

Benefit-Sharing from The Utilization of Genetic Resources As an Inclusive, Equitable, and Sustainable Form of Protection For Communal Intellectual Property

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ABSTRACT:

Genetic resources hold strategic value for science and industry, and their utilization is often linked to the traditional knowledge of indigenous communities. Indonesian law recognizes Communal Intellectual Property Rights through Law No. 11 of 2013, which ratifies the Nagoya Protocol and emphasizes fair benefit-sharing from the utilization of genetic resources, as well as Government Regulation No. 56 of 2022 on Communal Intellectual Property. However, in practice, the economic utilization of biodiversity has not yet been fully accompanied by fair profit-sharing mechanisms for local communities. This study aims to analyze the legal provisions regarding communal intellectual property rights over genetic resources within the Indonesian legal system and to examine profit-sharing mechanisms for the utilization of genetic resources in order to achieve inclusive, equitable, and sustainable protection for indigenous peoples and local communities. The research method employed is a normative legal approach, using both statutory and conceptual approaches. The findings indicate that mechanisms for sharing benefits derived from the utilization of genetic resources are key instruments for ensuring justice for local communities and supporting the sustainable management of biodiversity. However, regulations regarding this matter remain scattered across various laws and have not comprehensively addressed benefit-sharing mechanisms. Therefore, it is necessary to adopt the principles contained in the Nagoya Protocol, which emphasizes fair and equitable benefit-sharing in agreements with indigenous communities as the rightful holders of genetic resources and associated traditional knowledge

INTRODUCTION

Indonesia's genetic resources (GR) are strategic assets of significant value in supporting the welfare of the nation and the state (Kementerian Lingkungan Hidup dan Kehutanan RI, 2020). This potential can be utilized by various parties for a wide range of purposes, including the development of the agricultural and industrial sectors. Indonesia, for instance, possesses a high level of biodiversity and significant potential for the utilization of genetic resources in various fields, such as pharmaceuticals, agriculture, cosmetics, and biotechnology (World Health Organization, 2019). In many ways, this utilization is inseparable from the traditional knowledge of indigenous peoples and local communities, who have played a role in safeguarding, managing, and conserving biodiversity for generations (Nurhayati, 2019).

The interconnection between genetic resources and traditional knowledge indicates that the utilization of these resources is not merely material in nature but also involves aspects of knowledge that have been passed down through generations within communities. In practice, indigenous peoples and local communities not only serve as custodians but also play a significant role in the processes of identifying, managing, and utilizing genetic resources. Therefore, the relationship between genetic resources and traditional knowledge constitutes an inseparable unity within the context of legal protection (Chatterjee, 2024; Nemogá et al., 2022; Phillips, 2016).

As the use of genetic resources expands, these resources are often utilized by other parties, both nationally and internationally, without adequate recognition or benefit-sharing for the communities that serve as their traditional custodians. This situation has the potential to create injustice, particularly when the economic benefits derived from the use of these resources are not enjoyed proportionally by the communities that have played a role in preserving them. Therefore, legal mechanisms are needed to accommodate the interests of both users and indigenous peoples as well as local communities (Dawson et al., 2021; Riedel & Bodle, 2018; Sarmiento Barletti et al., 2023).

Several studies have examined the protection of genetic resources and benefit-sharing mechanisms within the Indonesian legal system. Riswandi (2020) analyzed the protection of GR from an intellectual property perspective and concluded that existing regulations remain administrative in nature and have not comprehensively addressed economic aspects. Sardjono (2016) examined the relationship between intellectual property rights and traditional knowledge, finding that conventional IPR approaches are not fully compatible with the communal nature of traditional knowledge and GR. Nurhayati (2019) researched traditional knowledge and biodiversity, highlighting the important role of indigenous communities as biodiversity custodians who often do not receive adequate legal recognition.

From an international perspective, Mogera (2015) analyzed the Nagoya Protocol and emphasized that the access and benefit-sharing (ABS) principle is a key instrument for ensuring justice for GR-holding countries and local communities. Friedman (2018), in his legal system theory, explained that legal effectiveness is determined not only by the substance of norms but also by the supporting legal structure and culture. Hadjon (2017) examined legal protection for the people and emphasized the importance of recognizing indigenous community rights in every natural resource utilization policy.

However, previous research still has several limitations. First, most studies have focused on the formal recognition of indigenous community rights without deeply examining operational and binding benefit-sharing mechanisms. Second, research on the implementation of the Nagoya Protocol in Indonesia remains limited to ratification aspects and has not extensively examined its implementation in contractual relationships between GR owners and users. Third, no comprehensive study has integrated the principles of distributive justice, sustainability, and agreement-based mechanisms into a single framework for communal intellectual property protection.

In this context, legal frameworks serve as crucial instruments for ensuring that the utilization of genetic resources is carried out in accordance with the principles of equity, transparency, and sustainability. The legal approach adopted must not only provide protection for genetic resources as objects but must also recognize the position of indigenous communities

as subjects holding rights to those resources. Thus, comprehensive and responsive regulations are urgently needed to prevent exploitative practices and ensure a balance between economic interests and the protection of community rights.

In the national legal context, recognition of communal intellectual property related to genetic resources has been incorporated into various laws and regulations, including Law No. 11 of 2013 on the Ratification of the Nagoya Protocol, which emphasizes the importance of the principle of fair and equitable benefit-sharing in the utilization of genetic resources (Undang-Undang Nomor 11 Tahun 2013 tentang Pengesahan Nagoya Protocol). This principle positions benefit-sharing as the primary instrument for ensuring justice for resource owners, particularly indigenous peoples and local communities (Mogera, 2015). In addition, Government Regulation No. 56 of 2022 provides a legal framework for the protection of communal intellectual property through inventory and registration mechanisms. However, these regulations remain administrative in nature and have not yet fully addressed economic aspects, particularly regarding the distribution of benefits from the utilization of genetic resources. Therefore, more comprehensive regulatory strengthening is needed to ensure justice for indigenous peoples and the sustainable use of genetic resources.

In practice, there is a gap between normative regulations and their implementation on the ground (Friedman, 2018). The utilization of genetic resources that generates economic benefits, whether by the state, indigenous communities, or third parties, has not yet been fully accompanied by fair and proportional profit-sharing mechanisms for local communities (Riswandi, 2020). This situation has the potential to lead to exploitative practices, including biopiracy, and highlights the weak bargaining position of indigenous communities within the existing legal system. This results in a disconnect between the principles of justice mandated by regulations and the reality of biodiversity utilization practices (Rahardjo, 2016).

The sharing of benefits from the utilization of genetic resources essentially involves three main legal entities: indigenous communities as resource owners, the state as administrator and regulator, and users, such as companies or researchers, who derive economic benefits. Normatively, benefit-sharing should be carried out through the access and benefit-sharing mechanism, as stipulated in the Nagoya Protocol, which requires prior informed consent and mutually agreed terms. However, in practice, this mechanism has not been effectively implemented, so the majority of economic benefits are instead enjoyed by users, while indigenous communities do not receive proportional benefits. This situation reflects structural inequality, regulatory weaknesses, distributive injustice, and a lack of recognition in the protection of communal intellectual property.

Based on this explanation, this study has two main objectives: first, to analyze the legal framework governing communal intellectual property rights over genetic resources within the Indonesian legal system; and second, to examine profit-sharing mechanisms for the utilization of genetic resources in order to achieve inclusive, equitable, and sustainable protection for indigenous peoples and local communities.

The method used in this study is a normative legal approach, namely legal research that focuses on the analysis of legal norms contained in legislation, legal doctrine, and legal literature (Soekanto & Mamudji, 2018). Legal materials were collected through a literature review and analyzed qualitatively using legal interpretation to produce systematic and comprehensive arguments. This approach includes a review of relevant legislation, such as Law

No. 28 of 2014 on Copyright, Law No. 11 of 2013 on the Ratification of the Nagoya Protocol, and Government Regulation No. 56 of 2022 on Communal Intellectual Property, to evaluate the consistency, adequacy, and coherence of existing legal provisions. In addition, this study adopts a conceptual approach by analyzing legal doctrines and theories related to justice, legal protection, and the principle of access and benefit-sharing. Through this approach, this study aims to identify the gap between legal norms (*das sollen*) and the practice of utilizing genetic resources (*das sein*), as well as to formulate a more inclusive, equitable, and sustainable concept of benefit-sharing in the protection of communal intellectual property. Theoretically, this research contributes to the development of legal science, particularly in the fields of intellectual property law, environmental law, and international law, by integrating the concepts of distributive justice and sustainability into the protection of GR and traditional knowledge. Practically, this research provides policy recommendations for legislators in formulating more comprehensive regulations on benefit-sharing mechanisms, serves as a reference for indigenous and local communities in formulating fair GR utilization agreements, and offers guidance for GR users, including companies and researchers, in implementing the principles of prior informed consent and mutually agreed terms.

METHOD

This study employs a normative legal research method with a statutory approach and a conceptual approach. The statutory approach is conducted by analyzing various regulations governing communal intellectual property rights over genetic resources, including provisions within the law ratifying the Nagoya Protocol, regulations on Communal Intellectual Property, as well as other legal instruments related to the protection of indigenous peoples and the utilization of biodiversity. Meanwhile, the conceptual approach is used to examine legal theories, principles, and doctrines concerning distributive justice, benefit-sharing, sustainability, and the protection of indigenous peoples' rights over genetic resources and traditional knowledge.

The data used in this study consist of primary legal materials, secondary legal materials, and tertiary legal materials. Primary legal materials include laws and regulations, international conventions, and policies related to genetic resources and communal intellectual property. Secondary legal materials are obtained from books, scientific journals, articles, and relevant previous research, while tertiary legal materials include legal dictionaries, encyclopedias, and other supporting references. Data collection is carried out through library research, and the data are analyzed using a descriptive-qualitative method to interpret legal norms, identify regulatory gaps, and evaluate benefit-sharing mechanisms in the utilization of genetic resources in order to achieve fair, inclusive, and sustainable legal protection for indigenous peoples and local communities.

RESULTS AND DISCUSSION

Legal Framework for Community Intellectual Property Rights Regarding the Utilization of Genetic Resources in Indonesia

The legal framework governing communal intellectual property rights regarding the utilization of genetic resources (GR) in Indonesia essentially stems from the recognition of biodiversity as a national asset of strategic value (Kementerian Lingkungan Hidup dan

Kehutanan RI, 2020). As a country with a high level of biodiversity, Indonesia has great potential for the development of agriculture, pharmaceuticals, and natural resource-based industries (World Health Organization, 2019). Therefore, the state has an obligation to regulate the utilization of GR so that it not only provides economic benefits but also ensures the protection of the rights of communities that have played a role in safeguarding and conserving these resources (Nurhayati, 2019).

Recognition of genetic resources as part of the nation's wealth requires a legal framework capable of accommodating their collective nature and their close relationship with the traditional knowledge of communities. The utilization of genetic resources has not only an economic dimension but also social and cultural values inherent in indigenous peoples and local communities as the original holders. Therefore, legal regulations must ensure the protection of these communities' rights, including recognition of their contributions to safeguarding and preserving the sustainability of genetic resources.

The rapid expansion of genetic resource utilization in the industrial and research sectors poses challenges in terms of regulation and oversight. An imbalance between economic interests and the protection of community rights has the potential to lead to unfair and exploitative practices if not properly regulated. Therefore, a legal approach is needed that is not only administrative in nature but also responsive to the dynamics of genetic resource utilization, including through the strengthening of fair benefit-sharing mechanisms and the active involvement of indigenous communities in every utilization process.

Normatively, recognition of communal intellectual property related to genetic resources is reflected in Government Regulation No. 56 of 2022, specifically Articles 1, 3, 5, and 7, which govern inventory and record-keeping. Furthermore, the principles governing the utilization of genetic resources also align with the Nagoya Protocol, particularly Articles 5, 6, and 7. These provisions indicate that the state acts as the regulator and controller of the utilization of communal intellectual property, particularly that related to genetic resources, without disregarding the position of indigenous communities as the original owners of such resources, including traditional knowledge that is often an integral part of genetic resource utilization (Sardjono, 2016). However, these regulations remain limited to the aspect of genetic resources as a standalone object of legal protection.

Indonesia has also adopted principles for the protection of genetic resources through the ratification of the Nagoya Protocol, which was enacted through Law No. 11 of 2013. This Protocol emphasizes the importance of the principle of access and benefit-sharing (ABS), which requires that the utilization of genetic resources be based on the prior consent of the owners and an agreement on benefit-sharing. Thus, Indonesia has demonstrated its international commitment to protecting genetic resources and ensuring fairness in their utilization.

The regulation of communal intellectual property in Government Regulation No. 56 of 2022 still has limitations, as it has not been comprehensively integrated with other sectoral regulations, such as those in the fields of the environment, forestry, and genetic resource utilization. Although this Government Regulation has established mechanisms for the inventory and registration of communal intellectual property, its provisions do not yet comprehensively cover cross-sectoral aspects of utilization and protection. This has the potential to cause legal fragmentation and overlapping authority among institutions, which

could hinder the effectiveness of protection for communal intellectual property, particularly in the context of genetic resources (Riswandi, 2020).

Although Indonesia, in principle, has a legal framework that recognizes communal intellectual property, including genetic resources, these regulations remain at the stage of formal recognition and do not yet fully address substantive aspects of utilization. This is reflected in a regulatory tendency that focuses more on inventory and registration as forms of administrative protection without being accompanied by comprehensive regulations regarding the legal relationship between the owners of genetic resources and users. Consequently, the protection provided remains passive and has not been able to address the increasingly complex dynamics of genetic resource utilization, particularly in the context of globalization and the development of the biotechnology industry.

In this context, the relationship between national and international law is of critical importance, particularly in assessing the extent to which international principles have been integrated into the national legal system. The ratification of the Nagoya Protocol through Law No. 11 of 2013 essentially reflects Indonesia's commitment to implementing the principle of access and benefit-sharing as an instrument of justice in the utilization of genetic resources. However, the implementation of this principle within the national legal system still faces various challenges, particularly due to the absence of specific operational regulations that establish legally binding mechanisms for access, consent, and benefit-sharing in practice.

This situation is exacerbated by regulatory fragmentation across sectors, leading to a lack of coordination between regulations and relevant authorities. Regulations concerning genetic resources are not only scattered within the realm of intellectual property but also involve environmental, forestry, and natural resource laws, which may result in overlapping jurisdictions. This lack of integration undermines the effectiveness of legal protection, as there is no integrated system to comprehensively regulate the utilization of genetic resources. Therefore, a more systematic and coordinated approach is needed to ensure that existing regulations are not merely normative but also capable of guaranteeing effective and equitable protection.

Recognition of indigenous peoples and local communities as the owners of genetic resources and traditional knowledge is also not yet fully optimal. Although various regulations acknowledge the existence of indigenous peoples, their implementation remains limited, particularly regarding the granting of rights to manage and utilize these resources. This contributes to the weak bargaining position of indigenous peoples when dealing with parties that exploit genetic resources for commercial purposes (Hadjon, 2017).

From a legal protection perspective, the approach applied in the regulation of communal intellectual property tends to adopt a conventional and individualistic intellectual property system. In reality, however, genetic resources and traditional knowledge are collective in nature, passed down from generation to generation, and have no fixed time limit for protection. This mismatch results in legal protection for genetic resources being less effective and failing to meet the needs of local communities (Pound, 2017).

It can be concluded that the legal framework regarding communal intellectual property in the utilization of genetic resources in Indonesia, normatively speaking, already has a sufficiently solid foundation, both in terms of national law and international commitments. However, substantively and in terms of implementation, various weaknesses remain,

particularly regarding the lack of regulatory integration, weak recognition of indigenous peoples' rights, and the absence of comprehensive protection mechanisms. Therefore, it is necessary to adopt the principles of the Nagoya Protocol, particularly the principle of fair and equitable benefit-sharing, implemented through agreements between indigenous communities as the owners of genetic resources and recipients or users of communal intellectual property, in order to ensure fair, equitable, and sustainable protection.

Mechanisms for The Sharing of Benefits from Utilization of Genetic Resource from the Perspective of Equity

The profit-sharing mechanism for the utilization of genetic resources is a crucial instrument for ensuring justice for indigenous peoples and local communities as the owners and custodians of these resources (World Health Organization, 2019). In the context of genetic resource (GR) utilization, profit-sharing is not only understood as the distribution of economic benefits but also encompasses non-economic benefits, such as technology transfer, capacity building, and recognition of traditional knowledge. Therefore, this mechanism serves as a form of recognition of communities' contributions to maintaining the sustainability of biodiversity.

Normatively, the principle of benefit-sharing has been recognized within the framework of the Nagoya Protocol, which emphasizes the importance of access and benefit-sharing (ABS). This principle requires that any utilization of genetic resources be based on prior informed consent and mutually agreed terms between the user and the resource owner. In this regard, indigenous communities have the right to determine whether the resources they possess may be utilized and are entitled to receive a share of the benefits generated from such utilization.

In Indonesia, the sharing of benefits arising from the utilization of genetic resources can generally be regulated through agreements between owners and users based on the principle of freedom of contract. However, a purely contractual approach is insufficient to ensure fairness, given the imbalance of power between the two parties and the communal nature of intellectual property, which cannot be fully privatized. Therefore, the regulation of benefit-sharing for the utilization of genetic resources cannot rely solely on general and incomplete legislation; rather, it must be guided by the adoption of the principles contained in the Nagoya Protocol as a more substantive normative foundation. In this regard, agreements between indigenous communities as owners and users must be positioned as the primary instrument of implementation, which not only regulates the technical aspects of benefit-sharing but also ensures the fulfillment of the principles of justice, equity, and protection of the collective rights of the community.

The weak bargaining position of indigenous peoples and local communities is a key factor hindering the achievement of fair benefit-sharing. Limited access to information, low negotiation capacity, and a lack of legal support mean that these communities do not have adequate ability to advocate for their rights. This situation creates opportunities for parties with capital and technology to gain greater profits without providing fair compensation to the communities.

Another issue is the lack of transparency and accountability in the utilization of natural resources. In many cases, communities do not clearly understand how their resources are being utilized or the profits generated from such utilization. This indicates that oversight mechanisms regarding the use of natural resources remain weak, necessitating a system capable of ensuring transparency and effective monitoring of benefit-sharing implementation.

Given that there is currently no specific institution responsible for managing benefit-sharing mechanisms, this condition should not necessarily be interpreted as a structural obstacle hindering the implementation of the benefit-sharing principle. This is because the sharing of benefits from the utilization of genetic resources can essentially be placed within the realm of private legal relations through contractual mechanisms between the owners of genetic resources, namely indigenous peoples or local communities, and the recipients or users of those resources, such as companies or research institutions. Thus, the management of benefit-sharing does not entirely depend on the existence of a specialized institution but can be realized through flexible and adaptive contractual instruments tailored to the needs of the parties (Fuady, 2017).

To establish a fair benefit-sharing mechanism, the state plays a crucial role, not in prescribing the exact amount or form of benefit-sharing, but in providing a legal framework that ensures fair and transparent contractual relationships. In this context, benefit-sharing can be regulated through the granting of rights to utilize genetic resources by their owners to recipient parties, as set forth in an agreement or cooperation contract. Such agreements must include clear clauses regarding the rights and obligations of the parties, including benefit-sharing mechanisms, whether in financial or non-financial forms (Asshiddiqie, 2020).

Genetic resources, as part of communal intellectual property, have distinct legal subjects and objects within the Indonesian legal system. In terms of the object, genetic resources are recognized as part of communal intellectual property, as stipulated in Government Regulation No. 56 of 2022, specifically Article 1, which states that genetic resources fall within the scope of communal intellectual property. This is further reinforced by Articles 3 to 7, which regulate the mechanisms for inventory, documentation, and registration. Meanwhile, in terms of the subjects involved, the utilization of genetic resources involves indigenous peoples and local communities as the original owners, the state as the entity that controls and regulates their utilization, and third parties such as companies, researchers, and individuals as users of these resources. In addition, research institutions and government agencies also play supporting roles in aspects of management and oversight. The relationships among these parties are governed by the principles of equity, consent, and benefit-sharing, as stipulated in the Nagoya Protocol.

Agreements on the utilization of genetic resources are fundamentally based on the principle of freedom of contract, as set forth in Article 1338 of the Civil Code, which grants the parties the authority to independently regulate their legal relationship (Subekti, 2005). However, the substance of such agreements must adhere to the principles set forth in the Nagoya Protocol, particularly prior informed consent, mutually agreed terms, and access and benefit-sharing. Furthermore, the legitimacy of such agreements is also grounded in the recognition of the rights of indigenous peoples, as stipulated in Article 18B(2) of the 1945 Constitution of the Republic of Indonesia, as well as the state's control over natural resources under Article 33(3) of the 1945 Constitution of the Republic of Indonesia. Thus, agreements on the utilization of genetic resources represent a synthesis of private law regimes and principles of international law aimed at achieving justice and sustainability.

The drafting of such agreements must take into account the principles set forth in the Nagoya Protocol, particularly prior informed consent and mutually agreed terms. This approach emphasizes that the utilization of genetic resources must be based on consent given knowingly by resource owners, as well as an agreement formulated in a balanced manner

between the parties. Thus, the benefit-sharing mechanism does not rely solely on formal regulations but also on the quality and substantive fairness of the agreed-upon contract.

From a justice perspective, this contractual approach must continue to reflect the principle of distributive justice, namely the proportional sharing of benefits in accordance with each party's contribution. Local communities that play a role in safeguarding and conserving genetic resources must receive fair benefits, not only as compensation but also as a means of economic and social empowerment. Therefore, even though benefit-sharing is regulated in agreements, the state must still ensure minimum protection standards to prevent inequities that disadvantage the weaker party.

From a sustainability perspective, benefit-sharing arrangements through agreements must consider long-term dimensions, where the benefits obtained are not only utilized economically but also allocated for conservation activities and the sustainable management of genetic resources. This is crucial to ensure that the utilization of genetic resources does not undermine environmental sustainability and continues to provide benefits for future generations.

The contractual dimension of benefit-sharing mechanisms requires fair and balanced contractual standards. In practice, agreements between users and local communities are often unequal, which can disadvantage indigenous peoples. Therefore, it is important to strengthen communities' capacity to understand the legal aspects of agreements, as well as to provide guidelines or model contracts that can serve as references in drafting agreements.

The role of international law remains highly relevant, given that the utilization of genetic resources often involves transnational parties. Therefore, clauses in agreements must align with international principles, particularly those related to fair benefit-sharing and the protection of local communities' interests.

Agreement-based benefit-sharing mechanisms also require support from accurate documentation and inventory systems for genetic resources. The availability of structured data will facilitate the identification of parties entitled to grant permission and receive benefits, thereby reducing the potential for future conflicts.

In the event of a dispute, conflict resolution mechanisms can be directly stipulated in the agreement, whether through mediation, arbitration, or other mechanisms agreed upon by the parties. This approach provides flexibility and legal certainty in dispute resolution without relying entirely on formal institutions.

Ultimately, the success of agreement-based benefit-sharing mechanisms depends heavily on the public's level of legal awareness and understanding. Therefore, enhancing legal education for indigenous peoples and local communities is crucial so that they can actively participate, understand their rights, and negotiate from a more balanced position. In this way, benefit-sharing mechanisms can operate more effectively, fairly, and sustainably (World Bank, 2018).

The effectiveness of agreement-based benefit-sharing mechanisms is also influenced by the quality of the substance of the agreements reached by the parties. Agreements must not only include clauses regarding benefit-sharing but also clearly regulate access rights, utilization restrictions, and the protection of knowledge related to genetic resources. The clarity of these clauses is crucial to prevent multiple interpretations that could lead to disputes in the future.

Therefore, the drafting of agreements must meet formal legal requirements and reflect the principles of fairness, balance, and good faith among the parties.

The state's role remains essential as a facilitator in creating a legal ecosystem that supports the implementation of effective benefit-sharing mechanisms. The state can play a role in providing guidelines or minimum standards for agreements, strengthening oversight systems, and ensuring open access to information for indigenous peoples and local communities. Thus, benefit-sharing mechanisms do not rely solely on private agreements but are also supported by a legal framework capable of ensuring fair, transparent, and sustainable protection.

CONCLUSION

Based on the research findings and discussion, it can be concluded that the legal framework governing communal intellectual property rights regarding the utilization of genetic resources in Indonesia has, in principle, a sufficient foundation, both through national regulations and international commitments. However, these regulations remain administrative and sectoral in nature, have not been comprehensively integrated, and tend to treat genetic resources as objects of protection without strengthening the position of indigenous communities as the primary subjects. This indicates a gap between normative recognition and substantive protection, resulting in the principles of justice and equality not being fully realized.

On the other hand, benefit-sharing mechanisms are not effective if they rely solely on formal regulations. In practice, benefit-sharing is best carried out through agreements between indigenous communities—as the rightful owners—and the users, although this approach still faces challenges such as unequal bargaining power, weak negotiating capacity, and a lack of transparency. These conditions mean that benefit-sharing does not yet fully reflect the principles of justice and inclusivity. Therefore, it is necessary to adopt the principles contained in the Nagoya Protocol, particularly regarding fair and equitable benefit-sharing, which is implemented through agreements that take into account prior informed consent and mutually agreed terms. The role of the state remains essential as a regulator and facilitator to ensure balance among the parties, as well as to strengthen the recognition and empowerment of indigenous communities. Thus, the protection of communal intellectual property rights over genetic resources can be realized in an inclusive, equitable, and sustainable manner.

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