



Research Article



## Reconstructing Traditional Knowledge Protection through Collective Rights

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**Abstract:** Despite the growing international recognition of traditional knowledge (TK) as a strategic asset for biodiversity conservation, innovation, and sustainable development, limited scholarship has examined how fragmented legal regimes and the absence of collective rights recognition undermine its effective protection. This research aims to analyze the weaknesses of Indonesia's current legal framework and formulate a more comprehensive protection model based on collective rights and sustainable development principles. This research employs a normative juridical method using statutory, conceptual, and comparative approaches. The analysis focuses on Indonesian regulations and compares them with the protection systems implemented in India and Malaysia. The findings demonstrate that Indonesia's legal framework remains fragmented across sectoral regulations, resulting in overlapping institutional authority, limited legal recognition of indigenous communities as collective rights holders, and the absence of binding mechanisms for Free, Prior and Informed Consent (FPIC) and Access and Benefit-Sharing (ABS). In contrast, India strengthens defensive protection through the Traditional Knowledge Digital Library (TKDL) and anti-biopiracy mechanisms, whereas Malaysia provides a more operational ABS framework supported by dedicated biodiversity legislation. However, both jurisdictions continue to rely predominantly on state-centered governance and provide only limited indigenous autonomy. Based on these findings, this research proposes a sui generis legal framework that integrates collective ownership, FPIC, ABS, community-based governance, customary dispute resolution, and collective legal standing into a unified protection regime. The proposed model contributes to strengthening legal certainty, enhancing indigenous participation, harmonizing fragmented regulations, and promoting sustainable management of traditional knowledge in Indonesia.

**Keywords:** Collective Rights; Intellectual Property; Sustainable; Traditional Knowledge.



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## INTRODUCTION

Traditional knowledge refers to intellectual works based on the ideas, thoughts, or findings of community groups. Traditional knowledge is part of the identity and character of the nation of Indonesia and can be utilized for economic development and the improvement of society's welfare. WIPO uses the phrase "traditional knowledge" to refer to traditional cultural works owned by traditional community organizations. Regardless of whether it is literature, art, or knowledge, the process of traditional knowledge is the result of human ingenuity and creation. The protection of intellectual property created by indigenous or traditional communities in Indonesia is a current legal issue within IPR research. Traditional knowledge is intimately related



to intellectual property and is found in almost all aspects of intellectual property law, including copyright, patents, trademarks, and trade secrets.<sup>1</sup>

For this research, Traditional Cultural Expressions (TCEs) are distinguished from Traditional Knowledge (TK), although both are recognized as forms of Communal Intellectual Property under Indonesian law. TCEs mainly concentrate on artistic and cultural expressions like folklore, traditional music, dance and handicrafts whereas TK is the collective knowledge, skills and practices of indigenous and local communities particularly in relation to traditional medicine, agriculture, biodiversity management and the use of natural resources.<sup>2</sup> The present study is limited to TK, as the legal concerns addressed, such as collective ownership, Free, Prior and Informed Consent (FPIC), Access and Benefit-Sharing (ABS) and the establishment of a sui generis protection system, are specific legal and institutional challenges. Even if TCEs are predominantly safeguarded by Article 38 of Law No. 28 of 2014 on Copyright.<sup>3</sup>

Indonesia has recognized the importance of protecting Traditional Knowledge (TK) through various national legal instruments; however, its legal framework remains fragmented and fails to provide comprehensive substantive protection. Government Regulation Number 56 of 2022 primarily emphasizes the documentation and inventory of Traditional Knowledge as part of Communal Intellectual Property, yet it does not recognize indigenous and local communities as collective rights holders nor provide legally enforceable mechanisms governing Free, Prior and Informed Consent (FPIC), Access and Benefit-Sharing (ABS), licensing arrangements, or legal remedies against misappropriation. Likewise, Article 26 of the Patent Law merely requires the disclosure of the origin of genetic resources and traditional knowledge used in an invention but does not impose obligations to obtain community consent or ensure equitable benefit-sharing, thereby limiting its function to procedural transparency rather than substantive protection.

At the same time, Article 38 of the Copyright Law primarily regulates Traditional Cultural Expressions (TCEs), rather than Traditional Knowledge, demonstrating that Indonesia still lacks a dedicated legal framework specifically designed to accommodate the collective, intergenerational, and customary characteristics of TK. Although Indonesia has ratified the CBD and the Nagoya Protocol, the principles of FPIC and ABS have yet to be fully operationalized through implementing legislation, resulting in legal uncertainty regarding institutional authority, community participation, and benefit-sharing mechanisms. Consequently, Indonesia's current protection regime remains predominantly administrative and reactive, relying on fragmented sectoral regulations that are conceptually rooted in conventional intellectual property principles of individual ownership, novelty, and exclusivity, which are fundamentally incompatible with the communal nature of Traditional

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<sup>1</sup> Yota Negishi, 'Multi-Level Legal Protection of Traditional Knowledge of Arctic Indigenous Peoples: Decolonizing Knowledge Production for Sustainable Development', *Polar Science*, 44 (2025), 101135 <https://doi.org/10.1016/j.polar.2024.101135>

<sup>2</sup> Richard S. Aquino, 'Community Change through Tourism Social Entrepreneurship', *Annals of Tourism Research*, 95 (2022), 103442 <https://doi.org/10.1016/j.annals.2022.103442>

<sup>3</sup> Jie Bai and others, 'Traditional Village Protection and Sustainable Development: Knowledge Graph Construction and Hotspot Evolution', *Sustainable Futures*, 11 (2026), 101577 <https://doi.org/10.1016/j.sfr.2025.101577>



Knowledge. This regulatory fragmentation not only weakens legal certainty but also increases the risk of misappropriation, limits indigenous communities' control over the utilization of their knowledge, and undermines the equitable distribution of economic benefits, thereby demonstrating the urgent need for a comprehensive sui generis legal framework capable of integrating collective ownership, FPIC, ABS, and effective institutional coordination into a coherent system of Traditional Knowledge protection.<sup>4</sup>

Existing intellectual property regimes remain largely oriented toward individual ownership and therefore provide limited protection for the collective and intergenerational characteristics of TK. Indonesia illustrates this challenge through reported cases involving the commercial utilization of traditional medicinal knowledge without effective mechanisms for Free, Prior and Informed Consent (FPIC) or equitable Access and Benefit-Sharing (ABS).<sup>5</sup> These developments demonstrate the need for a sui generis legal framework capable of protecting collectively held traditional knowledge while supporting innovation and sustainable development.<sup>6</sup> Empirical evidence further indicates that biopiracy is not an isolated occurrence but a systemic global challenge affecting many biodiversity-rich developing countries. According to the World Intellectual Property Organization (WIPO), more than 200 reported cases of biopiracy had been identified worldwide by 2022. One of the most vulnerable countries is Indonesia, where traditional knowledge is poorly documented and poorly protected by law.<sup>7</sup> This situation demonstrates that the exploitation of traditional knowledge occurs within an unequal global relationship, in which foreign actors with access to technology, capital, and international legal instruments have a greater capacity to transform the communal knowledge of indigenous peoples into private commercial assets through mechanisms of intellectual property and patents.<sup>8</sup> The persistence of biopiracy and the unequal commercialization of traditional knowledge at the global level are reflected in Indonesia's domestic legal landscape. These international developments expose structural weaknesses in the national legal framework, demonstrating that the challenge extends beyond isolated cases of misappropriation to broader issues of legal governance and institutional capacity.<sup>9</sup>

The growing international concern over the protection of traditional knowledge (TK) has prompted the development of various international legal instruments and policy frameworks. At the international level, the World Intellectual Property

<sup>4</sup> Wan Izatul Asma Wan Talaat, 'Protection of the Associated Traditional Knowledge on Genetic Resources: Beyond the Nagoya Protocol', *Procedia - Social and Behavioral Sciences*, 91 (2013), 673–78 <https://doi.org/10.1016/j.sbspro.2013.08.468>

<sup>5</sup> Paola Patricia Ariza-Colpas and others, 'Sustainability in Hybrid Technologies for Heritage Preservation: A Scientometric Study', *Sustainability*, 16.5 (2024), 1991 <https://doi.org/10.3390/su16051991>

<sup>6</sup> Øyvind Ravna, 'The Duty to Consult the Sámi in Norwegian Law', *Arctic Review on Law and Politics*, 11.1 (2020), 233–55 <https://doi.org/10.23865/arctic.v11.2582>

<sup>7</sup> Clare Kapp, 'New UN Agency Examines Patent Protection for Traditional Knowledge', *The Lancet*, 357.9267 (2001), 1510 [https://doi.org/10.1016/S0140-6736\(00\)04714-0](https://doi.org/10.1016/S0140-6736(00)04714-0)

<sup>8</sup> Martin Scheinin, 'Indigenous Peoples' Right to Fish', in *The Significance of Sámi Rights* (London: Routledge, 2023), pp. 37–51 <https://doi.org/10.4324/9781003220640-4>

<sup>9</sup> Chengcai Tang and others, 'Comprehensive Evaluation of the Cultural Inheritance Level of Tourism-Oriented Traditional Villages: The Example of Beijing', *Tourism Management Perspectives*, 48 (2023), 101166 <https://doi.org/10.1016/j.tmp.2023.101166>



Organization (WIPO), through its Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC), has sought to establish an international legal framework capable of protecting traditional knowledge and preventing its misappropriation. Nevertheless, negotiations have yet to produce a binding international instrument, largely because of divergent interests between biodiversity-rich developing countries seeking stronger recognition of collective rights and developed countries emphasizing conventional intellectual property protection and commercial innovation.<sup>10</sup> Beyond the intellectual property framework, the Convention on Biological Diversity (CBD) and its Nagoya Protocol recognize the close relationship between traditional knowledge and genetic resources by requiring Free, Prior and Informed Consent (FPIC) and fair and equitable Access and Benefit-Sharing (ABS) whenever traditional knowledge associated with genetic resources is accessed or utilized. Complementing these environmental agreements, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) adopts a human rights perspective by affirming indigenous peoples' rights to maintain, control, protect, and develop their traditional knowledge and cultural heritage. Collectively, these international instruments demonstrate that the protection of traditional knowledge extends far beyond conventional intellectual property law and has become an integral component of biodiversity governance, indigenous rights, and sustainable development.<sup>11</sup>

Despite these international developments, Indonesia has yet to establish a comprehensive legal framework capable of operationalizing these principles within its domestic legal system.<sup>12</sup> Existing regulations remain fragmented across copyright, biodiversity, environmental, and communal intellectual property regimes, without providing explicit recognition of collective ownership, effective FPIC procedures, or legally enforceable benefit-sharing mechanisms. Consequently, the gap between international normative standards and domestic implementation remains one of the principal challenges confronting the protection of traditional knowledge in Indonesia and provides the central justification for this study.<sup>13</sup>

Recognizing these regulatory deficiencies requires looking beyond the Indonesian legal system to identify comparative models that have addressed similar challenges through different legal and institutional approaches. Comparative legal analysis is particularly valuable in the field of traditional knowledge protection because no universally accepted legal model currently exists. Instead, countries have developed diverse regulatory strategies reflecting their respective legal traditions, institutional

<sup>10</sup> Junfeng Yang and others, 'Distribution Network Data Asset Protection Considering Multiple Topology and Multi-Dimensional Knowledge Graph', *Global Energy Interconnection*, 2026 <https://doi.org/10.1016/j.gloi.2025.11.003>

<sup>11</sup> A.F. Myburgh, 'Legal Developments in the Protection of Plant-Related Traditional Knowledge: An Intellectual Property Lawyer's Perspective of the International and South African Legal Framework', *South African Journal of Botany*, 77.4 (2011), 844–49 <https://doi.org/10.1016/j.sajb.2011.09.003>

<sup>12</sup> Jinpeng Wang and Xiaohan Fan, 'Traditional Knowledge of Arctic Indigenous Peoples and the Establishment of Area-Based Management Tools beyond National Jurisdiction', *Marine Policy*, 174 (2025), 106604 <https://doi.org/10.1016/j.marpol.2025.106604>

<sup>13</sup> Payal Thakur and Navjot Singh Talwandi, 'Deep Reinforcement Learning in Healthcare and Bio-Medical Applications', in *2024 IEEE International Conference on Computing, Power and Communication Technologies (IC2PCT)* (IEEE, 2024), pp. 742–47 <https://doi.org/10.1109/IC2PCT60090.2024.10486549>





capacities, and socio-cultural contexts.<sup>14</sup> Accordingly, this study selects India and Malaysia as comparative jurisdictions because both are biodiversity-rich developing countries that have adopted distinct approaches to protecting traditional knowledge while sharing socio-economic characteristics broadly comparable to those of Indonesia. Examining these experiences provides an opportunity to identify transferable legal principles, institutional best practices, and policy innovations that may inform the reconstruction of Indonesia's traditional knowledge protection regime.<sup>15</sup>

India and Malaysia were selected as comparative jurisdictions because both are biodiversity-rich developing countries that have adopted distinct legal approaches to protecting traditional knowledge (TK) while sharing socio-economic, cultural, and institutional characteristics comparable to Indonesia.<sup>16</sup> India has established a preventive protection model through the Traditional Knowledge Digital Library (TKDL), which combines systematic documentation with anti-biopiracy measures to prevent illegitimate patent claims over traditional knowledge.<sup>17</sup> In contrast, Malaysia has strengthened the governance of traditional knowledge through the Access to Biological Resources and Benefit Sharing Act 2017, which operationalizes Access and Benefit-Sharing (ABS) in accordance with the Nagoya Protocol.<sup>18</sup> A comparative analysis of these complementary approaches provides a basis for identifying legal and institutional best practices to address Indonesia's fragmented regulatory framework, limited preventive protection, and insufficient recognition of collective rights, thereby supporting the development of a more coherent and effective *sui generis* legal framework.<sup>19</sup>

Based on Putu Aras Samsithawrati et al previous research, Indonesia has many rules based on the protection of communal intellectual property, including Government Regulation No. 56 of 2022 and Regulation of the Minister of Law and Human Rights No. 13 of 2017. But most of this protection is defensive, through rules of inventory and documentation. Although the cultural dimension and the collective rights of indigenous people have not yet been fully resolved, this study also confirms that the WIPO Treaty 2024 is a major breakthrough in the international recognition of TK

<sup>14</sup> Meleksen Akin, Sadiye Peral Eydurhan, and Victoria Krauter, 'Food Packaging Related Research Trends in the Academic Discipline of Food Science and Technology: A Bibliometric Analysis', *Cleaner and Circular Bioeconomy*, 5 (2023), 100046 <https://doi.org/10.1016/j.clcb.2023.100046>

<sup>15</sup> Stephen B. Brush, 'Farmers' Rights and Protection of Traditional Agricultural Knowledge', *World Development*, 35.9 (2007), 1499–1514 <https://doi.org/10.1016/j.worlddev.2006.05.018>

<sup>16</sup> Grethel Aguilar, 'Access to Genetic Resources and Protection of Traditional Knowledge in the Territories of Indigenous Peoples', *Environmental Science & Policy*, 4.4–5 (2001), 241–56 [https://doi.org/10.1016/S1462-9011\(01\)00028-4](https://doi.org/10.1016/S1462-9011(01)00028-4)

<sup>17</sup> Shiva Mehta and Aseem Aneja, 'Privacy-Preserving AI: Leveraging Federated Reinforcement Learning in Distributed Systems', in *2024 International Conference on Electrical Electronics and Computing Technologies (ICEECT)* (IEEE, 2024), pp. 1–4 <https://doi.org/10.1109/ICEECT61758.2024.10739054>

<sup>18</sup> Xinghui Fei and others, 'A Systematic Study on the Privacy Protection Mechanism of Natural Language Processing in Medical Health Records', in *2024 IEEE 2nd International Conference on Sensors, Electronics and Computer Engineering (ICSECE)* (IEEE, 2024), pp. 1819–24 <https://doi.org/10.1109/ICSECE61636.2024.10729333>

<sup>19</sup> Rishabh Sharma and others, 'Adaptive Investment Strategies: Deep Reinforcement Learning Approaches for Portfolio Optimization', in *2023 4th International Conference on Intelligent Technologies (CONIT)* (IEEE, 2024), pp. 1–5 <https://doi.org/10.1109/CONIT61985.2024.10627674>



related to genetic resources.<sup>20</sup> Further, Yulia et al.'s work shows that the national patent regime still has fundamental limitations because it is based on the ideas of individual ownership and novelty, which are hard to apply to traditional knowledge that is communal and passed down through generations. This research also highlights the poor incorporation of the concepts of prior informed consent and benefit-sharing into the national legal system, and the susceptibility of preventive protection systems to biopiracy. This study emphasizes the importance of regulatory reform grounded in a sui generis system to better align the protection of traditional knowledge with the features of indigenous communities in Indonesia<sup>21</sup> Gultom and Wartini's research also showed that geographical indicators can serve as an economic protection tool for local communities, particularly in safeguarding cultural identity and enhancing the market value of traditional items. However, this study also highlighted the limitations of protection through geographical indicators, which do not sufficiently account for the social and spiritual dimensions of traditional knowledge. Moreover, the economic benefits from this protection have not been fairly allocated to the local population due to low institutional capacities and limited engagement of indigenous communities.<sup>22</sup> Rindia Fanny Kusmaningtyas et al. in another study found that the legal strategy that is too geared towards the economy can reduce the social and spiritual worth of traditional knowledge into mere cultural commodities. Thus, this study recommends a collective rights-based protection method and strengthening indigenous community participation in the management of intellectual property and communal culture.<sup>23</sup>

Most of the research is on the normative issues of protection including intellectual property regimes, documentation and geographical indicators. However, there is currently a lack of research that holistically combine traditional knowledge protection with the enhancement of collective rights and sustainable development. Moreover, existing studies have been sectoral and partial in their approach to the protection of traditional knowledge, leaving a regulatory gap in the integrated approach to recognition of indigenous communities, cultural protection, management of genetic resources and equitable benefit sharing mechanisms. Thus, this study is important to fill this gap by using a more comprehensive approach taking into consideration

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<sup>20</sup> Putu Aras Samsithawrati and others, 'Traditional Knowledge and Traditional Cultural Expressions as Communal Intellectual Property: Are They Protected Under the WIPO Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge 2024?', *Jurnal Pembangunan Hukum Indonesia*, 7.1 (2024), 1–26 <https://doi.org/10.14710/jphi.v7i1.1-26>

<sup>21</sup> Yulia Yulia and others, 'Traditional Knowledge Management: Community Understanding and Government Strategic Steps to Strengthen Aceh's Economy', *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law)*, 12.1 (2025), 113–36 <https://doi.org/10.22304/pjih.v12n1.a6>

<sup>22</sup> Alif Muhammad Gultom and Sri Wartini, 'Preserving Indigenous Cultures: Analyzing Geographical Indication Registration for Indigenous People Protection in Indonesia', *Journal of Judicial Review*, 25.1 (2023), 33–50 <https://doi.org/10.37253/jjr.v25i1.7647>

<sup>23</sup> Rindia Fanny Kusmaningtyas and others, 'Traditional Cultural Expression as an Embodiment of Indigenous Communities and Regional Identity (Semarang Indonesia Case)', *Journal of Indonesian Legal Studies*, 8.1 (2023), 45–92 <https://doi.org/10.15294/jils.v8i1.63191>



traditional knowledge as a strategic tool in the implementation of sustainable development and as an object of intellectual property protection and part of the collective rights of indigenous communities. Therefore, this research is expected to contribute theoretically to the development of discourse on the protection of traditional knowledge from the perspective of sustainability and collective rights, and practically to recommend national legal reform in Indonesia.<sup>24</sup>

## METHOD

This research employs normative legal research, focusing on the analysis of legal norms, principles, and institutional frameworks governing the protection of Traditional Knowledge (TK) from the perspectives of collective rights and sustainable development. This approach is appropriate because the study examines regulatory fragmentation, the absence of a *sui generis* protection regime, and the incompatibility between conventional intellectual property law and the collective nature of traditional knowledge. The research applies three complementary approaches: statutory, conceptual, and comparative. The statutory approach examines relevant national and international legal instruments, including Government Regulation Number 56 of 2022 concerning Communal Intellectual Property, Law Number 13 of 2016 concerning Patents, the Convention on Biological Diversity (CBD), the Nagoya Protocol, and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Law Number 28 of 2014 concerning Copyright is referred to only to distinguish Traditional Knowledge from Traditional Cultural Expressions, which are outside the scope of this study. The conceptual approach analyzes legal doctrines relating to collective rights, *sui generis* protection, Free, Prior and Informed Consent (FPIC), Access and Benefit-Sharing (ABS), and sustainable development.<sup>25</sup>

The comparative approach examines the legal frameworks of India and Malaysia, selected because both have developed different yet relevant models for protecting traditional knowledge. India adopts a preventive approach through the Traditional Knowledge Digital Library (TKDL) and anti-biopiracy measures, whereas Malaysia emphasizes Access and Benefit-Sharing (ABS) through the Access to Biological Resources and Benefit Sharing Act 2017. The comparison aims to identify legal and institutional best practices that may contribute to the reconstruction of Indonesia's traditional knowledge protection framework. Primary, secondary, and tertiary legal materials were analyzed qualitatively through legal interpretation, comparative analysis, and normative evaluation to formulate recommendations for strengthening Indonesia's legal framework for traditional knowledge protection.<sup>26</sup>

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<sup>24</sup> Gultom and Wartini.

<sup>25</sup> Yingchuan Yan and others, 'Regional Knowledge Protection, Innovation Level, and Data Element Level', *International Review of Economics & Finance*, 100 (2025), 104073 <https://doi.org/10.1016/j.iref.2025.104073>

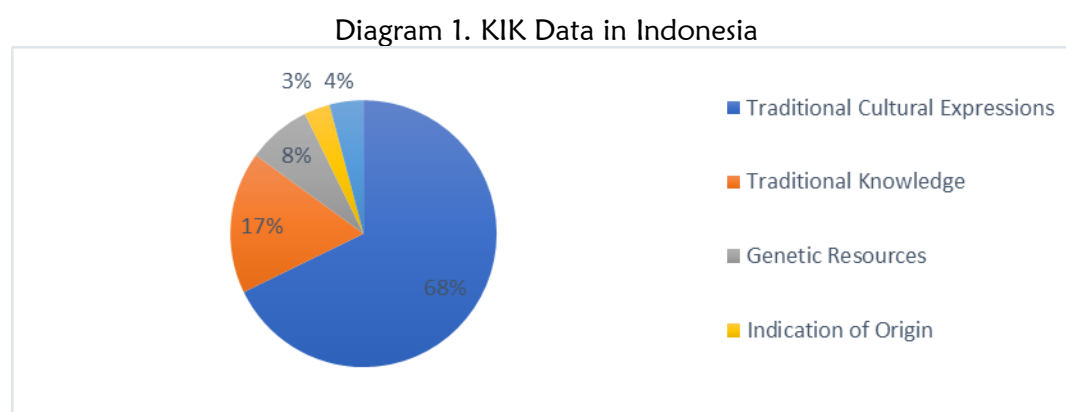
<sup>26</sup> Abdul Kadir Jaelani and Reza Octavia Kusumaningtyas, 'The Interests and the Conflict Vortex in Wadas Village: A Karl Marx Perspective', in *Proceedings of the International Conference on Cultural Policy and Sustainable Development*, 2024, pp. 42–48 [https://doi.org/10.2991/978-2-38476-315-3\\_8](https://doi.org/10.2991/978-2-38476-315-3_8)

## RESULT AND DISCUSSION

### *Fragmented Regulation and Collective Rights in Traditional Knowledge Protection*

In poor countries, traditional knowledge is regarded as a cultural identity that has to be protected, whereas in developed countries, it is believed to be in the public domain. Within the context of such changes, questions of intellectual property rights, especially the safeguarding of traditional knowledge, have become somewhat delicate. Within the concept of IPR protection, two kinds of legal protection are recognized. In the first place, defensive protection aims to prohibit third parties from granting intellectual property rights (IPR) without the knowledge and approval of the IPR proprietor. Secondly, positive protection is usually obtained through legal actions or remedies, for example, the adoption of particular legislation for each category of IPR or the use of legal instruments connected to IPR.<sup>27</sup>

These conditions indicate that the protection of CIP is no longer just a regulatory issue but has become an important part of the plan to maintain cultural identity, economic sovereignty, and the collective rights of indigenous communities. The protection of communal intellectual properties in the Indonesian setting becomes increasingly important due to the large number of communal intellectual properties scattered across different regions with various cultural traits and genetic resources. The strategic worth of national cultural heritage, however, also indicates the considerable potential of this category and its high vulnerability to exploitation, theft, and unilateral claims without a comprehensive and effective system of legal protection. Therefore, the mapping and inventorying of CIP are key elements of a legal protection mechanism that is not only administrative, but also capable of enhancing the recognition of the collective rights of indigenous communities as the primary owners of traditional knowledge and traditional cultural expressions. The graphic below shows an overall picture of the development and dispersion of registered CIP in Indonesia.<sup>28</sup>



*Sources: Directorate General of Intellectual Property, 2026*

<sup>27</sup> Dragos Sebastian CRISTEA and others, 'Knowledge-Driven Citizen Engagement as a Support Tool for Aquatic Ecosystem Protection and Restoration', *Journal of Innovation & Knowledge*, 11 (2026), 100851 <https://doi.org/10.1016/j.jik.2025.100851>

<sup>28</sup> Huan Lin, Guohong Wang, and Qilong Zong, 'How Knowledge Sharing and Protection in Strategic Alliances Affects Technological Innovation in High-Tech Manufacturing Firms', *Journal of Manufacturing Technology Management*, 36.8 (2025), 1535–54 <https://doi.org/10.1108/JMTM-10-2024-0545>





Based on these statistics, it can be seen that Indonesia has a considerable number of registered / certified KIK's. As of 2 February 2026, there were 3,223 KIK in total. Most of the KIK is on renewable energy (2,185 or 68%). This is followed by traditional knowledge (555 or 17%), natural resources (249 or 8%), indications of origin (133 or 4%), and prospective geographical indications (101 or 3%). The big figure shows that Indonesia has a large potential for KIK, hence the possibility of lawsuits from certain negligent parties is higher. There is a need for a rigorous regulatory framework for the protection of the existing potential of KIK, particularly in traditional communities. For each form of KIK, the legal protection orientation is regulated by multiple regulatory techniques. This situation shows that Indonesia has not yet created a full sui generis legal framework that includes a KIK protection mechanism. As a result, rules governing traditional cultural expressions, traditional knowledge, genetic resources, indications of origin, and geographical indications have developed in a piecemeal fashion, under a variety of legal regimes with varying characteristics, objectives, and protection mechanisms. In the end, the fragmentation of rules leads to the prevalence of administrative and sectoral approaches in the governance of KIK protection in Indonesia, with disharmonious norms and overlapping jurisdiction among authorities. The table below summarizes the several national regulations governing KIK.<sup>29</sup>

*Table 1. Distribution of KIK Regulations in Several Legal Regulations  
Intellectual Property*

| Number | Communal Intellectual Property     | Regulation                                                                                                                                                              | Government Regulations                                                                                                                                       |
|--------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Traditional Expressions            | Cultural Article 38, Article 40, Article 60 of the Copyright Law                                                                                                        | Government Regulation Number 56 of 2022 concerning Intellectual Property of Communities                                                                      |
| 2      | Traditional Knowledge              | Article 26 and Article 132 (1) of the Patent Law                                                                                                                        |                                                                                                                                                              |
| 3      | Traditional Expressions            | Cultural Law Number 29 of 2000 concerning the Protection of Plant Varieties                                                                                             | Dividing KIK into traditional cultural expressions, traditional knowledge, genetic resources, indications of origin, and potential geographical indications. |
| 4      | Indication of Origin               | Articles 63 to 65 of the Trademarks and Geographical Indications Law                                                                                                    |                                                                                                                                                              |
| 5      | Potential Geographical Indications | There isn't any                                                                                                                                                         |                                                                                                                                                              |
| 6      | Geographical Indication            | Article 21, Article 53 to Article 62 of the Trademark and Geographical Indications Law, and Articles 66 – 69, 70 – 71 of the Trademark and Geographical Indications Law |                                                                                                                                                              |

*Sources: processed by the author*

<sup>29</sup> Cenfeng Li and others, 'Research on Local Knowledge Categories and Formation Mechanisms of Traditional Village Landscapes: A Case Study of Jiangjin District, Chongqing, China', *Frontiers of Architectural Research*, 15.1 (2026), 24–40 <https://doi.org/10.1016/j.foar.2025.03.011>



Although the KIK is regulated in the form of a law, the above table shows that it is only a small part of the extensive regulation of other branches of IPR. For example, traditional knowledge is regulated in Article 38 of Law Number 28 of 2014 concerning Copyright (Copyright Law). In other words, there is no law (one sort of legislation, under the Decree of the People's Consultative Assembly/MPR Tap) that explicitly governs KIK; there is only a government regulation level, namely Government Regulation Number 56 of 2022 concerning Communal Intellectual Property (PP KIK).<sup>30</sup> The essence of this government rule is that the regulation of intellectual property is limited to technical protection issues. Since this is a government regulation, it is consistent with its nature. The core of intellectual property protection is far more fundamental. This does not consider the conceptual differences in the interpretation of the categories of KIK, which are contained in each statute, including when they are related to the notion in the PP KIK. The combination of restrictions on collective intellectual property rights (KIK) with the ownership of the same in individual intellectual property rights (IPR) regulations gives rise to the possibility of a number of challenges. This is not only the case because of the plainly problematic regulatory perspective, but also the less-than-ideal implementation perspective.<sup>31</sup>

Regulatory fragmentation constitutes one of the principal structural weaknesses of Indonesia's traditional knowledge protection regime. Rather than establishing a unified legal framework, the protection of traditional knowledge is dispersed across multiple legal instruments including Government Regulation No. 56 of 2022 concerning Communal Intellectual Property, the Patent Law, the Copyright Law, biodiversity legislation, and Indonesia's implementing legislation for the Convention on Biological Diversity (CBD) and the Nagoya Protocol which pursue different regulatory objectives and are administered by different institutions. This sectoral approach produces inconsistent definitions, overlapping institutional authority, and legal uncertainty regarding the recognition and enforcement of collective rights.<sup>32</sup>

Regulatory fragmentation also creates legal vulnerabilities that enable third parties to appropriate traditional knowledge through legally permissible mechanisms that remain substantively unfair to indigenous and local communities. In the absence of a unified legal framework, economic actors may strategically rely on those intellectual property regimes that offer the most favourable legal protection while avoiding obligations relating to community consent or equitable benefit-sharing. This phenomenon reflects not merely regulatory inconsistency but a structural failure of legal governance. Empirical evidence demonstrates that this problem is becoming increasingly significant. According to the Directorate General of Intellectual Property (DJKI), Indonesia had recorded more than 1,900 Communal Intellectual Property

<sup>30</sup> Luckson Zvobgo and others, 'Role of Indigenous and Local Knowledge in Seasonal Forecasts and Climate Adaptation: A Case Study of Smallholder Farmers in Chiredzi, Zimbabwe', *Environmental Science & Policy*, 145 (2023), 13–28 <https://doi.org/10.1016/j.envsci.2023.03.017>

<sup>31</sup> Nian Wang and others, 'An Indigenous Knowledge-Based Sustainable Landscape for Mountain Villages: The Jiabang Rice Terraces of Guizhou, China', *Habitat International*, 111 (2021), 102360 <https://doi.org/10.1016/j.habitatint.2021.102360>

<sup>32</sup> Xiaofei Qin and others, 'What Makes Better Village Economic Development in Traditional Agricultural Areas of China? Evidence from 338 Villages', *Habitat International*, 106 (2020), 102286 <https://doi.org/10.1016/j.habitatint.2020.102286>



(Kekayaan Intelektual Komunal) registrations by 2024, including Traditional Knowledge, Traditional Cultural Expressions, and Genetic Resources. Nevertheless, these registrations function primarily as administrative records and do not establish enforceable collective proprietary rights, nor do they provide mechanisms for Free, Prior and Informed Consent (FPIC), Access and Benefit-Sharing (ABS), or legal remedies against misappropriation.<sup>33</sup>

Consequently, documentation has not been accompanied by substantive legal protection. Indonesia has also ratified the Convention on Biological Diversity (CBD) and the Nagoya Protocol through Law No. 5 of 1994 and Law No. 11 of 2013, respectively; however, implementing legislation governing FPIC procedures, community representation, and benefit-sharing arrangements remains incomplete. This normative gap has contributed to legal uncertainty regarding the recognition of indigenous communities as collective rights holders. While some regulations acknowledge indigenous communities as custodians of traditional knowledge, others neither define their legal status nor confer collective legal standing to authorize access, negotiate benefit-sharing agreements, or seek judicial remedies. As a result, indigenous communities are frequently excluded from decision-making processes concerning the commercial utilization of their own traditional knowledge. Regulatory fragmentation therefore weakens the practical realization of collective rights, reducing them to declaratory policy objectives rather than legally enforceable rights. Without an integrated *sui generis* framework expressly recognizing communal ownership, FPIC, ABS, and collective legal standing, Indonesia's traditional knowledge protection regime will remain vulnerable to misappropriation despite the growing economic value of traditional knowledge.<sup>34</sup>

Hence, there is a need to introduce legal reform that does not depend on sectoral and fragmentary approaches, but on the construction of a unique legal framework that expressly regulates the full protection of communal intellectual property and traditional knowledge. This legal framework should substantively recognize the collective rights of indigenous groups, and provide procedures for access and benefit-sharing, management of genetic resources, and preservation of culture. The protection of traditional knowledge is therefore an administrative tool for inventory and recording and a means to strengthen cultural sovereignty, social justice, and sustainable development, all of which are focused on the interests of local communities, the primary owners of traditional knowledge.<sup>35</sup>

### ***Traditional Knowledge Protection in India and Malaysia***

In crucial fields such as food security, agricultural development, and medical care, traditional wisdom continues to play a significant role. Western science has recently

<sup>33</sup> Peilin Liu, Can Zeng, and Ruirui Liu, 'Environmental Adaptation of Traditional Chinese Settlement Patterns and Its Landscape Gene Mapping', *Habitat International*, 135 (2023), 102808 <https://doi.org/10.1016/j.habitatint.2023.102808>

<sup>34</sup> Xinqu Liu and others, 'The Spatial Pedigree in Traditional Villages under the Perspective of Urban Regeneration—Taking 728 Villages in Jiangnan Region, China as Cases', *Land*, 11.9 (2022), 1561 <https://doi.org/10.3390/land11091561>

<sup>35</sup> Jianjian Li and Pan Wei, 'Three-Dimensional Landscape Rendering and Landscape Spatial Distribution of Traditional Villages Based on Big Data Information System', ed. by Yang Gao, *Mobile Information Systems*, 2022 (2022), 1–13 <https://doi.org/10.1155/2022/4945918>



become more interested in traditional knowledge, recognizing that it can sometimes help solve contemporary issues, especially when combined with modern scientific and technological understanding. Despite growing acknowledgment of its value, Western intellectual property laws often categorize traditional knowledge as part of the "public domain," allowing unrestricted use.<sup>36</sup>

India has developed one of the most comprehensive legal frameworks for protecting Traditional Knowledge (TK) among developing countries by integrating preventive legal mechanisms, biodiversity governance, and institutional documentation. Unlike Indonesia, where the protection of traditional knowledge remains fragmented across several sectoral regulations, India adopts a more integrated approach that combines patent law, biodiversity legislation, and administrative institutions to prevent the misappropriation of traditional knowledge before legal disputes arise. This preventive orientation demonstrates a shift from reactive protection toward ex ante legal protection.

The Indian Patent Act 1970 explicitly excludes traditional knowledge from patentability under Section 3(p), which provides that inventions consisting of traditional knowledge or merely aggregating the known properties of traditionally known components are not regarded as patentable inventions. This provision substantially reduces the possibility of granting patents over existing traditional knowledge and strengthens legal certainty by preventing the privatization of collectively developed knowledge. Complementing this mechanism, the Biological Diversity Act 2002, enacted following India's ratification of the Convention on Biological Diversity (CBD), establishes a comprehensive regulatory framework governing access to biological resources and associated traditional knowledge. Through the National Biodiversity Authority (NBA), the Act requires prior approval for access to biological resources and incorporates Access and Benefit-Sharing (ABS) principles to ensure that indigenous and local communities receive fair and equitable benefits from the commercial utilization of their knowledge.<sup>37</sup>

A distinctive feature of India's protection system is the Traditional Knowledge Digital Library (TKDL), which functions as a defensive protection mechanism by documenting traditional medicinal knowledge and making it accessible to patent examiners worldwide. Rather than creating exclusive proprietary rights, the TKDL serves as evidence of prior art, enabling patent offices to reject patent applications based on existing traditional knowledge. This preventive model has significantly reduced the risk of biopiracy and demonstrates that effective protection requires not only legal recognition but also institutional mechanisms capable of integrating traditional knowledge documentation into patent examination procedures. In addition, the People's Biodiversity Register (PBR) complements the TKDL by documenting local biodiversity resources and associated traditional knowledge at the community level, thereby strengthening community participation in biodiversity

<sup>36</sup> Arijit Das and others, 'Integrating Tribal Perceptions and Traditional Ecological Knowledge into Ecosystem Services Management: A Case Study from the Barind Region, Eastern India', *Evolving Earth*, 3 (2025), 100070 <https://doi.org/10.1016/j.eve.2025.100070>

<sup>37</sup> Prakash Kumar Paudel and others, 'Integrating Traditional and Local Knowledge into Disaster Risk Reduction Policies: Insights from Nepal, India and Bangladesh', *Environmental Science & Policy*, 159 (2024), 103825 <https://doi.org/10.1016/j.envsci.2024.103825>





governance and supporting the implementation of Access and Benefit-Sharing principles.<sup>38</sup>

Despite these significant achievements, the Indian model is not without limitations. The protection framework remains predominantly defensive because it focuses on preventing illegitimate patent claims rather than establishing proprietary collective rights over traditional knowledge. Furthermore, documentation alone does not automatically guarantee the effective participation of indigenous communities in commercial decision-making or equitable benefit-sharing. Nevertheless, compared with Indonesia, India's legal framework provides a more coherent institutional structure by integrating patent law, biodiversity governance, documentation systems, and anti-biopiracy measures within a unified regulatory strategy. These features offer valuable lessons for Indonesia, particularly regarding the development of an integrated traditional knowledge database, the incorporation of traditional knowledge into substantive patent examination, and the establishment of institutional mechanisms capable of operationalizing Free, Prior and Informed Consent (FPIC) and Access and Benefit-Sharing (ABS) within a future sui generis legal framework.<sup>39</sup> More recently, the Ministry of Human Resource Development (MHRD) of the Government of India and the Anthropological Survey of India (ASI) jointly initiated a project to document the Traditional Knowledge of indigenous tribal communities across India. The project aimed to identify, collect, and systematically document valuable traditional knowledge for inclusion in the Traditional Knowledge Digital Library (TKDL). Funded by the Ministry of Human Resource Development with a budget of approximately INR 500 crore, the five-year initiative commenced in January 2010 in Shahabad, Baran District, Rajasthan.<sup>40</sup>

India is also a pioneer in the global creation of a traditional knowledge (TK) protection system, particularly through a preventive (defensive) approach to bio-piracy and misuse. India, a mega-biodiversity nation, has a large number of traditional medicines (including Ayurveda, Siddha, Unani, and Yoga), and has adopted a more structured approach to the preservation of traditional knowledge than many other developing countries. India's experience with several patent applications from foreign entities on the usage of traditional medicinal plants has raised awareness about the need to strengthen the protection of TK as part of its national interests and cultural sovereignty. In this framework, traditional knowledge is regarded as a strategic resource with high economic worth for the global pharmaceutical, cosmetics, and biotechnology sectors, beyond just cultural legacy.<sup>41</sup>

<sup>38</sup> Rangga Kala Mahaswa and AINU Syaja, 'Questioning Local Wisdom in Indonesian Indigenous Research', *Studies in History and Philosophy of Science*, 112 (2025), 170–78 <https://doi.org/10.1016/j.shpsa.2025.07.001>

<sup>39</sup> Twinkle Borah and others, 'Wild Edible Forest Resources of Northeast India: Utilization of the Traditional Knowledge and Nutritional Value for Sustainable Economic Growth', in *Forests for Inclusive and Sustainable Economic Growth* (Elsevier, 2025), pp. 329–54 <https://doi.org/10.1016/B978-0-443-31406-3.00025-4>

<sup>40</sup> Dip Kr Bhattacharjya and others, 'An Ethnobotanical Survey on Phytomedicines Based on Traditional Knowledge in the Barpeta District, Assam, India', *Journal of Ayurveda and Integrative Medicine*, 14.4 (2023), 100763 <https://doi.org/10.1016/j.jaim.2023.100763>

<sup>41</sup> Ashmita Das and others, 'Traditional Ecological Knowledge towards Natural Resource Management', in *Sustainable Agriculture and the Environment* (Elsevier, 2023), pp. 275–94 <https://doi.org/10.1016/B978-0-323-90500-8.00019-1>



India's accomplishment in establishing a preventive protection system has significantly reduced the risk of biopiracy, yet it has not fully resolved the substantive issue of recognizing the collective rights of indigenous communities. The Traditional Knowledge Digital Library (TKDL) currently contains more than 390,000 formulations of traditional medicinal knowledge derived from Ayurveda, Unani, Siddha, Sowa-Rigpa, and Yoga, translated into several international languages and made accessible to major patent offices worldwide. According to the Council of Scientific and Industrial Research (CSIR), the TKDL has successfully contributed to the withdrawal or rejection of more than 200 patent applications involving traditional knowledge, including claims filed before the European Patent Office (EPO), the United States Patent and Trademark Office (USPTO), and other international patent offices. These achievements demonstrate the effectiveness of TKDL as a defensive protection mechanism capable of preventing the misappropriation of traditional knowledge through the patent system.<sup>42</sup>

Nevertheless, the TKDL primarily serves the objective of protecting India's national interests and preventing external exploitation rather than recognizing indigenous communities as autonomous collective rights holders. In practice, the State retains a dominant role in documenting, managing, and controlling access to traditional knowledge, while indigenous communities exercise only limited influence over decisions concerning access, commercialization, and benefit-sharing. This institutional imbalance has attracted criticism within the literature because documentation alone does not automatically guarantee community participation or equitable economic returns. Furthermore, many indigenous communities remain reluctant to disclose sacred or culturally sensitive knowledge, as public documentation may conflict with customary laws, spiritual values, and traditional governance systems. Consequently, although India's preventive model has proven highly effective in reducing illegitimate patent claims, it remains insufficient to ensure substantive protection of collective rights. These limitations indicate that effective protection of traditional knowledge requires not only documentation and anti-biopiracy mechanisms but also legally enforceable arrangements concerning Free, Prior and Informed Consent (FPIC), Access and Benefit-Sharing (ABS), collective ownership, and community participation in decision-making.<sup>43</sup>

In addition to the TKDL, India has further expanded the protection of traditional knowledge with the Biological Diversity Act 2002, which includes the protection of genetic resources, traditional knowledge and access and benefit-sharing (ABS) procedures. This rule states that access to genetic resources shall be subject to approval of the competent authorities and use of biological resources and traditional knowledge for the purposes of conservation of biological variety and sustainable development. India also created the National Biodiversity Authority (NBA), an entity for the supervision of access to biological resources and the equitable sharing of

<sup>42</sup> Mohamad Syahmi Mat Daud and Hairunnizam Wahid, 'Assessing the Role of Zakat Institutions in the Socio-Economic Sustainability of the Poor and Destitute in Malaysia', *International Journal of Sociology and Social Policy*, 45.11–12 (2025), 1121–36 <https://doi.org/10.1108/IJSSP-01-2025-0036>

<sup>43</sup> P. Radha and others, 'Documentation and Quantitative Analysis of the Traditional Knowledge on Medicinal Plants in Udumalpet Block, Tiruppur District, Tamil Nadu, India', *Acta Ecologica Sinica*, 42.2 (2022), 122–42 <https://doi.org/10.1016/j.chnaes.2021.10.009>



benefits for local populations. This approach reflects India's efforts to strike a balance between protecting traditional knowledge with commercial viability and environmental responsibility. Despite this, the implementation of benefit-sharing methods in India continues to be criticized, as the transfer of economic gains has not been totally equitable to indigenous groups. Local communities tend to remain subordinate in the face of states and industries with better access to capital, technology and global markets. Hence, the protection of traditional knowledge in India still shows a tendency towards state-centric governance where the state is the dominant actor in the management of traditional knowledge. Indigenous groups have not yet been fully recognized as the primary legal entities with full sovereignty over their knowledge.<sup>44</sup>

India's strategy centers on documentation and anti-biopiracy, emphasizing recordkeeping and legal action against unauthorized use. In contrast, Malaysia takes a practical approach focused on managing access to biological resources and implementing benefit-sharing systems.<sup>45</sup> While both Malaysia and Indonesia have rich biodiversity and diverse indigenous communities, they similarly struggle with external misappropriation of traditional knowledge and genetic resources. Malaysia addresses these issues primarily through the Access to Biological Resources and Benefit Sharing Act 2017, which mandates prior informed consent and benefit-sharing with local communities. This approach reflects Malaysia's aim to protect economic interests, manage genetic resources, and conserve biodiversity within a structured legal framework.<sup>46</sup>

Despite progressive legislation, Malaysia's system for protecting traditional knowledge is still marked by strong governmental oversight and administrative control. Compared to Indonesia, Malaysia's access and benefit-sharing (ABS) process is more active, focusing on administrative monitoring and licensing rather than improving the collective rights of indigenous populations.<sup>47</sup> The state controls entry systems, issues permissions, and manages economic rewards, which limits indigenous communities' engagement. This highlights the need to formally recognize indigenous groups in Malaysia's legal system to advance both national development and biodiversity governance. Ultimately, even with a more organized legislative framework in Malaysia, collective rights and benefits for indigenous peoples are not guaranteed, illustrating that greater legal organization does not necessarily result in fairer power or benefit sharing for local communities with traditional wisdom.<sup>48</sup>

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<sup>44</sup> Gopalakrishnan Saroja Seethapathy and others, 'Ethnobotany of Dioecious Species: Traditional Knowledge on Dioecious Plants in India', *Journal of Ethnopharmacology*, 221 (2018), 56–64 <https://doi.org/10.1016/j.jep.2018.04.011>

<sup>45</sup> Rashid Parvez Khan and others, 'Agri-Tech Startups in India: Knowledge Recombination under Resource Constraints', *Journal of Rural Studies*, 125 (2026), 104226 <https://doi.org/10.1016/j.jrurstud.2026.104226>

<sup>46</sup> Faiza Siddiqui, Rohani Salleh, and Amjad Shamim, 'Advancing SDGs through Environmental Sustainability Performance: The Role of Employee Sustainable Consumption Behaviors in Malaysia's Energy Sector', *Sustainable Futures*, 10 (2025), 101446 <https://doi.org/10.1016/j.sfr.2025.101446>

<sup>47</sup> Erika Vázquez-Flores and others, 'Alliances for Social Change: Linking Majority-Group Cultural Adoption to Collective Action Intentions', *International Journal of Intercultural Relations*, 111 (2026), 102367 <https://doi.org/10.1016/j.ijintrel.2026.102367>

<sup>48</sup> Noorfaizatul Hanim Md Nawawi and others, 'Development and Validation of the Knowledge and



Although Malaysia demonstrates a more operational and integrated access and benefit-sharing governance framework than Indonesia, its protection system remains predominantly administrative and state-centered. Indigenous communities are still positioned more as procedural participants rather than substantive collective rights holders. This indicates that Indonesia should not merely replicate Malaysia's regulatory model, but instead develop a *sui generis* framework that explicitly recognizes collective ownership, cultural sovereignty, and indigenous self-determination in traditional knowledge protection. Local community participation is still often considered part of an administrative procedure, rather than an overall recognition of the collective sovereignty of indigenous peoples over traditional knowledge.<sup>49</sup> “Malaysia’s experience in the implementation of more transparent and efficient access and benefit-sharing mechanisms can be useful for Indonesia in the first place. This will help guarantee that traditional knowledge is utilized not just for the advantage of the state or companies but also provides more measurable economic gains to the local community.”<sup>50</sup> Second, Malaysia is a case in point for the importance of institutional integration between the environmental, biodiversity and traditional knowledge preservation sectors, avoiding the fragmentation and sectoralization of rules, as is presently occurring in Indonesia. Third, Malaysia is a case that traditional knowledge preservation must be accompanied by licensing procedures and oversight on access to biological resources to avoid exploitation without the agreement of the knowledge-holding groups. The Malaysian model has thus come under fire for not being fully established in the collective rights of indigenous peoples. However, the system still provides useful lessons for Indonesia in terms of the need to build a more functional and integrated governance framework for the conservation of traditional knowledge which guarantees a fairer distribution of benefits to local populations.<sup>51</sup>

A comparative analysis of the protection models, regulatory orientations, recognition of community rights and the strengths and weaknesses of each country is required to provide a more systematic overview of the differences in approaches to traditional knowledge protection in India, Malaysia and Indonesia. This comparison is important to show that the protection of traditional knowledge is not only determined by the existence of regulations, but also by the direction of legal policies, institutional governance and the position of indigenous communities within the protection system. The following diagram represents the comparison of the features of traditional knowledge protection in India, Malaysia and Indonesia.<sup>52</sup>

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Attitude on the Effect of COVID-19 Infection on Pregnancy (KACIP) Questionnaire among Pregnant Women in Malaysia’, *Clinical Epidemiology and Global Health*, 29 (2024), 101742 <https://doi.org/10.1016/j.cegh.2024.101742>

<sup>49</sup> Dhita de La Roche, Angela Curl, and Helen Fitt, ‘The Power of Community: Perspectives from Women with Disabilities on Making Healthcare Journeys in Yogyakarta, Indonesia’, *Journal of Transport Geography*, 124 (2025), 104182 <https://doi.org/10.1016/j.jtrangeo.2025.104182>

<sup>50</sup> Mariam Ameen and others, ‘Advancement in Hydrogen Production, Application and Strategy towards Sustainable Energy: Malaysian Case Study’, *Process Safety and Environmental Protection*, 202 (2025), 107730 <https://doi.org/10.1016/j.psep.2025.107730>

<sup>51</sup> Hauwau Kulu Shuaibu and others, ‘Estimation of the Concurrent Radiological Dosage to Humans Due to the Transfer of 226Ra, 228Ra, and 40K from Soil-to-Malaysian Traditional Medicinal Plants’, *Radiation Physics and Chemistry*, 223 (2024), 111982 <https://doi.org/10.1016/j.radphyschem.2024.111982>

<sup>52</sup> Sabrina Ching Lee Toh, Shi Yee Wong, and Chu Sheng Ding, ‘The Impact of Artificial Intelligence on





Table 2. Comparison of Traditional Knowledge Protection between India, Malaysia, and Indonesia

| Aspect           | India                | Malaysia                  | Indonesia                  |
|------------------|----------------------|---------------------------|----------------------------|
| Model            | Defensive Protection | ABS Governance            | Fragmented                 |
| Orientation      | Anti-biopiracy       | Administrative governance | Sectoral governance        |
| Community rights | Weak-substantive     | procedural                | Weak-recognition           |
| Strength         | TKDL                 | ABS Mechanism             | Constitutional recognition |
| Weakness         | State dominance      | Administrative control    | fragmentation              |

*Sources: processed by the author*

The table shows that India, Malaysia, and Indonesia have different approaches to protecting traditional knowledge, which are in line with their national law and governance frameworks. India's focus is on defence protection through anti-biopiracy methods and the Traditional Knowledge Digital Library (TKDL) for documenting traditional knowledge.<sup>53</sup> This approach is relatively effective in limiting patent claims by foreign parties but still exhibits state domination over the administration and control of traditional knowledge and thus substantively recognizes the collective rights of indigenous peoples. The administration of biological resources in Malaysia is marked by a more operational and integrated approach of administrative governance with the emphasis on an access and benefit-sharing (ABS) approach. Malaysia's ABS method is more transparent than Indonesia's, yet the state retains a preeminent role in the allocation of permits and oversight of access to biological resources and traditional knowledge.<sup>54</sup>

Both India and Malaysia still reflect the dominance of state-centric legal governance over indigenous knowledge systems. This comparison reveals that India has a strong position in traditional knowledge documentation and defensive protection, Malaysia has further progressed in access and benefit-sharing governance, and Indonesia is still in the fragmented normative protection stage. Indonesia needs to learn from these two countries, particularly in the development of a national documentation system, the strengthening of the ABS mechanism, and the establishment of a sui generis legal framework based on the recognition of the collective rights of indigenous peoples and sustainable development.<sup>55</sup>

the Quantity Surveying Profession in Sarawak, Malaysia', *Journal of Engineering, Design and Technology*, 24.1 (2026), 171–92 <https://doi.org/10.1108/JEDT-06-2025-0272>

<sup>53</sup> Klaret Kropi and others, 'Cross-Cultural Study on the Uses of Traditional Herbal Medicine to Treat Various Women's Health Issues in Northeast India', *Journal of Ayurveda and Integrative Medicine*, 15.5 (2024), 101024 <https://doi.org/10.1016/j.jaim.2024.101024>

<sup>54</sup> Yi Kai Wong, Michael Thomas Haneline, and Kok Leong Tan, 'Public Awareness of the Traditional and Complementary Medicine Act Governing Chiropractic in Malaysia: A Survey of Adults in Klang Valley', *Journal of Chiropractic Humanities*, 30 (2023), 16–22 <https://doi.org/10.1016/j.echu.2023.08.002>

<sup>55</sup> Nur Kamaliah Mustaffa and others, 'Innovative Approaches to Enhancing Sustainability in the Engineered Wood Processing Industry in Malaysia', *Waste Management Bulletin*, 3.4 (2025), 100247 <https://doi.org/10.1016/j.wmb.2025.100247>



In this sense, Indonesia has an opportunity to develop a more progressive model for the protection of traditional knowledge by borrowing the strengths of India and Malaysia and overcoming their weaknesses through a collective rights-based approach (a collective rights-based protection framework). India might develop an integrated national documentation system to strengthen its safeguards against biopiracy and misuse. Indonesian can learn from the Malaysian experience on the importance of more operational and coordinated access and benefit sharing systems for equitable distribution of economic gains to local populations. Unlike these two countries, Indonesia has to explicitly recognize communal ownership and control rights over the use of traditional knowledge, and the protection of indigenous community culture to address the issue of making indigenous peoples the main legal subjects in the protection of traditional knowledge. The main contribution of this research, then, is the attempt to construct a model for the protection of traditional knowledge that, besides including mechanisms for documentation, protection of biodiversity, and benefit sharing, establishes a specific legal framework based on the substantive participation of indigenous peoples in the governance of their own traditional knowledge, as well as the strengthening of collective rights and ecological intergenerational justice.<sup>56</sup>

### ***Reconstructing Traditional Knowledge Protection through Collective Rights***

Modern intellectual property (IP) regimes are fundamentally grounded in the principles of individual ownership, novelty, exclusivity, and limited-term protection, whereas traditional knowledge (TK) is collectively generated, cumulatively developed, and transmitted across generations through customary practices. This conceptual incompatibility prevents conventional IP law from adequately protecting TK because its legal requirements were designed for identifiable individual creators rather than collectively held knowledge systems. As a result, existing protection remains fragmented and often fails to recognize indigenous communities as legitimate rights holders, thereby limiting their ability to control, commercialize, or seek legal remedies for the unauthorized use of their traditional knowledge.<sup>57</sup>

This incompatibility is particularly evident in the novelty requirement, which constitutes a fundamental criterion for patent protection. Since traditional knowledge has generally existed and evolved over generations, it rarely satisfies the requirement of novelty despite possessing significant cultural, ecological, and economic value.<sup>58</sup> Consequently, protection is often available only when traditional knowledge is transformed into forms compatible with conventional intellectual property regimes, rather than being recognized in its original communal context. These limitations demonstrate that the inadequacy of existing legal protection is not merely a technical issue concerning patentability or novelty, but reflects a broader mismatch between

<sup>56</sup> Halimah Jalil and others, 'Knowledge, Attitude, and Practice among Mothers toward Breastfeeding and Complementary Feeding in Community Health Setting, Malaysia', *Heliyon*, 10.21 (2024), e39746 <https://doi.org/10.1016/j.heliyon.2024.e39746>

<sup>57</sup> Mia Wannewitz and Matthias Garschagen, 'The Role of Social Identities for Collective Adaptation Capacities— General Considerations and Lessons from Jakarta, Indonesia', *International Journal of Disaster Risk Reduction*, 100 (2024), 104194 <https://doi.org/10.1016/j.ijdrr.2023.104194>

<sup>58</sup> Shaf Rijal Ahmad, Nicola Shadbolt, and Janet Reid, 'Collective Action for Rice Smallholder's Value Chain: Insight from Yogyakarta, Indonesia', *Journal of Co-Operative Organization and Management*, 12.1 (2024), 100236 <https://doi.org/10.1016/j.jcom.2024.100236>



the individualistic foundations of intellectual property law and the collective nature of traditional knowledge, thereby reinforcing the need for a sui generis legal framework.<sup>59</sup>

The inability of conventional intellectual property principles to accommodate the cumulative, communal, and intergenerational characteristics of traditional knowledge demonstrates that the problem extends beyond the technical application of legal requirements such as novelty. Rather, it reflects a deeper normative incompatibility between the individualistic foundations of modern intellectual property law and the social realities of indigenous knowledge systems. Consequently, strengthening the protection of traditional knowledge requires a shift from an exclusive reliance on individual proprietary rights toward a legal framework that recognizes collective rights as the primary basis for ownership, governance, and benefit-sharing.<sup>60</sup>

Community-based governance constitutes a fundamental component of the collective rights approach by recognizing indigenous communities as the primary decision-makers in regulating access to, use of, and transmission of traditional knowledge. Within this framework, Free, Prior and Informed Consent (FPIC) functions not merely as a procedural requirement but as a substantive mechanism through which communities exercise collective authority over the utilization of their knowledge and prevent unauthorized exploitation.<sup>61</sup> Complementing FPIC, Access and Benefit-Sharing (ABS) ensures that both monetary and non-monetary benefits derived from the commercial or non-commercial use of traditional knowledge are distributed fairly and equitably among the communities that have preserved and developed such knowledge. Accordingly, community-based governance, FPIC, and ABS should be understood as mutually reinforcing elements of a collective rights framework that strengthens legal certainty, empowers indigenous communities, and promotes distributive justice in the sustainable governance of traditional knowledge.<sup>62</sup>

The principal contribution of the Indian model lies not in documentation itself, but in integrating traditional knowledge documentation into patent examination as a preventive mechanism against misappropriation.<sup>63</sup> But India's example also shows that documentation is not enough without comprehensive recognition of indigenous peoples as the core legal subjects of traditional knowledge administration.<sup>64</sup> Unlike

<sup>59</sup> Li and others.

<sup>60</sup> Aga Natalis, Adventi Ferawati Sembiring, and Emy Handayani, 'From Rejection to Recognition: Human Rights, Morality, and the Future of Marijuana Policy in Indonesia', *International Journal of Drug Policy*, 140 (2025), 104817 <https://doi.org/10.1016/j.drugpo.2025.104817>

<sup>61</sup> Tatik Tatik, Hoa Thi Mai Nguyen, and Tony Loughland, 'Exploring Factors Influencing Indonesian Novice Teachers' Achievement of Teacher Professional Standards during Induction: A Cultural-Historical Activity Theory Perspective', *Teaching and Teacher Education*, 159 (2025), 105013 <https://doi.org/10.1016/j.tate.2025.105013>

<sup>62</sup> Suman Acharya, 'Unintended Consequences: The Erosion of Traditional Collective Action and Social Capital by Externally Imposed Climate Adaptation Programs', *Environmental Science & Policy*, 171 (2025), 104167 <https://doi.org/10.1016/j.envsci.2025.104167>

<sup>63</sup> Khumbaron Kiranbala Kabui, Ashish Rawson, and K.A. Athmaselvi, 'Selected Fermented Foods of Manipur, India: Traditional Preparation Methods, Nutritional Profile, and Health Benefits', *Food Chemistry Advances*, 6 (2025), 100864 <https://doi.org/10.1016/j.focha.2024.100864>

<sup>64</sup> Pramod Chandra Dihingia and others, 'Innate Knowledge of Herbal Medicine among the Sonowal Kachari Tribe of Lakhimpur District, Assam, India', *Journal of Ayurveda and Integrative Medicine*, 17.2 (2026), 101260 <https://doi.org/10.1016/j.jaim.2025.101260>



India, Malaysia demonstrates that effective protection depends not only on documentation but also on institutional mechanisms governing access and benefit-sharing. Yet, Malaysia's strategy continues to depend mostly on administrative and state-centric governance structures, as indigenous peoples do not have the potential to develop a strong collective authority to control the commercialization and use of their traditional knowledge.<sup>65</sup>

In this context, Indonesia cannot simply replicate the Indian system of documentation or the ABS mechanism of Malaysia, but rather needs to develop its own legal framework that clearly recognizes indigenous people as the collective proprietors of traditional knowledge. The fragmented regulatory framework that has led to the disparate treatment of the preservation of traditional knowledge by different sectoral laws without a unified approach calls for the formulation of particular rules (*sui generis* legislation).<sup>66</sup> The Malaysian experience demonstrates that institutional coordination is essential for implementing ABS effectively; however, such coordination should be accompanied by stronger recognition of indigenous decision-making authority. But the ABS mechanism should be designed not just as an administrative procedure but also as a protection of collective rights, guaranteeing the fair sharing of economic, social, cultural, and ecological advantages to indigenous groups.<sup>67</sup> In addition, the experiences of India and Malaysia highlight the need to enhance indigenous representation systems in the governance of traditional knowledge. In India and Malaysia, Indigenous groups have so far been treated as procedurally involved participants, and not as major decision-makers.<sup>68</sup> These comparative findings indicate that Indonesia should position indigenous communities as principal decision-makers rather than procedural stakeholders within the proposed *sui generis* framework.<sup>69</sup> In this regard, Indonesia must also recognize dispute resolution methods based on customary law as part of national legal pluralism, as a formalistic application of state law cannot always settle problems relating to traditional knowledge. Furthermore, it is important to acknowledge the collective legal status of indigenous communities to ensure that they have the legal competence to defend their collective rights against the state and commercial players.<sup>70</sup>

<sup>65</sup> Reana May Yen Ng and others, 'Quantifying Non-Target Seahorse Fisheries and Domestic Traditional Medicine-Based Trade in Malaysia', *Fisheries Research*, 281 (2025), 107188 <https://doi.org/10.1016/j.fishres.2024.107188>

<sup>66</sup> Meiwei Koay, Hui Yin Fan, and Clemente Michael Vui Ling Wong, 'Fermentation Dynamics, Physicochemical and Sensory Characteristics of Malaysian Traditional Rice Wines', *British Food Journal*, 126.12 (2024), 4108–23 <https://doi.org/10.1108/BFJ-03-2024-0257>

<sup>67</sup> Alem Febri Sonni, 'Digital Heroism in Indonesian Media: Cross-Cultural Solidarity and Viral Narrative Transformation', *Social Sciences & Humanities Open*, 12 (2025), 102295 <https://doi.org/10.1016/j.ssaho.2025.102295>

<sup>68</sup> Soliha Sanusi and others, 'Cash Waqf Engagement among Malaysian Millennials: The Digitization of Generosity', *International Journal of Islamic and Middle Eastern Finance and Management*, 18.4 (2025), 857–75 <https://doi.org/10.1108/IMEFM-03-2024-0148>

<sup>69</sup> Gunawan Prayitno and others, 'Community-Powered Environmental Pathways to Reduce Stunting: Food Security, Social Capital, and Open Innovation in Semi-Urban Indonesia', *Environmental Challenges*, 21 (2025), 101350 <https://doi.org/10.1016/j.envc.2025.101350>

<sup>70</sup> Yulis Susilawaty and others, 'The Role of the Galeri Nasional Indonesia in Fostering Cultural Resilience through Preservation, Community Empowerment, and Technological Innovation', *Journal of Open Innovation: Technology, Market, and Complexity*, 11.4 (2025), 100676 <https://doi.org/10.1016/j.joitmc.2025.100676>





The proposed sui generis legal framework for the protection of traditional knowledge in Indonesia should integrate both institutional arrangements and substantive collective rights into a coherent legal regime. At the institutional level, the framework should establish a dedicated Traditional Knowledge Protection Act recognizing indigenous communities as collective legal subjects and legitimate holders of traditional knowledge. This legislation should be supported by a National Traditional Knowledge Registry, jointly administered by the government and indigenous communities, allowing traditional knowledge to be classified as open, restricted, or confidential according to customary values and cultural sensitivities. Furthermore, an independent Traditional Knowledge and Benefit-Sharing Authority should be established to oversee access to traditional knowledge, verify compliance with Free, Prior and Informed Consent (FPIC) procedures, monitor utilization, and administer equitable Access and Benefit-Sharing (ABS) arrangements. A community-based registry is not intended merely as an administrative database but as legal evidence of communal ownership capable of preventing conflicting claims, strengthening legal certainty, and facilitating benefit-sharing agreements.<sup>71</sup>

Beyond institutional reform, the proposed framework should guarantee substantive collective rights that reflect the communal and intergenerational nature of traditional knowledge. These rights should include the recognition of communal ownership, the authority of indigenous communities to grant or refuse access through FPIC, the right to negotiate and receive fair monetary and non-monetary benefits arising from the utilization of traditional knowledge, and collective legal standing before judicial and administrative bodies. In addition, customary institutions should be formally recognized as legitimate governance mechanisms for regulating access, transmission, and dispute resolution concerning traditional knowledge, thereby ensuring that customary law operates alongside the national legal system. Integrating these institutional and substantive components would transform traditional knowledge protection from a fragmented administrative regime into a comprehensive governance framework that strengthens legal certainty, prevents biopiracy, empowers indigenous communities, promotes biodiversity conservation, and advances sustainable development.<sup>72</sup>

Collective rights address regulatory fragmentation by establishing indigenous communities as a single legal subject across multiple regulatory sectors. Unlike the current legal framework, where different statutes recognize different legal subjects and create overlapping authority, a collective-rights approach provides a uniform legal basis for ownership, access, benefit-sharing, and dispute resolution. Consequently, regulatory coherence is strengthened because all legal relationships concerning traditional knowledge originate from a single rights-holder. Thus, strengthening the preservation of traditional knowledge through collective rights is not only relevant from the perspective of legal justice, but also offers a strategic contribution to the

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<sup>71</sup> Haryanto and Nurlinah, 'Village Development and Governability: A Case Study of Transmigration Village Governance in East Luwu, Indonesia', *World Development Perspectives*, 40 (2025), 100747 <https://doi.org/10.1016/j.wdp.2025.100747>

<sup>72</sup> Stefan Partelow and Katherine Nelson, 'Social Networks, Collective Action and the Evolution of Governance for Sustainable Tourism on the Gili Islands, Indonesia', *Marine Policy*, 112, August 2018 (2020), 103220 <https://doi.org/10.1016/j.marpol.2018.08.004>



fulfillment of the SDGs. “Equitable access and benefit-sharing mechanisms in this context can affect the economic well-being of indigenous communities who have often been excluded from the benefits of the commercialization of their traditional knowledge, thus directly contributing to the achievement of SDG 1 (No Poverty).<sup>73</sup>

At the same time, the recognition of collective rights and a more equitable sharing of benefits also contribute to SDG 10 (Reduced Inequalities), by reducing structural inequalities between local communities as holders of traditional knowledge and economic actors with greater access to capital, technology, and markets. In addition, the preservation of traditional knowledge is vital for the achievement of SDG 15 (Life on Land) because it promotes sustainable use of natural resources, preservation of ecosystems, and conservation of biodiversity, which are components of environmental management practices that have endured for generations.<sup>74</sup> In addition, SDG 16 (Peace, Justice and Strong Institutions) is in accordance with the improvement of the legal recognition of indigenous peoples through mechanisms of collective legal standing, FPIC, and community-based governance, as it supports the development of inclusive, participatory, and responsive institutions that reflect the diversity of legal systems within the community. Thus, the protection of traditional knowledge through collective rights is not only a mechanism for the preservation of the culture and rights of indigenous peoples, but also a critical component of a sustainable development strategy that simultaneously incorporates economic, social, environmental, and institutional dimensions.<sup>75</sup>

Unlike existing studies that primarily advocate the adoption of a *sui generis* regime in general terms, this study proposes an integrated legal architecture that combines institutional reform with enforceable collective rights. By linking community governance, FPIC, ABS, collective legal standing, and customary dispute resolution within a single regulatory framework, the proposed model offers a concrete normative reconstruction capable of addressing Indonesia's fragmented legal regime while strengthening legal certainty and indigenous self-determination.

## CONCLUSION

This research demonstrates that the principal weakness of Indonesia's traditional knowledge (TK) protection regime lies not merely in the absence of specific legislation, but in the fragmentation of legal norms and the continued reliance on the individualistic paradigm of conventional intellectual property law. Existing regulations remain dispersed across multiple legal instruments, resulting in inconsistent recognition of collective rights, weak implementation of Free, Prior and Informed Consent (FPIC) and Access and Benefit-Sharing (ABS), and limited protection against the misappropriation of traditional knowledge. Consequently, the current legal

<sup>73</sup> Kodirekkala Koteswara Rao, ‘Cultural Constraints on Knowledge Transmission and Knowledge Erosion: An Indigenous Community in India’, *Asian Journal of Social Science*, 52.4 (2024), 23–30 <https://doi.org/10.1016/j.ajss.2024.10.001>

<sup>74</sup> Abdulkadir Rahardjanto and others, ‘Ecocultural Practices in East Java, Indonesia: A Hermeneutic Phenomenological Study on “Reresik Kali” as Local Wisdom for River Conservation’, *Social Sciences & Humanities Open*, 12 (2025), 102176 <https://doi.org/10.1016/j.ssaho.2025.102176>

<sup>75</sup> Jop Koopman, ‘Subawe, Traditional Knowledge, and Faith-Based Organisations Promoting Social Capital and Disaster Preparedness: A Lombok, Indonesia Case Study’, *International Journal of Disaster Risk Reduction*, 94 (2023), 103837 <https://doi.org/10.1016/j.ijdrr.2023.103837>



framework remains predominantly administrative and procedural rather than providing substantive protection for indigenous and local communities. The comparative analysis reveals that India and Malaysia have adopted complementary approaches to addressing these challenges. India emphasizes preventive protection through the Traditional Knowledge Digital Library (TKDL) and anti-biopiracy measures, whereas Malaysia has developed a more operational Access and Benefit-Sharing (ABS) governance framework. Nevertheless, both jurisdictions continue to rely largely on state-centered governance, leaving indigenous communities with limited authority over the management and commercialization of their traditional knowledge. Accordingly, this study argues that Indonesia requires a comprehensive sui generis legal framework that integrates collective ownership, FPIC, ABS, community-based governance, and collective legal standing into a unified protection regime. Such a framework would not only strengthen legal certainty and prevent the misappropriation of traditional knowledge but also align Indonesia's legal system with international standards under the Convention on Biological Diversity (CBD), the Nagoya Protocol, and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The principal contribution of this study is the proposed normative reconstruction that places collective rights at the center of traditional knowledge protection while promoting biodiversity conservation and sustainable development.

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