

Indonesia's Marine and Fishery Genetic Resource Conservation by Means of Intellectual Property

Melisa Safitri¹

¹ Faculty of Law, Universitas Bandar Lampung, Indonesia. E-mail: melisa.safitri@ubl.ac.id

Abstract: The Law of Indonesia No. 17/2007 on the Indonesia Long-Term Development Plan 2005-2025 represents the growth of maritime areas as a development direction. This article analyses the legislation surrounding marine and fishery genetic resources as well as traditional knowledge (GRTK) from the standpoint of intellectual property value. Using an empirical normative method, this article assesses a qualitative result based on the elaboration of library and field research. The findings of this article revealed that a variety of laws have been introduced to explain how far the marine and fishery GRTK have been preserved over time. Among the regulations are: Minister of Environment Regulation Number P.2 2018, The Law of Indonesia No.5/1990 on the Conservation of Natural Resources and Ecosystems; The Law of Indonesia No.11/2013 on the Ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to The Convention on Biological Diversity; The Law of Indonesia No.11/2013 on the Ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits. However, there is no completely overseen protection of Indonesia's GRTK (in sui generis) because the Intellectual Property Regime is based on industrialized country enforcement, which does not acknowledge the existence of communal property rights.

Keywords: Genetic Resource; Traditional Knowledge, Biopiracy; Intellectual Property Rights; Marine; Fishery.

1. Introduction

The National Mid-Term Development Plan of Indonesia (RPJMN), which acts as the national guideline and roadmap toward one major goal: developing Indonesia into a developed country, has served as the foundation for Indonesia's development plans for the next five years. The first goal of the RPJMN's 2020–2024 strategy is to build economic resilience to achieve high-quality, fair growth. Indonesia's abundant marine resources must be used to improve people's wellbeing as a maritime country. In the future, we envisage "blue" sectors contributing even more to the strengthening of our national economy. However, Indonesia still has a long way to go before it can truly reach "blue" prosperity.

The RPJMN recognizes that better management of the blue economy is critical to fulfilling Indonesia's development goals. Furthermore, as global citizens, it is one of our commitments to the Sustainable Development Goals (SDGs). Marine and fisheries management plans are designed to protect, conserve, and use marine resources sustainably based on these obligations.

The Indonesian Sea is a wealth-generating resource. However, the country's administration and rules controlling the use of marine assets are still seen as

less viable. To cooperate in the usage of marine resources directly and optimally, massive efforts from numerous parties are required. In addition, the state's law is expected to be able to address a variety of issues that occur in relation to marine resources, particularly marine genetic resources. Law must be able to preserve intellectual property so that people can develop their creative abilities in sectors like as science, technology, art, and literature, ultimately leading to the objective of successful legal protection of marine genetic resources.

All species of plants, animals, and microbes, as well as marine ecosystems in which the species exists, are considered Marine Genetic Resources. Traditional biological resource knowledge is an intangible component of the resource itself. Traditional knowledge and genetic resources have the potential to be commercially exploited by transforming them into valuable products and procedures.

Bioprospecting, Biothreat, and Biopiracy are three distinct concepts. The illicit or unauthorized exportation of organisms for commercial objectives is known as bio-theft. Searching, collecting, and obtaining genetic elements from biodiversity samples that can be employed in commercialized medicinal, agricultural, industrial, or chemical processing end products is known as bioprospecting.¹ Bio-piracy is defined as acquiring unauthorized access to biological material and using it for commercial goals, as well as gaining exclusive monopoly rights over biological material or indigenous knowledge that belongs to a community, region, or country.²

Marine Genetic Resources, in associated with the Intellectual Property Rights framework, should be effectively utilized for the nation's advantage. This is a synergy that helps each other reap the benefits of Marine Genetic Resources' potential. Looking at current conditions in developing countries like Indonesia, it appears that the Intellectual Property Rights system has failed to encourage the national economy's potential from the use of Marine Genetic Resources, and has actually increased the likelihood of misappropriation or biopiracy.

In light of the aforementioned issues, the purpose of this research was to determine what regulations regulate the conservation of genetic resources, particularly in the management of marine resources, and how the advantages directly correspond to the needs of social welfare. The Law of Indonesia Number 11/2013 on The Ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to The Convention on Biological Diversity; Minister of

¹ Hamilton, C. 2006. *Biodiversity, Biopiracy and benefits: What Allegations of Biopiracy tell us about intellectual property*. Blackwell Publishing Ltd., Oxford, p.57.

² Castree, N. 2013. *A Dictionary Of Human Geography*. Oxford University Press, Oxford, p.42.

Environment Regulation Number P.2 2018, The Law of Indonesia Number 11/2013 on The Ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to The Convention on Biological Diversity; The Law of Indonesia Number 11/2013. This article is intended to analyze the implementation of intellectual values in marine conservation arrangements in terms of security and prosperity for the community directly.

2. Implementation of Intellectual Values in Marine Conservation Development Based on Security and Prosperity Aspects

As a member state of the World Trade Organization, Indonesia constrained to adopt the TRIPS agreement in its legal framework. TRIPS agreement mostly strived for protecting the Intellectual property rights. Moreover, Indonesia has validated and certified several international law indicators concerning to environmental protection such as the Convention on Biodiversity. Unfortunately, none of the above-mentioned international legal utensil have been fit to diminish the collision on biodiversity from the biopiracy. Besides, Indonesia's domestic legal framework is not at all adequate to fend off the high tech biopiracy works. This has created a clash between environmental attention and economic interest of the country. Biopiracy primarily focuses on the exploitation of indigenous tribe or community biological resources and/or knowledge without allowing them to share the profits gained through economic exploitation or other non-monetary incentives linked with the resource/knowledge.³

Today, most of the tropical environmental areas in the world have been victimized by Biopiracy. 90% of the world's remaining biodiversity is concentrated in tropical and subtropical regions within developing countries. The indigenous people in tropical countries did not use their traditional knowledge for commercial purposes as such, they were able to maintain their indigenous knowledge without any damage within past centuries. But today, as biological resources and related knowledge become a source of high-priced assets in the capital market, biodiversity is now transformed into a valuable commodity worldwide.

Human life benefits from genetic resources, whether as food, pharmaceutical substances, industrial materials, or hobbies, recreation, and other activities. It is

³Thomas Efferth,Mita Banerjee,Norbert W. Paul,Sara Abdelfatah,Joachim Arend,Gihan Elhassan,Sami Hamdoun,Rebecca Hamm,Chunlan Hong,Onat Kadioglu,Janine Naß,Dominic Ochwangi,Edna Ooko,Nadire Ozenver,Mohamed E.M. Saeed,Mathias Schneider,Ean-Jeong Seo et al. (2016). Biopiracy of natural products and good bioprospecting practice. *Phytomedicine*. <https://doi.org/10.1016/j.phymed.2015.12.006>

possible to employ genetic resources both in-situ and ex-situ. The term "in-situ" refers to the development of a genetic resource within the context of its ecosystem and natural habitat. Ex-situ refers to the development of a genetic resource outside of the ecosystem and its natural habitat. The image below depicts the use of genetic resources.

Genetic resources have been handled in a conventional manner, with some being used in a much more modern manner. Traditional uses are mostly carried out by indigenous peoples or local communities, with most of them relying on their traditional knowledge of genetic resources in their area. While modern use is primarily done by industry in the production of things like medication, cosmetics, foodstuffs, and so on. Genetic resource exploitation is done for commercial purposes using scientific advancements, while the rest is done non-commercially. The biotechnology industry (such as pharmaceuticals, textiles, detergents, food, animal feed, seeds) and the horticulture business, among others, use biotechnology for commercial objectives. Taxonomy (the science that describes and names species) and conservation are examples of non-commercial usage (genetic resource conservation).⁴

With Law No. 11 of 2013 about the Ratification of the Nagoya Protocol on Access to Genetic Resources and Fair and Balanced Benefit Distribution that Arises from their Utilization, the Indonesian government aimed to conserve existing genetic resources. According to Article 33 and Article 18 of the 1945 Constitution, the Government of Indonesia benefited from the Nagoya Protocol by affirming state control over natural resources and strengthening state sovereignty over regulating access to genetic resources and traditional knowledge from indigenous and local communities. Following approval, extra steps to promote national economic potential from the use of these genetic resources must be made. These efforts can be carried out by utilizing genetic resources using the Intellectual Property Rights (IPR) system. In Law Number 13 of 2016, covering Patents, one type of IPR that can be used is a patent. However, because the patent system is incompatible with the Convention on Biodiversity, efforts to safeguard genetic resources through patents should not really increase the incidence of biopiracy (CBD). Patents prioritize the protection of individual rights, whereas genetic resources are communal and represent a certain area's potential.⁵

The role of intellectual property rights in all sectors of science and technology has increased globally over the last two decades, owing principally to laws imposed by the World Trade Organization's TRIPS and bilateral/regional trade agreements. The TRIPS agreement requires all WTO members to adopt and

⁴ Nditasari A., Erizal, Sabrina R. 2011. *Paket Informasi Keanekaragaman Hayati, Seri: Sumber Daya Genetik*. Kementerian Lingkungan Hidup: Jakarta. Hlm. 11.

⁵ Rani F, Islami T. 2014. *Kebijakan Indonesia Dalam Melindungi Sumber Daya Genetik Pada Pemerintahan Susilo Bambang Yudhoyono*, Jurnal Transnasional, Vol.6. No.1.July 2014, p. 3.

enforce basic intellectual property rights requirements. The TRIPS Agreement mandates member countries to make patents accessible for inventions in all domains of technology, regardless of whether they are products or processes, subject to conventional patent standards (novelty, inventiveness, and industrial applicability).

During the TRIPS Agreement negotiations, no agreement was reached on the contentious issue of biotechnological inventions. The United States and a few other developed countries lobbied for no patent exclusions, while several developing country members wanted all biological diversity-related inventions to be exempt from IP regulations. Patenting of life forms and exclusive monopoly protection on biological products and processes that originate in developing countries (or are based on traditional knowledge) remain contentious issues for many developing countries.

Since the southern states have the most genetic resources, numerous firms are attempting to gain access to genes, microorganisms, plants, animals, and even native human populations to exploit them as a monopolistic product. Critics label the formation of intellectual property rights to these resources for industrial countries "biopiracy," and know that developing countries are obligated to pay royalties to wealthy industrial countries for items derived from their own genetic resources and traditional knowledge. On a global scale, the pharmaceutical industry is the biggest thief of genetic and natural resources. This is the responsibility of third-world countries to guarantee effective use of these natural blessings while protecting their important resources and reserves.⁶

In addition to the regulation of patent protection in intellectual property regimes, Law Number 28 of 2014 concerning Copyright mentions the protection of genetic resources, traditional knowledge, and cultural expressions, but without further regulation of management and protection if there is a conflict. Though it is in this that the essence of protection is found. The lack of documentation facilities also points to a shaky protection system for genetic resources, traditional knowledge, and traditional Indonesian culture expression. Even though many inventions utilizing genetic resources and traditional knowledge from poor nations, such as Indonesia, are today patented by firms from rich countries.⁷

⁶ Ahmadi, M. (2012). The evaluation of biopiracy and patents on biodiversity in the light of trade related aspects of intellectual property rights agreement (TRIPS) of WTO. *Biodiversity & Sustainable Energy Development*, 2:4. Retrieved from <http://dx.doi.org/10.4172/2157-7625.S1.009>.

⁷ Effendi, A. M., Waluyo, T. J. (2015). Kebijakan Indonesia Dalam Upaya Melindungi Sumber Daya Genetik, Pengetahuan Tradisional, dan Ekspresi Budaya Tradisional. Retrieved from <http://repository.unri.ac.id/xmlui/bitstream/handle/123456789/5191/JURNAL%20ANZAL%20M%20EFENDI.pdf?sequence=1>,

In this era of globalization, the lack of protection in the intellectual property legal environment creates yet another chance for biopiracy, potentially causing Indonesia to lose money from the use of its genetic resources. This demonstrates the need of safeguarding genetic resources and preserving society's traditional uses through traditional knowledge. But, given Indonesia's abundance of genetic resources and traditional knowledge relating to their exploitation, what form of preservation should be implemented remains to be determined. Biopiracy must be prevented, which necessitates this protection effort.

There is a legal instrument that regulates access to fair and balanced distribution to support the implementation of the Nagoya Protocol, and there are other arrangements outside the intellectual property regime that regulate the procedure for the use of genetic resources, namely Minister of Environment and Forestry Regulation Number P.2 Year 2018 concerning Access to Genetic Resources of Wild Species.

If indigenous peoples or local groups with traditional knowledge on how to use genetic resources are given intellectual property rights, there is a disadvantage. To begin with, not all regions in Indonesia have acknowledged the existence of indigenous peoples, which includes recognizing traditional knowledge that exists in the community when it comes to the utilization of genetic resources. Second, providing intellectual property rights to local groups or indigenous peoples who have traditional knowledge on how to harness genetic resources requires the government to collect data and register the existence of traditional knowledge in the community.

Stakeholders such as universities, local governments, and research institutions might be involved in data gathering. The Directorate General of Intellectual Property Rights in the Utilization of Genetic Resources, Traditional Knowledge, and Folklore Expressions, Ministry of Higher Education, Research, and Technology, and the BPPT can handle registration. This data gathering and registration is done to make it easier to prove that a particular community owns certain traditional knowledge. Third, in Regional Regulations, the Regional Government must affirm the existence of indigenous peoples or local communities, as well as traditional knowledge on the utilization of these genetic resources, so that the existence of indigenous peoples or local communities, as well as their traditional knowledge, has legal force.

Given the disadvantages of granting intellectual property rights to traditional knowledge related to the use of genetic resources to local communities or indigenous peoples who possess such knowledge, it is preferable if intellectual property rights to traditional knowledge related to genetic resources are granted to:

- a. Central Government.
- b. Regional Government
- c. Stakeholders
- d. The state as the right holder of traditional knowledge that is unknown to the owner.

However, there are certain drawbacks to this approach, including the fact that the results of applying traditional knowledge relating to genetic resources cannot be directly shared by local communities or indigenous peoples who contribute such knowledge. Second, the economic benefits of using traditional knowledge are not guaranteed to be used to conserve traditional knowledge for the use or preservation of genetic resources.

The first option is more profitable for local communities or indigenous people who have traditional knowledge of the use of genetic resources, based on the advantages and disadvantages of these two alternatives for granting intellectual property rights to traditional knowledge related to the use of genetic resources. Although accurate evidence concerning the availability of traditional knowledge on the exploitation of genetic resources is required for this option. From the inventory process through the conservation and sharing of benefits from Indonesia's maritime potential, long-term agreements are required.

Indonesia and other developing countries in general have great natural resources and genetic diversity, but limited mastery of technology and financial capacities, which prevent them from realizing their full potential. Companies in affluent countries use genetic resources and traditional knowledge from developing countries to patent many inventions. As a result of the numerous instances of misuse and unlawful exploitation of genetic resources, international challenges have arisen, including:

- a. The patent system is incompatible with the CBD since patents on conventional knowledge are unrestricted.
- b. Prior Informed Consent (PIC) and Benefit Sharing are not guaranteed under the patent system.
- c. The sovereignty of the country from which the Genetic Resource originates is not respected.

Furthermore, because microorganisms are not considered inventions, they should be regarded as non-patentable subject matter. Several proposals evolved because of the foregoing concerns in an attempt to remedy the problem:

- a. TRIPs Article 27.3 (b) amendments stating that microorganisms must not be excluded from the subject matter for which a patent cannot be awarded.
- b. Obligation in a patent application to reveal the origin of the SDG (disclosure of origin).

- c. The requirement in a patent application to provide evidence of the presence of a PIC (Prior Informed Consent) and Benefit Sharing.

Among other things, the items recommended to address the issues aim to ensure a fair division of advantages between providers and users of the Genetic Resource. Issues relating to this subject have been raised in several international IPR forums, but Indonesia's definitive position has yet to be agreed upon at the national level. The first proposal is to change TRIPs Article 27.3 (b), which states: Members may also exclude from patentability plants and animals other than microorganisms, as well as fundamentally biological processes to produce plants or animals other than non-biological and microbiological processes. Some developing countries want this provision to be changed, which prohibits the patenting of microbes, on the grounds that:

- a. It is morally wrong to patent living things.
- b. These microorganisms are discovery microorganisms for microorganisms that already exist in nature.
- c. Plants and animals have been exempted from patentability; nevertheless, because the distinction between microorganisms and plants/animals cannot be clearly defined, microorganisms should also be exempted from patentability.

In this regard, Indonesia's current position is that this provision should not be abolished or amended because genetic resources are recognized as having economic potential, which, if properly utilized with the support of the IPR system, can be a great opportunity in the development of economic value genetic resources. The next idea is to make it mandatory to disclose the source of the Genetic Resource used in a patent application, as well as proof of PIC and benefit sharing (Disclosure of Origin).

3. Conclusion

Based on the findings of data observations conducted through literature studies on the subject of the study of the Implementation of Law No. 31/2004 jo 45/2009 concerning Perikanan, Law 32/2014 on Marine Affairs, and PP 60/2007 concerning Conservation of Fish Resources in terms of Security and Prosperity aspects in Intellectual Property Rights of the three main laws regarding the utilization of the three main laws There is a legal instrument that regulates access to fair and balanced distribution to support the implementation of the Nagoya Protocol, and there are other arrangements outside the intellectual property regime that regulate the procedure for the use of genetic resources, namely Minister of Environment and Forestry Regulation Number P.2 Year 2018 concerning Access to Genetic Resources of Wild Species.

Local communities or indigenous peoples who give traditional knowledge about genetic resources will not be able to directly benefit from the results of using that information. Second, the economic benefits of using traditional knowledge are not guaranteed to be used to conserve traditional knowledge for the use or preservation of genetic resources. The management of genetic resources focuses solely on cooperative agreements and the use of genetic resources, rather than full ownership of a prospective genetic resource in an area where principles can be present through special arrangements with the intellectual property legal system.

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