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Strengthening the Patent Gatekeeper: The Mandatory Disclosure of Origin in Indonesia's Intellectual Property Regime

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Abstract

The enactment of Law No. 65 of 2024 has fundamentally transformed the legal status of Mandatory Disclosure of Origin (MDO) within Indonesia's patent regime. While previous studies have primarily examined MDO as a mechanism for preventing biopiracy and facilitating access and benefit-sharing, limited attention has been paid to its evolving role as a substantive patentability requirement and its philosophical foundation within Indonesia's legal system. This article addresses that gap by examining how Article 26 of the amended Patent Law redefines the disclosure of genetic resources and traditional knowledge from a procedural obligation into a substantive legal mandate. Using a statutory, conceptual, and comparative legal approach, this study analyzes the transformation of Article 26 in light of Law No. 65 of 2024, the Nagoya Protocol, and the 2024 WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge. The analysis further employs an axiological perspective to evaluate the compatibility of MDO with

the constitutional values embodied in Pancasila. The findings demonstrate that the amended Patent Law significantly strengthens the gatekeeping function of the Indonesian patent system by linking patent validity to transparency regarding the origin and lawful acquisition of genetic resources and traditional knowledge. The reform establishes a legal framework that integrates Prior Informed Consent (PIC), Access and Benefit-Sharing (ABS), and post-grant accountability mechanisms, thereby enhancing protection against biopiracy. Furthermore, the study finds that the strengthened MDO regime reflects a shift from a predominantly individualistic intellectual property paradigm toward a distributive justice model grounded in the Second and Fifth Principles of Pancasila. This article argues that the strengthened gatekeeper model represents a form of decolonial intellectual property reform that balances private innovation with collective rights, reinforces national sovereignty over biological resources, and provides a normative foundation for equitable benefit-sharing in the emerging bioeconomy.

Keywords

Mandatory Disclosure of Origin, Genetic Resources, Traditional Knowledge, Patent Law Reform, Distributive Justice.

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Introduction

Indonesia is internationally recognized as one of the world's richest megadiverse countries, possessing abundant genetic resources (GR) and a vast repository of traditional knowledge (TK) preserved by indigenous and local communities for centuries. These biological and cultural assets constitute strategic national capital for scientific innovation, pharmaceutical development, biotechnology, agriculture, and sustainable economic growth. However, the increasing commercialization of biological materials has simultaneously intensified the risk of biopiracy, namely the unauthorized appropriation and patenting of genetic resources and associated traditional knowledge without prior consent or equitable benefit-sharing. Such practices raise fundamental concerns regarding sovereignty, distributive justice, and the legitimacy of the contemporary intellectual property regime in biodiversity-rich developing countries.[1]

The international legal framework has increasingly recognized these concerns. The Convention on Biological Diversity (CBD) and the Nagoya Protocol establish that genetic resources are subject to state sovereignty and that their utilization should be accompanied by fair and equitable Access and Benefit-Sharing (ABS) mechanisms.[2] More recently, the adoption of the WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge in May 2024 established a new global standard requiring greater transparency regarding the origin of genetic resources used in patented inventions.[3] Within this evolving legal architecture, Mandatory Disclosure of Origin (MDO) has emerged as one of the most significant instruments for

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[1] Daniel F. Robinson and Margaret T. Raven, "Ethical and Equitable Access and Benefit-Sharing: Indigenous Knowledge and Genetic Resources in Global Governance," *Environmental Policy and Law* 50, no. 4–5 (2020): 311–326, https://doi.org/10.3233/EPL-200227.

[2] Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79; 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, October 29, 2010.

[3] World Intellectual Property Organization (WIPO), *WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge* (Geneva: WIPO, 2024).

reconciling intellectual property protection with biodiversity governance. Through disclosure requirements, patent applicants are expected to reveal the origin of genetic resources and traditional knowledge utilized in inventions, thereby enhancing transparency, accountability, and legal certainty in patent examination procedures.[4]

Indonesia formally incorporated this mechanism through Article 26 of Law No. 13 of 2016 concerning Patents. Nevertheless, substantial legal reforms were introduced by Law No. 65 of 2024, which amends Law No. 13 of 2016 on Patents. Compared with the previous framework, the amended law strengthens disclosure obligations, reinforces access and benefit-sharing principles, expands post-grant accountability mechanisms, and increases the legal consequences of inaccurate or misleading disclosure regarding the origin of genetic resources and traditional knowledge. These developments indicate a significant shift from a predominantly administrative disclosure model toward a more substantive regulatory framework capable of influencing patent validity and legal enforceability. Despite these reforms, important questions remain regarding whether the amended provisions are sufficient to prevent biopiracy and whether they successfully transform disclosure obligations into an effective legal safeguard for Indonesia's biological sovereignty[5].

Previous studies have examined disclosure requirements from different perspectives. Chiarolla argues that disclosure obligations serve as an important bridge between intellectual property protection and environmental governance by supporting the objectives of the Convention on Biological Diversity.[6] However, his analysis remains

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[4] Frédéric Perron-Welch, "Bio-Based Innovation and the Global Patent System: Exploring the WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge," *GRUR International* (2024): 1–11, https://doi.org/10.1093/grurint/ikae133.

[5] Aldehita Purnasanti Maulida et al., "Navigating Indonesia's Economic Crossroads: The Future of State-Owned Enterprises in a Transforming National Economy," *Indonesian Journal of Advocacy and Legal Services* 8, no. 1 (2026): 415–52, https://doi.org/10.15294/ijals.v8i1.55219.

[6] Claudio Chiarolla, "Intellectual Property from a Global Environmental Law Perspective: Lessons from Patent Disclosure Requirements for Genetic Resources and Traditional Knowledge," *Transnational Environmental Law* 8, no. 3 (2019): 503–521, https://doi.org/10.1017/S2047102519000165.

primarily focused on international environmental law and does not address how disclosure requirements operate within domestic constitutional frameworks. Similarly, Robinson and Raven emphasize the importance of equitable access and benefit-sharing mechanisms for indigenous communities but provide limited discussion concerning the legal consequences of non-disclosure within patent systems.[7] Lawson and Rourke further identify the emergence of Digital Sequence Information (DSI) as a significant challenge because genetic resources may increasingly be utilized through digital data rather than physical biological materials.[8] Their analysis highlights the technological limitations of conventional disclosure systems but does not examine how national patent laws should adapt to this transformation.

Within the Indonesian context, Mas Rahmah, Barizah, and Blay demonstrate that the implementation of disclosure requirements has historically suffered from weak enforcement mechanisms and insufficient sanctions against non-compliance.[9] Although their findings provide valuable insights regarding the vulnerability of Indonesia's patent regime to biopiracy, the study predates the enactment of Law No. 65 of 2024 and therefore cannot assess the implications of the recent reform. Likewise, Isharyanto argues that Indonesian intellectual property law should not be interpreted solely through a Western individualistic conception of property rights but should instead reflect collective rights and social justice values embedded in Indonesian legal philosophy.[10] While this argument provides a strong normative foundation, it does not specifically examine Mandatory Disclosure of Origin as a legal mechanism for operationalizing distributive justice within patent law.

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[7] Robinson and Raven, "Ethical and Equitable Access and Benefit-Sharing," 311–326.

[8] Charles Lawson and Michelle Rourke, "Digital Sequence Information as a Marine Genetic Resource under the Proposed UNCLOS Legally Binding Instrument," *Marine Policy* 122 (2020), https://doi.org/10.1016/j.marpol.2020.103878.

[9] Mas Rahmah, Nurul Barizah, and Sam Blay, "Ensuring Disclosure of Origin of Genetic Resources in Patent Applications: Indonesia's Efforts to Combat Biopiracy," *Journal of Intellectual Property Rights* 25, no. 1 (2020): 40–56.

[10] Isharyanto, *Teori Hukum: Suatu Pengantar dengan Pendekatan Tematik* (Sukoharjo: Absolute Media, 2020), 112–115.

The foregoing literature reveals three significant gaps. First, existing scholarship generally treats Mandatory Disclosure of Origin as an administrative or procedural requirement rather than examining its transformation into a substantive condition affecting patent validity. Second, limited attention has been devoted to evaluating the legal implications of Law No. 65 of 2024 as Indonesia's most recent patent law reform. Third, previous studies predominantly focus on compliance with international legal instruments while paying insufficient attention to the constitutional and philosophical foundations of disclosure requirements within the Pancasila framework. Consequently, the relationship between disclosure obligations, distributive justice, and national biological sovereignty remains underexplored.[11]

This article addresses these gaps by examining how Law No. 65 of 2024 redefines the legal status and function of Mandatory Disclosure of Origin within Indonesia's patent regime. Specifically, this study seeks to answer three research questions: (1) How does Law No. 65 of 2024 transform Mandatory Disclosure of Origin from a procedural requirement into a substantive patentability mechanism? (2) How does the amended patent regime strengthen the gatekeeping function of the patent system against biopiracy? Moreover, (3) How does Mandatory Disclosure of Origin reflect the principles of distributive justice embodied in Pancasila?

The novelty of this article lies in three interconnected contributions. First, it develops the concept of the "Patent Gatekeeper," which reconceptualizes the patent office as an active institutional guardian responsible for protecting national biological sovereignty. Second, it demonstrates that the 2024 amendment transforms disclosure obligations from mere administrative compliance into a substantive legal requirement linked to patent validity and post-grant accountability. Third, it proposes a Pancasila-based distributive justice framework that reorients intellectual property protection away from a purely individualistic reward model toward a legal system that recognizes the collective rights of indigenous and local communities. Accordingly, this

[11] Bakhromjon Rakhimjonovich Topildiev et al., "Legal Challenges and Policy Implications for Property Rights Protection in Uzbekistan," *Journal of Human Rights, Culture and Legal System* 6, no. 1 (2026): 116–46.

study contributes not only to intellectual property scholarship but also to broader debates concerning decolonial legal reform, biodiversity governance, and equitable innovation systems.

The remainder of this article is structured as follows. The first section examines the legal transformation of Article 26 under Law No. 65 of 2024 and compares it with the previous patent regime. The second section analyzes the strengthened gatekeeping function of patent examination procedures in preventing biopiracy. The third section evaluates the amendment through the perspective of Pancasila-based distributive justice and distributive legal theory. The final section discusses future challenges arising from Digital Sequence Information and proposes a reform-oriented framework for strengthening Indonesia's patent governance system.

This research employs normative legal research, drawing on statutory, conceptual, comparative, and philosophical approaches. Primary legal materials consist of Law No. 13 of 2016 concerning Patents, Law No. 65 of 2024 concerning the Third Amendment to the Patent Law, the Convention on Biological Diversity, the Nagoya Protocol, and the WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge. These materials are analyzed through doctrinal interpretation, comparative legal analysis, and philosophical inquiry to evaluate the evolving role of Mandatory Disclosure of Origin within Indonesia's intellectual property framework and its contribution to distributive justice and biological sovereignty.

This study employs normative legal research to analyze statutory regulations, legal doctrines, and the philosophical foundations governing Mandatory Disclosure of Origin (MDO) within Indonesia's patent regime. The research employs four complementary approaches: statutory, conceptual, comparative, and philosophical. The statutory approach is applied to examine the legal framework governing disclosure obligations, particularly Law No. 13 of 2016 concerning Patents, Law No. 65 of 2024 concerning the Third Amendment to the Patent Law, the Convention on Biological Diversity (CBD), the Nagoya Protocol, and the WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge. The conceptual approach is used to analyze relevant legal doctrines and theoretical concepts relating to patent governance, biological sovereignty, distributive justice, and

intellectual property protection. The comparative approach facilitates an examination of disclosure mechanisms and biodiversity governance practices across selected jurisdictions, particularly India and Brazil, to identify similarities, differences, and potential lessons for Indonesia. Meanwhile, the philosophical approach is employed to assess the normative foundations of Mandatory Disclosure of Origin through the perspective of Pancasila-based distributive justice and constitutional values.

The legal materials used in this research consist of primary and secondary legal materials[12]. Primary legal materials include legislation, international treaties, and other authoritative legal instruments governing patents, genetic resources, and traditional knowledge. Secondary legal materials comprise scholarly books, peer-reviewed journal articles, legal commentaries, policy reports, and relevant academic publications concerning intellectual property law, biodiversity governance, access and benefit-sharing, and biopiracy prevention The collected legal materials are analyzed through doctrinal legal analysis, comparative legal interpretation, and normative evaluation to assess the transformation of Mandatory Disclosure of Origin from an administrative disclosure requirement into a substantive patent governance mechanism. Through this analytical framework, the study evaluates the evolving role of MDO in strengthening biological sovereignty, promoting distributive justice, and enhancing accountability within Indonesia's intellectual property system.

A. Reconstructing Article 26: From Administrative Disclosure to Substantive Patentability

The enactment of Law No. 65 of 2024 signifies an important shift in the ontology of MDO in Indonesia. Previously, under Law No. 13 of 2016, MDO was often interpreted as a procedural formality. However, the third amendment reinforces Article 26, elevating the disclosure of

[12] Indah Sri Utari, Ridwan Arifin, and Ahmad Zaharuddin Sani Ahmad Sabri, "Why Did a Five-Year-Old Toddler Become a Victim of Murder? A Criminological and Legal Perspective," *Indonesian Journal of Criminal Law Studies* 8, no. 2 (2023), https://doi.org/10.15294/ijcls.v8i2.48591.

GR and Traditional Knowledge TK into a rigorous substantive requirement. Originally, Article 26 functioned as a narrow administrative gateway. The requirement to disclose the origin of biological materials was often treated as a secondary formality rather than a condition for patentability.

The principal finding of this research is that Law No. 65 of 2024 fundamentally reconstructs the legal character of Mandatory Disclosure of Origin (MDO) within the Indonesian patent regime. Whereas Article 26 of Law No. 13 of 2016 primarily positioned disclosure of genetic resources (GR) and traditional knowledge (TK) as an administrative obligation accompanying patent applications, the amended framework transforms disclosure into a substantive legal requirement capable of affecting patent validity, access legitimacy, and post-grant accountability.

This transformation should not be understood merely as a technical amendment. Rather, it represents a deeper normative shift in the philosophy of Indonesian patent law. Historically, patent systems were designed to reward inventors who contributed novelty, inventive step, and industrial applicability.[13] Within this classical framework, the origin of biological materials was often considered irrelevant to patentability because intellectual property law focused on innovation outputs rather than resource inputs.[14] Consequently, disclosure obligations in many jurisdictions were treated as procedural requirements designed to facilitate transparency rather than substantive conditions determining patent legitimacy.

Indonesia initially adopted this approach through Law No. 13 of 2016. Although Article 26 required patent applicants to disclose the origin of genetic resources and traditional knowledge used in inventions, the legal consequences of inaccurate disclosure remained ambiguous.[15] In practice, disclosure functioned primarily as documentary compliance. Patent examiners focused on novelty and inventive step, while questions concerning access rights, benefit-sharing, and community consent were

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[13] Robert P. Merges, *Justifying Intellectual Property* (Cambridge: Harvard University Press, 2011), 3–27.

[14] Peter Drahos, *A Philosophy of Intellectual Property* (Aldershot: Dartmouth Publishing, 1996), 41–67.

[15] Law of the Republic of Indonesia Number 13 of 2016 concerning Patents, Article 26.

frequently addressed through separate environmental or biodiversity regulations. Such separation created what Muhaimin describes as a "regulatory fragmentation" problem, whereby intellectual property law and biodiversity governance operated in parallel but insufficiently integrated frameworks.[16]

The enactment of Law No. 65 of 2024 alters this regulatory landscape. The amended framework reflects Indonesia's effort to harmonize domestic patent law with developments in international biodiversity governance, particularly the Convention on Biological Diversity (CBD), the Nagoya Protocol, and the WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge adopted in 2024.[17] More importantly, the amendment signals a shift in legislative philosophy. Disclosure is no longer viewed merely as a procedural declaration but increasingly functions as a legal mechanism for verifying the legitimacy of access to biological resources and traditional knowledge.

TABLE 1. Transformation of Mandatory Disclosure of Origin under Indonesian Patent Law

Legal Dimension	Law No. 13 of 2016	Law No. 65 of 2024	Legal Consequence
Nature of MDO	Administrative requirement	Substantive obligation	Influences patent legitimacy
Disclosure Function	Documentary compliance	Verification of lawful access	Stronger accountability
PIC Requirement	Indirect reference	Strengthened relevance	Community consent emphasized
ABS Mechanism	Limited integration	Explicit policy orientation	Benefit-sharing reinforced

[16] Muhaimin, "Integrating Biodiversity Governance and Intellectual Property Protection in Indonesia," *Hasanuddin Law Review* 9, no. 2 (2023): 145–162.

[17] World Intellectual Property Organization (WIPO), *WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge* (Geneva: WIPO, 2024).

Examination Model	Formal review	Enhanced substantive review	Expanded gatekeeping role
Post-Grant Consequence	Ambiguous	Broader compliance framework	Greater deterrent effect

Source: Author's analysis based on Law No. 13 of 2016 and Law No. 65 of 2024.

The significance of this transformation becomes more apparent when viewed through comparative legal analysis. Several biodiversity-rich countries have attempted to incorporate disclosure requirements into their patent systems, but they have adopted different regulatory strategies.

India is frequently cited as one of the earliest jurisdictions to integrate disclosure obligations into patent law. Section 10 of the Indian Patents Act requires applicants to disclose the geographical origin of biological materials used in inventions.[18] In addition, the Biological Diversity Act establishes a separate approval mechanism administered by the National Biodiversity Authority.[19] The Indian model is therefore characterized by a dual-track system in which patent disclosure and biodiversity authorization operate through interconnected but institutionally distinct mechanisms.

Brazil adopts a somewhat different approach. Following the enactment of Law No. 13.123/2015, access to genetic resources and associated traditional knowledge became subject to a comprehensive regulatory framework emphasizing benefit-sharing and national sovereignty.[20] Rather than relying exclusively on patent disclosure, Brazil integrates genetic resource governance through a broader biodiversity management system supervised by federal authorities.[21] Consequently,

[18] The Patents Act, 1970 (India), Section 10.

[19] The Biological Diversity Act, 2002 (India).

[20] Brazil Law No. 13.123/2015 on Access to Genetic Heritage and Associated Traditional Knowledge.

[21] Evanson C. Kamau and Gerd Winter, *Genetic Resources, Traditional Knowledge and the Law* (London: Earthscan, 2013), 231–247.

patent law forms only one component of a wider access-and-benefit-sharing architecture.

Indonesia's amended framework falls between these models. Like India, Indonesia is increasingly requiring transparency into the origin of resources. Similar to Brazil, it seeks to connect disclosure obligations with objectives of benefit-sharing and national sovereignty. However, the Indonesian reform introduces a distinctive feature: the gradual transformation of disclosure into a substantive component of patent legitimacy itself.

TABLE 2. Comparative Approaches to Disclosure of Origin

Country	Legal Basis	Main Objective	Regulatory Character
India	Patents Act + Biological Diversity Act	Disclosure and biodiversity approval	Dual-track system
Brazil	Law No. 13.123/2015	ABS and sovereignty protection	Integrated biodiversity governance
Indonesia	Law No. 65/2024	Patent legitimacy, ABS, and sovereignty	Emerging substantive patentability model

Source: Author's comparative legal analysis.

This finding differs significantly from previous scholarship. Chiarolla argues that disclosure requirements primarily function as instruments for reconciling intellectual property law with environmental governance.[22] While this observation remains valid, the Indonesian reform demonstrates a broader legal development. The present study finds that disclosure obligations increasingly operate as conditions affecting patent legitimacy itself rather than merely facilitating regulatory coordination. Thus, the Indonesian framework extends beyond

[22] Claudio Chiarolla, "Intellectual Property from a Global Environmental Law Perspective," *Transnational Environmental Law* 8, no. 3 (2019): 503–521.

environmental governance toward what may be termed "substantive biodiversity-sensitive patentability."

Similarly, Robinson and Raven emphasize that disclosure mechanisms are valuable because they support equitable benefit-sharing and defensive protection of indigenous knowledge.[23] However, their analysis focuses predominantly on governance outcomes. The Indonesian amendment reveals an additional dimension: disclosure functions not only as a benefit-sharing mechanism but also as a criterion for evaluating whether the legal relationship between inventors and biological resource providers satisfies minimum standards of legitimacy.

The transformation becomes even more significant when examined through the lens of legal theory. Traditional patent systems are rooted in individualistic theories of innovation, particularly Locke's labour theory and utilitarian justifications emphasizing incentives for invention.[24] Under such theories, the inventor occupies the central position within the intellectual property framework. Indigenous communities, traditional custodians, and biodiversity-rich regions often remain peripheral to legal recognition.

Law No. 65 of 2024 partially reorients this paradigm. By strengthening disclosure obligations, the amendment implicitly acknowledges that innovation involving genetic resources does not emerge in a social vacuum. Rather, many biotechnological inventions depend upon biological materials preserved by local communities and ecological systems over long periods[25]. Consequently, disclosure becomes a mechanism for recognizing historical contributions that conventional patent law frequently overlooks.

The research, therefore, argues that Article 26 now performs three interconnected functions. First, it functions as a transparency mechanism by requiring disclosure of resource origins. Second, it functions as a legitimacy mechanism by linking patent protection to

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[23] Daniel F. Robinson and Margaret T. Raven, "Ethical and Equitable Access and Benefit-Sharing," *Environmental Policy and Law* 50, no. 4–5 (2020): 311–326.

[24] Jeremy Waldron, *The Right to Private Property* (Oxford: Clarendon Press, 1988), 1

[25] Diandra Preludio Ramada and Indah Sri Utari, "Unveiling the Surge in Corruption: A Menacing Threat to Indonesia's Stability in Anti-Corruption Law Reform," *Journal of Law and Legal Reform* 5, no. 1 (2024), https://doi.org/10.15294/jllr.vol5i1.2092.

lawful access and utilization. Third, it functions as a distributive mechanism by creating normative foundations for access and benefit-sharing arrangements.

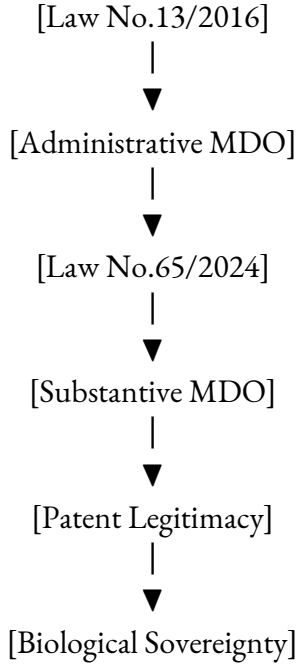
TABLE 3. Three Functions of the Reconstructed Article 26

Function	Legal Purpose	Expected Outcome
Transparency Function	Disclosure of origin	Improved traceability
Legitimacy Function	Verification of lawful access	Reduced biopiracy
Distributive Function	Support for ABS principles	Fairer benefit-sharing

Source: Author's conceptual reconstruction.

Accordingly, the central finding of this section is that Law No. 65 of 2024 has transformed Mandatory Disclosure of Origin from an administrative reporting obligation into an emerging substantive patentability mechanism. This transformation strengthens Indonesian patent law's ability to protect biological sovereignty, reduce opportunities for biopiracy, and align intellectual property governance with evolving international standards. More importantly, it establishes the normative foundation for developing a stronger "Patent Gatekeeper" model, which will be discussed in the following section.

Figure 1. Transformation of Article 26 from Administrative Disclosure to Substantive Patent Governance



Source: The author's conceptual reconstruction is based on Law No. 13 of 2016, Law No. 65 of 2024, the Convention on Biological Diversity, the Nagoya Protocol, and the WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge (2024).

B. The Patent Gatekeeper Model under Law No. 65 of 2024

The second major finding of this research concerns the transformation of the Indonesian patent authority from a passive administrative registrar into an active institutional gatekeeper responsible for protecting biological sovereignty, preventing biopiracy, and ensuring compliance with access and benefit-sharing obligations. This transformation represents one of the most significant yet underexplored implications of Law No. 65 of 2024.

Conventional patent systems have traditionally been designed around a relatively narrow examination model. Patent examiners are generally tasked with assessing novelty, inventive step, and industrial applicability.[26] Questions relating to the legality of access to genetic resources, indigenous rights, community consent, and benefit-sharing arrangements often remain outside the scope of substantive patent examination. As a consequence, patents may be granted even when the biological materials underlying an invention have been acquired through legally questionable or ethically problematic means.

This limitation has long been recognized as a structural weakness of the international intellectual property regime. Robinson argues that patent offices frequently function as "neutral registration institutions" rather than active guardians of biodiversity justice.[27] Similarly, Dutfield observes that conventional patent examination procedures are ill-equipped to detect cases involving unauthorized utilization of genetic resources because examiners rarely possess access to biodiversity databases, traditional knowledge registries, or access permits.[28] Consequently, patent systems may inadvertently facilitate biopiracy despite complying with formal patentability standards.

The Indonesian patent reform attempts to address this structural deficiency. The research finds that Law No. 65 of 2024 gradually expands the Directorate General of Intellectual Property's (DGIP) institutional responsibilities beyond its traditional administrative role. Rather than functioning merely as an agency responsible for granting exclusive rights, the DGIP increasingly performs a gatekeeping function designed to verify the legitimacy of access to genetic resources and associated traditional knowledge.

This transformation can be conceptualized through what this article terms the "Patent Gatekeeper Model." Under this model, patent examination becomes a multidimensional process integrating intellectual

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[26] Robert P. Merges, *Justifying Intellectual Property* (Cambridge: Harvard University Press, 2011), 45–63.

[27] Daniel F. Robinson, *Confronting Biopiracy: Challenges, Cases and International Debates* (London: Earthscan, 2010), 101–118.

[28] Graham Dutfield, *Protecting Traditional Knowledge: Pathways to the Future* (Geneva: ICTSD, 2018), 56–72.

property protection, biodiversity governance, indigenous rights protection, and distributive justice objectives.

TABLE 4. The Patent Gatekeeper Model under Law No. 65 of 2024

Gatekeeping Function	Legal Objective	Expected Outcome
Origin Verification	Verify source of GR and TK	Prevent false disclosure
Access Verification	Confirm lawful acquisition	Prevent unauthorized utilization
PIC Assessment	Verify community consent	Protect indigenous rights
ABS Assessment	Evaluate benefit-sharing arrangements	Promote distributive justice
Database Verification	Compare claims against TK records	Prevent erroneous patents
Post-Grant Monitoring	Ensure continuing compliance	Strengthen accountability

Source: Author's analysis (2026).

The first gatekeeping function involves origin verification. The amended framework requires greater transparency regarding the source of biological materials used in inventions. This requirement reduces information asymmetry between patent applicants and regulatory authorities. Under previous regulatory arrangements, applicants could often disclose origin in a highly general manner, without providing sufficient information about the actual provenance of genetic resources. The strengthened framework increases the evidentiary burden imposed upon applicants and thereby enhances traceability throughout the patent lifecycle.

The second function concerns access verification. This research finds that the significance of Law No. 65 of 2024 lies not merely in requiring disclosure but in encouraging verification of whether access to biological materials occurred through lawful channels. This approach reflects broader developments within international biodiversity

governance, particularly the Nagoya Protocol, which emphasizes Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) as fundamental requirements for legitimate access to genetic resources.[29] Consequently, disclosure becomes linked to questions of legality rather than functioning as a purely informational requirement.

The third function relates to the protection of indigenous and local community rights through PIC assessment. Historically, indigenous communities have often been excluded from innovation governance despite serving as custodians of traditional knowledge and biodiversity resources.[30] The strengthened disclosure framework seeks to reduce this imbalance by increasing the visibility of community contributions within the patent process. Although Indonesian patent law does not directly transform indigenous communities into patent holders, the disclosure mechanism nevertheless provides a formal legal pathway for their interests to be recognized and protected.

A fourth gatekeeping function concerns access and benefit-sharing (ABS) assessment. It represents one of the most important findings of this study. Existing literature frequently treats disclosure requirements as transparency tools.[31] However, the Indonesian reform demonstrates that disclosure may also serve as a distributive governance mechanism. By linking disclosure to broader ABS objectives, the patent system contributes to the redistribution of economic benefits derived from biological resources. In this respect, the gatekeeper does not merely verify information but also operationalizes principles of equity and fairness embedded in international biodiversity law.

The fifth function involves database verification. One of the principal concerns identified by Robinson and Raven is that disclosure requirements become ineffective if patent examiners lack access to reliable databases capable of identifying traditional knowledge and prior

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[29] Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization, October 29, 2010.

[30] Darrell A. Posey and Graham Dutfield, *Beyond Intellectual Property: Toward Traditional Resource Rights for Indigenous Peoples and Local Communities* (Ottawa: IDRC, 1996), 87–105.

[31] Claudio Chiarolla, "Intellectual Property from a Global Environmental Law Perspective," *Transnational Environmental Law* 8, no. 3 (2019): 503–521.

use.[32] Without institutional memory and searchable repositories, patent offices may inadvertently grant exclusive rights over knowledge that has long existed within indigenous communities. The Indonesian reform, therefore, implicitly necessitates the development of integrated biodiversity and traditional knowledge databases capable of supporting substantive examination.

Comparative legal analysis reveals that Indonesia is not alone in adopting gatekeeping mechanisms, although its approach differs from those implemented in other biodiversity-rich jurisdictions.

TABLE 5. Comparative Patent Gatekeeping Approaches

Country	Main Institution	Gatekeeping Mechanism	Regulatory Orientation
India	National Biodiversity Authority	Biodiversity approval before utilization	Administrative authorization
Brazil	Genetic Heritage Management Council	ABS compliance monitoring	Biodiversity governance
Indonesia	DGIP and related agencies	Disclosure-based patent examination	Patent-centered gatekeeping

Source: Author's comparative legal analysis.

India employs a relatively strong pre-access authorization model. The National Biodiversity Authority possesses the authority to regulate access to biological resources and may intervene before utilization occurs.[33] Consequently, gatekeeping primarily occurs at the access stage rather than during patent examination itself.

Brazil adopts a governance-oriented approach that emphasizes benefit-sharing and state oversight of genetic heritage. The Brazilian framework integrates patent issues within a broader biodiversity

[32] Daniel F. Robinson and Margaret T. Raven, "Ethical and Equitable Access and Benefit-Sharing," *Environmental Policy and Law* 50, no. 4–5 (2020): 311–326.

[33] The Biological Diversity Act, 2002 (India).

management architecture.[34] Consequently, patent law forms part of a larger regulatory ecosystem rather than serving as the principal enforcement mechanism.

Indonesia adopts a distinct path. Rather than creating a separate biodiversity authority with dominant control over access, the amended framework increasingly integrates biodiversity concerns directly into patent administration. It creates a patent-centered gatekeeping model. The advantage of this approach lies in its ability to intervene precisely when exclusive legal rights are requested. As a result, patent examination becomes a strategic checkpoint through which biological sovereignty may be defended.

The findings of this research, therefore, differ from previous scholarship in several respects. Robinson and Raven emphasize defensive protection through databases and documentation systems.[35] While these mechanisms remain important, the present study demonstrates that Indonesia's 2024 reform extends beyond defensive protection by embedding gatekeeping responsibilities within the patent examination process itself. Likewise, Chiarolla views disclosure primarily as a regulatory bridge between intellectual property law and environmental governance.[36] The present study finds that disclosure increasingly functions as an institutional filtering mechanism capable of determining whether patent rights should be granted at all.

Accordingly, this article proposes the Patent Gatekeeper Model as a new theoretical framework for understanding the role of disclosure obligations in contemporary intellectual property law. Under this framework, patent offices are no longer passive registrars of private rights but active guardians of biological sovereignty, distributive justice, and biodiversity governance. The Indonesian experience demonstrates that patent law can evolve beyond its traditional innovation-centered orientation and become a strategic instrument for protecting national interests in the emerging global bioeconomy.

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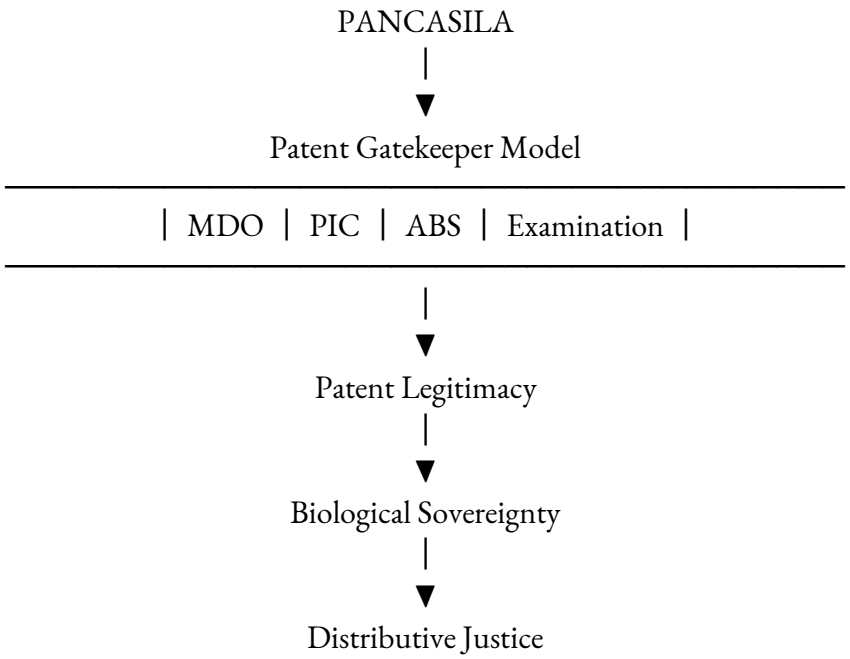
[34] Brazil Law No. 13.123/2015 on Access to Genetic Heritage and Associated Traditional Knowledge.

[35] Robinson and Raven, "Ethical and Equitable Access and Benefit-Sharing," 315–321.

[36] Chiarolla, "Intellectual Property from a Global Environmental Law Perspective," 512–518.

The significance of this finding extends beyond Indonesia. As genetic resources increasingly become strategic assets within biotechnology, synthetic biology, and artificial intelligence-driven innovation, patent authorities worldwide may face growing pressure to assume broader governance responsibilities. In this context, the Indonesian reform provides an important example of how patent systems can be restructured to balance innovation incentives with biodiversity protection and social justice objectives.

Figure 2. Patent Gatekeeper Model



Source: Author's conceptual reconstruction based on Robinson (2010), Chiarolla (2019), Robinson and Raven (2020), and Law No. 65 of 2024.

C. Revocation, Compliance, and Post-Grant Accountability: Strengthening the Enforcement Dimension of Mandatory Disclosure of Origin

The third major finding of this research concerns the emergence of a stronger post-grant accountability framework under Law No. 65 of 2024. While previous discussions surrounding Mandatory Disclosure of Origin (MDO) have largely focused on transparency and access verification, the effectiveness of disclosure requirements ultimately depends upon the existence of meaningful enforcement mechanisms. A disclosure regime without legal consequences risks becoming a symbolic obligation rather than an effective instrument against biopiracy. Therefore, the most significant contribution of the 2024 amendment lies not only in strengthening disclosure obligations but also in reinforcing compliance and accountability after patent rights have been granted.

Historically, one of the principal weaknesses of disclosure-based regulatory systems has been the absence of effective sanctions for inaccurate or fraudulent disclosure. In many jurisdictions, applicants may fail to disclose the true origin of genetic resources without facing substantial legal consequences. As a result, disclosure requirements often function as procedural formalities that can be ignored or manipulated with minimal risk.[37] This weakness has generated criticism from scholars who argue that disclosure obligations cannot effectively deter biopiracy unless they are supported by robust enforcement mechanisms capable of affecting patent rights themselves.[38]

The Indonesian experience prior to the enactment of Law No. 65 of 2024 reflects this challenge. Although Article 26 of Law No. 13 of 2016 required disclosure of the origin of genetic resources and traditional knowledge, the legal relationship between compliance with disclosure requirements and patent validity remained uncertain. In practice, the absence of a clear post-grant enforcement framework limited the deterrent effect of the provision. Patent applicants could satisfy

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[37] Carlos M. Correa, *Protection and Promotion of Traditional Medicine: Implications for Public Health in Developing Countries* (Geneva: South Centre, 2016), 54–69.

[38] Graham Dutfield, *Protecting Traditional Knowledge: Pathways to the Future* (Geneva: ICTSD, 2018), 83–95.

disclosure requirements through minimal reporting without necessarily demonstrating the legality of access or the authenticity of the information provided.

This research finds that Law No. 65 of 2024 substantially alters this situation by strengthening the relationship between disclosure compliance and patent legitimacy. The amended framework creates a more comprehensive accountability system that extends beyond the patent examination stage and continues throughout the duration of patent protection. Consequently, disclosure obligations become part of an ongoing compliance framework rather than a one-time administrative requirement.

TABLE 6. Evolution of Compliance Mechanisms in Indonesian Patent Law

Regulatory Aspect	Law No. 13 of 2016	Law No. 65 of 2024	Legal Effect
Disclosure Obligation	Administrative requirement	Strengthened substantive obligation	Enhanced compliance expectations
Verification Process	Limited review	Expanded verification	Greater scrutiny
False Disclosure	Unclear consequences	Broader legal implications	Stronger deterrence
Accountability Period	Primarily pre-grant	Pre-grant and post-grant	Continuous compliance
Regulatory Function	Information disclosure	Governance and enforcement	Stronger gatekeeping

Source: Author's legal analysis (2026).

The most important implication of this transformation is the emergence of post-grant accountability. Traditional patent systems generally concentrate regulatory attention on the application and examination phases. Once a patent has been granted, regulatory intervention becomes relatively limited. However, the Indonesian reform

indicates a shift toward continuous oversight, whereby compliance with disclosure obligations remains relevant even after patent rights have been issued.

This finding reflects broader developments in international intellectual property governance. Contemporary scholarship increasingly recognizes that biopiracy often becomes visible only after commercialization occurs.[39] In many cases, local communities, indigenous groups, or regulatory authorities may discover inaccuracies concerning resource origin only after a patented product reaches the market. Consequently, a purely pre-grant regulatory framework may be insufficient to address disclosure violations that emerge later.

The strengthened Indonesian framework, therefore, introduces a more dynamic understanding of patent legitimacy. Patent rights are no longer viewed solely as rewards for innovation, but also as legal privileges conditioned on continued compliance with regulatory obligations. This approach is consistent with the concept of conditional legitimacy, whereby exclusive rights remain valid only insofar as the legal and ethical foundations supporting those rights continue to exist.[40]

The deterrent effect created by this approach is particularly significant. Deterrence theory suggests that compliance increases when potential violators perceive a realistic possibility of sanctions that outweigh the benefits of non-compliance.[41] In the context of patent law, the possibility of losing exclusive rights represents one of the strongest deterrents available to regulators. Since patent protection frequently provides substantial commercial advantages, the threat of revocation creates a powerful incentive for applicants to ensure the accuracy of disclosure information.

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[39] Daniel F. Robinson, *Confronting Biopiracy: Challenges, Cases and International Debates* (London: Earthscan, 2010), 145–166.

[40] Peter Drahos, *A Philosophy of Intellectual Property* (Aldershot: Dartmouth Publishing, 1996), 172–189.

[41] Gary S. Becker, "Crime and Punishment: An Economic Approach," *Journal of Political Economy* 76, no. 2 (1968): 169–217.

TABLE 7. Deterrence Mechanisms under the Reformed Disclosure Framework

Compliance Mechanism	Regulatory Objective	Expected Impact
Origin Verification	Improve transparency	Reduce false disclosure
Continuous Monitoring	Strengthen accountability	Increase compliance
Revocation Possibility	Deter misconduct	Protect biological sovereignty
ABS Compliance Review	Ensure equitable benefit-sharing	Promote distributive justice
Post-Grant Scrutiny	Detect hidden violations	Reduce biopiracy risks

Source: Author's analysis (2026).

A comparative legal analysis further underscores the significance of the Indonesian approach. India, Brazil, and Indonesia all recognize the importance of protecting genetic resources, yet they differ in how they address post-grant accountability.

In India, disclosure obligations are linked to biodiversity approval requirements administered by the National Biodiversity Authority.[42] While violations may affect the legality of access to biological resources, enforcement often occurs through biodiversity governance mechanisms rather than through patent revocation itself. Consequently, accountability is primarily focused on biodiversity regulation rather than on patent law.

Brazil adopts a governance-oriented model emphasizing compliance with access and benefit-sharing obligations. The Brazilian framework contains administrative sanctions and benefit-sharing requirements. However, patent validity is not always directly linked to disclosure requirements in the same manner envisioned by more

[42] The Biological Diversity Act, 2002 (India).

stringent disclosure proposals.[43] Thus, enforcement remains embedded within a broader biodiversity management system.

Indonesia's emerging framework occupies a distinctive position between these approaches. Rather than relying exclusively on biodiversity authorities or administrative sanctions, the Indonesian reform increasingly integrates compliance concerns within the patent regime itself. As a result, disclosure violations may have direct implications for the legitimacy of patent protection.

TABLE 8. Comparative Post-Grant Accountability Models

Country	Primary Enforcement Mechanism	Regulatory Orientation
India	Biodiversity Authority oversight	Access compliance
Brazil	Administrative and ABS sanctions	Biodiversity governance
Indonesia	Patent-centered compliance framework	Patent legitimacy and accountability

Source: Author's comparative legal analysis.

The findings of this study, therefore, diverge from earlier scholarship that conceptualized disclosure requirements primarily as transparency tools. Chiarolla views disclosure as a mechanism for enhancing regulatory coordination between intellectual property and biodiversity law.[44] While this function remains important, the Indonesian reform demonstrates that disclosure can also operate as an enforcement mechanism affecting the durability of patent rights themselves. Similarly, Robinson and Raven emphasize the role of disclosure in promoting benefit-sharing and preventing misappropriation.[45] The present study extends this perspective by

[43] Brazil Law No. 13.123/2015 on Access to Genetic Heritage and Associated Traditional Knowledge.

[44] Claudio Chiarolla, "Intellectual Property from a Global Environmental Law Perspective," *Transnational Environmental Law* 8, no. 3 (2019): 503–521.

[45] Daniel F. Robinson and Margaret T. Raven, "Ethical and Equitable Access and Benefit-Sharing," *Environmental Policy and Law* 50, no. 4–5 (2020): 311–326.

showing that disclosure increasingly functions as a compliance trigger capable of activating post-grant regulatory responses.

From a theoretical perspective, this development contributes to what may be termed "compliance-based patent governance." Under this model, patent protection is no longer understood as a static legal entitlement granted once and maintained indefinitely. Instead, patent rights become conditional privileges dependent upon continuing adherence to transparency, legality, and benefit-sharing obligations. The legitimacy of patent protection, therefore, becomes intertwined with broader principles of accountability and responsible innovation.

This finding has important implications for biodiversity-rich developing countries. Many states possess abundant genetic resources but lack effective mechanisms to ensure that the benefits derived from those resources are fairly shared with local communities. By linking disclosure compliance to patent legitimacy, Indonesia creates stronger incentives for responsible resource utilization while simultaneously strengthening national sovereignty over biological assets.

Accordingly, this research concludes that Law No. 65 of 2024 establishes a more robust enforcement architecture than its predecessor. The amendment transforms Mandatory Disclosure of Origin from a largely informational obligation into a legally consequential compliance mechanism supported by post-grant accountability principles. Through this transformation, the Indonesian patent system moves closer to a model of responsible innovation governance in which transparency, legality, and distributive justice become integral components of patent legitimacy rather than peripheral regulatory concerns.

D. Pancasila-Based Distributive Justice and Decolonial Patent Governance

The fourth and most significant finding of this research concerns the philosophical transformation underlying Law No. 65 of 2024. While the previous sections have demonstrated how the amendment strengthens disclosure obligations, gatekeeping functions, and post-grant accountability mechanisms, these legal developments cannot be fully understood without examining their normative foundation. This study

finds that the strengthening of Mandatory Disclosure of Origin (MDO) reflects a broader shift in Indonesian intellectual property law from an individualistic paradigm toward a distributive justice framework grounded in Pancasila.

Historically, modern intellectual property law developed within Western liberal legal traditions that emphasize individual ownership, private rights, and market incentives. Patent protection emerged as a legal mechanism designed to reward inventors for their intellectual contributions and to stimulate innovation through exclusive economic rights.[46] Under this paradigm, the inventor occupies the central position within the legal system. At the same time, communities, traditional custodians, and ecological contributors often remain invisible. Consequently, the benefits derived from biological resources may be concentrated among patent holders, even though the underlying resources and knowledge frequently originate with indigenous and local communities.

This individualistic orientation has attracted increasing criticism, particularly within biodiversity-rich developing countries. Scholars of intellectual property and postcolonial legal theory argue that conventional patent systems frequently reproduce structural inequalities inherited from colonial patterns of resource extraction.[47] Genetic resources originating in the Global South are often transformed into commercial products protected by intellectual property rights in developed countries. At the same time, local communities receive little or no economic benefit. Such practices have been characterized as forms of "legalized appropriation" or "legalized biopiracy" because they rely upon formally valid legal mechanisms while producing substantively inequitable outcomes.[48]

The Indonesian experience provides an important illustration of this problem. For centuries, indigenous communities throughout the archipelago have preserved medicinal plants, agricultural biodiversity,

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[46] Robert P. Merges, *Justifying Intellectual Property* (Cambridge: Harvard University Press, 2011), 21–47.

[47] Peter Drahos and John Braithwaite, *Information Feudalism: Who Owns the Knowledge Economy?* (London: Earthscan, 2002), 61–95.

[48] Daniel F. Robinson, *Confronting Biopiracy: Challenges, Cases and International Debates* (London: Earthscan, 2010), 145–176.

and traditional ecological knowledge that now constitute valuable resources for modern biotechnology industries. However, conventional patent frameworks have historically provided limited recognition for these collective contributions. As a result, communities frequently become suppliers of biological resources without participating meaningfully in the economic benefits generated from innovation.

This research finds that Law No. 65 of 2024 represents a partial departure from this paradigm. By strengthening Mandatory Disclosure of Origin and reinforcing access and benefit-sharing principles, the amendment introduces distributive considerations into the operation of patent law. Rather than focusing exclusively on the inventor's contribution, the law increasingly recognizes the broader social and ecological relationships that enable innovation.

TABLE 9. Competing Philosophical Paradigms in Patent Governance

Dimension	**Classical Patent Paradigm**	**Pancasila-Based Patent Paradigm**
Primary Subject	Individual inventor	Inventor and community
Main Objective	Reward innovation	Innovation and justice
Resource Perspective	Private asset	Collective and national asset
Benefit Distribution	Patent holder-centered	Shared benefit orientation
Justice Concept	Corrective and procedural	Distributive and social

Source: Author's philosophical analysis (2026).

The significance of this transformation becomes clearer when examined through the principles of Pancasila. Unlike many Western legal systems that derive legitimacy primarily from individual autonomy, Indonesian legal philosophy is founded upon a communitarian conception of justice emphasizing social harmony, collective welfare, and

human dignity.[49] Consequently, legal institutions are expected not merely to protect private rights but also to promote equitable social outcomes.

The Second Principle of Pancasila, "Just and Civilized Humanity" (*Kemanusiaan yang Adil dan Beradab*), provides the first normative foundation for the strengthened disclosure framework. This principle requires recognition of the dignity and rights of all individuals and communities participating in social and economic life. In the context of genetic resources and traditional knowledge, disclosure obligations serve as mechanisms for acknowledging that biological resources are not ownerless commodities but are often inseparable from the histories, practices, and identities of indigenous communities.[50]

Through Mandatory Disclosure of Origin, the patent system formally recognizes the existence of these communities within innovation governance. Although disclosure does not automatically transfer patent ownership, it prevents the complete erasure of community contributions that frequently occurs under conventional patent systems. Thus, disclosure operates as a legal instrument of recognition, restoring visibility to actors historically marginalized within intellectual property discourse.

The Third Principle of Pancasila, "The Unity of Indonesia" (*Persatuan Indonesia*), provides a second normative foundation. This principle emphasizes national sovereignty and collective responsibility over strategic resources. Genetic resources constitute part of Indonesia's biological heritage and therefore possess significance beyond their commercial value.[51] The strengthened disclosure regime contributes to the protection of national biological sovereignty by ensuring that the utilization of genetic resources occurs transparently and in accordance with national legal frameworks.

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[49] Amran Suadi, *Filsafat Hukum: Refleksi Filsafat Pancasila, Hak Asasi Manusia, dan Etika* (Jakarta: Kencana, 2022), 87–113.

[50] Satjipto Rahardjo, *Ilmu Hukum* (Bandung: Citra Aditya Bakti, 2014), 211–225.

[51] Soepomo, *Sistem Hukum di Indonesia Sebelum Perang Dunia II* (Jakarta: Pradnya Paramita, 2000), 32–46.

TABLE 10. Pancasila Principles and Their Legal Manifestation in MDO

Pancasila Principle	**Legal Manifestation**
Second Principle	Recognition of community dignity and participation
Third Principle	Protection of biological sovereignty
Fifth Principle	Equitable distribution of benefits
Constitutional Objective	Welfare-oriented innovation governance

Source: Author's normative analysis (2026).

The most important foundation, however, lies in the Fifth Principle of Pancasila, namely "Social Justice for All Indonesian People" (*Keadilan Sosial bagi Seluruh Rakyat Indonesia*). This principle forms the philosophical core of the present study. Social justice requires that economic benefits generated through legal institutions be distributed fairly among all parties contributing to social welfare.[52] In the context of genetic resources, distributive justice demands that communities preserving biodiversity should not be excluded from the benefits generated by its commercialization.

The strengthened disclosure framework supports this objective by creating legal conditions that facilitate Access and Benefit-Sharing (ABS) arrangements. Rather than permitting unrestricted privatization of biological resources, the law encourages mechanisms for sharing benefits with resource providers. Consequently, disclosure becomes more than a transparency requirement; it becomes a gateway through which distributive justice may be operationalized within patent governance.

This finding differs significantly from previous scholarship. Chiarolla conceptualizes disclosure requirements primarily as instruments of environmental governance.[53] Robinson and Raven emphasize their role in promoting equitable access and benefit-sharing.[54]

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[52] Notonagoro, *Pancasila Dasar Falsafah Negara* (Jakarta: Bina Aksara, 1988), 98–115.

[53] Claudio Chiarolla, "Intellectual Property from a Global Environmental Law Perspective," *Transnational Environmental Law* 8, no. 3 (2019): 503–521.

[54] Daniel F. Robinson and Margaret T. Raven, "Ethical and Equitable Access and Benefit-Sharing," *Environmental Policy and Law* 50, no. 4–5 (2020): 311–326.

While these contributions remain valuable, the present study demonstrates that the Indonesian reform possesses a distinct philosophical dimension rooted in Pancasila. The amendment is not merely a response to international biodiversity obligations but also an expression of Indonesia's constitutional commitment to social justice and collective welfare.

The findings further resonate with Rawlsian distributive justice theory. Rawls argues that social and economic inequalities are justified only when they benefit the least advantaged members of society.[55] Applying this perspective to patent governance suggests that exclusive intellectual property rights should not be evaluated solely according to their contribution to innovation but also according to their capacity to improve the welfare of communities providing the resources upon which innovation depends. The Indonesian reform moves in this direction by incorporating benefit-sharing considerations into the legal architecture of patent protection.

At the same time, the amendment is a form of decolonial legal reform. Decolonial scholarship critiques the tendency of global legal systems to universalize Western concepts while marginalizing alternative normative traditions.[56] Conventional intellectual property law often privileges individual ownership models developed in industrialized societies while neglecting communal forms of knowledge production characteristic of many indigenous communities. By embedding Pancasila values within patent governance, Indonesia develops an alternative normative framework that reflects local constitutional identity rather than merely reproducing external legal models.

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[55] John Rawls, *A Theory of Justice* (Cambridge: Harvard University Press, 1971), 75–108.

[56] Walter D. Mignolo and Catherine E. Walsh, *On Decoloniality: Concepts, Analytics, Praxis* (Durham: Duke University Press, 2018), 3–24.

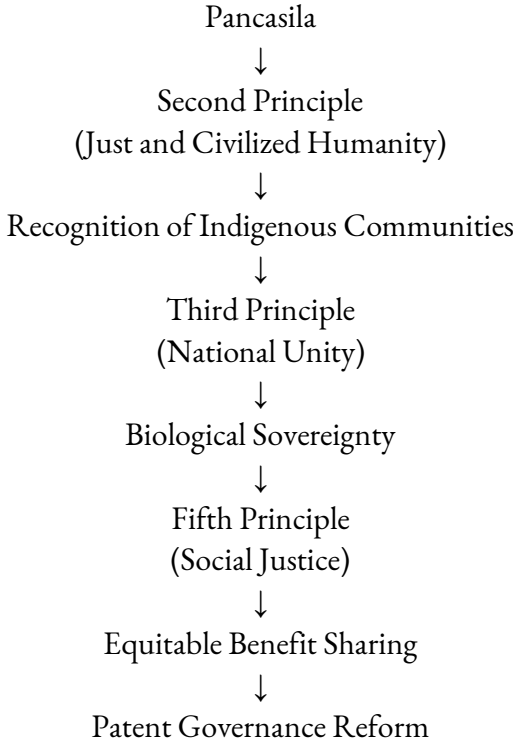
TABLE 11. Characteristics of Decolonial Patent Governance

Colonial Patent Logic	**Decolonial Patent Governance**
Individual ownership	Recognition of collective contributions
Resource extraction	Equitable benefit-sharing
Market-centered legitimacy	Social justice legitimacy
Global uniformity	Constitutional pluralism
Exclusive reward system	Balanced rights and obligations

Source: Author's conceptual reconstruction (2026).

Accordingly, this research argues that Law No. 65 of 2024 should be understood not merely as a technical amendment to patent legislation but as a broader normative project aimed at reconciling innovation, sovereignty, and social justice. The strengthening of Mandatory Disclosure of Origin reflects an emerging model of Pancasila-Based Distributive Justice in which patent protection remains compatible with the constitutional commitment to collective welfare. Through this framework, Indonesia demonstrates that intellectual property law can function not only as an instrument for rewarding innovation but also as a mechanism for promoting fairness, protecting biological sovereignty, and empowering communities whose resources and knowledge contribute to the development of modern biotechnology.

Figure 3. Pancasila-Based Distributive Justice as the Normative Foundation of Mandatory Disclosure of Origin.



Source: Author's conceptual reconstruction based on Pancasila, Rawls (1971), Isharyanto (2020), Notonagoro (1988), and Law No. 65 of 2024.

E. Governing Digital Sequence Information: Future Challenges and Reform Agenda

The final finding of this research concerns the emergence of a new regulatory frontier that may fundamentally challenge the effectiveness of Mandatory Disclosure of Origin (MDO) in the coming decades. While Law No. 65 of 2024 significantly strengthens the governance of physical genetic resources and associated traditional knowledge, contemporary biotechnology is increasingly shifting from the utilization of tangible biological materials toward the exploitation of Digital Sequence

Information (DSI). This transformation creates a new governance dilemma because disclosure mechanisms originally designed for physical resources may become insufficient in a digital bioeconomy.

Traditionally, access to genetic resources required the physical collection, transfer, and utilization of biological materials. Consequently, disclosure obligations could focus on identifying the geographic origin of samples, verifying Prior Informed Consent (PIC), and ensuring compliance with Access and Benefit-Sharing (ABS) requirements. However, advances in genomic sequencing technologies have fundamentally altered this landscape. Today, researchers can access genetic information through digital databases without necessarily obtaining physical biological samples.[57]

This development challenges one of the core assumptions underlying existing disclosure regimes. The conventional logic of Mandatory Disclosure of Origin assumes that genetic resources possess identifiable physical origins that can be documented and verified. However, digital Sequence Information increasingly allows researchers to utilize genetic information detached from its material source. Consequently, the relationship between biological origin and technological innovation becomes more difficult to trace.

Recent scholarship identifies DSI as one of the most controversial issues in contemporary biodiversity governance. Lawson, Humphries, and Rourke argue that the digitization of genetic information risks creating a new form of regulatory bypass whereby users can exploit genetic resources through data rather than physical access.[58] Under such circumstances, existing access-and-benefit-sharing frameworks may become ineffective because utilization occurs outside the regulatory structures originally designed to govern biological materials.

The implications for Indonesia are particularly significant. As one of the world's leading megadiverse countries, Indonesia possesses enormous genetic wealth that is increasingly attracting interest from the biotechnology, pharmaceutical, agricultural, and artificial intelligence

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[57] Evanson C. Kamau and Gerd Winter, *Genetic Resources, Traditional Knowledge and the Law* (London: Earthscan, 2013), 251–276.

[58] Charles Lawson, Francis Humphries, and Michelle Rourke, "Digital Sequence Information, Genetic Resources and Benefit Sharing," *European Intellectual Property Review* 42, no. 9 (2020): 565–578.

industries. If genetic information originating from Indonesian biodiversity can be accessed and utilized through digital repositories without effective traceability mechanisms, the protective capacity of Law No. 65 of 2024 may gradually erode.

TABLE 12. Emerging Challenges in the Digital Bioeconomy

Emerging Issue	Regulatory Risk	Potential Impact
Digital Sequence Information	Loss of traceability	Increased biopiracy risk
Synthetic Biology	Artificial reconstruction of biological materials	Weakening of origin-based regulation
AI-Assisted Drug Discovery	Mass utilization of genetic datasets	Difficulty identifying resource providers
Cross-Border Data Sharing	Jurisdictional fragmentation	Enforcement challenges
Cloud-Based Biotechnology	Remote utilization of genetic information	Reduced state oversight

Source: Author's analysis (2026).

The research finds that Law No. 65 of 2024 establishes an important foundation for future governance but does not yet fully address the complexities introduced by DSI. The amended framework remains primarily oriented toward physical genetic resources and traditional knowledge. Consequently, additional regulatory innovation will be required if Indonesia seeks to maintain effective control over biological assets in the digital era.

One possible response is to expand disclosure obligations to include Digital Sequence Information. Under such a model, patent applicants would be required not only to disclose the origin of physical genetic materials but also to identify the digital databases, genomic repositories, and sequence datasets utilized during the innovation process. This approach would extend the logic of transparency from biological materials to biological information.

TABLE 13. Evolution of Disclosure Requirements

Generation of Disclosure	**Regulatory Focus**
First Generation	Physical biological materials
Second Generation	Genetic resources and traditional knowledge
Third Generation	Digital Sequence Information
Fourth Generation	AI-generated biological innovation

Source: Author's conceptual framework.

A second reform concerns digital traceability mechanisms. One limitation of conventional disclosure systems is their reliance on documentary evidence that may be incomplete or difficult to verify. Blockchain technology offers a potential solution by creating immutable records documenting the origin, transfer, and use of genetic resources.[59] Through distributed ledger systems, information on access permits, benefit-sharing agreements, and resource use could be recorded in a transparent, and tamper-resistant manner.

Although blockchain should not be viewed as a complete substitute for legal regulation, it may significantly enhance the effectiveness of the Patent Gatekeeper Model proposed in this article. Rather than relying solely on applicant declarations, patent examiners could use digital verification systems to trace the historical pathways of biological resources from source communities to final innovations.

A third reform concerns the integration of artificial intelligence into patent examination. Contemporary biotechnology increasingly relies upon machine-learning systems capable of analyzing vast quantities of genomic data. While such technologies create significant opportunities for scientific advancement, they also complicate questions concerning attribution and origin.[60] Patent offices may therefore require AI-assisted examination tools capable of detecting connections between

[59] Primavera De Filippi and Aaron Wright, *Blockchain and the Law: The Rule of Code* (Cambridge: Harvard University Press, 2018), 73–102.

[60] Ryan Abbott, *The Reasonable Robot: Artificial Intelligence and the Law* (Cambridge: Cambridge University Press, 2020), 115–148.

patent claims, biodiversity databases, and repositories of traditional knowledge.

TABLE 14. Technological Tools for Future Patent Governance

Technology	Governance Function
Blockchain	Traceability and verification
Artificial Intelligence	Patent examination support
Biodiversity Databases	Prior knowledge identification
Genomic Repositories	DSI monitoring
Smart Contracts	Automated ABS compliance

Source: Author's policy analysis (2026).

Beyond technological innovation, the study also identifies the need for stronger regional cooperation. Genetic resources frequently cross national boundaries, while digital information circulates globally. Consequently, purely national regulatory approaches may prove insufficient. Indonesia could therefore play a leadership role within ASEAN by promoting regional biodiversity governance frameworks that harmonize disclosure standards, information sharing, and benefit-sharing mechanisms.

TABLE 15. Proposed ASEAN Biodiversity Governance Framework

Policy Area	Proposed Initiative
Disclosure Standards	Regional MDO Guidelines
Biodiversity Databases	ASEAN Genetic Resource Repository
ABS Mechanisms	Regional Benefit-Sharing Principles
DSI Governance	ASEAN Digital Sequence Information Protocol
Enforcement Cooperation	Cross-border monitoring system

Source: Author's proposal (2026).

The findings of this study differ from previous scholarship in an important respect. Existing literature generally treats disclosure requirements as mechanisms for addressing contemporary challenges associated with genetic resources and traditional knowledge.[61] The present study argues that disclosure must also be understood as a dynamic governance tool capable of adapting to technological transformation. The future relevance of Mandatory Disclosure of Origin will depend not only on legal compliance but also on its ability to evolve alongside emerging forms of biological innovation.

This perspective extends the Patent Gatekeeper Model introduced in the previous sections. Whereas conventional gatekeeping focuses primarily on physical resources, future gatekeeping must encompass biological information, digital infrastructures, and algorithmic innovation processes. Patent offices will increasingly be required to function as institutions capable of governing both material and informational dimensions of biodiversity.

From a broader perspective, the Indonesian reform illustrates an important global trend. Intellectual property governance is gradually evolving from a system focused solely on innovation incentives into a more comprehensive framework that addresses sustainability, sovereignty, and social justice. Law No. 65 of 2024 represents an important step in this direction. Nevertheless, maintaining the reform's effectiveness will require continuous adaptation to emerging technological realities.

Accordingly, this research concludes that the future success of Indonesia's disclosure regime will depend upon three interconnected strategies: expanding disclosure obligations to encompass Digital Sequence Information, strengthening digital traceability through emerging technologies, and promoting regional and international cooperation for biodiversity governance. Through these measures, the Patent Gatekeeper Model may continue to function effectively in the era of artificial intelligence, synthetic biology, and the global digital bioeconomy.

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[61] Claudio Chiarolla, "Intellectual Property from a Global Environmental Law Perspective," *Transnational Environmental Law* 8, no. 3 (2019): 503–521.

This study is limited to normative legal analysis and does not empirically evaluate the implementation of Law No. 65 of 2024 within patent examination practice. Future research may employ empirical, socio-legal, or comparative methodologies to assess how patent authorities implement disclosure obligations and the effectiveness of these obligations in preventing biopiracy.

Conclusion

This study concludes that Law No. 65 of 2024 has fundamentally strengthened the role of Mandatory Disclosure of Origin (MDO) within Indonesia's patent regime. The amendment transforms disclosure from a procedural requirement into a substantive governance mechanism that links patent protection with transparency, lawful access to genetic resources, and equitable benefit-sharing. As a result, the Indonesian patent system no longer functions solely as a mechanism for rewarding innovation but increasingly serves as an instrument for protecting biological sovereignty and preventing biopiracy.

The findings further demonstrate that the amended framework strengthens the gatekeeping role of the patent system through enhanced disclosure obligations, verification mechanisms, and post-grant accountability measures. This development reflects a broader shift in patent governance, in which the legitimacy of patent rights is increasingly tied to compliance with biodiversity-related obligations. In this respect, Indonesia has moved beyond a purely administrative disclosure model toward a more integrated approach that combines intellectual property protection with biodiversity governance.

From a theoretical perspective, the study shows that the reform is consistent with the principles of Pancasila-based distributive justice. By recognizing the interests of indigenous and local communities as providers of genetic resources and traditional knowledge, the amended framework promotes a more balanced relationship between private innovation and collective welfare. The Indonesian experience, therefore, offers an alternative model of patent governance that seeks to reconcile innovation incentives, social justice, and national sovereignty.

Nevertheless, the future effectiveness of the disclosure regime will depend on its ability to address emerging challenges associated with

Digital Sequence Information (DSI), artificial intelligence, and synthetic biology. Accordingly, this study recommends strengthening biodiversity databases, expanding disclosure mechanisms to accommodate digital genetic information, and enhancing regional cooperation in biodiversity governance. Through these measures, Indonesia can further develop a patent system that supports innovation while ensuring the sustainable and equitable utilization of its biological resources.

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