Review article

The nagoya protocol and biodiversity conservation: legal insights on access and benefit-sharing for medicinal and aromatic plant resources

Shreya Bajpai* and Rajat Dixit
Galgotias University, Plot No. 2, opposite Buddha International Circuit, Sector 17A, Greater Noida, Uttar Pradesh 203201, India.
**Email: bajpaishreya26@gmail.com*

Receipt: 27.01.25 *Revised: 06.03.25* *Acceptance: 08.03.25*
DOI: 10.53552/ijmfmap.11.1.2025.56-67

ABSTRACT

This study examines the emergence of a rights-based perspective for biodiversity conservation through the Convention on Biological Diversity, which grants states sovereign rights over natural resources and emphasizes fair and equitable benefit-sharing (FEBS) from their commercial use. The Nagoya Protocol, a critical international legal framework, addresses unregulated access to genetic resources by establishing Access and Benefit-Sharing (ABS) mechanisms based on Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT). The study explores how these mechanisms protect indigenous rights and promote biodiversity conservation, particularly in developing nations rich in biodiversity. Using a comparative analysis of ABS frameworks in India, Kenya, and Mexico, the research identifies diverse legal approaches and challenges such as enforcement, transparency, and compliance. The findings reveal that while the Protocol strengthens indigenous rights and ensures fair compensation for traditional knowledge, implementation gaps persist. The study concludes that enhancing ABS frameworks is essential for equitable benefit-sharing, safeguarding indigenous rights, and supporting sustainable development and biodiversity conservation.

Keywords: Access and Benefit Sharing (ABS), Convention on Biological Diversity (CBD), Genetic Resources and Indigenous People, Mutually Agreed Terms (MAT), Prior Informed Consent (PIC)

INTRODUCTION

Biodiversity, defined as the variety of life across genes, species, and ecosystems, is fundamental to ecological balance, human development, and so-economic well-being. However, rapid population growth and human activities such as deforestation, habitat destruction, and climate change have led to significant biodiversity loss, even in biodiverse-rich nations like India. To address this, international efforts like the Convention on Biological Diversity (CBD, 1992) and the Nagoya Protocol (2010) were established, emphasizing conservation, sustainable use, and fair and equitable benefit-sharing (ABS) of genetic resources. The Nagoya Protocol introduced legal mechanisms such as Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) to protect indigenous traditional knowledge and ensure equitable benefit-sharing.

This research aims to critically examine the legal frameworks governing ABS measures, focusing on the requirement for obtaining PIC from indigenous communities. It seeks to evaluate how these mechanisms address biodiversity conservation and sustainable use while respecting indigenous rights and sovereignty. Through a comparative analysis of ABS frameworks in India, Kenya, and Mexico selected for their biodiversity richness and membership in the Like-Minded Mega-Diverse Countries the study explores the effectiveness of ABS mechanisms, their challenges, and their implications for indigenous rights and biodiversity conservation in developing nations.

Evolution of access and benefit sharing (ABS) mechanism and legal framework

During the colonial period, the biological resources of colonized nations were utilized without distributing any resulting benefits to the indigenous populations. This utilization led to immense socio-economic detriment for the colonies. As the industrial revolution began in the mid-18th century, the use of biological resources expanded from consumption to the derivation of usable commercial products. The colonizers were not only interested in the economic value but also the medicinal properties of the biological resources. (Scarlett, 2022).

Despite this exploitation, there were positive developments such as unrestrictive interactions and exchange of seeds between farmers leading to the evolution of new plant varieties. This led to the emergence of divide between the industrialized countries equipped with advanced technologies and Bio-diversity rich nations unfolding legal protection to the creators of new plant varieties.

Initiating analysis of legal perspectives, it is crucial to engage in an economic examination and comprehend the priorities of plant genetic resources users. The paramount goals of these users, for instance, multinational seed producers, strive to achieve in order to optimize profits encompass unrestricted access to genetic resources, ownership rights over the evolved product, and unregulated, extensive and open market operations. By the mid-1980s, these users had secured the first two objectives and were working towards the third, i.e., open market. Simultaneously, provider states, rich in biodiversity, together with their local and indigenous people, began to perceive that the current legal structure regulating biodiversity affords limited potential to protect their biodiversity and guarantee advantages in the trade of genetic resources (Conaghan, 2023). This recognition of their justified interests in the "fair and equitable sharing of benefits" arises from Access and Benefit Sharing trade on global platform.

During this phase, IPR's emerged as a new concept. Additionally, bio-diverse nations began experiencing tension due to the continued open access to their territories' genetic resources. This tension occurred on two levels - internationally between states, and domestically within states between governments and Indigenous and Local Communities (ILCs) those who have cultivated and preserved biodiversity for generations. The tension stemmed from the unregulated access to genetic resources and associated TK, as well as the lack of benefit-sharing with the providers of these resources and knowledge. (Moraru, 2023).

The history of the Nagoya Protocol on ABS, an important international legal development, should not be examined in isolation. It is essential to consider the broader developments that occurred during the last two decades of the 20th century, which played a significant role in shaping its evolution. In 1987, the Brundtl and Commission proposed a concept of

"Sustainable Development" in its report "Our Common Future" as a means to both protect the global environment for future generations as well as enable socio-economic progress (Colella *et at.*, 2023).

The Uruguay Round of negotiations, which began in 1986, addressed all outstanding trade policy issues to facilitate necessary reforms in international trade. Originally, intended to conclude in 1990, in order to resolve every issue necessitated extending the process for nearly four additional years. This resulted in the 1994 signing of the Marrakesh Agreement which led to the establishment of the WTO and the TRIPS Agreement (Preeg, 2012). In 1992, the international community convened at the UN Conference on Environment and Development in Rio de Janeiro, Brazil. Several conventions were adopted during this conference, including the UNFCCC and the CBD.

Post World War II and the adoption of the UDHR in 1948, the latter half of the 20th century experienced an increased emphasis on rights-based approaches to law. The development of rights as a concept strengthened efforts regarding sovereignty over natural resources and can be viewed as a foundational aspect of benefit-sharing within access and benefit-sharing legal frameworks (McNeilly, 2023).

Representatives from the genetic resource's conservers considered indigenous communities as the holders of the holders of genetic resources found within their lands. It was proposed that any benefits derived from the utilization of these genetic resources and traditional knowledge, of which the indigenous communities are the rightful holders, should be shared with them.

Case studies exploring access and benefit-sharing during this period revealed a gap in existing law regulating access and benefit-sharing processes. For example, the Kani Tribe case study involved a drug named Jeevani, derived from the genetic resource of the 'Arogyapacha plant and Kani Tribe's traditional medicinal knowledge. This case demonstrated a voluntary benefit-sharing mechanism established between the research institute (TBGRI) and the Kani Tribe. During this controversy, India's domestic legal framework was insufficient to address the questions arising from access and benefit-sharing processes (Heinrich *et al.*, 2020). The mentioned Table 1 represents the key details of the Kani Benefit-Sharing Case, including the discovery of bio-resource, research to extract genetic material, commercialization of Jeevani drug, and financial arrangements of the drug involving the Kani tribe.

Access and Benefit Sharing' mechanism under Nagoya protocol

The Nagoya Protocol on Access and Benefit Sharing (ABS) is a significant international agreement that seeks to guarantee "the fair and equitable sharing of benefits arising from the utilization of genetic resources" (Morgera, 2015). The primary objective of this protocol is to ensure that the benefits derived from the utilization of genetic resources, particularly those originating from developing nations, are shared fairly and equitably. The comprehensive reading to the text of the protocol makes it evident that the protocol establishes a flexible framework that necessitates national-level actions for effective implementation. The overarching goal is to guarantee that the preservation of biological diversity and the sustainable utilization of its components are accomplished through suitable access to genetic resources, technology transfer, and funding mechanisms (Colella *et al.*, 2023).

The transition from the Convention to the Guidelines, and to the Protocol, represented a shift from non-binding principles to those with legal force. The Nagoya Protocol on Access and Benefit Sharing (ABS), which became legally binding on its signatory countries in 2014, obliges many states to establish domestic legislation on ABS, with many states currently in the process of developing a comprehensive framework of standards to regulate access to genetic resources and ensure equitable benefit-sharing (Morgera, 2016).

The adoption of the Nagoya Protocol in 2010, there was a significant wave of ABS legislation between 2010 and 2015, demonstrating the immediate impact of the international agreement. Countries such as Brazil, which enacted its ABS law in 2015, the Philippines and Vietnam in 2015 and 2017 respectively, and Peru, which had already implemented ABS measures by 2009, all reflected the growing momentum sparked by the protocol. This period marked a critical phase where the majority of countries recognized the need to align their national policies with global biodiversity and benefit-sharing standards.

From 2016 onwards, the steady expansion of ABS legislation continued, with China (2014), Indonesia (2018), Turkey (2017) and Uganda (2015) among the countries that enacted laws in response to the evolving international framework. This trend indicates that even several years after the protocol's adoption, the push for compliance and the establishment of ABS frameworks remained strong. Ethiopia and Mozambique, with their ABS laws enacted in 2006 and 2007 respectively, reflect a broader adherence to environmental governance norms that predated the protocol but still align with its principles.

'Fair and equitable sharing of benefits' expression under Nagoya protocol

The interpretation of "fair and equitable sharing of benefits" as mentioned in the Nagoya Protocol focuses on defining the terms "fair" and "equitable." The term "fair" indicates to procedurally sound access and benefit-sharing (ABS) transactions, indicating said transactions must adhere to relevant law and regulations. On the contrary, "equitable" relates to economic fairness essential to the benefit-sharing mechanism, suggesting the sharing of benefits between the user and provider nations (NBA, 2021).

A significant critique of the Protocol's text is its omission of the term "traditional knowledge" from the provision on the objective. However, this omission does not diminish the importance of traditional knowledge and its holders. A comprehensive reading of the Protocol, particularly in conjunction with articles 8(j) and 15 of the CBD, indicates that the objective of fair and equitable benefit-sharing inherently includes the access to and sharing of traditional knowledge associated with genetic resources.

The Protocol mandates that all international instruments related to ABS must align with and support the objectives of the CBD and the Nagoya Protocol. This requirement applies to both existing instruments at the time the Protocol came into force and any future agreements. The primary goal is to restrict the freedom of parties in negotiating ABS contracts or creating new international instruments, ensuring that they remain consistent with the objectives of the CBD and the Protocol.

Extent of Nagoya Protocol

The Nagoya Protocol addresses genetic resources referred to in Article 15 of the CBD and aims at sharing benefits arising from their

utilization. This law deals with the access and benefit sharing arrangements related to genetic resources and the TK associated with it. As Human genetic resources is expressly excluded from the scope of CBD likewise excluded from the protocol's scope.

The Protocol similarly excludes marine genetic resources found in the high seas or within the Antarctic Treaty Area. Article 15 of the CBD, which recognizes the "sovereign rights of states over their natural resources" indicates that the genetic resources governed by the Protocol must fall within the national jurisdiction of member states. As a result, the Nagoya Protocol does not extend to bioprospecting activities conducted in areas outside national jurisdiction (Richerzhagen, 2014).

The Protocol explicitly does not extend to genetic resources acquired before the CBD entered into force. It remains ambiguous on whether the benefit-sharing obligations outlined in the Protocol apply to the ongoing use of genetic resources obtained in the period between the CBD's entry into force and the Protocol's implementation (Morgera, 2016).

Secondly the Protocol is also silent on its application to genetic resources obtained before the enforcement of the CBD. The protocol does not specify whether benefit-sharing obligations under the agreement apply to continued uses of genetic resources obtained between the CBD and the subsequent protocol.

Jurisprudential justification for 'fair and equitable sharing of benefits' under Nagoya Protocol

The jurisprudential rationale behind the "fair and equitable sharing of benefits arising" out of the utilization of Genetic Resources (GRs) and associated knowledge is firmly rooted in the principles of ethics, morality, and equity, as prescribed in the CBD. This rationale is rooted in the Hohfeldian framework of rights and duties, where a right is understood as a positive claim against another, directly corresponding to a duty (Cook, 1919). In the context of ABS, the principle of "sovereign rights of states over their natural resources" suggests a corresponding obligation on other states and legal entities to respect these rights, thereby preventing the unauthorized use of these resources. Access to such resources is granted only when the conditions of Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) are complied.

The rights given to provider states, and in some cases, their Indigenous and Local Communities (ILCs), to ensure "fair and equitable sharing of benefits from the use of genetic resources and related traditional knowledge" are a significant legal effort to address the historical injustice caused by biopiracy.

The notion of what is "fair and equitable" reflects a moral imperative rather than simply a hard-coded lawful requirement. It encompasses an array of factors, including the nature of the biological resource, its availability and contribution to the benefits derived, and its cultural, ecological, and economic worth. This notion offers the negotiating parties a broad scope to share benefits in unique manners, which can be completely non-monetary. Nonetheless, it requires parties to be guided by the awareness or 'conscience' that ethical and fair exchanges necessitate adopting a conscionable mechanism.

The contention of what constitutes a "fair and equitable share" in each ABS case may vary as negotiations unfold. Still, a conscionable and ethical approach is bound to reconcile differences regarding the content and scope of fair and equitable sharing. This approach, thus forms the heart of the ABS jurisprudence

seeking to redress historical injustices suffered by the providers of GRs and associated TK.

Intellectual property rights of indigenous communities vis-à-vis ABS mechanism

The sphere of biodiversity and IPR of Indigenous people calls for extensive scrutiny as the current universal IP Law regime encourages uniformity and harmonization of IP law standards. This primarily lessens barriers to legitimate trade and bestows private ownership rights to patentees over higher life forms, resulting in potential conflicts with the CBD that establishes sovereign rights of states over natural resources.

Currently, the grant of IPR over life forms strengthened by elements like the TRIPS Agreement, catalyzes innovation, resolving immediate economic and food security interests (Modic *et al*., 2019). However, researchers argue a long-term adverse impact on biodiversity as IPRs incentivize the development of genetically modified plant varieties posing serious ecological risks. Owning patents on GMOs effectively hands over the ownership of 'biological information' to private individuals and corporations, leading to an unchecked commercialization of flora or fauna.

Several major pharmaceutical companies actively source bioresources from developing countries, utilizing these resources for drug development, particularly in areas of traditional medicine and plant-based compounds. Novartis, a Swiss multinational, has sourced bio-resources from countries like India and Brazil, leveraging indigenous knowledge for drug development, especially in traditional medicine. Bayer, the German pharmaceutical giant, has been involved in sourcing plant-based compounds and other bio-resources from South America and Africa, using them in pharmaceuticals and agrochemicals. Astra Zeneca engages in bio-prospecting across Latin America and Asia, focusing on genetic resources found in these biodiversity-rich areas to develop new drugs, particularly in oncology and respiratory diseases.

Glaxo Smith Kline (GSK) has a history of sourcing bio-resources from developing nations, particularly in Southeast Asia and Africa, where it focuses on natural products for vaccines and infectious disease treatments. Sanofi, a French multinational, sources bio-resources from tropical countries like Madagascar and other African nations to develop antimalarial drugs and other therapeutic compounds derived from natural resources. Pfizer, an American pharmaceutical company, collects marine and terrestrial bio-resources from developing nations, including countries in Southeast Asia and the Caribbean, for drug discovery and research purposes.

Roche, another Swiss pharmaceutical company, sources bio-resources from various developing countries, focusing on plant extracts and natural compounds used in cancer treatment and other chronic diseases. Johnson & Johnson, known for its interest in traditional medicine, sources bio-resources from Latin America and Africa, particularly botanicals and other natural products, for use in skincare, consumer health, and pharmaceuticals. These companies' involvement in sourcing bioresources reflects their reliance on the rich biodiversity of developing nations for innovative drug development and highlights the importance of equitable access and benefit-sharing agreements.

The patenting process converts a genetic resource into a private property post successful creation through anthropogenic genetic intervention. The new patented

product produced from the biological resources future generation becomes private property, resulting in the sole ownership of a few multinationals controlling a large portion of valuable IPR-protected technology.

This shift threatens indigenous traditions, typically involving passing down seeds from one generation to another to maintain genetic diversity. With patented plant varieties, traditional practice becomes illegal, making indigenous people liable for royalty payments and redefining their practices. This hinders protection of biodiversity and is detrimental to traditional rights of holders in developing countries.

The existing IP laws have a very limited scope with respect to extending legal protection to Traditional knowledge and Biodiversity. TRIPS which is a WTO's agreement provides for a minimum standard of protection to IPR's (Phillips, 2016).

Our current IPR regime favours developed nations housing large corporate giants conducting extensive R&D ventures. Consequently, these conglomerates generate substantial number of profits and obtain patent right over the medicinal properties of genetic resources originating from the developing nations (Maskus, 2018). Thus, conclusion can be drawn here that these countries are unfamiliar with the idea of commercializing their resources with the IP regimes.

In the complex world of international law, the benefits and responsibilities arising from ABS arrangements among indigenous communities can often intersect with IPR. These legal complexities arise especially due to differing objectives of the CBD and WTO's TRIPS Agreement (Gaia and Grian, 1998).

CBD seeks to ensure "fair and equitable sharing" of benefits that come from the utilization of genetic resources, whereas TRIPS grants individual property rights to results of research involving the genetic modification of such resources. Thus, when genetic resources from bio-diversity rich communities are accessed by technology rich nations, patent rights governed by TRIPS are typically sought for any resultant innovation (Bossche, 2020). The benefits accrued from patent rights, whether monetary or otherwise, are then subject to sharing under the CBD.

This dichotomy can be especially convoluted when patent rights are transferred to third parties for commercialization. Such transfers yield wide-ranging benefits, such as joint ownership over patents, share in licensing fees, and others, which need to be equitably shared between the user (patent holder) and the provider (Biological resource owner) country. Fulfilling this obligation has its challenges (Díaz, 2005).

The Nagoya Protocol on ABS aims to ensure compliance with ABS laws of state parties, proposing the need for amendments to TRIPS that would oblige patent applicants to disclose the source and the country from which the said resource had been accessed. This would help in preventing Biopiracy and erroneous grant of patents, creating a harmonious relation between TRIPS and the CBD.

The Access and Benefit Arrangements can result into obtaining of various IP Rights. Patent rights may be obtained when inventions result from genetic resources is sourced from provider countries, and agreements can include clauses that require users to notify providers when filing patents. Trademark rights may also be involved when symbols related to access genetic resources are used in branding, necessitating mutual agreements on usage limitations. Copyright protection can apply to the written records, documents, diagrams, or databases generated from research on genetic resources.

Furthermore, when traditional knowledge from indigenous communities is shared, it can be considered a trade secret, warranting confidentiality to protect this valuable information.

Thus, it is imperative to have ABS agreements that address these potential intellectual property rights and lay out equitable mechanisms for the sharing of resulting benefits. It is also necessary for the providers to enhance their understanding of these matters for them to negotiate favourable conditions when consenting to access their genetic resources. Ultimately, the realization of the objective of "fair and equitable sharing of benefits" will occur only when indigenous communities become capable of identifying their interests and obtain resources that reflect the value of their contribution.

Comparative analysis

The comparative study of the ABS (Access and Benefit-Sharing) legal frameworks in India, Mexico, and Kenya (Table 2) reveals the varied approaches and challenges faced by these countries in implementing the Nagoya Protocol, focusing on the subject matter of access and benefit-sharing, requirements of Prior Informed Consent (PIC), fair and equitable sharing of benefits, and measures to strengthen compliance and ensure transparency.

India's ABS legal system is primarily governed by the Biological Diversity Act, 2002, and the accompanying rules and guidelines. The subject matter of ABS in India includes plants, animals, micro-organisms, and their genetic material, excluding value-added products. The framework mandates that both domestic and foreign users obtain approval from relevant authorities, such as the National Biodiversity Authority (NBA), to access biological resources. India places a strong emphasis on PIC and Mutually Agreed Terms (MAT) to ensure fair benefit-sharing, with benefits often taking the form of joint ownership of intellectual property, technology transfer, or direct monetary compensation (Gill, 2021). However, India faces challenges in enforcement and compliance, especially regarding the transparency of approvals and ensuring that benefits are adequately shared. The country has not yet fully designated checkpoints for monitoring compliance, relying instead on existing bodies such as the patent office.

Kenya's ABS framework is characterized by its emphasis on community involvement and the recognition of traditional knowledge. The legal system, governed by various laws including the Environmental Management and Co-ordination Act and the Protection of Traditional Knowledge and Cultural Expressions Act, requires PIC and MAT to be negotiated between users and resource providers, including local communities, private managers, and state agencies. As per National Environment Management Authority, Kenya's system allows local communities significant control over access to their resources and traditional knowledge, which must be respected by users (National Environment Management Authority, 2014). Challenges in Kenya include limited resources and technical capacity to enforce compliance, difficulties in ensuring that benefits reach intended beneficiaries, and complex negotiations between multiple stakeholders.

Mexico's ABS framework integrates a strong focus on traditional knowledge and the rights of indigenous communities. Mexican laws emphasize the direct involvement of communities in negotiating access agreements, ensuring that benefit-sharing

arrangements reflect their needs and expectations. However, Mexico struggles with fragmented legal governance, inconsistent enforcement, and varying levels of awareness among communities, which can impede effective implementation (Angón, 2019). The country has also faced challenges in monitoring compliance and ensuring transparency in ABS processes, including the designation of checkpoints and issuing internationally recognized certificates of compliance.

While India, Kenya, and Mexico all seek to uphold the principles of the Nagoya Protocol, their ABS frameworks reflect their distinct socio-legal contexts. India's approach is highly regulated and state-driven, Kenya's is community-centric with a strong role for local knowledge holders, and Mexico emphasizes traditional knowledge protection. Common challenges across these countries include weak enforcement mechanisms, insufficient transparency, and the need for more robust compliance measures, highlighting the ongoing need for improvements in ABS governance to achieve the Protocol's objectives effectively.

CONCLUSION

The Convention on Biological Diversity (CBD) marked an initial step in establishing an international legal regime for access and benefit-sharing (ABS) of genetic resources, while the Nagoya Protocol represents a more robust, legally binding framework to extend legal protections to genetic materials and associated traditional knowledge. Historically, biological diversity and genetic resources were predominantly accessed and commercially exploited by developed nations without equitable benefit-sharing, a disparity that persisted until the CBD's implementation. The CBD introduced the concept of ABS into international law, aiming to address imbalances between developed and developing nations by ensuring fair and equitable sharing of benefits derived from genetic resources. The Nagoya Protocol, enacted in 2014, further advanced this objective by establishing a comprehensive framework for bilateral agreements based on prior informed consent and mutually agreed terms, extending protections to derivatives of genetic resources and pathogens.

The Protocol strengthens the position of provider countries, particularly developing nations, by safeguarding their interests and promoting equitable benefit-sharing. However, the diverse domestic approaches to ABS regulation across countries underscore the necessity for international cooperation and knowledge exchange to effectively operationalize the Protocol's provisions. This study highlights the Protocol's role in enhancing the rights of indigenous communities and advancing biodiversity conservation through ABS mechanisms. A comparative analysis of ABS frameworks in India, Kenya, and Mexico reveals varying strategies and challenges, including issues of enforcement, transparency, and compliance. The research underscores the importance of refining ABS frameworks to ensure equitable benefit distribution, respect for indigenous rights, and the promotion of sustainable development and biodiversity conservation.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES:

Angón, A.C., Herrera, M.C.P. and Díaz, H.B. 2019. Sixth National Report of Mexico to the Convention on Biological Diversity: Summary for Policy Makers: 9-53

Bossche, P.V. 2020. The TRIPS Agreement and WTO Dispute Settlement: Past, Present and Future, *WTI Working Paper No.* 02/2020: 6-15

Colella, J.P., Silvestri, L., Súzan, G., Weksler, M., Cook, J.A. and Lessa, E.P. 2023. Engaging with the Nagoya Protocol on Access and Benefit-Sharing: Recommendations for Noncommercial Biodiversity Researchers, *Journal of Mammalogy*, **104** (3): 431-436.

Conaghan, J. 2023. Legal Research and the Public Good: The Current Landscape, *Legal Studies*, **43** (4): 2-8

Convention on Biological Diversity. 1992. https://www.cbd.int/doc/legal/cbd-en.pdf

Cook, W.W. 1919. Hohfeld's Contributions to the Science of Law. *Yale Journal of Law*, **XXVIII** (8): 723-727

Díaz, C.L. 2005. Intellectual Property Rights and Biological Resources: An Overview of Key Issues and Current Debates, *Wuppertal Papers*, No. **151**: 15-21

Gaia and Grian, 1998. TRIPs versus CBD: Conflicts between the WTO Regime of Intellectual Property Rights and Sustainable Biodiversity Management, *Global Trade and Biodiversity in Conflict*, Issue No. **1**: 5-9

Gill G.N., Chowdhury N. and Srivastava, N. 2021. Biodiversity and the Indian Judiciary: Tracing the Trajectory. *BRICS Law Journal*, **8**(2):10-40.

Heinrich, M., Scotti, F., Andrade-Cetto, A. Berger-Gonzalez, M., Echeverría, J., Friso. F., Garcia-Cardona, F., Hesketh, A., Hitziger, M., Maake, C., Politi, M., Spadafora, C. and Spadafora, R.. 2020, Access and Benefit Sharing Under the Nagoya Protocol—Quo Vadis? Six Latin American Case Studies Assessing Opportunities and Risk, *Front Pharmacol*. PMID: 32581783; PMCID: PMC7294742: 1-5.

Maskus, K.E. 2018, International agreements on Intellectual Property Rights: TRIPS and Beyond. *Routledge Handbook of International Trade Agreements*: 88

McNeilly, K. 2023. 'If Only for a Day': The Universal Declaration of Human Rights, Anniversary Commemoration and International Human Rights Law. *Human Rights Law Review*, **23** (2): 1-26

Modic, D., Hafner, A., Damij, N., Zajc, L.C. 2019. Innovations in Intellectual Property Rights Management: Their Potential Benefits and Limitations. *European Journal of Management and Business Economics*, **28**(2): 189-203.

Moraru, I. 2023. The Impact of Colonialism on Indigenous Land and Resources, *Land in Literature*, **6** (1): 1-5

Morgera, E. Justice, 2015. Equity and Benefit-sharing under the Nagoya Protocol to the Convention on Biological Diversity. *BENELEX Working Paper No. 5, Edinburgh School of Law Research Paper No.* 2015/16: 16-21

Morgera, E. 2016, The need for an International Legal Concept of Fair and Equitable Benefit Sharing, *European Journal of International Law*: 353-383.

Nagoya Protocol. 2010. Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization to the Convention on Biological Diversity. 2010 <https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf>

NBA. 2021. National Biodiversity Authority (NBA). Access and Benefit Sharing in

India: A Handbook for Researchers, UNDP-GEF Project on Strengthening Human Resources, Legal Frameworks, and Institutional Capacities to Implement the Nagoya Protocol, Global ABS Project. http://nbaindia.org/uploaded/pdf/IDB_ABS.pdf

National Environment Management Authority. 2014, Kenya's GR ABS Toolkit < https://absch.cbd.int/api/v2013/documents/F3AB1BBD-08C1-4E30-1BA7-6562A31098FE/attachments/203706/ABS%20TOOL%20KIT%20FINAL.pdf >

Phillips, F.K, Intellectual Property Rights in Traditional Knowledge: Enabler of Sustainable Development. *Utrecht Journal of International and European Law*, **32**(83): 1-18

Preeg, E.H. 2012. The Uruguay Round Negotiations and the Creation of the WTO. *The Oxford Handbook on The World Trade Organization*, **122:** 122-138.

Richerzhagen, C. 2014. The Nagoya Protocol: Fragmentation or Consolidation? *Resources,* **3**(1) 1-17.

Scarlett, J.P. 2022. The Harmful Legacy of Colonialism in Natural Hazard Risk, *Nature Communications,* **13**:6945.

Table 1: The table Represents the key details of the Kani Benefit-Sharing Case

Aspect	Details
Location	Kerala, India
Population	Approx. 18,000 Kani tribal people
Livelihood	Handicrafts, gathering and selling forest produce
Year of Discovery	1987
Discovery	Arogyappacha plant with anti-fatigue properties
Research Institutes Involved	All India Co-Ordinated Research Project on Ethnobiology (AICRPE), Tropical Botanic Garden and Research Institute (TBGRI)
Drug Developed	Jeevani
Year of Market Readiness	1994
Technology Transfer	1996 to Arya Vaidya Pharmacy (Coimbatore) Ltd.
License Fee	Rs. 10 lakhs (approx. $25,000)
Royalty Agreement	2% on future drug sales
Trust Formed	Kerala Kani Samudaya Kshema Trust (1997)
Trust Members	9 members, all tribals
Initial Earnings	$50,000
Benefit Distribution	50% of license fee and royalties to Kani tribals
Total Amount to Trust	₹ 5,19,062
Criticisms	Choice of private-sector company, Low license fees
Resolution Attempts	Formation of Trust, Structured and transparent process in Benefit sharing by State Government

Table 2: Comparative analysis of ABS

Country/Region	Legislation/Regulation	Description	Key Provisions
India	Biological Diversity Act, 2002; Biological Diversity Rules, 2004; National Biodiversity Authority (NBA); State Biodiversity Boards (SBBs); Biodiversity Management Committees (BMCs)	Regulates access to biological resources and traditional knowledge, ensuring fair and equitable sharing of benefits. Establishes national and state-level authorities for biodiversity management.	Establishes access regulations, benefit-sharing agreements, and management authorities at national and state levels.
Kenya	Environmental Management and Coordination Act (EMCA), 1999; Wildlife Conservation and Management Act, 2013; Forest Conservation and Management Act, 2016; Seeds and Plant Varieties Act, 2012; Traditional Knowledge and Cultural Expressions Act, 2016; The Constitution of Kenya, 2010	Provides frameworks for environmental management, wildlife conservation, forest management, and protection of traditional knowledge. Includes community participation in conservation and benefit-sharing.	Involves community participation in conservation efforts, establishes environmental impact assessments, and promotes equitable sharing of benefits.
Mexico	Mexican Political Constitution; Law for Sustainable Rural Development; Law on Wildlife; Law on Forestry; Law on Ecological Equilibrium and Environmental Protection; International Agreements	Regulates access to genetic resources and traditional knowledge. Oversees sustainable use of natural resources with a focus on conservation, sustainable management, and alignment with international standards.	Ensures sustainable use of genetic resources, conservation of biodiversity, and adherence to international conventions such as CBD and Nagoya Protocol.