent system's effectiveness, transparency, and quality; and to prevent patents from being

---

Protection of Traditional Knowledge, Communication from the US, WTO Doc. IP/C/W/434, ¶ 3 (Nov. 26, 2004).

[80] *Id.* at ¶ 15.

[81] Carr, *supra* note 5, at 145.

[82] Leonardo Santana, *WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge: A Balanced Outcome*, 7 SCI. DIPL. 10 (2024) (evidence from Brazil indicates that the increased transparency and legal certainty fostered by the disclosure requirement may encourage greater collaboration between IPLCs and industry actors, thereby supporting innovation).

[83] Carr, *supra* note 5, at 140.

[84] *Id*.

[85] WIPO, *Basic Proposal for an International Legal Instrument Relating to Intellectual Property, Genetic Resources and Traditional Knowledge Associated with Genetic Resources*, GRATK/DC/3 (Dec. 14, 2023), https://www.wipo.int/meetings/en/doc_details.jsp?doc_id=625814 [https://perma.cc/NFU4-XM8Y] [hereinafter Basic Proposal].

[86] GRATK Treaty, *supra* note 20.

[87] *Id*. pmbl.

[88] Press Release, WIPO, WIPO Member States Adopt Historic New Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, PR/2024/919 (May 24, 2024), https://www.wipo.int/pressroom/en/articles/2024/article_0007.html [https://perma.cc/ENV5-HYMJ].

granted for inventions that lack novelty or inventive step in relation to GRs and ATK.[89] These aims respond to long-standing concerns about misappropriation, especially where patents are granted based on inaccurate or misleading claims. Article 2 adds to this framework by defining key terms.[90] For example, "genetic resources" follows the same meaning as in the CBD, ensuring consistency across instruments.[91]

Article 3 introduces the disclosure requirement, which is a cornerstone of the Treaty's operative provisions. Where a claimed invention is "based on" GRs or ATK, patent applicants are required to disclose the country of origin or, in the case of ATK, the IPLCs from whom the knowledge was obtained.[92] If the origin data is unavailable, the applicant should provide an alternative source of GRs or ATK from which they obtained the relevant resource or knowledge.[93] If none of the required information is known to patent applicants, they must submit a declaration indicating this.[94] Patent offices shall provide guidance regarding the disclosure requirement,[95] although they are not required to verify the authenticity of the disclosed information.[96]

Article 5 prescribes sanctions and remedies for non-compliance.[97] Each contracting party shall put in place "appropriate, effective and proportionate legal, administrative, and/or policy measures" to address violations.[98] Notably, the Treaty emphasizes procedural fairness in the process by providing that before implementing sanctions or imposing remedies, the person who failed to disclose must be given an opportunity to rectify, unless the failure was due to "fraudulent conduct or intent."[99] Moreover, pursuant to Article 5.3, the mere failure to disclose shall not, in and of itself, constitute grounds for revoking or invalidating a granted patent.[100]

Article 6 sets out the Treaty's second substantive pillar: the voluntary establishment of information systems pertaining to GRs and ATK.[101] These systems are to be developed, where feasible, in consultation with IPLCs, as well as other

---

[89] GRATK Treaty, *supra* note 20, art. 1.

[90] *Id*. art. 2.

[91] *Id*.; CBD, *supra* note 1, art. 2. Additionally, the GRATK Treaty expressly excludes human GRs from the definition of "genetic resources." GRATK Treaty, *supra* note 20, footnote 1. The exclusion of human GRs is generally explained by the distinct ethical and legal issues that arise in relation to human beings. Human genetic material is therefore dealt with under other legal and institutional regimes.

[92] GRATK Treaty, *supra* note 20, arts. 3.1, 3.2.

[93] *Id*. Sources of GRs include gene banks, research centers, and IPLCs. Sources of ATK include, for instance, publicly accessible databases, scientific literature, and published patent applications. The list of possible sources for GRs and ATK provided in Article 2 is not exhaustive, thereby permitting adaptability in light of diverse circumstances. *Id*. art. 2.

[94] *Id*. art. 3.3.

[95] *Id*. art. 3.4 (stating that "Contracting Parties shall provide guidance to patent applicants on how to meet the disclosure requirement as well as an opportunity for patent applicants to rectify a failure to include the minimum information referred to in Articles 3.1 and 3.2 or correct any disclosures that are erroneous or incorrect.").

[96] *Id*. art. 3.5.

[97] *Id*. art. 5.

[98] *Id*. art. 5.1.

[99] *Id*. art. 5.2(bis).

[100] *Id.* art. 5(3) (mentioning that as per Article 5(4), no Contracting Party shall "revoke, invalidate, or render unenforceable" the granted patent rights based alone on the applicant's failure to disclose the information outlined in Article 3 of this Treaty).

[101] *Id.* art. 6(1).

relevant stakeholders.[102] "With appropriate safeguards developed in consultation," such information systems shall be made accessible to Offices for searching and examining patent applications.[103] Beyond these substantive provisions, Article 7 states that the Treaty shall be implemented in a "mutually supportive manner" with existing international agreements.[104]

B. The Transformative Potential of the GRATK Treaty

Overall, the GRATK Treaty leaves the substantive requirements for patentability unchanged. But it might still reshape how GRs and ATK are used in the global patent system. As discussed above, the disclosure requirement stands to improve patent examination by making the process more transparent and reliable.[105] It gives patent applicants and examiners more legal certainty.[106] It also equips patent examiners and judges with more tools to identify relevant prior art, thereby reducing the likelihood of erroneously granted patents.[107] Moreover, it improves traceability, so provider countries and IPLCs can better monitor how their genetic materials or knowledge are being used by third parties.[108] This helps build trust between providers and users and strengthens the ability of providers to control how their knowledge and resources are used.[109]

Similar to the disclosure requirement, the voluntary information systems under Article 6 further these goals by improving access to relevant prior art. Some ATK may exist only in Indigenous languages or as unwritten community-held traditions,[110] and there may be duplicative or overlapping documentation. Patent examiners may have difficulty finding relevant prior art because of limited database infrastructure and language barriers. To that end, documentation through information systems can help source countries and communities prevent the misappropriation of their resources. Such systems can assist patent examiners in evaluating whether

---

[102] *Id.*

[103] *Id.* art. 6(2).

[104] *Id.* art. 7.

[105] Wendland, *supra* note 3; Carr, *supra* note 5, at 140.

[106] *Id.*

[107] World Intellectual Property Organization [WIPO], *Declaration of the Source of Genetic Resources and Traditional Knowledge in Patent Applications: Proposals by Switzerland*, at ¶ 12, WIPO Doc. WIPO/GRTKF/IC/11/10 (June 6, 2007), https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_11/wipo_grtkf_ic_11_10.pdf [https://perma.cc/P8R7-GBPY]. The 2024 GRATK does not redefine what qualifies for a patent (like novelty and inventive step), but it gives better tools (through disclosure) to help examiners and judges apply the existing criteria properly, especially to avoid erroneously granting patents based on already known or used materials (prior art).

[108] *Id.*

[109] *Id.*

[110] A study from the University of Zurich in Switzerland found that much traditional medicinal knowledge is tied to endangered Indigenous languages. In the Amazon, New Guinea, and North America, about three-quarters of medicinal plant uses are known in only one indigenous language. In the northwestern Amazon alone, 91% of recorded medicinal knowledge exists in a single indigenous language, meaning that the loss of that language would likely erase the knowledge as well. Sibélia Zanon, *Extinction of Indigenous Languages Leads to Loss of Exclusive Knowledge about Medicinal Plants*, MONGABAY (Sept. 20, 2021), https://news.mongabay.com/2021/09/extinction-of-indigenous-languages-leads-to-loss-of-exclusive-knowledge-about-medicinal-plants/ [https://perma.cc/F6N7-WF44].

inventions meet the standards of novelty and inventive step. The Indian Traditional Knowledge Digital Library[111] is one example of how documentation may help prevent unauthorized patents.[112] Documenting traditional medical knowledge can help Indigenous communities challenge others' claims to IP rights, especially patents, over what is already known within their communities.[113]

This also emphasizes the constructive role that patent offices can play in protecting the public interest. By engaging with disclosure and using information systems, patent offices serve not only as administrators but also as guardians of a more balanced and socially responsive IP system. Further, the Treaty's preamble affirms the importance of IPLCs in its implementation,[114] with Article 6 encouraging their consultation in developing information systems.[115] It also allows them to join Assembly discussions as observers under Article 10.[116] Together, these provisions mark progress toward a more inclusive IP system.

Moreover, the GRATK Treaty could harmonize different national systems and enhance cooperation with existing international agreements. More than 30 countries have already enacted disclosure rules in their domestic patent laws for using GRs.[117] However, significant variation persists. For instance, they differ in scope, triggers, and consequences for non-compliance.[118] These disparities make the system harder to navigate and increase transactional burdens.[119] The Treaty might serve as a binding international minimum standard that clearly requires disclosure for the use of GRs and ATK. It should apply across all technical fields and avoid leaving room for loopholes that only benefit some industries or jurisdictions. This would be a big step forward. It would help close protection gaps, reduce compliance burdens, and

---

[111] The Traditional Knowledge Digital Library ("TKDL") is a database containing over 34 million pages of publicly available TK documented in India in multiple languages. It plays an important role in the defensive protection of India's TK and in efforts to fight against biopiracy. Martin Fredriksson, *India's Traditional Knowledge Digital Library and the Politics of Patent Classifications*, 34 LAW & CRITIQUE 1 (2023).

[112] Hayley Reed, *The Necessity of Moving from Biopiracy to Collaboration*, 37 TEMP. INT'L & COMPAR. L.J. 1, 28 (2022).

[113] *Id.* at 6.

[114] GRATK Treaty, *supra* note 20, at pmbl.

[115] *Id.* art. 6.

[116] *Id.* art. 10. Importantly, IPLCs are permitted to engage in Assembly discussions in the capacity of accredited observers, albeit without voting privileges. *Id.*

[117] *See* WIPO, DISCLOSURE REQUIREMENTS TABLE RELATED TO GENETIC RESOURCES AND/OR TRADITIONAL KNOWLEDGE 1, https://www.wipo.int/tk/en/docs/genetic_resources_disclosure.pdf [https://perma.cc/UL3U-A6U4] (last visited Sept. 10, 2025) [hereinafter WIPO Disclosure Requirement Table]. For instance, Paragraph 27 of the Preamble to European Union Directive 98/44/EC suggests that, where relevant, patent applications for inventions based on or using biological material of plant or animal origin should include information on the geographical origin of that material, if known. Article 10(4)(ii)(D) of the Indian Patents Act provides that, where biological material is used in an invention, the patent specification must include details regarding its source and geographical origin. *Id.*

[118] Vane, *supra* note 3, at 73. Some countries, particularly in Europe, require disclosure of origin for GRs but not for ATK. This is likely because IPLCs are less common in those regions. Others limit disclosure obligations to GRs and ATK sourced from within their own borders, leaving IPLCs in other places without similar protections. Requirements regarding PIC and benefit-sharing also vary, as do enforcement measures, which range from silence on sanctions to penalties such as fines or patent revocation. *Id*. Additionally, in certain jurisdictions with mandatory disclosure regimes, such as Switzerland and China, the obligation applies exclusively to patent applications. By contrast, in countries like Ethiopia and Brazil, the disclosure requirement covers all forms of IP. Goss, *supra* note 16, at 50.

[119] Goss, *supra* note 16, at 46.

promote fairer ABS. It also has the potential to align diverse national rules and improve legal certainty, except where direct conflicts with domestic law arise, which will be addressed below. It is not only helpful but also essential to make this standard a core part of the international IP system.

Finally, the disclosure requirement may assist in monitoring and enforcing ABS obligations under the CBD framework. Scholars have long argued that a universal rule requiring disclosure of origin is necessary to prevent the misappropriation of GRs and ATK.[120] It also helps ensure compliance with the CBD ABS requirements and prevents abuse of the IP system.[121] The CBD underscores the importance of addressing the intersection of IP, GRs, and Indigenous knowledge through collaborative efforts with international institutions, most notably WIPO.[122] The Treaty could support ABS by embedding disclosure obligations into patent law. This would make the process more transparent and promote greater responsibility in using GRs and ATK.

C. Unfinished Promises of the GRATK Treaty

The Treaty shows meaningful progress, but limitations remain that could hold back its impact. This Section outlines several key concerns, including a narrow scope for disclosure, weak enforcement mechanisms, optional information systems, omission of DSI, and conflicts with other instruments.

1. Article 3 Disclosure Requirement: Restrictive Trigger, Transboundary Omission, and Compliance Uncertainty

First, the current trigger of disclosure is unduly narrow. Article 3 of the Treaty's 2023 Basic Proposal initially limited the disclosure requirement to inventions "*materially/directly based on*" GRs or ATK.[123] In contrast, the final version of the GRATK Treaty removes the qualifiers "*materially/directly.*" It retains a similar substantive threshold by requiring that the invention be "*based on*" GRs or ATK.[124] This means that the resources or knowledge must "have been necessary for the claimed invention" and "the claimed invention must depend on" their "specific properties."[125] By requiring a direct causal connection, the Treaty narrows the scope of disclosure to only those GRs and ATK that are necessary and indispensable to an invention. Under this narrower definition, if the resource or knowledge played only a peripheral or indirect role, it will not be subject to the disclosure requirement. Going even further, it could allow derivatives to fall outside its scope as well. For example, a compound extracted from GRs and later synthesized may not require disclosure.

---

[120] Sarnoff & Correa, *supra* note 19, at iv.

[121] *Id*.

[122] Oguamanam, *supra* note 5, at 13.

[123] Basic Proposal, *supra* note 85, arts. 3.1, 3.2. The term "materially/directly based on" means that the GRs and/or ATK must "have been necessary or material to the development of the claimed invention," and that the claimed invention must depend on the specific properties of the GRs and/or ATK. *Id*. art. 2.

[124] GRATK Treaty, *supra* note 20, arts. 3.1, 3.2.

[125] *Id*. art. 2.

This restrictive approach also diverges from existing ABS regimes, which typically apply more broadly to any utilization of GRs, even if the link is weak. For instance, the Conference of the Parties ("COP") of the CBD[126] has used the term "*utilization*" of GRs as the trigger for disclosure.[127] Meanwhile, the Treaty's formulation remains more restrictive than many national laws, which often cover inventions "accomplished by *relying on* genetic resources,"[128] that are "*related to and/or derived from* genetic resources and/or traditional knowledge,"[129] or that "*relate[] to or make[] use of* a biological material."[130]

Moreover, the practical use of disclosed information to monitor patent claims across jurisdictions remains uncertain. The Treaty defines the "country of origin" as the country which possesses those GRs in *in situ* conditions, which refers to natural ecosystems or, for cultivated species, the environments where they developed their distinct characteristics.[131] However, GRs often exist *in situ* in multiple countries, allowing more than one to claim origin.[132] For example, the *Heliotropium foertherianum* plant is used in Pacific Islander medicine.[133] It can be commonly found in New Caledonia, French Polynesia, Vanuatu, Tonga, Micronesia, and Japan.[134] The baobab tree is another case, and it is native to sub-Saharan Africa and holds cultural and economic value for many African countries.[135] Since biodiversity follows ecological rather than political borders,[136] disclosing only one or a few countries of origin may overlook other countries or communities with legitimate claims.

---

[126] The Conference of the Parties ("COP") serves as the principal decision-making body of the Convention, guiding its implementation by adopting decisions at its regular sessions. *Conference of the Parties (COP)*, Convention on Biological Diversity, https://www.cbd.int/cop [https://perma.cc/MS89-ANSB].

[127] *See, e.g., COP-6 Decision VI/24: Access and Benefit-Sharing as Related to Genetic Resources*, CONVENTION ON BIOLOGICAL DIVERSITY, https://www.cbd.int/decision/cop?id=7198 [https://perma.cc/QMM6-4HWL] (requesting WIPO to conduct a technical study on how patent applications can require disclosure of GRs "utilized in the development of the claimed inventions."). According to Article 2 of the Nagoya Protocol, "utilization of genetic resources" refers to "conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology." Nagoya Protocol, *supra* note 10, art. 2(c).

[128] Zhonghua Renmin Gongheguo Zhuanlifa (中华人民共和国专利法) [Patent Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Mar. 12, 1984, amended up to Oct. 17, 2020), art. 26.5, https://www.wipo.int/wipolex/en/legislation/details/21027 [https://perma.cc/7NVN-Y45G]; *see also* WIPO Disclosure Requirement Table, *supra* note 117, at 5-6.

[129] Law No. 13 of 2016 on Patents (Indon.), art. 26, https://www.wipo.int/wipolex/en/legislation/details/16392 [https://perma.cc/MK5P-YWGT].

[130] Order No. 2111 on Patents and Supplementary Protection Certificates (Nor.) (Nov. 24, 2021), pt. I, ch. 2, § 2.3(4), https://www.wipo.int/wipolex/en/text/584476 [https://perma.cc/6W2C-M6W6].

[131] GRATK Treaty, *supra* note 20, art. 2.

[132] *See* Lai, et al., *supra* note 24, at 11.

[133] Margo Bagley & Frederic Perron-Welch, *Study to Identify Specific Cases of Genetic Resources and Traditional Knowledge Associated with Genetic Resources that Occur in Transboundary Situations or for Which it is not Possible to Grant or Obtain Prior Informed Consent* 9 (Mar. 1, 2020), https://www.cbd.int/abs/Art-10/study-art10-peer-review-revd.pdf [https://perma.cc/2XGY-AP6X].

[134] *Id*.

[135] *See Kenya Bans "Biopiracy" Export of Notorious Baobabs*, BBC (Nov. 22, 2022), https://www.bbc.com/news/world-africa-63716286 [https://perma.cc/GRH9-A3DP].

[136] Callo-Müller, Sanabria & Remigio, *supra* note 24, at 1131.

Footnote 2 to Article 3 tries to address this problem by requiring disclosure of the country where the GRs were "actually obtained."[137] Nonetheless, the Treaty stops there and does not extend this guidance to transboundary ATK, leaving it to national discretion. This could raise equity concerns. When ATK is widely shared among different IPLCs and is understood as being collectively held rather than individually owned,[138] it can be difficult to recognize only one holder or one group of holders in a patent application. It also risks marginalizing some of the most vulnerable groups. For instance, in addition to those whose knowledge crosses borders or is shared collectively, the most vulnerable groups also include communities that lack official legal recognition in their own countries. Others may pass down their knowledge through oral traditions instead of written records. Without stronger rules for transboundary ATK, the GRATK Treaty could leave these communities unrecognized and unprotected in the global IP system.

Another issue is that the system depends on patent applicants being honest and acting in good faith. Article 3 imposes no obligation on patent applicants to make reasonable or diligent efforts to obtain the required information if they claim they do not know it.[139] This disclosure requirement can be easily bypassed if a patent applicant asserts that the source is unknown. Such claims raise concerns about the evidentiary burden and the degree to which compliance is presumed. Lastly, Article 3.5 exempts patent offices from verifying the authenticity of the disclosure.[140] This likely reflects both the intention to reduce administrative burdens and the limited expertise of patent examiners in verifying the authenticity of disclosed information.[141] Still, this could mean false or incomplete disclosures being submitted without scrutiny. Without verification or monitoring mechanisms, the disclosure requirement remains limited in its capacity to increase transparency or trace the use of GRs.

2. *Article 5 Sanctions and Remedies: Enforcement Ambiguity, Limitations and Incompatibility*

The reliance on nationally determined sanctions under Article 5.1 raises questions about the Treaty's overall effectiveness.[142] While the provision assigns positive duties to party states to adopt sanctions and remedies in the event of non-compliance, it remains vague about what those measures should be. This approach leaves states with considerable leeway to define what constitutes "appropriate, effective and proportionate legal, administrative, and/or policy measures." Consequently, enforcement may vary significantly from one country to another, creating opportunities for patent applicants to engage in forum shopping.

In addition, Article 5.2 requires each Contracting Party to allow applicants to rectify disclosure failures before applying sanctions, except in cases of "fraudulent

---

[137] GRATK Treaty, *supra* note 20, art. 3 n.3.

[138] Vane, *supra* note 3, at 69-70.

[139] GRATK Treaty, *supra* note 20, art. 3.

[140] *Id*. art. 3.5.

[141] Oguamanam, *supra* note 5, at 27.

[142] GRATK Treaty, *supra* note 20, art. 5.1 (stating that the failure to provide the information required by Article 3 of this Treaty shall be addressed by "appropriate, effective, and proportionate legal, administrative, and/or policy measures" implemented by each Contracting Party).

conduct or intent" under national law.[143] Article 5.4 also mentions "fraudulent intent," providing that each Party may impose post-grant sanctions for fraudulent intent under Article 3, in line with national law.[144] But proving "fraudulent intent" is an inherently challenging task.[145] It is particularly difficult to prove intentional violations of law because doing so requires showing a party's state of mind, which is difficult when the party denies wrongful intent. Demonstrating an applicant's intent to deceive often requires evidence that may not be readily available, especially in the complex process of patent filings. As a result, patents based on unethical practices may still be issued, reducing the Treaty's deterrent effect to little more than a symbolic measure.

Further, Article 5.3 adds another restriction by stating that an applicant's failure to disclose according to Article 3 alone may not "revoke, invalidate, or render unenforceable" the granted patent rights.[146] One of the most contentious points during the Treaty negotiations was the possibility of revocation.[147] While some developing countries supported it as a strong enforcement tool, many developed countries opposed it for legal certainty concerns.[148] Ultimately, revocation was recognized as a limited remedy, as it still fails to compensate GR and ATK holders.[149] There is also concern that revoking a patent might expose important knowledge to misuse.[150] This can be especially risky for IPLCs, who often lack the tools to defend their rights.[151]

This limited remedy could reduce incentives to comply, as applicants may feel little pressure to disclose full and accurate information if sanctions only follow other legal violations. This situation may, in turn, foster willful ignorance or strategic avoidance, where researchers or institutions choose not to ascertain or verify the origin of the materials used. Additionally, the Treaty leaves gaps regarding timing. It does not impose a clear requirement for prompt correction of disclosure failures.[152] It also does not specify the consequences if an applicant fails to fix an omission within a reasonable timeframe. Instead, Article 5.2 defers entirely to each Contracting Party to set rectification deadlines and implicitly assumes that applicants will be given a post-grant chance to correct errors before facing penalties.[153]

Moreover, this provision could force legal changes in countries whose domestic laws currently allow for stricter consequences for non-disclosure. For example, India has proactively taken steps to protect GRs and ATK through the

---

[143] *Id*. arts. 5.2, 5.2(bis).

[144] *Id*. art. 5.4.

[145] *See* Oguamanam, *supra* note 5, at 30 (arguing that a closer reading of Article 5 indicates that a party's ability to impose sanctions is significantly limited by the high threshold required to prove fraudulent intent).

[146] GRATK Treaty, *supra* note 20, art. 5.3.

[147] Goss, *supra* note 16, at 51.

[148] *Id*. For instance, Japan, the United States and the Republic of Korea warned that punitive measures could stifle innovation, while the Group of Latin American Countries, the Indigenous Caucus and the African Group argued that weak enforcement would fail to curb biopiracy. Miri (Margaret) Raven, Alana Gall, Bibi Barba, and Daniel Robinson, *Patents Based on Traditional Knowledge are Often "Biopiracy." A New International Treaty Will Finally Combat This*, UNSW NEWSROOM (June 4, 2024), https://www.unsw.edu.au/newsroom/news/2024/06/patents-based-on-traditional-knowledge-are-often-biopiracy-a-new-international-treaty-will-finally-combat-this [https://perma.cc/4U2Q-S6Q2].

[149] Goss, *supra* note 16, at 51.

[150] Oguamanam, *supra* note 5, at 30.

[151] *Id*.

[152] *See* Yu, s*upra* note 73, at 290.

[153] GRATK Treaty, *supra* note 20, art. 5.2.

Indian Patents Act and the Biological Diversity Act.[154] The Indian Patents Act requires the disclosure of "the source and geographical origin of the biological material … used in an invention,"[155] and allows revocation if such information is omitted or misrepresented.[156] However, under Articles 3 and 5 of the GRATK Treaty, revocation on these grounds would not be allowed.[157] Uganda, Samoa, and Namibia all have similar revocation provisions.[158] Article 20 makes this situation even more complicated because it does not permit any reservation to the Treaty.[159] Consequently, states are prevented from opting out of this limitation. As a result, these countries may lose critical tools to combat meritless patent applications and could see a marked rise in questionable filings.

3. Article 6 Information Systems: Ambiguous Terms and Double Sword

Under Article 6 of the GRATK Treaty, Contracting Parties "may" develop information systems, like databases, of GRs and ATK.[160] As mentioned above, information systems could serve as critical tools to support disclosure requirements by providing access to documented knowledge. However, the Treaty only encourages but does not require their establishment.[161] In addition, Article 6 provides that states should consult IPLCs "where applicable" and "taking into account their national circumstances."[162] These phrases give states wide leeway in deciding how much to involve IPLCs. Article 6 also does not specify who should own and manage the information systems.[163] While the Treaty mentions Patent Offices, it is unclear whether inventors, lawyers, or agents could use the systems. Article 6.2 also does not clarify what safeguards should be in place to protect culturally sensitive or confidential information.[164]

Although international information systems can support patent offices by aiding in the identification of prior art and preventing misappropriation, they risk exposing sacred or confidential knowledge of IPLCs, making it more vulnerable to

---

[154] The Patents Act, 1970 (Act No. 39 of 1970, amended up to Act No. 18 of 2023), https://www.wipo.int/wipolex/en/legislation/details/22960 [https://perma.cc/Y5DL-SEQ6].

[155] *Id*. art. 10.

[156] *Id*. art. 64.

[157] GRATK Treaty, *supra* note 20, arts. 3, 5.

[158] The Industrial Property Act, 2014 (Act No. 3 of 2014), Uganda, arts. 21, 90, https://www.wipo.int/wipolex/en/legislation/details/16480 [https://perma.cc/J7U9-54WS] (last visited June 16, 2024); Intellectual Property Act 2011 (Act No. 9 of 2011), Samoa, arts 7 and 17, https://www.wipo.int/wipolex/en/legislation/details/13492 [https://perma.cc/DU2V-3S85] (last visited June 16, 2024); Industrial Property Act, 2012 (Act No. 1 of 2012, amended by Act No. 8 of 2016), Namibia, §§ 64-68, https://www.wipo.int/wipolex/en/legislation/details/21942 [https://perma.cc/95JN-JFQQ] (last visited June 16, 2024).

[159] GRATK Treaty, *supra n*ote 20, art. 20 (providing that "[n]o reservations to this Treaty shall be permitted.").

[160] *Id*. art. 6.1.

[161] *Id*. There are valid reasons for making information systems optional. Building and maintaining them can be expensive and complex. They often need technical skills and infrastructure that many countries or IPLCs may not have or be able to afford. Oguamanam, *supra* note 5, at 31.

[162] GRATK Treaty, *supra n*ote 20, art. 6.1.

[163] *Id*. art. 6.

[164] *Id*. art. 6.2.

misuse.[165] As Professor Peter K. Yu observes, it is like "asking them to dig their own grave" when inviting IPLCs to document and share their cultural materials.[166] If not designed carefully, these systems might end up helping biopiracy instead of preventing it. This makes them a double-edged sword. On one side, they have the potential to improve the protection of GRs and ATK within the IP system. On the other, without appropriate safeguards, they can make these same materials easier to exploit.[167]

Moreover, cultural compatibility presents another concern. Some Indigenous communities may accept documentation, while others view it as fundamentally incompatible with their legal and cultural frameworks.[168] Forcing communities to compromise their values simply to protect their resources or knowledge raises ethical and legal concerns.[169] Lai and others argue that, if the goal is to help patent examiners do their job better, then that work should stay within the patent system itself, not shifted onto those vulnerable groups who are already facing structural disadvantages.[170]

4. Article 7 Relationship with Other Instruments: Conflict with the PCT

Article 7 of the GRATK Treaty provides that its implementation must support and complement existing international legal instruments.[171] For example, its disclosure requirement works alongside Article 29 of the TRIPS Agreement, which requires that patent applicants describe their invention with sufficient clarity and completeness to enable "a person skilled in the art" to reproduce it.[172] The GRATK Treaty also aligns with the ABS obligations under the CBD. For instance, the information disclosed under the Treaty could provide a foundation for triggering benefit-sharing entitlements or PIC processes as envisaged in the CBD.[173]

Nonetheless, the disclosure requirement could conflict with other instruments, such as the PCT. The PCT does not require disclosure of the origin or source of GRs and ATK. Article 27(1) of the PCT also prohibits national laws from imposing form or content requirements that go beyond those prescribed by the PCT and its Regulations.[174] Since the disclosure of origin or source is not a "substantive condition of patentability," it falls outside the exception permitted under Article 27(6) of the PCT.[175] This influences the efficacy of the GRATK Treaty, as a PCT

---

[165] Yu, s*upra* note 73, at 295. By disclosing information that is sacred, confidential, or otherwise culturally sensitive, IPLCs reinforce the value of their cultural materials. It also sends a signal to other businesses about the importance and value of the information they have disclosed, which raises the likelihood that it will be misappropriated or misused more frequently. *Id*.

[166] *Id*.

[167] Oguamanam, *supra* note 5, at 31.

[168] Lai, et al., *supra* note 24, at 13.

[169] *Id*.

[170] *Id*.

[171] GRATK Treaty, *supra* note 20, art. 7.

[172] TRIPS, *supra* note 13, art. 29.

[173] CBD, *supra* note 1, art. 15.

[174] PCT, *supra* note 47, art. 27(1).

[175] *Id*. art. 27(6) (declaring that the applicant may be required by the national law to provide evidence of any substantive condition of patentability that such law specifies).

Contracting Party will not be able to impose the disclosure obligations on international applications filed under the PCT framework.[176]

To address this, footnote 4 of the GRATK Treaty includes a request from its Contracting Parties to the Assembly of the International Patent Cooperation Union to consider amending the PCT Regulations or Administrative Instructions to permit disclosure requirements during international filing or national phase entry.[177] But changing the PCT is difficult. Any amendment to the PCT must be adopted by a three-fourths majority vote of the PCT Assembly.[178] Subsequently, three-fourths of the Member States must approve the change through their own legal systems.[179] This is no small task. Back in 2003, Switzerland proposed to WIPO's Working Group on the Reform of the PCT that it add a requirement for declaring the source of GRs and TK in patent applications.[180] This proposal was ultimately not adopted due to strong opposition.[181] A similar plan might still meet significant opposition two decades later. Thus, there remains considerable uncertainty regarding whether the PCT will be amended to incorporate the Treaty's disclosure obligations.

5. DSI on GRs: The Missing Piece

As discussions on the legal framework for protecting GRs progressed, genetic sequence data were increasingly digitized and incorporated into databases.[182] DSI, which includes data such as DNA, RNA, and protein sequences, can be accessed and shared electronically without handling any physical samples.[183] This shift has rendered many older legal frameworks outdated, as they often fail to address the non-material and transboundary nature of DSI. Frequently sourced from lands held by

---

[176] As of January 2025, there are 158 Contracting States to the PCT. *The PCT Now has 158 Contracting States*, WIPO, https://www.wipo.int/en/web/pct-system/pct_contracting_states [https://perma.cc/U6PL-CHFY] (last visited Sept. 10, 2025).

[177] GRATK Treaty, *supra* note 20, footnote 4.

[178] PCT, *supra* note 47, art. 61(2)(b).

[179] *Id*. art. 61(3)(a).

[180] *See* INTERNATIONAL PATENT COOPERATION UNION, *Proposals by Switzerland Regarding the Declaration of the Source of Genetic Resources and Traditional Knowledge in Patent Applications*, WIPO Doc. PCT/R/WG/5/11/Rev., Annex page 1 (Nov. 19, 2003), http://www.wipo.int/edocs/mdocs/pct/en/pct_r_wg_5/pct_r_wg_5_11_rev.doc [https://perma.cc/8N87-LAQU].

[181] *See* INTERNATIONAL PATENT COOPERATION UNION, *Ninth Session Report*, ¶ 13, WIPO Doc. PCT/R/WG/9/8 (Apr. 26, 2007).

[182] Currently, the governance of major DSI repositories is concentrated in a few industrialized countries, giving them significant control over access and data management. A large share of the world's genetic sequence data is stored in the International Nucleotide Sequence Database Collaboration (INSDC). It links GenBank in the United States, European Molecular Biology Laboratory-European Bioinformatics Institute (EMBL-EBI) in the United Kingdom, and DNA Data Bank of Japan (DDBJ). Together, these databases support much of the world's research in life sciences. Bagley, *supra* note 16, at 25.

[183] As mentioned earlier, DSI captures the non-material aspects of genetic material. There is no consensus on its precise legal definition and scope, which creates regulatory uncertainty and makes it harder to develop clear rules for its governance. *See* Narendran Thiruthy & Rachel Thomas, *IPR and Bioprospecting in the Context of Post-CBD Developments,* in BIODIVERSITY AND BUSINESS 431-32 (Krishna Panicker Laladhas, Prakash Nelliyat & Oommen V Oommen eds., 2024).

IPLCs, DSI on GRs could hold both scientific and cultural value.[184] Because digital data can be used without physical access, obligations under the CBD can be bypassed more easily.[185] This has led to contentious debates over how DSI should be governed under ABS and IP frameworks.[186]

Existing legal frameworks for regulating the use of GRs and ATK were established at a time when accessing GRs or ATK meant physically transferring biological materials. While the GRATK Treaty was only recently adopted, it still omits any express reference to DSI.[187] A point of ambiguity lies in whether DSI falls within the scope of "genetic resources," and consequently, whether the obligations established under the GRATK Treaty extend to its use.[188] Article 2 of the Treaty defines "genetic resources" as material of plant, animal, microbial, or other origin that contains "functional units of heredity" and possesses actual or potential value.[189] One approach to interpreting this material-based definition is that it suggests that DSI, lacking physical substance and functional genetic units, does not fall within the scope of this definition. While states retain discretion in how they implement the Treaty, such a definition could allow countries to exclude inventions based only on DSI from disclosure obligations, especially if they interpret "based on" GRs narrowly.[190]

Leaving DSI out of the disclosure requirement could create a significant loophole. A growing portion of contemporary research draws on genetic sequences obtained from open digital repositories.[191] Such repositories often do not record where the genetic data came from or who originally holds the associated knowledge. Furthermore, many resulting innovations, especially in pharmaceuticals, vaccines, agriculture, and environmental fields, are later patented.[192] Due to the ambiguous

---

[184] *Digital Sequence Information Poses Risks to Indigenous Peoples' Rights and Biodiversity*, CULTURAL SURVIVAL (Oct. 10, 2024), https://www.culturalsurvival.org/news/digital-sequence-information-poses-risks-indigenous-peoples-rights-and-biodiversity [https://perma.cc/K55B-6JJ4].

[185] Bagley, *supra* note 16, at 1; *see also* Charles Lawson, Fran Humphries & Michelle Rourke, *Challenging the Existing Order of Knowledge Sharing Governance with Digital Sequence Information on Genetic Resources*, 19 J. INTELL. PROP. L. & PRAC. 337-39 (2024). Unlike traditional biopiracy, digital biopiracy uses synthetic biology to extract and upload DNA sequences without transferring physical material. This makes it possible to copy and synthesize genetic data elsewhere without consent or MTAs. Private actors can then patent synthetic organisms based on genetic information that originates in communities. *Synthetic Biology 101 Fact Sheets from Friends of the Earth*, SYNBIOWATCH (May 15, 2013), https://www.synbiowatch.org/2013/05/synthetic-biology-101-some-technical-details-from-friends-of-the-earth/ [https://perma.cc/D54L-44R8].

[186] Bagley, *supra* note 16, at 5-6; Stuart Smyth et al., *Implications of Biological Information Digitization: Access and Benefit-Sharing of Plant Genetic Resources*, 23 J. WORLD INTELL. PROP. 267 (2020).

[187] The IGC negotiations included significant debate over the scope of disclosure obligations, and no agreement was reached on the inclusion of derivatives or DSI. *See* Goss, *supra* note 16, at 49-50.

[188] Callo-Müller, Sanabria & Remigio, *supra* note 24, at 1132.

[189] GRATK Treaty, *supra* note 20, art. 2; *see also* CBD, *supra* note 1, art. 2.

[190] GRATK Treaty, *supra* note 20, arts. 3.1, 3.2.

[191] *See* Bagley, *supra* note 16, at 25.

[192] The development of Inmazeb™, an Ebola treatment by Regeneron Pharmaceuticals, illustrates problems in current ABS rules on DSI. Regeneron used a genetic sequence of the Ebola virus that had been uploaded to GenBank by the Bernard Nocht Institute. But because the benefit-sharing rules only covered physical samples, there was no obligation tied to the use of digital data. Thus, even though the virus came from Guinea, Regeneron had no legal duty to share benefits with it. This case reveals a gap in ABS regimes, where digitized genetic data is often not covered by the same benefit-sharing rules as physical material. It raises concerns about fairness and consistency in how GRs are governed. *Id*. at 3.

status of DSI, these patents could be granted without any disclosure or benefit-sharing with the source behind the data. Accordingly, the GRATK Treaty's silence on DSI limits its ability to meet its own goals. By failing to account for the realities of dematerialized genetic information and its role in modern innovation, it risks failing to protect biodiversity or promote fairness.

Overall, the GRATK Treaty is a meaningful first step toward better global governance of GRs and ATK. But it still faces a lot of serious gaps that could undermine its effectiveness. Whether it truly signals "the dawn of a new day" will depend on how these challenges are addressed, a question the next Part explores through proposals.

IV. CHARTING THE PATH FORWARD: REALIZING THE PROMISE OF GRATK TREATY

This Part offers specific proposals to close current gaps. It asks two central questions: what still needs to be done, and where do we go from here? The proposals include aligning the disclosure requirement with ABS rules, combining stricter sanctions with better incentives, mandating the establishment of information systems, and bringing DSI clearly into the scope of the Treaty.

A. Clarifying Disclosure Obligation and Advancing ABS Alignment

First of all, aligning the disclosure trigger under the GRATK Treaty with the ABS trigger under the CBD regime, which is the "utilization" of GRs or ATK, would benefit provider countries and IPLCs. Harmonizing different triggers can ensure smoother implementation and reduce legal confusion. Moreover, it is important that the disclosure requirement covers all cases where GRs and/or ATK are used, even if they are used indirectly. This makes it easier to track usage and hold users accountable. Additional benefits may include the potential for faster administrative procedures for patent offices and ABS authorities. In general, more synergies between the GRATK Treaty and CBD framework would strengthen the practical impact of both instruments.

To address other concerns, the Treaty would benefit from greater specificity regarding the nature and extent of applicants' obligations. Article 3.3 could be revised to require patent applicants to show evidence that they have exercised due diligence in finding the origin of the GRs or ATK, even if they do not know it at first. This would encourage proactive efforts rather than allowing applicants to rely on a mere declaration of ignorance. Likewise, Article 5 could establish a reasonable deadline for rectifying incomplete or inaccurate disclosures. To encourage compliance, the Treaty could introduce stronger consequences, such as making the patent unenforceable if required information is missing. This would give applicants stronger reasons to provide accurate and complete information from the start. These changes will make the disclosure requirement work more effectively while still being fair.

In addition, a more targeted approach to the current disclosure framework could involve requiring greater specificity in identifying the origin or source.[193] Instead of just limiting disclosure to "the country of origin," patent applicants could

[193] Vane, *supra* note 3, at 87.

be asked to provide specific locality information, such as maps or georeferenced coordinates, and to disclose the source or supplier of the GRs, any parties consulted for access, and local names of the materials.[194] Vane has suggested this approach.[195] Although this would not require evidence of PIC or benefit-sharing compliance, such detailed disclosure would better support the monitoring efforts of developing countries and IPLCs. Such disclosure would also bring the Treaty more in line with the ABS principles under the CBD.

Finally, Article 3.5 of the Treaty explicitly states that Contracting Parties shall not impose an obligation on patent offices to verify the authenticity of disclosure statements.[196] Nevertheless, there is still room for oversight. The ABS Clearing-House mechanism under the Nagoya Protocol could serve a vital complementary role.[197] The ABS Clearing-House already stores pre-verified data on GRs and ATK and could support national examiners by offering a reference point. This alignment would support the implementation of the disclosure requirement without undermining administrative efficiency or overburdening patent examiners. Additionally, if access is also given to relevant authorities in provider countries and representatives of IPLCs, it adds another level of external review. That is one way to ensure compliance without adding new burdens to the patent system.

B. Combining Stricter Sanctions with Better Incentives

Louis Henkin famously remarked that "almost all nations observe almost all principles of international law and almost all of their obligations almost all of the time."[198] Nevertheless, examples such as the uneven compliance with the CBD suggest that states frequently challenge the scope or content of their duties. Here, similarly, Article 5 of the GRATK Treaty regarding sanctions is relatively limited and may not ensure strong compliance. As discussed earlier, one major problem is the high evidentiary bar required to prove "fraudulent intent." A better approach could be to reverse the burden of proof. Instead of having patent offices prove fraudulent intent, patent applicants could be asked to affirmatively demonstrate the absence of such intent. This shift would enhance legal accountability and signal that the applicants have exercised proper due diligence and taken disclosure obligations seriously.

Importantly, the Treaty gives Member States room to go further.[199] States can adopt more stringent sanctions and procedures, allowing these measures to be

---

[194] *Id*.

[195] *See generally id*.

[196] GRATK Treaty, *supra* note 20, art. 3.5.

[197] Nagoya Protocol, *supra* note 10, art. 14. The Nagoya Protocol created the ABS Clearing-House to support ABS by facilitating the exchange of information among Parties. Its main function is to provide access to national data relevant to the Protocol's implementation. This helps countries share procedures for accessing GRs and tracking their use. It enhances legal clarity and transparency for both providers and users of GRs and ATK. *Convention on Biological Diversity*, GUIDE TO THE ACCESS AND BENEFIT-SHARING CLEARING-HOUSE, at 4, https://www.cbd.int/abs/en/ABSCHGuide.pdf [https://perma.cc/LUH7-U4N2].

[198] LOUIS HENKIN, HOW NATIONS BEHAVE 47 (2d ed. 1979) (emphasis omitted).

[199] GRATK Treaty, *supra* note 20, art. 9.2 (providing that Contracting Parties retain the discretion to determine the manner in which they implement the Treaty's provisions within their respective legal frameworks and practices).

integrated into national legal systems. Beginning in 2003, the IGC explored a wide range of possible sanctions for non-compliance with disclosure requirements, including administrative and criminal penalties, patent claim invalidation, and application denial.[200] By 2022, it distinguished between pre-grant sanctions, such as application withdrawal or delay pending additional disclosures, and post-grant measures like judicial publication, monetary fines, or damages.[201] Revocation was still an option, but it depended on the laws of each country.[202] One reason revocation was excluded is that it still does not ensure benefit-sharing with holders.[203] Accordingly, alternative measures like financial penalties, such as imposing fines for noncompliance, might work better. Fines for noncompliance could serve as stronger deterrents and may better connect the GRATK Treaty to ABS duties. By integrating financial penalties with restorative mechanisms, these frameworks could do more than just punish. They could also help support the broader equity and conservation goals of the CBD.

Moreover, in practice, states frequently follow international laws not just because they are binding, but also because it is in their best interests to do so.[204] In addition to cost-benefit calculations, states frequently comply with international law because its rules constitute a part of broader, continuing relationships among nations in the international community.[205] Koh's theory of transnational legal process explains how states are socialized into compliance through a dynamic of interaction, interpretation, and internalization, rather than through coercion.[206] In this context, noncompliance may lead to isolation or reputational cost, while compliance facilitates continued engagement and access to global markets. This process is what allows international law to endure.[207]

Here, from a practical standpoint, disclosing the origin or source often appears to be more costly than beneficial for many users. It may trigger obligations to share benefits, financial or nonfinancial, with the providers. The immediate return may seem limited, perhaps amounting to a stronger reputation and fewer disputes. Moreover, whether the use of genetic materials alone should qualify as a benefit remains contested. Many companies believe that the real value lies in the innovation and investment they bring to the raw materials, rather than in the materials

---

[200] WORLD INTELLECTUAL PROPERTY ORGANIZATION, *Draft Technical Study on Disclosure Requirements Related to Genetic Resources and Traditional Knowledg*e, WIPO/GRTKF/IC/5/10, ¶ 149 (May 2, 2003), https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_5/wipo_grtkf_ic_5_10.pdf [https://perma.cc/7RJM-R38S].

[201] *See* WORLD INTELLECTUAL PROPERTY ORGANIZATION, *The Consolidated Document Relating to Intellectual Property and Genetic Resources Rev. 2*, WIPO/GRTKF/IC/42/4 Rev. 2, art. 6 (Mar. 4, 2022), https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_42/wipo_grtkf_ic_42_facilitators_text_grs_rev_2.pdf [https://perma.cc/Q9S7-CUJB].

[202] *Id*.

[203] Goss, *supra* note 16, at 51.

[204] *See* Harold Hongju Koh, *Why Do Nations Obey International Law?*, 106 YALE L.J. 2599, 2602 (1997) (citing Louis Henkin's work and providing the rationalistic view that national compliance with international law is driven solely by self-interest).

[205] *Id*. at 2617.

[206] *Id*. at 2602 and 2655.

[207] *Id*. at 2655.

themselves.[208] Nevertheless, Koh's theory of transnational legal process helps explain how compliance might still develop under the GRATK Treaty. In this light, the Treaty could gain traction not just through enforcement, but also by encouraging repeated engagement and helping embed new norms over time. Frameworks like the CBD could help promote longer-term interests by fostering sustainable partnerships and collaborative research between users and providers, including IPLCs. In this way, the Treaty's long-term success may depend more on the gradual socialization of its principles into the behavior of both states and private actors.

C. Developing One-Click Global Information Systems

As previously noted, information systems constitute a critical mechanism for reinforcing the effectiveness of the disclosure requirement. Improving how GRs and non-secret ATK are documented is key to reducing erroneous patent grants, particularly by enhancing access to prior art and reference material during patent examination.[209] One helpful approach is a "one-click database search system," proposed by Canada, Japan, the Republic of Korea, and the United States.[210] It offers a practical model for making prior art searches easier while safeguarding against unauthorized access.

Under this model, each participating WIPO Member State would be responsible for maintaining its own database on GRs and non-secret ATK.[211] These national databases would be linked to a central WIPO portal, enabling coordinated access while preserving national control over data collection and management.[212] Member States would decide the scope of information to be collected within their territories and to be integrated into their respective databases.[213] Each national system should include a basic text search function.[214] By entering a query into the WIPO portal, patent examiners can retrieve results from all linked national databases.[215] This would help them find relevant prior art more easily and assess novelty more accurately.

At the same time, however, this "one-click" global information system proposed by a group of developed countries raises some reasonable concerns. The system might improve efficiency, but efficiency does not guarantee fairness. It is still unclear whether this model truly serves the best interests of provider countries and IPLCs. Without proper safeguards, it might end up reinforcing existing inequalities. To ensure that such a system is fair and effective, IPLCs need to be meaningfully

---

[208] *See* Frank Michiels, et al., *Facing the Harsh Reality of Access and Benefit Sharing (ABS) Legislation: An Industry Perspective*, 14 SUSTAINABILITY 1, 6 (2022).

[209] WIPO Secretariat, *Joint Recommendation on the Use of Databases for the Defensive Protection of Genetic Resources and Traditional Knowledge Associated with Genetic Resources*, ¶ 2, WIPO/GRTKF/IC/31/6 (Aug. 23, 2016), https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_31/wipo_grtkf_ic_31_6.pdf [https://perma.cc/AJ3M-ZFME] [hereinafter Joint Recommendation on the Use of Database].

[210] *Id.* ¶ 3.

[211] *Id.* ¶ 4.

[212] *Id.*

[213] *Id.* ¶ 5.

[214] *Id.* ¶ 6.

[215] *Id.* ¶ 8.

involved in both collecting and governing the information.[216] The inclusion of any GRs or ATK linked to IPLCs must be based on PIC. However, Article 6.1 of the GRATK Treaty merely encourages consultation, using flexible language that imposes no binding duty.[217] That is not enough. To promote meaningful participation, the Treaty should require direct collaboration with IPLCs and other stakeholders in building and managing the databases. But this also raises a deeper tension. As mentioned earlier, some scholars warn that asking IPLCs to document their knowledge could be like "[digging] their own graves."[218] Thus, participation must not be forced. It should be voluntary, informed, and on their own terms. IPLCs should be able to decide what gets shared and how.

In addition, to protect culturally sensitive or sacred knowledge, the systems need layered access controls. For example, access to the WIPO portal should be limited to verified users.[219] Restrictions based on cultural norms and Indigenous-defined protocols must govern how certain types of knowledge are accessed and shared. Furthermore, considerable technical and financial support will be needed to ensure that everyone participates fairly. Many resource-constrained countries and communities may not have the resources to establish or maintain such databases independently. WIPO could help by offering standardized tools, training, and funding for digitization efforts. Interfaces should also accommodate various languages and formats to reflect the diverse knowledge systems.[220] In sum, a global database must include robust safeguards, inclusive procedures, and tailored support for those involved. Without these elements, it may repeat old patterns of exclusion instead of resolving the existing problem.

D. Including DSI into the GRATK Treaty

The GRATK Treaty's silence on DSI weakens its ability to respond to current research practices. DSI is now widely used in science and biotechnology, often without any reference to its origin. One way to address this is to expand the definition of "genetic resources" to include both physical and digital forms. Such a revision would bring DSI under the same standards that apply to physical materials. Adding DSI to the Treaty's disclosure obligations, supported by clear guidance for implementation, could help strike a fairer balance between those who provide the data and those who use it. Accordingly, the development of information systems pursuant to Article 6 should also encompass DSI as an integral component.

Further progress on DSI necessitates stronger coordination with the CBD, particularly through the CBD's development of the multilateral benefit-sharing mechanism. Article 10 of the Nagoya Protocol proposes a global multilateral benefit-

---

[216] Member States should also engage in prior consultation with relevant Indigenous stakeholders within their jurisdictions before including GRs and ATK originating from Indigenous territories. *Id.* ¶ 5.

[217] Article 6.1 of the GRATK Treaty only encourages such consultation "where applicable" and "taking into account national circumstances." GRATK Treaty, *supra* note 20, art. 6.1.

[218] Yu, s*upra* note 73, at 295.

[219] To safeguard against unauthorized third-party access, interim measures will restrict access to the WIPO portal site exclusively to verified users operating from registered IP addresses. Joint Recommendation on the Use of Databases, *supra* note 209, ¶ 10.

[220] *Id.* ¶ 9. For example, the name and a concise description of each GR should be translated into English and included in the database as searchable keywords. Creating a multilingual glossary of relevant technical terms could further enhance accessibility and usability. *Id*.

sharing mechanism to address benefit-sharing for transboundary GRs and ATK or where PIC is unattainable.[221] In 2022, at COP-15, the CBD significantly advanced international efforts by adopting a comparable multilateral benefit-sharing mechanism for the use of DSI.[222] At COP-16 in 2024, Parties continued this work and launched a global ABS fund, formally named the Cali Fund for the Fair and Equitable Sharing of Benefits from the Use of Digital Sequence Information on Genetic Resources ("Cali Fund").[223]

According to the Cali Fund, commercial actors in sectors like pharmaceuticals and biotechnology, whether directly or indirectly benefiting from the use of DSI, are expected to contribute a designated percentage of their profits or revenues, possibly 1% of profits or 0.1% of revenue.[224] COP-17 will decide on the exact thresholds and implementation details.[225] Funding will be distributed based on overall fund availability and an indicative set of criteria.[226] These include national biodiversity richness, the geographic origin of GRs underlying the relevant DSI, and demonstrated capacity needs for biodiversity conservation and sustainable use.[227] The precise allocation formula will also be finalized at COP-17.[228]

A central challenge in developing information systems lies in the perceived inequity of inviting IPLCs to share their ATK without fair compensation.[229] The Cali Fund could help with this concern, since it prioritizes benefit-sharing with developing countries, particularly least developed countries, small island developing states, countries with economies in transition, and IPLCs.[230] Given that commercial actors will, directly or indirectly, gain value from GRs, ATK or DSI through such information systems, it is only fair that IPLCs receive a proportional share of that value through the Cali Fund. This approach not only supports equity but also serves to reinforce the link between the CBD and IP frameworks, complementing the role of the disclosure requirement in bridging the two regimes.

The idea that IPLCs or providers should receive fair benefit-sharing from DSI on GRs, especially when accessed through information systems under the GRATK Treaty, is ambitious and reflects recent global efforts. Admittedly, putting

---

[221] Nagoya Protocol, *supra* note 10, art. 10; Callo-Müller, Sanabria & Remigio, *supra* note 24, at 1131.

[222] U.N. Conference of the Parties on the Convention on Biological Diversity, *Decision 15/9: Digital Sequence Information on Genetic Resources*, ¶ 6, U.N. Doc. CBD/COP/DEC/15/9 (Dec. 19, 2022), https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-09-en.pdf [https://perma.cc/6BB4-9MSY] [hereinafter CBD Decision 15/9]. This mechanism, which includes the establishment of a global fund, forms a core element of the Kunming-Montreal Global Biodiversity Framework. *Id.* ¶16.

[223] U.N. Conference of the Parties on the Convention on Biological Diversity, *Decision 16/2: Digital Sequence Information on Genetic Resources*, ¶ 2, U.N. Doc. CBD/COP/DEC/16/2 (Nov. 1, 2024), https://www.cbd.int/doc/decisions/cop-16/cop-16-dec-02-en.pdf [https://perma.cc/D3HL-KVAC] [hereinafter CBD Decision 16/2].

[224] *Id.* Annex ¶ 3.

[225] *Id.* Annex ¶ 4.

[226] *Id.* Annex ¶ 19.

[227] *Id.* Enclosure II.

[228] *Id.* Annex ¶ 19. The seventeenth Conference of the Parties is scheduled to take place in Yerevan, Armenia, from October 19 to 30, 2026. *Conference of the Parties (COP)*, CONVENTION ON BIOLOGICAL DIVERSITY, https://www.cbd.int/cop [https://perma.cc/5E5Q-92YK] (last visited Feb. 13, 2026).

[229] Vane, *supra* note 3, at 81.

[230] CBD Decision 16/2, *supra* note 223, Enclosure II.

it into practice is difficult. The Cali Fund was created under the CBD and Nagoya Protocol, while the GRATK Treaty is a WIPO instrument. There is no legal mechanism linking benefit-sharing under the Cali Fund to uses or disclosures under the GRATK Treaty. Any link would be voluntary or based on soft law. In the meantime, WIPO is an IP-focused body and has no authority to manage financial benefits. The Treaty cannot channel funds to the Cali Fund. Implementation would depend on domestic laws or informal coordination between institutions. Even if DSI disclosure becomes required, enforcement would still be weak because the Treaty leaves most rules to national governments.

The proposal also involves a redistributive element, which will likely face opposition from wealthier countries and IP-heavy industries. Voluntary contributions to the Cali Fund are already controversial.[231] Tying them to another treaty may make that resistance stronger. Nevertheless, it is possible that the proposal could become workable over time with enough political will and better coordination across regimes. Ongoing dialogues between governments, WIPO, and the CBD Secretariat might help find practical ways to bridge the two frameworks. While it will not happen overnight, cooperation is still possible. With sustained effort and collective commitment, the proposal could eventually take shape in practice.

In summary, whether the Treaty succeeds will depend on how it handles its current gaps. It should be treated as a living instrument, which is open to evolution as new issues emerge. Article 8 of the Treaty calls for a formal review four years after it enters into force.[232] This will be an appropriate opportunity to revisit key questions, like whether to bring DSI fully into its scope.

V. CONCLUSION: A THREAD OF HOPE

The adoption of the GRATK Treaty marks a milestone in global efforts to bring GRs and ATK into the IP system. Existing frameworks like the CBD and TRIPS Agreement offer some protection. But in practice, they have struggled to prevent misappropriation, especially in patent systems built on Western legal models. The Treaty introduces a disclosure requirement and demonstrates growing recognition of IPLCs as important contributors to biodiversity and innovation.

Nevertheless, there are several unresolved issues that may limit the Treaty's potential to achieve its objectives. This Note has illustrated that the narrow disclosure trigger, limited enforcement mechanisms, and optional information systems could make effective implementation difficult. The lack of clarity around how it fits with other legal regimes, and its silence on DSI, further limit its impact. To address these gaps, this Note has proposed ways to align the disclosure trigger with ABS principles, combine stricter sanctions with better incentives, make information systems

---

[231] *See* David Carlin, *COP 16's Chaotic End: What It Means for the Future of Biodiversity*, FORBES (Nov. 4, 2024), https://www.forbes.com/sites/davidcarlin/2024/11/04/cop-16s-chaotic-end-what-it-means-for-the-future-of-biodiversity/ [https://perma.cc/WXQ3-JWR7]; Orla Dwyer, *Revealed: "Cali Fund" for Nature Still Empty as Emails Show Industry Hesitation*, CARBONBRIEF (Aug. 6, 2025), https://www.carbonbrief.org/revealed-cali-fund-for-nature-still-empty-as-emails-show-industry-hesitation/ [https://perma.cc/Q9R4-XU8C].

[232] GRATK Treaty, *supra* note 20, art. 8 (providing that four years after the GRATK Treaty enters into force, the Contracting Parties will review its contents and scope; this includes addressing issues like the potential extension of Article 3's disclosure requirement to other areas of IP and derivatives, as well as considering other issues arising from new technologies that are relevant to the Treaty's application).

mandatory, and include DSI within the Treaty's scope. These changes could bring IP rules more in line with biodiversity goals and help ensure fair benefit-sharing.

Signing the Treaty is only the beginning. Member States still need to ratify it and incorporate its provisions into their national laws. As of March 2026, only Malawi and Uganda have ratified the Treaty.[233] Under Article 17, the Treaty will enter into force three months after 15 eligible parties, as defined in Article 12, deposit their instruments of ratification or accession.[234] For now, it remains more a framework than a finished solution. Its real impact will depend on how seriously states implement it and whether they are willing to address the gaps that remain. Only then can it be said to mark "the dawn of a new day."

---

[233] Press Release, WIPO, Malawi is First to Ratify WIPO Treaty on IP, Genetic Resources and Associated Traditional Knowledge, PR/2024/931 (Dec. 5, 2024), https://www.wipo.int/pressroom/en/articles/2024/article_0019.html; *WIPO GRATK Treaty Notification No. 2*, WIPO (July 9, 2025), https://www.wipo.int/wipolex/en/treaties/notifications/details/treaty_gratk_2 [https://perma.cc/TPY6-47F9].

[234] GRATK Treaty, *supra* note 20, arts. 12, 17.