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Legal Protection of Indonesian Genetic Resources in Communal Intellectual Property Regime

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Abstract Indonesia, known as a Country with high biodiversity, faces significant challenges in protecting its genetic resources from the increasing threats of exploitation and biopiracy, often perpetrated by foreign entities exploiting Indonesia's genetic wealth without proper authorization or fair benefit-sharing. Therefore, it is crucial to analyze the legal protection of genetic resources in Indonesia as communal intellectual property, particularly in relation to the Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) and national efforts to protect genetic resources. This study employs a normative legal research method, examining various legal sources to address issues related to genetic resources. The research adopts a statutory and conceptual approach by analyzing existing legislation and the protection frameworks implemented in Indonesia for genetic resources. A qualitative analysis is further conducted by describing and interpreting various research sources to provide comprehensive answers to the research questions. The Result indicate that the TRIPS Agreement offers intellectual property protection standards that predominantly emphasize individual rights, failing to fully address the protection of communal intellectual property. In response to this limitation, Indonesia has implemented national policies, including Government Regulation No. 56 of 2022 and the Access and Benefit Sharing (ABS) mechanism. These policies aim to protect indigenous peoples' rights and ensure that the benefits derived from the utilization of genetic resources are distributed equitably. However, the implementation of these protections faces significant obstacles, such as weak institutional capacity, limited public awareness, and gaps in harmonization with international standards. To address these challenges, strategic measures are necessary, including strengthening cross-sector coordination, enhancing indigenous community education, and developing a more comprehensive benefit-sharing mechanism. These steps are essential to ensure that genetic resources are not only protected but also contribute sustainably to the nation's welfare.

Keywords: *Genetic Resources, Intellectual Communal, Legal, Protection.*

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Introduction

The large biodiversity in Indonesia is expected to be a driver of national economic development. The great biodiversity is influenced by Indonesia's natural conditions which are located on the equator and located between two continents, namely the Asian continent and the Australian continent and two oceans, namely the Pacific and Indian oceans. Indonesia is an archipelago consisting of more than 17,000 islands stretching from the Indian Ocean to the Pacific Ocean and inhabited by more than 300 ethnic groups. This makes Indonesia rich in biodiversity and culture that is inseparable from the lives of its people.[1]

Based on data from the Indonesian Institute of Sciences (LIPI), Indonesia is the country with the second highest terrestrial biodiversity in the world after Brazil and when combined with marine biodiversity, Indonesia becomes the first with the highest biodiversity wealth in the world.[2] The above biological wealth makes Indonesia also rich in potential genetic resources. Genetic resources (SDG) are a form of biodiversity consisting of genetic material such as plants, animals, and microorganisms, which contain functional units for inheriting traits. As a country with abundant genetic resources, Indonesia is faced with the challenge of utilizing these resources in an integrated and sustainable manner. This process involves finding and developing new sources of chemical compounds, genes, and organisms or microorganisms that will produce high-quality products.[3]

In the context of intellectual property, Genetic Resources are a form that receives protection in the category of communal intellectual property along with Traditional Knowledge, Traditional Cultural Expressions and Geographical Indications. Communal Intellectual Property (KIK) is intellectual property whose ownership rights lie with the communal community collectively

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[1] Anzal M. Efendi Dan Tri Joko Waluyo, 'Kebijakan Indonesia Dalam Upaya Melindungi Sumber Daya Genetik, Pengetahuan Tradisional Dan Ekspresi Budaya Tradisional', 2016, 1–23. pp. 4-5.

[2] Agus Setiawan, 'Keanekaragaman Hayati Indonesia: Masalah Dan Upaya Konservasinya', *Indonesian Journal Of Conservation*, 11.1 (2022), 13–21 <Https://Doi.Org/10.15294/Ijc.V11i1.34532>. pp. 14.

[3] Ahmad Redi, *Analisis Dan Evaluasi Hukum Tentang Pemanfaatan Sumber Daya Genetik*, *Pusat Penelitian Dan Pengembangan Sistem Hukum Nasional Badan Pembinaan Hukum Nasional Kementerian Hukum Dan Hak Asasi Manusia*, 2015. pp. 1.

in a certain area.[4] Thus, Genetic Resources must obtain legal protection in the Intellectual Property Law (IPR) regime. IPRs provide commercial added value to the goods or services that are granted protection. It cannot be denied that the economic value of genetic resources is enormous, although it is difficult to determine the true value of genetic resources. However, the value can be estimated from the derivative products. According to research conducted by GRAIN[5] indicates that sales of genetic resource products range from US$500 million to US$800 million, with an average annual growth of 5% to 15%, depending on the region.[6] This encouraged various countries to fight for their national interests in order to achieve the national goals of each country given the large profits obtained from the commercialization of genetic resource IPRs. In addition, the protection and management of genetic resources is very important for three main reasons, namely the large potential economic benefits generated from the utilization and management of genetic resources, fairness in the world trade system, and the need to protect the rights of local communities.[7]

The large potential of genetic resources has made Indonesia a destination country for bioprospecting. Bioprospection is carried out with the aim of finding valuable genetic materials derived from biological resources such as plants, animals, and microorganisms that have the potential to be further developed for commercialization and provide benefits to society at large.[8] In the process of bioprospection, which is usually done through research, problems related to genetic resources can arise, known as biopiracy (theft of genetic resources) carried out by foreign companies without permission or without fair

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[4] Waluyo, "Kebijakan Indonesia Dalam Upaya Melindungi Sumber Daya Genetik, Pengetahuan Tradisional Dan Ekspresi Budaya Tradisional." *Loc.Cit*. pp.5

[5] Grain is an international non-profit organization focused on supporting smallholder farmers and social movements in their efforts to develop biodiverse and community-managed food systems.

[6] Efridani Lubis, 'Protection And Utilization Of Indonesia Genetic Resources: Disentangle Of Regime Complex', *Global Conference On Business And Social Sciences Proceeding*, 11.1 (2020), 154–154 <Https://Doi.Org/10.35609/Gcbssproceeding.2020.11(154)>. pp.117.

[7] Rohaini And Nenny Dwi Ariani, 'Positive Protection: Protecting Genetic Resources Related To Traditional Knowledge In Indonesia', *Fiat Justisia:Jurnal Ilmu Hukum*, 11.2 (2018), 122 <Https://Doi.Org/10.25041/Fiatjustisia.V11no2.985>. pp.124

[8] Alka Sawarkar, 'Bioprospecting: Creating Value For Biodiversity', 8.4 (2019), 256–65 <Https://Www.Researchgate.Net/Publication/366185118>. pp. 256.

profit sharing. [9] The presence of countries that are victims of this biopiracy, there are demands from megadiversity countries to protect their national interests in the form of genetic resources from claims by other companies.

The requirement for protection of genetic resources emerged with the signing of the Convention on Biological Diversity (CBD) in 1992. The CBD has been ratified by Indonesia through Law No.5 of 1994 on the Ratification of the United Nations Convention on Biological Diversity. [10] However, on the other hand, intellectual property regulation can generally be found in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). TRIPs is an instrument in international law that sets minimum standards for the protection and enforcement of intellectual property rights, which in its implementation has been ratified by several countries in the world including Indonesia. Indonesia ratified the TRIPs Agreement with Law Number 7 of 1994 concerning the ratification of the Agreement Establishing the World Trade Organization.[11] With the enactment of TRIPs, the legal protection of IP can be strengthened and become more comprehensive. Because TRIPs plays an important role in building a strong legal protection system for intellectual property at the international level. The goal is to protect intellectual property rights, encourage innovation, facilitate the transfer of technology, and promote the dissemination of knowledge.[12]

Although the TRIPs Agreement has regulated the protection of intellectual property, the protection referred to in the TRIPs Agreement is still individual (protection is given to individuals). Whereas communal intellectual property, the nature of protection is communal (shared property) of a

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[9] Joejoen Tjahjani, 'Law Enforcement On Biopiracy As Protection Of Genetic Biodiversity (Sdg) In Indonesia ', *1st International Conference On Environmental Health, Socioeconomic And Technology 2022*, 1.1 (2022), 227–31. pp. 228.

[10] Yovita Indaryati, I Gusti Ayu Ketut Rachmi Handayani, And Lego Karjoko, *The Urgency Of Regulating The Protection Of Indonesia's Genetic Resources For The People's Welfare* (Atlantis Press Sarl, 2024) <Https://Doi.Org/10.2991/978-2-38476-218-7_69>. pp. 415

[11] Erika Vivin Setyoningsih, 'Implementasi Ratifikasi Agreement On Trade Related Aspects Of Intellectual Property Right (Trips Agremeent) Terhadap Politik Hukum Di Indonesia', *Jurnal Penegakan Hukum Dan Keadilan*, 2.2 (2021), 117–29 <Https://Doi.Org/10.18196/Jphk.V2i2.11749>. pp. 123.

[12] Tri Setiady, 'Trips Agreement Principles Harmonization In Intellectual Property Rights In National Interests', *Fiat Justisia Jurnal Ilmu Hukum*, 8.4 (2018), 604 <Https://Media.Neliti.Com/Media/Publications/36943-Id-Harmonisasi-Prinsip-Prinsip-Trips-Agreement-Dalam-Hak-Kekayaan-Intelektual-Denga.Pdf>. pp.598

community. [13] In addition, the TRIPs Agreement does not explicitly cover the protection of communal intellectual property such as traditional knowledge, traditional cultural expressions, and genetic resources. In this case, Indonesia seeks recognition and protection of communal intellectual property as a form of legal politics that aims to protect intellectual property owned by local and indigenous communities by forming a protection policy.[14] This policy includes regulations related to communal intellectual property and regulates access and benefit sharing (ABS).[15] This step was taken to fill the gaps in the TRIPs framework and ensure that local communities in Indonesia can maintain and benefit from their intellectual property.

The protection of communal intellectual property (KIK) in Indonesia is currently regulated in the Minister of Law and Human Rights Regulation No. 13 of 2017 concerning Communal Intellectual Property Data (Permenkumham 13/2017) as well as in Government Regulation No. 56 of 2022 concerning Communal Intellectual Property (PP 56/2022). By looking at these provisions, it can be understood that the scope and scope of KIK protection includes: Traditional Knowledge, Traditional Cultural Expressions, Genetic Resources and Potential Geographical Indications.[16] The protection of communal intellectual property has actually regulated the legal substance of inventory and recording activities related to the development of ownership data in the context of defensive protection, but has not regulated benefit sharing comprehensively and adequately when utilized for commercial purposes. Meanwhile, Indonesia, which has many KIKs, is very vulnerable to being claimed by parties outside the Community of origin of the owner of genetic resources, including being used as a source of invention for foreign researchers in producing patent

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[13] Titis Adityo Nugroho And Politik Hukum, 'Politik Hukum Kekayaan Intelektual Komunal Dalam Sistem Hukum Nasional', *Jurnal Hukum De Lege Ferende Trisakti*, 2 (2024), 57–67. pp. 60.

[14] Yunita Maya Putri, Ria Wierma Putri, and H. S. Tisnanta, "Communal Rights As Hegemony in the Third World Regime: Indonesian Perspective," *Indonesian Journal of International Law* 19, no. 2 (2022): 289–315, https://doi.org/10.17304/ijil.vol19.2.5. pp. 295-296.

[15] Yovita Indrayati, 'Politik Hukum Perlindungan Sumber Daya Genetik Untuk Pemanfaatan Obat-Obatan Dalam Sistem Hukum Indonesia', *Jurnal Hukum, Politik Dan Kekuasaan*, 1.2 (2021), 174–205. pp. 192.

[16] Putri Triari Dwijayanthi Ni Ketut Supasti Dharmawan, Desak Putu Dewi Kasih, Putu Aras Samsithawrati, 'Model Pengaturan Kekayaan Intelektual Komunal Berbasis Benefit Sharing Dalam Menunjang Pariwisata Dan Ekonomi Kreatif', *Seminar Nasional Sains Dan Teknologi (Senastek)*, November, 2023, 7–9. pp. 237

protection with high economic value.[17] On the other hand, special protections related to genetic resources are still spread over a fairly wide range of sectors. Regulations involve many aspects such as the food and agriculture sector, the forestry and environment sector, the marine and fisheries sector, as well as research and development which have a close impact on the protection of genetic resources.

The State (Government) in this case has an important role in the protection and granting of bioprospection permits as well as fair benefit sharing for the utilization of genetic resources in Indonesia. Therefore, for stronger protection and legal certainty, it is very important to have a protection policy that accommodates various fields related to genetic resources and strengthens the policy material including the benefit-sharing mechanism in relation to the commercial utilization of genetic resources as communal intellectual property.

Research Methods

This research adopts a normative legal research approach, focusing on the analysis of secondary data derived from legal regulations and academic literature relevant to the issues under investigation.[18] The approach is directed at understanding the legal framework and doctrines concerning the protection of genetic resources. [19] The study applies two primary approaches as outlined by Peter Mahmud Marzuki: the statutory approach and the conceptual approach. The statutory approach involves an in-depth examination of legal instruments, including laws and regulations, to analyze their relevance and application to the research topic.[20] Meanwhile, the conceptual approach explores legal principles and doctrines to provide a theoretical foundation for interpreting the legal protections of genetic resources.[21]

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[17] Dian Nurfitri, "Perlindungan Kekayaan Intelektual Komunal Pasca Terbitnya Peraturan Pemerintah Nomor 56 Tahun 2022 Tentang Kekayaan Intelektual Komunal," *Jurnal De Lege Ferenda Trisakti* I, no. September (2023): 53–61, https://doi.org/10.25105/ferenda.v1i2.18276. pp. 58

[18] Soerjono Soekanto And Sri Mamudji, *Penelitian Hukum Normatif Suatu Tinjauan Singkat, Cet. 16* (Jakarta: Rajawali Pers, 2014). p. 13-14

[19] Jonaedi Efendi And Prasetijo Rijadi, *Metode Penelitian Hukum Normatif Dan Empiris: Edisi Kedua* (Jakarta: Kencana Divisi Dari Prenadamedia Group, 2022). p. 149

[20] Juhnny Ibrahim Jonandi Effendi, *Metode Penelitian Hukum: Normatif Dan Empiris* (Depok: Prenandamedia Group, 2018). p. 58

[21] *Ibid.* p. 60

The data analysis in this research is conducted qualitatively, emphasizing a systematic interpretation of the information gathered. This method involves organizing the data into detailed and logically structured descriptions, avoiding redundancy and ensuring clarity.[22] The analysis seeks to draw meaningful insights from the data to address the research problems effectively. Specifically, the research examines the legal protections for genetic resources under the TRIPs Agreement and evaluates Indonesia's national policies, including their strengths, weaknesses, and alignment with international standards. The conclusions derived from this analysis aim to provide comprehensive answers to the identified research problems and propose solutions for enhancing the protection of genetic resources in Indonesia.

Results and Discussions

A. Protection of Genetic Resources within the Framework of the TRIPS Agreement

The TRIPs Agreement is presently one of the most important international agreements in providing standardization of rights in the intellectual property regime. TRIPs is the first multilateral agreement that comprehensively addresses trade in intellectual property. TRIPs is the result of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) trade negotiations, which established a new intergovernmental organization known as the WTO. [23]

The TRIPS Agreement provides specific standards for the availability, scope and use of Intellectual Property (IP), establishes minimum levels of IP and patent protection and adequate trade secret protection. In short, this agreement sets the standards for intellectual property law for WTO members. The TRIPS Agreement is binding on all WTO members and although the standards in TRIPS provide high standards of intellectual property protection for developed countries, though under the transitional provisions of the

[22] *Ibid.* p. 163-165

[23] Djody Riktian Morajaya, "Penerapan TRIPs Agreement Berdasarkan Perspektif Sociological Jurisprudence Dan Efektifitas Hukum Hak Kekayaan Intelektual Di Indonesia, Studi Kasus Perdagangan Sepatu Tiruan Merek Nike Di Indonesia.," *Jatiswara* 38, no. 3 (2023): 291–304, https://doi.org/10.29303/jtsw.v38i3.516. pp. 292.

Agreement, developing countries will have to meet the same standards as developed countries. [24]

The TRIPS Agreement has an objective to protect and enforce IP. According to TRIPS Art. 7,[25] these objectives should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, for the mutual benefit of producers and users of technological know-how and in a manner conducive to social and economic welfare, and to the balance of rights and obligations.

Art. 27 is under the heading of patentable inventions. This article consists of 3 paragraphs and formulates how and whether subject matter can be patented. According to the first paragraph of Art. 27, which deals with patentable subject matter, "a patent shall be available for any invention, whether product or process, in all fields of technology, provided that they are novel, involve an inventive step and are capable of being applied in industry". [26] Section 27 also allows for certain exceptions. Clause 2 states as follows: "Members may exclude from the patentability of inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect public interest or morality, including to protect human, animal or plant life or health or to avoid serious damage to the environment, provided that such exclusion shall not be made merely because such exploitation is prohibited by law.[27] The terms public interest and morality are not defined in TRIPS. If the term public interest is interpreted in a broad sense, it is argued that the term may include matters such as, good governance, administration of justice, public service, national economic policy of the national economy, and the proper conduct of affairs in the general interest of the state and society. However, it has been maintained that to prevent some patents such as 'life forms' from

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[24] *Ibid.* pp. 293

[25] Setyoningsih, "Implementasi Ratifikasi Agreement on Trade Related Aspects of Intellectual Property Right (Trips Agremeent) Terhadap Politik Hukum Di Indonesia." pp. 121.

[26] Devica Rully Masrur, "Upaya Perlindungan Sumber Daya Genetik Berdasarkan Undang-Undang Nomor 13 Tahun 2016 Tentang Paten," *Jurnal Jurisprudence* 8, no. 2 (2019): 53–67, https://doi.org/10.23917/jurisprudence.v8i2.6994. pp. 56

[27] Sinan MİSİLİ, "Assessments on the Trips Agreement and the Convention on Biological Diversity," *Yıldırım Beyazıt Hukuk Dergisi* 2317, no. 1 (2020): 275–308, https://doi.org/10.33432/ybuhukuk.622998. pp.279.

becoming prohibited by TRIPS, therefore the application of the terms public interest and morality should be narrowly and case-by-case.

It is stated that Articles. 27.1 and 27.2 govern the field of intellectual property protection of biotechnology and plant varieties, and the term "all fields of technology" is interpreted to include biotechnology. According to Linarelli rightly points out that 'TRIPS includes provisions on patent rights in biotechnology and on establishing sui generis rights in biotechnology and the main provision of TRIPS relevant to IPRs in biotechnology is Article 27. Rosendal also states that the TRIPS Agreement standardizes the way IP is protected worldwide and to strengthen this harmonization process in all technological fields including biotechnology.[28] In conclusion, TRIPS provides for proprietary patents in biotechnology and allows genetic resources to be patented.

Furthermore, Article. 27, paragraph 3 states that "members may also exclude from patentability: (a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals; (b) plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for plant variety protection either by patent or by an effective sui generis system or by a combination of both. [29] The provisions of this paragraph will be reviewed four years after the entry into force of the WTO Agreement. According to this clause 3, diagnostic, therapeutic and surgical methods for the treatment of humans or animals, products, plants and animals and essentially biological processes for the production of plants or animals can be excluded from patenting. But micro-organisms and non-biological and microbiological processes are available for patenting. The definition of microorganisms is one of the most controversial points. It is said that while some biologists would argue the definition of a

[28] Bayu Sujadmiko, H S Tisnanta, and Orima Melati Davey, "Local Certification: Genetically Modified Organisms and Commercialization," *Jurnal Kertha Patrika* 43, no. 1 (2021), https://doi.org/10.24843/KP.2021.v43.i01.p0 1. pp. 5.

[29] Ferianto Ferianto, Tommy Hendrix, and Tuthi' Mazidatur Rohmah, "Pelindungan Hukum Terhadap Sumber Daya Genetik Dan Pengetahuan Tradisional (SDG-PT) Pasca Diundangkannya Undang-Undang Nomor 13 Tahun 2016 Tentang Paten," *JIPRO : Journal of Intellectual Property* 3, no. 1 (2020): 31–41, https://doi.org/10.20885/jipro.vol3.iss1.art2. pp.34

micro-organism as any one of a variety of microscopic organisms, including algae, bacteria, fungi, protozoa, and viruses. The European, US, and Japanese patent offices have interpreted 'micro-organism' in such a way that it includes both plant and animal cells.

It is indicated that regarding IP, the most likely to affect the CBD's objectives is the field of patents. There are some controversial points in Art. 27 paragraph 3. In general, there are some concerns that TRIPS rules regarding patented material may conflict with the rights granted to states in the form of national sovereignty over genetic resources under the CBD. [30] It is appropriately stated that in particular article 27.3 (b) is open to different and controversial interpretations. It can be rightly stated that the center of the debate between developed countries and developing countries - least developed countries is rooted in Article. 27. There are some legitimate concerns especially the impact of IP protection on biodiversity. It has been considered by some that intellectual property protection has a negative impact on biodiversity. It was said by an expert that developing countries consider that on the one hand developed countries engage freely in genetic piracy on the other hand simultaneously demand from developing countries to stop pirating the intellectual property of the industrialized world.[31] In the opinion of the author, Art. 27.3 may provide opportunities for the protection of genetic resources with prescribed adjustments as in the Convention on Biological Diversity.

B. The Protections of Genetic Resources in Indonesia as Communal Intellectual Property

1. Legal Policy of Communal Intellectual Property Protection in Indonesia

Legal policy related to the recognition and protection of Communal Intellectual Property (KIK) in Indonesia has an important role in safeguarding

[30] Nurul Barizah, "Indonesia's Patent Policy on the Protection of Genetic Resources Related Traditional Knowledge; Is It a Synergy to Fulfill the TRIPs Agreement and CBD Compliance?," *Yuridika* 35, no. 2 (2019): 321, https://doi.org/10.20473/ydk.v35i2.16891. pp.331.

[31] *Ibid.* pp.334.

cultural heritage, national identity, and extraordinary biodiversity, where KIK includes traditional cultural expressions, traditional knowledge, genetic resources, indications of origin, and geographical indications. However, the national legal system, which still tends to be individualistic, is often inadequate to accommodate the collective rights of indigenous peoples who are the main owners of KIK, so there is a need for legal political adjustments that ensure that KIK is not only recognized as a cultural asset but also legally protected as part of national assets that have substantial economic and spiritual value. [32]

The concrete measures taken through the issuance of Government Regulation No. 56 Year 2022 on KIK is an important effort in building a stronger legal framework to inventory and protect various forms of KIK spread throughout Indonesia, where this inventory aims to create a national database as a prevention tool against the threat of theft such as biopiracy which often harms indigenous peoples and the state.[33] Nevertheless, this regulation still needs improvement, especially in terms of clearer law enforcement mechanisms, including comprehensive arrangements regarding dispute resolution to ensure that indigenous peoples' rights to KIK are fairly and effectively protected.

The participation of indigenous peoples in the legislative and policy process of protecting KIK is an element that cannot be ignored, given that they are the main custodians of the traditional knowledge and cultural expressions that are at the core of KIK itself. Therefore, their active participation in policy-making will ensure that local perspectives can be integrated into national regulations, while on the other hand, education and outreach efforts are needed to raise the awareness of indigenous peoples regarding the importance of KIKs as valuable cultural heritage, so that they can understand and utilize their inherent legal rights.

In relation to the international legal framework, Indonesia as a party to the Nagoya Protocol and TRIPS Agreement has an obligation to ensure that the

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[32] nugroho, "Politik Hukum Kekayaan Intelektual Komunal Dalam Sistem Hukum Nasional." pp.58.

[33] Waluyo, "Kebijakan Indonesia Dalam Upaya Melindungi Sumber Daya Genetik, Pengetahuan Tradisional Dan Ekspresi Budaya Tradisional."

use of genetic resources and traditional knowledge is carried out with fair and balanced benefit sharing mechanisms. However, harmonization between national laws and international standards remains a challenge that must be addressed through proactive legal politics, [34] where communal approaches and the interests of indigenous peoples must be combined with international standards to create KIK protections that are not only comprehensive but also relevant to the local context.

Although regulations related to KIK have shown progress, the implementation of legal protection of KIK still faces various obstacles, such as lack of institutional capacity, low public awareness, and weak effective law enforcement. [35] Thus, strategic measures such as strengthening the capacity of legal institutions, integrating community-based approaches into the national legal system, and continuous education on the importance of KIK are needed to ensure that Indonesia's cultural heritage is not only valued but also protected from unfair exploitation, so that KIK can become an asset that provides economic, social and cultural benefits to the Indonesian community.

2. Policy Orientation of Genetic Resources Protection in Indonesia

Indonesia, as one of the most megabiodiverse countries in the world, has abundant genetic resources (SDGs) with strategic value both ecologically and economically. However, exploitation and biopiracy of SDGs often pose a serious threat. For this reason, the protection of SDGs has become a focus of national policy which is translated into various laws and regulations. One of the main legal frameworks related to the protection of SDGs is Law No. 5 of 1994 on the Ratification of the Convention on Biological Diversity (CBD), which provides the basis for the sustainable management and utilization of SDGs, as well as ensuring the fair and equitable sharing of their benefits.

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[34] Nurfitri, "Perlindungan Kekayaan Intelektual Komunal Pasca Terbitnya Peraturan Pemerintah Nomor 56 Tahun 2022 Tentang Kekayaan Intelektual Komunal." pp.58.

[35] *Ibid.*

In the national level, various regulations have been issued to protect SDGs, including Law No. 13/2016 on Patents, which regulates the protection of innovations that use SDGs as their basis, as well as Government Regulation No. 56/2022 on Communal Intellectual Property (KIK), which regulates the inventory, preservation, and protection of SDGs as part of indigenous peoples' communal property. In addition, sectoral policies are also implemented through regulations such as Minister of Environment and Forestry Regulation No. P.30/MENLHK/SETJEN/KUM.1/5/2017, which regulates access and benefit sharing (ABS) mechanisms as an effort to protect SDGs from unfair exploitation. Here are some regulations related to genetic resources as communal intellectual property:

Regulation Type	**Regulation Title**	**Principal Arrangement**
Law	Law No. 5 of 1994	Ratification of the Convention on Biological Diversity (CBD), including conservation, sustainable use, and benefit sharing of SDGs.
	Law No. 13 of 2016	Patent protection for SDG-based innovations, with the requirement to mention the origin of the genetic resources used.
	Law No. 11 of 2013	Ratification of the Nagoya Protocol, regulating access and benefit sharing of SDGs.
	Law No. 20 of 2016	Geographical indication arrangements related to local SDG-based products.
Government Regulation (PP)	Government Regulation No. 56 of 2022	Inventory and protection of communal intellectual property, including SDGs.

Ministerial Regulation	Minister of Environment and Forestry Regulation No. P.30/MENLHK/SETJEN/KUM.1/5/2017	Access and benefit sharing (ABS) mechanisms for SDG utilization.
	Minister of Agriculture Regulation No. 67 Year 2016	Protection of local plant varieties as part of SDGs.
Others	Head of LIPI Regulation No. 9 of 2014	Guidelines on access and benefit sharing of SDGs for scientific research.

The Access and Benefit Sharing (ABS) policy in Indonesia follows the principles set out in the Nagoya Protocol, which was ratified through Law No. 11 of 2013 on the Ratification of the Nagoya Protocol. This policy aims to ensure that any access to SDGs is regulated through prior informed consent and mutually agreed terms. The implementation of ABS in Indonesia focuses on encouraging the involvement of indigenous peoples in the management of their SDGs, while ensuring that the resulting utilization of those SDGs provides equitable benefits to local communities, while supporting biodiversity conservation.[36]

However, the implementation of SDG and ABS protection policies still faces significant challenges, such as the lack of SDG inventory, weak institutional capacity to oversee and manage ABS, and the lack of awareness of indigenous peoples about their rights to SDGs. Therefore, there is a need to strengthen coordination between central and local governments, increase the capacity of responsible institutions, and more intensive education to indigenous peoples to support better management of SDGs.

[36] Ani Mardiastuti, "Implementation of Access and Benefit Sharing in Indonesia: Review and Case Studies," *Jurnal Manajemen Hutan Tropika* 25, no. 1 (2019): 35–43, https://doi.org/10.7226/jtfm.5.1.35. pp. 39.

Strategically, SDG protection policies are also directed to support SDG-based research and innovation, where Law No. 18 of 2002 on the National System for Research, Development, and Application of Science and Technology serves as a legal umbrella to encourage the sustainable use of SDGs. In addition, international collaboration is also emphasized to utilize SDGs within the ABS framework, while ensuring that national interests and the rights of indigenous peoples are protected. This policy aims to make SDGs not only as natural resources that are conserved, but also as strategic assets that provide economic benefits.

Conclusion

The protection of genetic resources in the international context reveals a significant imbalance in the application of intellectual property (IP) standards, particularly between developed and developing countries. While Article 27.3 of the TRIPS Agreement provides an exception for genetic resources and other subject matters from patentability, its broad and open-ended language has resulted in varying interpretations, leading to unresolved controversies. These controversies center on the potential negative impact of IP protection on biodiversity preservation, with concerns that stringent patent regimes could inhibit efforts to conserve genetic diversity. Consequently, achieving a balance between intellectual property rights (IPR) protection and environmental sustainability remains a pressing global challenge. Addressing this requires greater international cooperation and harmonization of standards to ensure that biodiversity preservation is not undermined by IPR frameworks.

At the national level, Indonesia has taken significant steps toward the protection of genetic resources, demonstrating a strong commitment through Government Regulation No. 56 of 2022 and the implementation of access and benefit sharing (ABS) mechanisms. These legal instruments aim to safeguard communal intellectual property by ensuring equitable sharing of benefits derived from the utilization of genetic resources, particularly for indigenous and local communities. However, the implementation of these policies faces substantial challenges. Weak institutional capacity limits the ability to enforce regulations effectively, while low public awareness of genetic resource protection undermines participation and compliance. Furthermore, gaps in

aligning national policies with international standards hinder the broader recognition and application of Indonesia's regulatory framework.

To address these challenges, a multi-pronged approach is necessary. First, institutional capacity must be strengthened through increased resources, training, and inter-agency coordination to ensure the effective enforcement of genetic resource protection policies. Second, public awareness campaigns should be intensified, focusing on educating indigenous communities and the general public about the importance of genetic resources and their legal protections. Third, efforts to harmonize national policies with international standards must be prioritized to enhance their global recognition and facilitate cooperation with other nations. Finally, Indonesia should develop a more robust and comprehensive ABS mechanism that ensures fair and transparent benefit-sharing agreements, thereby reinforcing trust and participation among stakeholders. These measures collectively aim to enhance the protection of genetic resources, ensuring their preservation and sustainable utilization for future generations while addressing the socio-economic needs of the nation.

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