


Indigenous Data Sovereignty and Blockchain: Reconfiguring Legal Protection of Communal Intellectual Property in Indonesia

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ABSTRACT

This article reevaluates Indonesia's legal framework for the protection of Communal Intellectual Property (CIP), exposing the fundamental weaknesses of Ministerial Regulation No. 13 of 2017 and Government Regulation No. 56 of 2022, which rely on administrative state custodianship without ensuring community sovereignty, Free, Prior, and Informed Consent (FPIC), or enforceable Access and Benefit-Sharing (ABS) mechanisms. Using a normative legal methodology enriched by socio-legal and comparative analysis (Philippines: IPRA 1997; Thailand: TK Act 1999; Peru: Law No. 27811; Bolivia: constitutional recognition of communal rights), the study reconstructs the regulatory model through the theoretical lenses of Living Law (Ehrlich), Responsive Law (Nonet and Selznick), and Pancasila Legal Theory. The findings reveal three central gaps. First, the positivization of CIP that concentrates authority in the state creates a sovereignty imbalance and undermines indigenous legal autonomy. Second, the absence of operational FPIC and ABS mechanisms reduces communities to data providers rather than legal subjects. Third, comparative experiences from ASEAN and Latin American jurisdictions provide strong precedents for the recognition of communal rights, community protocols, and equitable benefit-sharing frameworks. The article proposes a blockchain-based co-governance model using a permissioned ledger and smart contracts to ensure transparent and collectively validated registration, consent, and benefit distribution. The study's practical contribution includes drafting key provisions for a sui generis CIP Law, establishing a joint State, Community CIP Council, mandating FPIC and ABS, and integrating a blockchain-enabled national registry that embodies Pancasila's foundational values of deliberation, solidarity, and social justice.

Keywords: Communal Intellectual Property; Indigenous Data Sovereignty; Blockchain; FPIC; Benefit-Sharing; Living Law; Responsive Law; Pancasila; Indonesia

INTRODUCTION

Communal Intellectual Property (CIP), which encompasses traditional knowledge, traditional cultural expressions, genetic resources, and geographical indications, represents not only an economic asset but also a vital pillar of cultural identity and spiritual life for indigenous communities in Indonesia. In the age of digital transformation and global interconnectedness, the protection of CIP is no longer merely a cultural concern but a matter of political sovereignty and existential survival. Within a global legal framework that privileges individual ownership, communal rights have often been marginalized. This tension raises a critical question: to what extent can the legal system safeguard collective values such as solidarity, reciprocity, and shared custodianship within the logic of market-based intellectual property regimes?

Classic cases such as patents on neem, turmeric, and basmati rice in the 1990s (Dutfield 2004) became turning points, exposing how the international intellectual property regime has failed to protect communal interests. The dominance of individual and corporate rights in global law reinforces an extractive system where knowledge is commodified, and local wisdom becomes vulnerable to biopiracy and misappropriation. For many indigenous communities, this phenomenon is not merely a cultural infringement but a form of legal and epistemic colonialism that redefines their heritage as data to be mined, owned, and traded by external actors. It exposes a structural imbalance in which the global legal order recognizes ownership but rarely acknowledges stewardship or spiritual responsibility.

Efforts to address these disparities have emerged through global initiatives. The World Intellectual Property Organization (WIPO), through the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge, and Folklore (IGC), and the adoption of the Nagoya Protocol under the Convention on Biological Diversity (CBD), signify steps toward inclusivity. Yet, these mechanisms remain limited in scope and enforcement. To date, the WIPO IGC has not produced a binding treaty, while the implementation of the Nagoya Protocol in Global South countries, including Indonesia, faces bureaucratic hurdles, institutional fragmentation, and unequal power relations between the state and indigenous peoples (Greiber 2013). This condition reflects a persistent governance gap between global legal ideals and the lived realities of local communities.

Indonesia embodies this complexity in its most diverse form, with more than 1,300 indigenous communities scattered across the archipelago, each holding distinct expressions of knowledge, rituals, and traditional practices. However, beneath this diversity lies a paradox. The national legal framework intended to safeguard CIP remains deeply centralized in state institutions. Two key regulations, Ministerial Regulation No. 13 of 2017 on Communal Intellectual Property Data and Government Regulation No. 56 of 2022 on Communal Intellectual Property, establish a national inventory system managed by the Directorate General of Intellectual Property (DGIP). While these instruments provide a defensive measure against foreign patent claims by documenting CIP as prior art, they also institutionalize the state as the formal rights holder of communal heritage (PP No. 56/2022; Permenkumham No. 13/2017). Consequently, indigenous communities are reduced to data providers rather than sovereign legal subjects over their cultural and intellectual heritage (Palar 2023).

This model of administrative custodianship reflects remnants of legal colonialism embedded in the bureaucratic apparatus of the modern state. The state assumes the role of guardian over cultural assets, while indigenous custodians are deprived of decision-making power. Such a model widens what can be termed a sovereignty gap: a disjunction between formal recognition and substantive self-determination. It also contradicts the spirit of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which guarantees indigenous peoples the right to maintain, control, and develop their intellectual and cultural heritage. When positive law monopolizes authority in the hands of the state, living law, the unwritten norms and customs that govern social and spiritual relations, loses its relevance as a legitimate source of justice.

Two structural weaknesses arise from this regulatory architecture. First, there is a widening gap between codified law and living law. As Eugen Ehrlich (1913) emphasized, the true source of law lies not in statutory texts but in the social practices that regulate everyday life. In the case of CIP, customary norms determining who may access, use, or transmit traditional knowledge, whether ritual chants, medicinal formulas, or sacred art, are largely disregarded. Second, the absence of enforceable mechanisms for Free, Prior, and Informed Consent (FPIC) and Access and Benefit-Sharing (ABS) leaves indigenous communities symbolically acknowledged but materially excluded. These deficiencies indicate that Indonesia's CIP law remains at the "autonomous law" stage described by Nonet and Selznick (1978), prioritizing procedural order over substantive justice.

In response, a new paradigm has emerged: Indigenous Data Sovereignty (IDS). IDS asserts the collective rights of indigenous peoples to own, control, access, and govern their data, including digitized forms of traditional knowledge. Built upon the OCAP principles (Ownership, Control, Access, and Possession), IDS challenges the notion of indigenous peoples as passive subjects and reclaims them as active legal agents with epistemic sovereignty (Kukutai and Taylor 2016; Carroll et al. 2020). In this sense, data are not merely technical entities but embodiments of cultural meaning and moral authority. IDS redefines the relationship between law and knowledge, insisting that indigenous communities must determine how their data are shared, interpreted, and utilized. Operationalizing IDS requires legally recognized FPIC and community protocols that bridge customary law with digital governance.

Modern technological innovation, particularly blockchain, presents a transformative opportunity to operationalize IDS principles. With its decentralized, transparent, immutable, and programmable features, blockchain can establish a digital legal infrastructure that validates consent and enforces benefit-sharing automatically and transparently. In this context, blockchain should not be understood merely as a technical tool but as a legal architecture capable of redistributing authority and rebuilding trust between the state and indigenous communities. Every entry of traditional knowledge can be permanently recorded, every access can be verified, and every benefit transaction can be auditable and governed by community consent. Law thus becomes self-enforcing,

not through bureaucratic decree but by design within a technological system grounded in fairness and accountability.

This technological framework signals a paradigmatic shift from administrative custodianship to digital co-governance. Under this model, the state and indigenous communities function as equal partners. The state provides infrastructure, recognition, and oversight, while communities retain substantive authority over content, context, and access conditions. Blockchain-enabled governance allows community participation in determining licensing terms, benefit-sharing arrangements, and data use permissions, thereby replacing hierarchical regulation with collaborative governance. Through this lens, law regains its responsive character, one that resonates with the Pancasila values of deliberation, social justice, and collective welfare.

This study builds upon three complementary legal theories: Living Law (Ehrlich), Responsive Law (Nonet and Selznick), and Pancasila Legal Theory. Together, they provide the normative and moral foundations for reconstructing CIP protection in Indonesia. Living Law emphasizes the authenticity of law grounded in social reality; Responsive Law underscores adaptability to substantive justice; and Pancasila Legal Theory demands that Indonesian law promote human dignity, social solidarity, and justice for marginalized groups.

Based on these foundations, the study formulates three central questions: (1) What are the fundamental weaknesses of Indonesia's current regulations, particularly Ministerial Regulation No. 13/2017 and Government Regulation No. 56/2022? (2) How can the principles of Living Law and Responsive Law guide the reconstruction of CIP regulation in harmony with the social justice values of Pancasila? and (3) To what extent can blockchain function as a legal instrument to actualize co-governance between the state and indigenous communities?

By addressing these questions, this paper aims not only to strengthen the theoretical discourse on CIP protection in Indonesia but also to propose a digital legal framework that bridges tradition and technology, where indigenous sovereignty and digital innovation coexist within a just and inclusive legal order.

METHODOLOGY

1. Legal Approaches

This study employs a normative legal approach enriched by socio-legal and comparative perspectives. The normative approach is chosen because the main focus of this research lies in examining Indonesia's positive legal framework governing Communal Intellectual Property (CIP), particularly Ministerial Regulation No. 13 of 2017 on Communal Intellectual Property Data and Government Regulation No. 56 of 2022 on Communal Intellectual Property. These instruments structure the formal relationship between the state and indigenous communities in managing traditional knowledge.

In normative legal research, law is not perceived merely as a set of written rules but also as a value system that reflects justice and human dignity. Therefore, the analysis explores the underlying principles and doctrines embedded in the regulations to assess how far the legal framework protects indigenous communities' collective rights (Soekanto & Mamudji, 2019; Marzuki, 2017).

The socio-legal approach is employed to understand how law interacts with social practices and customary norms. It perceives law as a social phenomenon deeply intertwined with culture, morality, and power relations (Banakar & Travers, 2005). This allows the research to explore how legal norms concerning CIP operate within real social settings and to what extent they align with the living law of indigenous communities.

Furthermore, the comparative legal approach is used to identify and evaluate different legal models for protecting CIP in other jurisdictions that share similar socio-legal characteristics. Comparative analysis is essential to extract adaptable legal principles that may strengthen Indonesia's *sui generis* system of communal rights protection (Zweigert & Kötz, 1998; Watson, 1993).

2. Stages of Analysis

The research proceeds through four interconnected stages:

- Identification of legal norms: collecting and reviewing all Indonesian legal instruments related to CIP, both direct (e.g., PP 56/2022 and Permenkumham 13/2017) and indirect (e.g., Copyright Law, Patent Law, and Nagoya Protocol ratification).
- Normative and conceptual gap analysis: assessing the coherence between existing laws and principles of social justice and indigenous recognition. The living law theory (Ehrlich, 1913) is used to examine the distance between the written law and the law practiced within communities.
- Theoretical synthesis: integrating responsive law (Nonet & Selznick, 1978) and Pancasila Legal Theory to formulate a contextually grounded model of justice for CIP regulation.

- Legal model formulation: developing a co-governance framework based on blockchain technology as a policy innovation that emphasizes FPIC, ABS, and community participation.

These analytical stages employ a deductive reasoning process, moving from theoretical premises toward normative conclusions and policy recommendations that are both contextual and implementable.

3. Sampling and Data Sources

The sampling design in this study does not involve human participants but focuses on the selection of legal materials and comparative jurisdictions as the primary analytical units. In legal research, sampling is interpreted as a purposive selection of sources and contexts most relevant to the research objectives (Soekanto, 2006; Creswell & Poth, 2018). Validity, therefore, depends not on numerical size but on the depth and normative representativeness of the data analyzed.

Three categories of legal materials were utilized:

- Primary legal sources, including Government Regulation No. 56 of 2022, Ministerial Regulation No. 13 of 2017, and related laws on copyright, patents, and genetic resources.

- Secondary legal sources, encompassing scholarly literature, WIPO reports, international policy documents (CBD, Nagoya Protocol), and peer-reviewed studies on Access and Benefit-Sharing (ABS), Free, Prior, and Informed Consent (FPIC), and Indigenous Data Sovereignty (IDS).

- Tertiary legal sources, such as legal dictionaries, encyclopedias, and databases (WIPO Lex, HeinOnline, SSRN), which ensure terminological accuracy and analytical coherence.

- Additionally, the study applies comparative sampling involving four jurisdictions: the Philippines, Thailand, Peru, and Bolivia. These countries were purposively selected based on their relevance, socio-legal diversity, and regulatory success in protecting indigenous knowledge.

- The Philippines provides a comprehensive model through the Indigenous Peoples Rights Act (1997), institutionalizing FPIC and benefit-sharing mechanisms.

- Thailand offers a hybrid model under the Protection and Promotion of Traditional Thai Medicinal Intelligence Act (1999), integrating state regulation with community-based rights.

- Peru's Law No. 27811 introduces a contractual benefit-sharing mechanism that recognizes community ownership of traditional knowledge.

- Bolivia, through its Constitution of 2009, constitutionally embeds collective intellectual rights as part of national sovereignty.

This purposive and functional sampling aligns with the comparative method's emphasis on functional equivalence, comparing legal systems based on their objectives rather than their form (Zweigert & Kötz, 1998). The validity of findings is reinforced through triangulation of multiple credible sources, including legal databases, official reports, and peer-reviewed journals.

Although the study primarily relies on secondary data, reliability is maintained through cross-verification and contextual analysis of global legal developments. This approach ensures both normative representation and contextual accuracy, enabling a holistic understanding of CIP governance and providing a strong conceptual foundation for developing a blockchain-based legal framework for equitable communal protection.

RESULTS

1. The Regulatory Framework of Communal Intellectual Property (CIP) in Indonesia

The analysis of Indonesia's national legal framework shows that the protection system for Communal Intellectual Property (CIP) remains administrative in nature and has not yet provided substantive recognition of indigenous collective rights. Two key legal instruments, Ministerial Regulation No. 13 of 2017 on Communal Intellectual Property Data and Government Regulation No. 56 of 2022 on Communal Intellectual Property, function primarily as mechanisms of registration and data management rather than as instruments of legal recognition.

Both regulations position the state, through the Directorate General of Intellectual Property (DGIP), as the central authority in the registration and administration of CIP. Indigenous communities are regarded merely as data contributors rather than as rights holders. This approach reflects a paradigm of state custodianship instead of community ownership.

This centralized model generates several implications. First, indigenous peoples' rights over traditional knowledge and cultural expressions are not recognized as full collective legal rights but are instead treated as components of national heritage. Second, the current regulations provide no explicit basis for Free, Prior, and Informed Consent (FPIC), which is a foundational principle under international law governing access to traditional

knowledge (Greiber, 2013). Third, there is no operative system for Access and Benefit-Sharing (ABS) that directly involves indigenous communities in the fair distribution of benefits.

At the operational level, the 2022 Government Regulation continues to portray communities as passive subjects of state-administered data collection. This stands in contrast with international standards under the Convention on Biological Diversity (CBD) and the Nagoya Protocol, which emphasize the participation of indigenous communities in decision-making. Furthermore, the absence of a clear grievance or dispute resolution mechanism highlights that the Indonesian system remains centered on administrative documentation rather than substantive justice.

2. The Gap between Positive Law and Living Law

Socio-legal observations reveal a significant disconnection between written law and the law as practiced within indigenous communities. Many groups, including the Karo, Baduy, and Dayak peoples, possess customary norms regulating the transmission, use, and protection of traditional knowledge. These norms often include restrictions on sacred or secret knowledge, obligations of reciprocity, and community-based benefit-sharing principles.

Despite their enduring social authority, such living norms lack formal recognition within the national legal framework. The process of registering traditional knowledge with the DGIP database is often perceived as transferring control to the state rather than reinforcing community ownership. In several cases, the formalization of registration even exposes cultural data that should remain confidential.

This gap demonstrates that Indonesia's legal system has not yet effectively integrated living law into its positive legal structure. The state continues to act as the custodian of cultural data, while communities lose control over their heritage. This model is inconsistent with the principles of Indigenous Data Sovereignty (IDS), which assert that indigenous peoples should retain authority and control over data relating to their knowledge and heritage (Kukutai and Taylor, 2016; Carroll et al., 2020).

3. Comparative Findings: Legal Models from Other Jurisdictions

Comparative analysis of four jurisdictions, namely the Philippines, Thailand, Peru, and Bolivia, demonstrates diverse but instructive approaches to the protection of traditional knowledge and cultural expressions.

a. Philippines.

Through the Indigenous Peoples' Rights Act (IPRA) of 1997, the Philippines provides full legal recognition of indigenous peoples' collective ownership over their traditional knowledge. FPIC is mandatory prior to any access or utilization of such knowledge. The law positions indigenous communities as rights holders rather than as data providers, transforming the role of the state into that of a guarantor (Republic of the Philippines, 1997).

b. Thailand.

Thailand's Protection and Promotion of Traditional Thai Medicinal Intelligence Act (1999) grants communities legal and economic rights over traditional medical knowledge, establishes a Traditional Knowledge Fund, and prohibits the patenting of registered knowledge. The Thai model demonstrates the integration of state mechanisms with community norms, ensuring a balance between protection and utilization.

c. Peru.

Peru's Law No. 27811 of 2002 introduced a sui generis legal framework for protecting traditional knowledge related to biodiversity. It requires benefit-sharing contracts between communities and external users and recognizes the collective ownership of traditional knowledge. This contractual model empowers communities as legal subjects with the capacity to negotiate equitable terms.

d. Bolivia.

Bolivia's 2009 Constitution elevates indigenous rights to a constitutional status, mandating the state to protect indigenous knowledge and cultural expressions as collective property (República de Bolivia, 2009). This model represents a form of co-governance in which the state acts as protector and facilitator rather than as owner.

4. Synthesis of Findings

The results indicate that Indonesia's regulatory approach remains limited to documentation and registration, lacking mechanisms of participation and collective ownership. Compared with other jurisdictions, Indonesia's framework is robust in administrative scope but weak in community inclusion and benefit-sharing.

The Philippines and Peru highlight that effective CIP protection depends on legal recognition of collective rights and enforceable FPIC mechanisms. Thailand and Bolivia demonstrate the feasibility of hybrid systems that combine state facilitation with community co-management.

Overall, the findings reveal that Indonesia must reform its CIP law by shifting from a model of administrative custodianship to one of co-governance, ensuring legal equality between the state and indigenous communities.

Such a transformation would align Indonesia's system with global principles of fairness, participation, and indigenous data sovereignty.

ANALYSIS

1. Theoretical Framework for Reform: Living Law, Responsive Law, and Pancasila Legal Theory

Addressing the weaknesses of Indonesia's current CIP framework requires a theoretical foundation that reconnects law with social realities and substantive justice. Three interrelated frameworks, Living Law (Ehrlich), Responsive Law (Nonet and Selznick), and Pancasila Legal Theory, provide the intellectual basis for reconstructing CIP governance into a participatory and community-centered model.

Eugen Ehrlich (1913) argued that the vitality of law resides not in statutes or courts but within society itself. The living law of communities shapes everyday conduct and moral expectations. In indigenous contexts, this living law manifests through customary practices governing the use and transmission of traditional knowledge, such as limiting sacred information to elders or requiring reciprocal exchanges between communities. These customs embody both cultural and legal authority.

Indonesia's CIP regulations, however, remain detached from this living law. By centralizing control under administrative mechanisms, they fail to reflect the moral and social dimensions of indigenous legal orders. Reform must therefore begin with the recognition of customary law as a legitimate source of law. This can be implemented through the legal validation of community protocols as expressions of FPIC and through institutional arrangements that include indigenous representatives in decision-making processes. Bolivia's constitutional recognition of indigenous legal autonomy provides a relevant model (República de Bolivia, 2009).

Nonet and Selznick (1978) describe the evolution of law from repressive to autonomous and then to responsive. A responsive legal system is characterized by openness to social participation and by its orientation toward achieving justice rather than merely enforcing procedure. Indonesia's CIP system currently reflects the autonomous stage, dominated by bureaucratic formalism. Moving toward responsiveness requires sharing authority with social actors.

This can take the form of a joint State–Community Council responsible for CIP policy, data governance, and dispute resolution. The Philippines' IPRA 1997 already exemplifies this responsive model by mandating community participation and FPIC before any external use of indigenous knowledge (Republic of the Philippines, 1997).

Finally, Pancasila, as Indonesia's foundational philosophy, provides the moral and ontological grounding for a legal system that harmonizes human dignity, unity, deliberation, and justice. Pancasila Legal Theory emphasizes that law must be humane, deliberative, and socially just (Notonagoro, 1975; Sidharta, 2006). In the context of CIP, this means the law should protect collective ownership, ensure equitable benefit-sharing, and recognize communal decision-making. Satjipto Rahardjo (2009) argued that progressive law must serve human liberation rather than bureaucratic order. Thus, a Pancasila-based CIP regime must transform law from an administrative mechanism into an instrument of social emancipation.

2. From Administrative Custodianship to Co-Governance: Integrating Technology and Indigenous Data Sovereignty

Legal reform must also integrate technological innovation to operationalize participatory governance. Blockchain technology offers a promising instrument to realize Indigenous Data Sovereignty (IDS) by providing a distributed, transparent, and secure system for managing cultural data (Christidis and Devetsikiotis, 2016).

Under the current custodianship model, the state exclusively controls CIP databases. This structure creates dependency and perpetuates power asymmetry. A blockchain-based registry would distribute control between state and community nodes, ensuring that every data modification requires collective consent.

Smart contracts can automate the implementation of FPIC and ABS. For instance, when a researcher or company requests access to traditional knowledge, the system can require digital approval from community nodes before granting access. Benefit-sharing payments can then be executed automatically. Such automation enhances accountability and minimizes bureaucratic delays (Christidis and Devetsikiotis, 2016; Rainie et al., 2017).

In this co-governance model, the state transitions from controller to facilitator. It provides infrastructure, cybersecurity, and legal recognition of digital records, while communities authenticate cultural data and oversee consent processes. This design aligns with the CARE principles (Collective Benefit, Authority to Control, Responsibility, and Ethics), which advocate culturally grounded data governance (Carroll et al., 2020).

Transparency is also strengthened. Every use of CIP is permanently recorded, creating an immutable audit trail similar to India's Traditional Knowledge Digital Library (TKDL) but with active community involvement (Bhatia,

2015). Implementing such a system would require legal recognition of digital evidence and community legal entities, but its benefits extend far beyond data management; it redefines law as a collaborative architecture of justice.

3. Integrating Local Values and Global Lessons

Comparative findings confirm that the shift from state control to collaborative governance is essential for effective CIP protection. The Philippines guarantees ownership and consent rights, Thailand links traditional knowledge protection with economic empowerment, Peru enforces benefit-sharing contracts, and Bolivia embeds indigenous rights in its Constitution.

All these models share three key principles: legal recognition of communities as rights holders, enforceable FPIC mechanisms, and equitable benefit-sharing. Indonesia can adapt these principles within its Pancasila-based legal philosophy and employ blockchain as a tool for implementation. This approach does not imitate foreign models but reconstructs them within Indonesia's socio-cultural identity, aligning national law with global standards of fairness and participation (Greiber, 2013; WIPO, 2023).

4. The Direction of CIP Legal Reform in Indonesia

The analytical synthesis indicates that Indonesia's CIP governance must evolve from a paradigm of state custodianship to one of co-governance, where authority is shared between the state and indigenous communities. This transformation should be codified through a *sui generis* CIP Law that guarantees collective rights, institutionalizes FPIC, establishes ABS, and legitimizes blockchain-based data governance.

Such reform is not merely procedural but paradigmatic. It envisions a living, responsive, and distinctly Indonesian legal system that embodies the unity of law, culture, and technology. By integrating Living Law, Responsive Law, and Pancasila Legal Theory, Indonesia can construct a legal architecture that not only safeguards its cultural heritage but also revitalizes law as an instrument of justice, participation, and emancipation.

CONCLUSION

This study concludes that Indonesia's current legal framework on Communal Intellectual Property (CIP) remains confined to administrative registration and has not yet provided substantive recognition of collective rights. The existing approach positions the state as the primary custodian of cultural data, while indigenous communities play a marginal role as data providers. This imbalance weakens the essential purposes of law as an instrument of justice, participation, and cultural sovereignty.

Achieving substantive protection requires a paradigm shift toward a co-governance model in which the state and indigenous communities share equal authority in the management and protection of CIP. This reform demands legal recognition of indigenous communities as legitimate partners in decision-making and data governance. The integration of Living Law, Responsive Law, and Pancasila Legal Theory provides a normative and philosophical foundation for this transformation. Together, these frameworks affirm that law must embody social values, enable collaboration, and ensure equitable benefit-sharing.

The use of blockchain technology offers both a symbolic and practical solution for implementing these principles. It enables shared control between state and community nodes, ensures transparency in decision-making, and automates the Free, Prior, and Informed Consent (FPIC) and Access and Benefit-Sharing (ABS) mechanisms.

Therefore, the reform of CIP governance in Indonesia must be normative as well as structural. A *sui generis* CIP law is necessary to guarantee collective ownership, institutionalize participatory governance, and adopt digital mechanisms that align global best practices with local wisdom. Through this transformation, Indonesia can move from administrative custodianship toward a living and responsive legal system that not only protects cultural heritage but also strengthens the nation's moral and social foundation.

RECOMMENDATIONS

Based on the findings and analysis, several strategic actions are proposed to strengthen the legal position of indigenous communities and ensure equitable, transparent, and participatory management of Communal Intellectual Property (CIP). These recommendations combine normative reform with institutional and technological innovation.

1. Enact a *Sui Generis* CIP Law

Indonesia should adopt a specific law that explicitly recognizes CIP as a collective legal right. This legislation must integrate the principles of Free, Prior, and Informed Consent (FPIC) and Access and Benefit-Sharing (ABS) into all processes related to the use of traditional knowledge and cultural expressions. The new law should replace

the administrative focus of Ministerial Regulation No. 13 of 2017 and Government Regulation No. 56 of 2022, ensuring that protection extends beyond registration to substantive legal recognition.

2. Establish a Joint CIP Governance Council

A joint council composed of representatives from the government and indigenous communities should be created to institutionalize the principle of co-governance. The council would set documentation standards, verify FPIC, evaluate access requests, and mediate disputes. Consensus-based decision-making should reflect the deliberative and social justice values embedded in Pancasila.

3. Develop a Blockchain-Based National CIP Database

The government should develop a shared digital database using blockchain technology to record and manage traditional knowledge. This distributed system would ensure that every modification of data requires mutual consent between the state and community nodes. Smart contracts can automate benefit-sharing, royalty payments, and reporting mechanisms. The state would provide infrastructure and legal recognition, while communities would authenticate and validate cultural data.

4. Enforce FPIC and Sanctions for Violations

FPIC must be a mandatory prerequisite for any use of traditional knowledge, cultural expressions, or genetic resources. Violations should result in administrative and civil sanctions, including patent invalidation, product withdrawal, and compensation payments. The Joint Governance Council should monitor and verify FPIC compliance based on customary protocols and legal standards.

5. Establish a CIP Trust Fund and Benefit-Sharing Mechanisms

A CIP Trust Fund should be created to distribute benefits from the use of traditional knowledge and cultural expressions in a transparent and accountable manner. The fund should support education, cultural preservation, and indigenous entrepreneurship. Integration with blockchain-based systems would allow for public auditing and ensure equitable benefit distribution.

6. Integrate Geographical and Cultural Indications

The government should expand the concept of Geographical Indications (GIs) to include Cultural Indications that protect intangible cultural expressions associated with regional identity. This integration would safeguard community reputation, prevent misappropriation, and promote sustainable cultural industries.

7. Strengthen Capacity Building and Legal Education

Capacity-building programs are essential to empower indigenous communities in documenting, managing, and protecting their traditional knowledge. The government, in collaboration with universities, research institutions, and civil society organizations, should provide legal literacy and digital training to enhance community participation in CIP governance.

8. Promote International Harmonization and South–South Cooperation

Indonesia should strengthen its position in international forums such as the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge, and Folklore (WIPO-IGC). Collaboration with countries like Peru, Bolivia, and India should be expanded to exchange technical expertise, develop digital registries, and promote the practical implementation of FPIC across borders.

These recommendations should be implemented through a phased legal reform strategy that embraces technological advancement while remaining grounded in national legal philosophy. The new paradigm of CIP law must prioritize social justice, data transparency, and shared governance between the state and indigenous communities. By doing so, Indonesia will not only protect its traditional knowledge but also reaffirm law as an ethical foundation of cultural sovereignty and collective dignity.

REFERENCES

- Banakar, R., & Travers, M. (2005). *Theory and Method in Socio-Legal Research*. Hart Publishing.
- Bhatia, Vandana. 2015. "India's Traditional Knowledge Digital Library: A Model for Defensive Protection of Traditional Knowledge." *WIPO Magazine*, May Issue.
- Carroll, Stephanie Russo, et al. 2020. "The CARE Principles for Indigenous Data Governance." *Data Science Journal* 19 (1): 43.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches* (4th ed.). Sage Publications.
- Christidis, Konstantinos, and Michael Devetsikiotis. 2016. "Blockchains and Smart Contracts for the Internet of Things." *IEEE Access* 4: 2292–2303.
- De Filippi, Primavera, and Aaron Wright. 2018. *Blockchain and the Law: The Rule of Code*. Cambridge, MA: Harvard University Press.
- Dutfield, G. 2004. *Intellectual Property, Biogenetic Resources and Traditional Knowledge*. London: Earthscan.
- Ehrlich, Eugen. 1913. *Fundamental Principles of the Sociology of Law*. Cambridge, MA: Harvard University Press.

- Greiber, Thomas. 2013. *Biodiversity and Bioprospecting: Challenges and Policies*. London: Routledge.
- Kementerian Hukum dan HAM RI. Peraturan Menteri Hukum dan HAM Nomor 13 Tahun 2017 tentang Data Kekayaan Intelektual Komunal. Jakarta, 2017.
- Kukutai, Tahu, and John Taylor, eds. 2016. *Indigenous Data Sovereignty: Toward an Agenda*. Canberra: ANU Press.
- Lessig, Lawrence. 1999. *Code and Other Laws of Cyberspace*. New York: Basic Books.
- Marzuki, P. M. (2017). *Penelitian Hukum*. Prenadamedia Group.
- Nonet, Philippe, and Philip Selznick. 1978. *Law and Society in Transition: Toward Responsive Law*. New York: Harper & Row.
- Nurfitri. "Perlindungan Kekayaan Intelektual Komunal Pasca Terbitnya PP Nomor 56 Tahun 2022." *Ferenda Trisakti* 8, no. 2 (2023).
- Notonagoro. 1975. *Pancasila secara Ilmiah Populer*. Jakarta: Pantjuran Tujuh.
- Owen, Rachel, et al. 2022. "Blockchain and Indigenous Genomic Data: Challenges and Opportunities." *Frontiers in Genetics* 13: 894321.
- Palar, M. R. Ayu. 2023. "Inclusive Rights to Protect Communal Intellectual Property." *Cogent Social Sciences* 9 (1): 2274431. <https://doi.org/10.1080/23311886.2023.2274431>
- Permenkumham No. 13/2017 dan PP No. 56/2022.
- Prasetyo, Mas Subagyo Eko, Syafrida, and Pardomuan Gultom. "Strengthening the Legal Protection of Communal Intellectual Property to Anticipate Misuse by Foreign Parties." *Indonesian Law Journal* 16, no. 2 (2023): 199–214
- Rainie, Stephanie C., et al. 2017. "Indigenous Data Sovereignty in the United States and Australia." *Statistical Journal of the IAOS* 33 (3): 703–716.
- República de Bolivia. 2009. *Constitución Política del Estado Plurinacional de Bolivia*. La Paz: Asamblea Constituyente.
- Republik Indonesia. Peraturan Pemerintah Nomor 56 Tahun 2022 tentang Kekayaan Intelektual Komunal. Jakarta: Sekretariat Negara, 2022.
- Republic of the Philippines. 1997. *Indigenous Peoples' Rights Act (IPRA) of 1997*. Republic Act No. 8371. Manila.
- Sidharta, Bernard Arief. 2006. *Refleksi tentang Struktur Ilmu Hukum*. Bandung: Mandar Maju.
- Soekanto, S. (2006). *Pengantar Penelitian Hukum*. UI Press.
- Watson, A. (1993). *Legal Transplants: An Approach to Comparative Law*. University of Georgia Press.
- World Intellectual Property Organization (WIPO). 2023. *Traditional Knowledge and Intellectual Property: Background Brief 1*. Geneva: WIPO.
- Zweigert, K., & Kötz, H. (1998). *An Introduction to Comparative Law*. Oxford University Press.