

Comparative Legal Analysis of Climate Justice, Indigenous Tenure, and Deforestation in South Papua's Food Estate Expansion

Tegar Raffi Putra Jumentoro ^{a,1,*}

^a University of Jember, Kalimantan Street No. 9, Jember, 68121, Indonesia

¹ tegarraffiputraj@gmail.com*

* corresponding author

ARTICLE INFO

Article history

Received: June 11, 2026

Revised: July 28, 2026

Accepted: July 30, 2026

Published: July 31, 2026

Keywords

climate justice,
deforestation,
food estate,
indigenous tenure,
South Papua

ABSTRACT

The expansion of the food estate in South Papua has generated legal and environmental concerns because of its implications for climate justice, indigenous land tenure, and deforestation. This article examines whether the project is consistent with Indonesia's commitments to environmental protection, indigenous rights, and sustainable development by employing local and global solidarity as the analytical framework. Using a normative juridical method, the research applies statutory, conceptual, and comparative approaches through library research. The study compares Indonesia with Brazil, the Philippines, and New Zealand by examining indigenous land recognition, participatory governance, FPIC, environmental safeguards, and climate governance. The findings reveal a significant gap between Indonesia's constitutional commitments and policy implementation, reflected in executive-driven land conversion, weak indigenous participation, and inadequate FPIC implementation. In contrast, Brazil constitutionally protects indigenous territories as part of forest conservation, the Philippines strengthens indigenous rights through ancestral domain recognition and mandatory FPIC, while New Zealand promotes treaty-based partnerships and shared natural resource governance. These comparative experiences demonstrate that stronger legal recognition of indigenous tenure, meaningful participation, and ecological protection better balance food security with environmental sustainability. Indonesia should strengthen indigenous tenure, institutionalize participatory governance, and integrate local and global solidarity to achieve climate justice and sustainable development.

This is an open access article under the [CC-BY 4.0](#) license.

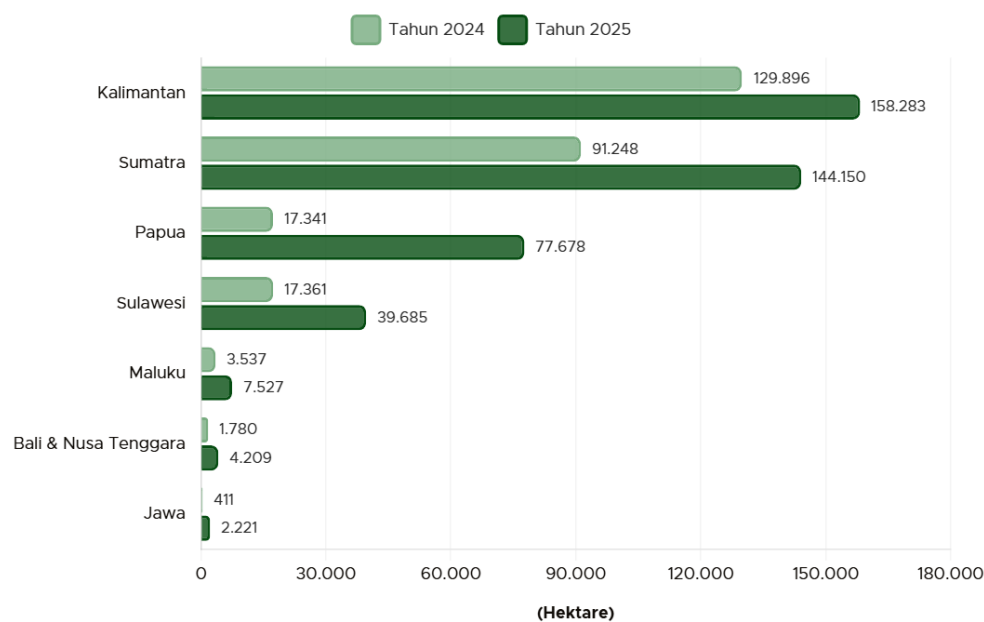


1. Introduction

In recent years, Indonesia's food security agenda has increasingly taken the form of large-scale territorial expansion in eastern Papua, especially through the Merauke Food Estate, which is positioned within the broader Merauke Integrated Food and Energy Estate and framed as a National Strategic Project (PSN) (Nurhasan et al., 2022). In policy discourse, this program is presented as a response to national food insecurity, import dependence, and the need to strengthen long term agricultural resilience. Yet the scale of the project is extraordinary, with planning documents indicating an area of approximately 2.7 million hectares, most of which is classified as forest land

(Features, 2022). This means that a development initiative officially promoted as a solution to hunger and economic vulnerability is being advanced in one of Indonesia's most ecologically sensitive and socially complex regions. The core tension that emerges from this situation lies in the fact that the program is not being implemented on empty land, but in a territory already inhabited, managed, and culturally sustained by indigenous communities whose relationship to land is not merely economic but also social, spiritual, and historical.

This tension becomes even more urgent when the environmental consequences are examined. Papua's forests are among the most important remaining carbon stores in Indonesia, and their conversion for industrial agriculture would have major climate implications far beyond South Papua itself. Recent assessments estimate that clearing around two million hectares in Merauke could release roughly 782 million tons of carbon dioxide, an amount comparable to the annual emissions of many coal-fired power plants and sufficient to significantly undermine Indonesia's climate commitments (Askar, 2024). Deforestation in South Papua has increased sharply during the expansion of the food industrial area, with forest loss in 2025 jumping 348% compared to the previous year and the increase in forest area lost reaching 60,337 hectares in one year (Desa, 2026). These figures are not simply environmental statistics. They reveal that a state led development policy, although framed as national progress, may in practice intensify carbon emissions, reduce forest cover, weaken ecological resilience, and transform a climate mitigation problem into a climate justice crisis (Saputra & Hasmarini, 2025). In this sense, the issue is not only about land use change, but also about who bears the costs of development, who receives the benefits, and whether state policy is consistent with the broader obligations of environmental justice.



Picture 1. Deforestation Extent on Indonesia's Large Islands

Source: Goodstats, 2025

Furthermore, this issue not only reflects the conflict between economic development and environmental protection but also reveals the importance of local and global solidarity as a normative framework in achieving climate justice. At the local level, solidarity is manifested through the recognition of indigenous communities as rights holders, forest guardians, and partners of the state in the sustainable management of natural resources (Nurhidayah & Rusdi, 2025). On the contrary, the neglect of customary land rights, meaningful participation, and the FPIC mechanism indicates a weakening of constitutional solidarity between the state and the citizens most affected by development policies. At the global level, the forests of Papua not only hold significance for the local communities but also contribute to the world's climate stability through carbon storage functions, biodiversity conservation, and the regulation of regional ecological systems (Awirya et al., 2025).

Therefore, any policy that encourages large-scale deforestation not only has domestic consequences but also affects the interests of the international community, which shares the responsibility of achieving the goals of the Paris Agreement, the Sustainable Development Goals (SDGs), and the protection of indigenous peoples' rights as recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (Ohlsson, 2026). Based on this perspective, this research positions local and global solidarity not merely as a moral value, but as an analytical framework to assess whether the food estate policy has distributed the benefits and burdens of development fairly, respected the rights of indigenous peoples, and fulfilled the state's responsibilities toward both national and international communities in addressing the climate crisis.

At the same time, the expansion of the food estate has created serious consequences for indigenous tenure and customary livelihoods. South Papua is home to many customary communities whose lives depend on forests for food, hunting, small scale cultivation, and cultural continuity (Dwiartama et al., 2024). Reports have indicated that at least twenty-four indigenous communities rely on these forest landscapes, yet their living space has narrowed as deforestation has expanded (Arif, 2024). Community testimonies also show that local residents have repeatedly expressed their opposition to the project, both verbally and in writing, while stating that their objections have not been respected by the central and regional governments (Belseran & Elisabeth, 2026). On January 25, 2026, police officers forcibly dispersed a peaceful demonstration by Papuan residents in the courtyard of the St. Francis Xavier Catholic Cathedral, who expressed concerns about the loss of community living space due to the entry of the food estate there (Belseran & Elisabeth, 2026). Dozens of demonstrators experienced judicial activism (kicked and beaten) (Belseran & Elisabeth, 2026). The bulldozing of gardens, hunting grounds, and customary spaces without genuine consent demonstrates that the problem is not only one of land redistribution, but also of procedural exclusion and the erosion of indigenous self-determination (Eswaran, 2023). This is where the issue intersects directly with the principle of Free, Prior, and Informed Consent (FPIC), because development that bypasses meaningful consultation cannot be regarded as legitimate under rights-based governance standards (Alvarado, 2022). The result is a pattern in which environmental burdens and social displacement are imposed on communities that have contributed least to the climate crisis, even though they are among the most vulnerable to its effects.

Against this empirical background, the gap between *das sollen* and *das sein* becomes highly visible. In normative terms, Indonesia's constitutional and statutory framework already contains strong commitments to environmental protection, sustainable development, and recognition of customary rights. Article 28H of the 1945 Constitution guarantees the right to a good and healthy environment, while Article 18B paragraph 2 recognizes indigenous peoples and their customary rights (Nugraha et al., 2023). These constitutional guarantees are reinforced by environmental and forestry legislation, including Law Number 32 of 2009 on Environmental Protection and Management and Law Number 41 of 1999 on Forestry, both of which require development to proceed within the limits of ecological prudence and legal accountability. However, the implementation of the food estate program appears to move in the opposite direction. Recent regulatory instruments, including Law Number 6 of 2023 concerning Job Creation, Government Regulation Number 42 of 2021, Presidential Regulation Number 109 of 2020, Presidential Regulation Number 15 of 2024, and Ministerial Regulation P.7/MENLHK/SETJEN/KUM.1/10/2020, have facilitated the acceleration of the project, including through legal avenues that permit forest areas to be used for food estate purposes (Doman, 2020). This creates a profound normative disjunction, because the formal legal order promises protection, participation, and sustainability, while practice shows land conversion, accelerated licensing, and limited respect for indigenous rights.

This disjunction reveals a broader problem in state development governance. The food estate policy reflects a highly centralized model that tends to privilege national output targets over local ecological limits and customary tenure systems (Ningrum & Nurfaiziya, 2026). In legal and administrative terms, this means that the state has constructed a development architecture that is capable of overriding local objections and compressing procedural safeguards in the name of urgency. In constitutional terms, however, such an approach raises serious questions about

proportionality, legality, and accountability, because a project labeled as strategic cannot simply be insulated from the constitutional rights of affected communities (Wiryani & Ramadhan, 2025). The conflict in Merauke therefore illustrates a deeper policy contradiction: development is being framed as a public good, yet its implementation risks undermining the very legal foundations that make public development legitimate in a constitutional state (Nugroho et al., 2026). This is precisely why the present study treats the issue not as a technical agricultural program alone, but as a test case for the compatibility of state led development with environmental justice, indigenous rights, and constitutional democracy.

Recent scholarship has begun to examine these tensions, but important gaps remain. Yuwono's 2024 analysis shows that the Merauke project has disregarded FPIC and contributed to extensive deforestation, providing strong doctrinal evidence of rights violations. Putri and Murdjoko (2024) documented the sharp rise in deforestation in South Papua and linked the food estate expansion to changing land use pressures, but their focus remained largely empirical and descriptive. Wisnaeni and Najib (2025) offered a legal ecological critique of food estate policy in Central Kalimantan, showing that the program can accelerate peatland conversion and emissions, yet their case study did not fully integrate indigenous tenure in the Papuan context. This study also highlighted land tenure disputes and the need for participatory planning, but it stopped short of linking those findings to a broader theory of climate justice and constitutional noncompliance (Wisnaeni & Najib, 2025). The novelty of the present article lies in bringing these strands together. It does not only document environmental damage or customary conflict, but also connects climate justice, indigenous tenure, and deforestation within one analytical framework, while showing how the legal design of the food estate creates a structural gap between policy ambition and rights-based implementation.

Based on that gap, this article is guided by three research questions. First, how does the expansion of the food estate in South Papua align with Indonesia's constitutional and statutory framework on environmental protection, forest governance, and indigenous tenure? Second, how can the tension between state development objectives and climate justice be understood through a conceptual lens that emphasizes equity, participation, and ecological responsibility? Third, what comparative lessons can be drawn from other land-based development policies in Indonesia or similar contexts regarding the balance between food security, customary rights, and environmental integrity? To answer these questions, the study uses a statutory approach to examine relevant legal instruments, a conceptual approach to analyze climate justice and indigenous rights, and a comparative approach to place the Merauke case alongside other relevant policy experiences (Thontowi & Wartini, 2023). This combination is important because the problem cannot be understood adequately from one perspective alone. It requires legal interpretation, normative reflection, and cross case learning in order to identify the conditions under which food security policies may be made lawful, fair, and sustainable.

The purpose of this study is therefore to clarify the legal, ecological, and justice dimensions of the Merauke food estate expansion and to show how the project exposes weaknesses in Indonesia's current development model. More specifically, the article aims to demonstrate that the real challenge is not whether the state may pursue food security, but whether it may do so by sacrificing indigenous tenure, accelerating deforestation, and weakening climate commitments (Ferguson et al., 2022). The urgency of the issue lies in the scale of possible harm. If forest conversion continues at the current pace, the resulting carbon emissions could significantly undermine national climate targets, while also intensifying social conflict and cultural loss among customary communities (Manek, 2025). This makes the topic highly significant for legal scholarship, environmental governance, and public policy. By situating the Merauke Food Estate within the wider debate on climate justice and constitutional development, this article seeks to offer a more rigorous and equitable basis for assessing state led agricultural expansion in Indonesia.

Ultimately, the importance of this study lies in its attempt to bridge the distance between legal ideals and policy reality. Indonesia's constitutional order promises environmental protection, recognition of customary communities, and sustainable development, yet the current implementation of the food estate suggests that these commitments are being weakened by a development logic that prioritizes speed, scale, and state control. The Merauke case is therefore not

only a local land issue, but also a national question about how the state defines progress and whose rights are considered expendable in the pursuit of strategic projects. By examining this problem through the combined lenses of law, concept, and comparison, the article contributes a climate justice perspective that has been underdeveloped in the literature and offers a timely framework for evaluating whether food security policies can be redesigned to respect forests, indigenous tenure, and constitutional obligations at the same time.

2. Research Method

This study employs a normative juridical research method because the main focus of the analysis is the examination of legal norms, principles, and regulations related to climate justice, indigenous tenure, and deforestation in the expansion of the food estate program in South Papua (Nurhayati, 2023). The research applies three approaches, namely the statutory approach, the conceptual approach, and the comparative approach (Widiarty, 2024). The statutory approach is used to examine the provisions of the 1945 Constitution of the Republic of Indonesia, laws, government regulations, presidential regulations, and ministerial regulations that govern environmental protection, forestry, indigenous people's rights, and National Strategic Projects. The conceptual approach is used to analyze legal concepts such as climate justice, indigenous people's customary rights, sustainable development, local and global solidarity, environmental justice, and the principle of FPIC as a normative framework in assessing the legitimacy of the food estate policy. Legal analysis is conducted thru legal interpretation techniques, including constitutional, systematic, teleological, and comparative interpretations, to identify the harmony or disharmony between various legal norms and to evaluate whether the food estate policy aligns with the constitutional mandate regarding environmental protection and the recognition of indigenous peoples' rights.

A comparative approach was chosen to obtain best practices in regulating the relationship between food security, the protection of indigenous peoples' rights, and environmental conservation. This research compares Indonesia with Brazil, the Philippines, and New Zealand because these three countries have relevant legal frameworks in regulating indigenous peoples' rights amidst resource-based development. Brazil was chosen because it has constitutional regulations regarding the protection of indigenous territories in tropical forest areas, the Philippines because it regulates the recognition of ancestral domains and the Free, Prior and Informed Consent (FPIC) mechanism thru the Indigenous Peoples' Rights Act 1997, while New Zealand was chosen because it has developed governance based on the Treaty of Waitangi, which positions indigenous peoples as partners in natural resource management. The comparative analysis is conducted systematically by comparing four aspects, namely the recognition of indigenous peoples' rights, participation mechanisms and Free, Prior and Informed Consent (FPIC), environmental protection against land conversion, and the integration of indigenous peoples' rights in development and climate change policies.

The collection of legal materials is conducted thru library research by examining regulations, scientific literature, court decisions, research reports, and policy documents related to climate justice, indigenous peoples' rights, deforestation, and food estate governance (Hehanussa et al., 2023). Primary legal materials include the 1945 Constitution of the Republic of Indonesia, laws, government regulations, presidential regulations, ministerial regulations, and international legal instruments, while secondary legal materials consist of books, scientific articles, and expert opinions (Widiarty, 2024). This research also uses non-legal materials in the form of statistical data and environmental reports as supporting analysis. All legal materials were analyzed qualitatively using a deductive method thru constitutional, systematic, and teleological interpretation, followed by vertical and horizontal legal synchronization to assess the alignment of food estate policies with the principles of climate justice, protection of indigenous peoples' rights, and sustainable development. The results of the analysis were further enriched with comparative findings to formulate normative recommendations for strengthening food estate governance in Indonesia (Bado, 2022). However, this study is limited to a normative analysis of legal materials and does not incorporate empirical fieldwork or interviews with affected indigenous communities and policymakers. Consequently, the findings should be interpreted as normative legal

recommendations, while future research may complement this study through socio-legal or empirical approaches to assess the practical implementation of food estate governance.

3. Results and Discussion

3.1. Constitutional Framework and Local-Global Solidarity in the Governance of the Southern Papua Food Estate Expansion

The constitutional foundation of South Papua's food estate expansion begins with the 1945 Constitution, because the project cannot be understood only as an agricultural program. It's also a test of whether state development remains bound by constitutional rights and environmental limits. The most relevant provision is Article 28H paragraph (1), which states that every person has the right "to enjoy good and healthy environment," while Article 28I paragraph (3) affirms that "cultural identities and rights of indigenous people are respected." In the same constitutional architecture, Article 18B paragraph (2) requires the state to "recognize and respect" adat law communities and their traditional rights, as long as they remain in existence and are consistent with the principles of the unitary state (Monasari & Edrisy, 2025). These provisions are not decorative clauses; together they create a constitutional duty to protect life, environment, and indigenous tenure when the state designs a development project in South Papua.

That constitutional duty becomes even clearer in Article 33 paragraphs (3) and (4). Paragraph (3) provides that "the land and the water as well as the natural resources therein are controlled by the state and utilized for the optimal welfare of the people," while paragraph (4) adds that the national economy must be organized on the basis of "economic democracy" and must uphold the principles of "togetherness, fair based efficiency, sustainability, environment oriented, independency, and keeping a balance in the progress and unity of the national economy." These phrases matter because they show that state control over resources is not a blank cheque for extraction or rapid land conversion. Instead, state control is constitutionally conditioned by welfare, sustainability, and environmental orientation (Qurbani & Rafiqi, 2022). In the Merauke and South Papua context, that means the food estate may only be legitimate if it can be shown to serve the people without sacrificing forests, indigenous lands, and ecological integrity.

In the perspective of local and global solidarity, the constitutional provisions not only regulate the vertical relationship between the state and natural resources but also build the state's responsibility toward the communities most affected by development policies and toward global environmental interests (McIntyre, 2025). Local solidarity requires that the state's control over natural resources be carried out thru respect for the rights of indigenous peoples as holders of customary rights and partners in managing their territories (Yahya, 2025). Meanwhile, global solidarity positions the forests of Papua as part of the world's ecosystem that contributes to climate change mitigation and biodiversity preservation (De & Dhote, 2024). Therefore, the constitutional legitimacy of the food estate policy is not only determined by the achievement of national food production targets but also by its ability to maintain a balance between development interests, the protection of indigenous peoples' rights, and Indonesia's responsibility toward global environmental commitments.

The constitutional framework is reinforced by Indonesia's environmental legislation, especially Law No. 32 of 2009 on Environmental Protection and Management. In doctrinal terms, this law operationalizes the constitutional promise of a healthy environment by turning it into enforceable legal duties, including the right of every person to a good and healthy environment and the obligation to preserve environmental functions (Vita, 2026). Read together, these provisions mean that development must be preceded by environmental caution, not justified afterward by economic necessity. For South Papua, this is crucial because food estate expansion is taking place in a

landscape where the ecological cost of forest conversion is not abstract but immediate, measurable, and irreversible (Mulyani et al., 2025). The legal relevance of Law No. 32 of 2009 is therefore that it converts environmental protection from a policy aspiration into a binding standard that should restrain state-led land transformation. Thus, environmental protection in Law Number 32 of 2009 is not merely an administrative obligation, but rather a legal instrument to realize ecological solidarity. In this context, local solidarity is manifested thru the protection of the living spaces of indigenous communities that depend on the sustainability of ecosystems, while global solidarity is reflected in the state's obligation to maintain forest areas as carbon sinks that have cross-border benefits (Lushombo, 2025). That perspective shows that environmental damage caused by the expansion of food estates is not only a national issue but also involves Indonesia's responsibility in global climate governance.

The same logic is reflected in the Forestry Law, Law No. 41 of 1999, which frames forests as a legally controlled natural resource and not merely as available land for redistribution (Suwarno & Harahap, 2025). The law has long been understood as part of Indonesia's system for conserving forest functions, regulating timber extraction, and controlling legal access through permits and planning instruments. In the context of South Papua, this matters because the food estate expansion is occurring across forest landscapes that the state is attempting to reclassify or re-purpose for agricultural development (Pangestu et al., 2024). Legally, that means forest conversion should be an exceptional act governed by strict justification and not a routine administrative shortcut. The problem is not that the state lacks authority over forests, but that the authority must still be exercised consistently with sustainability, conservation, and the constitutional mandate that natural resources be used for the welfare of the people as a whole.

The special constitutional and political status of Papua-strengthens this reading. Papua Special Autonomy, originally granted through Law No. 21 of 2001 and later amended, recognizes that Papua is not governed as an ordinary province (Ohoiwutun et al., 2026). The legal framework gives Papua provincial authority across most sectors, while reserving only certain strategic matters to the central government, and it also creates mechanisms for cultural representation and the protection of indigenous rights (Firman & Sofian, 2025). The special autonomy framework is especially important because it implies that development in Papua must be more participatory, more sensitive to customary structures, and more respectful of local social realities than generic national policy. In South Papua, this becomes a direct legal constraint on the food estate model, because a top-down land conversion policy that ignores customary voices is difficult to reconcile with the autonomy logic that underlies Papua's special status (Soembari & Yandendai, 2023). From the perspective of local solidarity, the recognition of Papua's Special Autonomy should be interpreted as a form of power-sharing that provides greater space for indigenous communities to participate in determining the direction of development in their own regions (Purnomo et al., 2025). Thus, the protection of customary land rights is not only a consequence of constitutional recognition but also a manifestation of the state's solidarity with local communities that have maintained the sustainability of Papua's ecosystem. If the development process neglects this participation, the purpose of special autonomy as an instrument for protecting indigenous communities loses its substantive meaning.

At the statutory level, the expansion of the food estate is also shaped by the Job Creation framework, particularly Law No. 6 of 2023, which made permanent the Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation. This law is significant because it reflects the state's broader strategy of regulatory acceleration, including simplification of permits, investment facilitation, and administrative streamlining (Alfiqri et al., 2025). In development projects such as the South Papua food estate, that legal logic can make implementation faster, but it can also compress the time available for environmental scrutiny and weaken the practical space for

indigenous objection. From a legal perspective, the core issue is not whether acceleration is possible, but whether acceleration has been allowed to override the constitutional and statutory safeguards that should still apply to forest conversion and customary land rights (Rasman et al., 2023). In the framework of local and global solidarity, the acceleration of investment should not be understood as a reason to reduce the quality of legal protection for indigenous communities or the environment. On the contrary, development policies must ensure that national economic benefits are not obtained by shifting the ecological burden to local communities or by increasing the risk to achieving global climate targets (Adanma & Ogunbiyi, 2024). Therefore, the principle of solidarity serves as a normative measure to assess whether the acceleration of regulations remains in line with environmental justice and the rights of indigenous peoples.

This is where the regulatory layer below the statute becomes especially important. The food estate is not implemented solely through laws in the abstract. It's advanced through presidential and ministerial instruments that translate national policy into land allocation, forest use, and project coordination. In the available legal commentary on the Merauke case, the project is described as part of a top-down regulatory regime that fast tracks strategic development while weakening customary participation and environmental restraint (Veronika et al., 2025). That means the legal foundation of the food estate is not a single rule but a chain of constitutional authorization, statutory enabling norms, and executive implementation mechanisms. The doctrinal concern is that when this chain is dominated by acceleration logic, the formal legality of the project can conceal substantive inconsistency with constitutional rights and environmental law.

The establishment of South Papua makes the issue even more complex because this province is an area with a very high dependence of indigenous communities on forests as living space, food sources, and cultural identity (Midhol & Nugraha, 2024). Recent reports indicate that at least 24 indigenous communities depend on forest areas in Southern Papua, while the rate of deforestation has significantly increased during the expansion of food estates (Papua, 2025). These facts indicate that the implementation of various legal instruments cannot be separated from the state's obligation to build solidarity with local communities who bear the direct impact of development policies. At the same time, considering the ecological function of Papua's forests as carbon sinks and biodiversity buffers, the protection of these areas is also part of global solidarity in facing the climate crisis. Therefore, the constitutional phrases regarding "a good and healthy living environment," "recognition and respect for indigenous peoples," as well as the principles of "sustainability" and "environmental awareness" should be understood not just as formal norms, but as parameters to assess whether the management of the food estate has fulfilled the state's responsibilities toward local communities as well as the global community.

3.2. Climate Justice thru the Perspective of Local and Global Solidarity in the Protection of South Papua's Customary Rights

Climate justice in the South Papua food estate case is best understood as a question of distribution, recognition, and responsibility, because the program concentrates environmental costs in one territory while projecting its benefits as national gains. The state-backed agricultural initiative aims to expand rice and sugarcane production across roughly 3 million hectares of Papua, yet reporting has shown that more than 40,000 hectares were already cleared between May 2024 and November 2025, with critics warning that the project will cause irreversible ecological damage, major carbon emissions, and the displacement of indigenous communities (Lakshmi et al., 2025). The food estate project in Merauke, South Papua, which involves clearing approximately 2 million hectares of land, is projected to generate 782.45 million tons of CO₂ emissions (Askar, 2024). This figure is nearly twice Indonesia's annual deforestation emissions and could raise the country's share of global emissions from around 2 - 3% to nearly 5% (Askar, 2024). In addition,

the project may undermine the 2050 Net-Zero Emission target by delaying its achievement by up to a decade.

Table 1. Estimated Impact of the Merauke Food Estate Project

Parameter	Value
Land Area	2.0 million hectares
Estimated CO ₂ Emissions	782.45 million tons of CO ₂
Share of Global Emissions	± 3.96 - 4.96% (from 2 - 3%)
Impact on Net Zero 2050	Potential delay of 5 - 10 years

Source: Askar, 2024

In the perspective of local and global solidarity, the distribution of benefits and burdens of development becomes the main indicator for assessing climate justice. Local solidarity demands that indigenous communities, as the parties directly affected, receive legal protection, recognition of customary rights, and proportional benefits from development (Casla & Sandner, 2024). On the other hand, global solidarity demands that national policies do not increase carbon emissions and ecosystem damage, which would impact the collective efforts of the international community in addressing climate change (Hormio, 2023). Therefore, the success of the food estate cannot be measured solely by the increase in food production, but also by its ability to maintain a balance between national development interests, the protection of local communities, and Indonesia's responsibility toward global climate governance. Climate harm is not an accidental byproduct of development; it is increasingly the consequence of a policy choice that treats standing forests as land reserves for industrial conversion (Clay & Cooper, 2022). The justice problem is therefore not only environmental, but also political, because the burdens of land clearing, carbon release, and ecological loss are being shifted onto communities that did not create the crisis and are least equipped to absorb it (Veronika et al., 2025). This is why the Merauke expansion has to be read as a climate justice issue rather than simply a food security program. The project is presented as a national food and energy strategy, but the ecological setting of South Papua makes that framing deeply contested.

Reporting from France describes the plan as one of the world's largest deforestation projects, with about 2.3 million hectares targeted for conversion from forest and savanna into agricultural land, much of it in territories inhabited by around 40,000 Papuans from four indigenous groups whose lands are not legally recognized in the way state planners require (Jones & Mitchell, 2025). The same report notes that the area is environmentally fragile and politically tense, with military protection around the project and fears of coercive land clearing (Jones & Mitchell, 2025). In climate justice terms, this creates a structural contradiction: a policy justified as national resilience is implemented through the destruction of ecosystems that provide local food, water, and climate stability. From the perspective of solidarity, this contradiction indicates a disconnection between national interests and the socio-ecological realities at the local level. When environmental costs are concentrated in Southern Papua while economic benefits are projected for national interests, the distribution of development risks becomes unbalanced. In the framework of climate justice, this condition reflects a failure to build distributive solidarity that should ensure that the most vulnerable groups do not bear the greatest burden due to state policies (Islam, 2022).

Indigenous tenure lies at the center of that contradiction because land in South Papua is not merely a resource base but the basis of identity, livelihood, and social continuity. Eco Business reports that at least 24 indigenous communities rely on the forests in South Papua, and that their living space has already shrunk as deforestation has accelerated (Papua, 2025). The same reporting

records testimony from community members who say they rejected the project in writing and in person, only to see their banana and coconut gardens, as well as hunting grounds, bulldozed without consent (Papua, 2025). This is not just land loss in a technical sense. It is the unraveling of customary tenure, because forest, garden, and hunting space are not separable compartments in indigenous life but one integrated territorial system. When those spaces are converted into plantation corridors or state project zones, the result is not only ecological degradation but also the weakening of the social fabric that customary landholding sustains.

The legal and normative importance of this issue is amplified by international indigenous rights standards, especially the principle of FPIC. Under the UNDRIP framework, states are expected to consult and cooperate in good faith with indigenous peoples through their representative institutions in order to obtain consent before adopting legislative or administrative measures that may affect them, and consultation is likewise required before projects that affect lands, territories, or resources (Kusniati, 2024). That norm matters here because the central issue is not simply whether the state announced a project, but whether affected communities were able to shape, reject, or condition it in a meaningful way. In the South Papua case, the presence of large scale clearing, complaints of non-recognition, and allegations of weak consultation all point to a procedural justice failure as much as a land tenure failure. In other words, environmental harm is being made through governance processes that do not adequately protect indigenous voice. In addition to being an international legal obligation, the implementation of FPIC also represents a form of local solidarity because it ensures that indigenous peoples are treated as legal subjects with the right to determine the future of their own territories (Zein et al., 2025). At the same time, respect for FPIC strengthens global solidarity because it demonstrates the state's commitment to international human rights standards, which are part of environmental governance and sustainable development.

Environmental harm becomes even more visible when the state's development logic is examined through the material consequences of land conversion (Hanum & Firmandayu, 2026). Financial Times reporting states that the government is using military assistance to clear Papua's forests for a controversial agricultural initiative, with roads, a port, and an airport forming part of the infrastructure package, and with experts warning that the acidic wetlands are unsuitable for rice cultivation (Lakshmi et al., 2025). The same report says that the project aims to cultivate rice and sugarcane on 3 million hectares and that local activists fear irreversible ecological damage and intensified carbon emissions (Lakshmi et al., 2025). This matters because the project shows how environmental harm is not only produced by cutting trees; it is also produced by the institutionalization of speed, command, and coercion as development tool. Once land clearing is tied to military support and executive urgency, the environmental harm becomes systemic, because the project's very governance structure is organized to outrun public scrutiny and social resistance.

A useful comparative lens emerges from the Awyu land rights struggle in Papua, which shows that the same region is already a site of intense contestation over customary ownership and forest conversion (Vandito & Paramesti, 2024). Reuters reported in 2024 that the Awyu tribe was awaiting a Supreme Court ruling over nearly 115,000 hectares of rainforest targeted for palm oil development, and that the land is treated by the community as sacred, including ancestral graves (Christina, 2024). The case is important because it demonstrates that indigenous tenure disputes in Papua are not peripheral or isolated; they are central to how forest land is being reclassified for commercial and state sanctioned use. The Awyu litigation also shows that legal permits do not automatically resolve legitimacy, because customary ownership claims can persist even when companies assert formal authorization (Vandito & Paramesti, 2024). Read together with South Papua's food estate expansion, the Awyu case suggests a broader pattern in which indigenous tenure is repeatedly placed under pressure whenever forests are converted into plantation or strategic development land.

The climate justice dimensions of this pattern are especially serious because indigenous communities are not only landholders but also stewards of ecosystems that remain critical for regional climate stability. A recent Associated Press report on the UN biodiversity conference in Cali emphasized that indigenous peoples play a critical role in land protection and in combating climate change, and that international negotiators took steps toward giving them a stronger voice in conservation decisions (Grattan, 2024). That broader global recognition highlights the injustice of a development model that treats indigenous territory as expendable while ignoring the ecological services those territories provide (Clark, 2023). In South Papua, the same forests that are being cleared are part of the region's carbon storage capacity, biodiversity base, and customary food system. From a justice standpoint, then, environmental harm is not limited to emissions; it also includes the erosion of the very land relations that help sustain climate resilience and community survival. Recognition of indigenous peoples as guardians of ecosystems also shows that local and global solidarity are closely interconnected. The practice of forest management by indigenous communities not only sustains the livelihoods of local communities but also provides ecological benefits that transcend national borders thru carbon storage, biodiversity protection, and regional climate stability (Fischer et al., 2023). Thus, the protection of customary land rights is not only a constitutional obligation of Indonesia but also a contribution to global ecological interests.

What makes the South Papua case especially troubling is that the harm is produced through a development narrative that presents itself as national welfare. Yet climate justice requires more than a national output calculation; it demands attention to who is recognized, who is consulted, and who carries the losses when forests are converted. Recent climate policy scholarship has criticized policy models that optimize growth and temperature goals while failing to capture justice trade-offs, arguing that equitable climate policy must account for multiple actors, distributive effects, and participation (Nancy & Miharja, 2026). That insight is directly relevant here, because South Papua shows the limits of a food security approach that ignores indigenous tenure and ecological boundaries. The project may promise national resilience, but if it does so by replacing customary forest systems with coerced land conversion, then it is not merely advancing development. It's manufacturing environmental harm through an unequal distribution of power and risk.

Overall, the expansion of food estates in Southern Papua shows that climate justice, protection of customary land rights, and local-global solidarity are three inseparable dimensions. Climate damage occurs when forests are massively converted, while social injustice arises when indigenous communities lose their living spaces and do not have the opportunity to meaningfully participate in the decision-making process. These conditions indicate a weakening of local solidarity between the state and indigenous communities, who are the most affected by development. At the same time, the increasing deforestation and carbon emissions also reflect a decrease in global solidarity because national development policies produce ecological consequences that affect international efforts to address climate change. Thus, the main issue with the expansion of food estates lies not only in ecological damage or agrarian conflicts but also in the governance failure to integrate the protection of indigenous rights, climate justice, and the state's responsibility toward local and global communities simultaneously.

3.3. Comparative Lessons on Food Estate Governance and Customary Land Protection

Comparative experiences from several countries demonstrate that food security and agricultural expansion do not necessarily have to undermine indigenous tenure and environmental protection. The experiences of Brazil, the Philippines, and New Zealand show that the success of land-based development policies depends not only on production targets, but also on the strength of legal recognition for customary land, participatory governance, and environmental safeguards. These countries are relevant comparisons for South Papua because each has faced tensions between state development, indigenous land rights, and natural resource exploitation. The selection of Brazil, the

Philippines, and New Zealand is based on a functional comparative approach, as these three countries face legal issues that are functionally comparable to Indonesia, despite originating from different legal traditions. The comparative analysis focuses on four main dimensions, namely the legal recognition of indigenous peoples' rights, participation mechanisms and FPIC, environmental protection in land use, and the integration of indigenous peoples in development governance and climate policy. This framework is used to assess how local and global solidarity is realized thru the legal instruments of each country. However, unlike the Indonesian food estate model that often prioritizes accelerated land conversion through executive driven policy, these countries have gradually developed legal mechanisms that place indigenous rights and ecological sustainability within the core structure of governance itself. Their experiences provide important lessons for Indonesia in designing a more balanced framework between food security, forest protection, and customary land recognition.

Brazil offers an important comparative example because it combines large scale agricultural production with constitutional protection for indigenous territories and forest ecosystems. The Brazilian Constitution recognizes indigenous peoples' original rights over the lands they traditionally occupy, while Law No. 12.651 of 2012 concerning the Protection of Native Forests establishes obligations regarding conservation, sustainable use, and ecological restoration (Reydon et al., 2022). The law explicitly frames native forests as national wealth that must be protected for future generations and links rural production with environmental preservation. In practice, Brazil's legal framework has also strengthened the demarcation of indigenous lands through institutions such as FUNAI and constitutional court protection (Federico, 2024). Recent judicial developments reaffirmed that indigenous land rights are constitutionally protected and cannot easily be reduced by political pressure from agribusiness interests (Mueller, 2021). Brazil's experience shows that environmental governance becomes more effective when indigenous territories are formally recognized as part of climate policy itself, rather than treated as obstacles to economic expansion. The key lesson for Indonesia is that food security policies should integrate forest conservation and indigenous land demarcation into the development framework from the beginning, instead of addressing customary conflicts only after land conversion has already occurred. In the perspective of solidarity, the Brazilian model shows that the protection of indigenous territories not only serves to uphold the constitutional rights of local communities but also supports global interests thru the reduction of deforestation and the protection of the world's carbon reserves. Thus, local solidarity and global solidarity are positioned as mutually reinforcing goals, rather than conflicting ones.

Another important comparison comes from the Philippines, particularly through the Indigenous Peoples Rights Act of 1997 or Republic Act No. 8371. This law is considered one of the strongest statutory protections for indigenous tenure in Southeast Asia because it formally recognizes ancestral domains, customary law, self-governance, and cultural integrity (Andaya, 2023). Section 2 of the Act explicitly states that the State shall "recognize and protect the rights of indigenous cultural communities and indigenous peoples to their ancestral domains," while the implementing regulations further clarify that ancestral domains include forests, waters, hunting grounds, agricultural land, and spiritually significant areas (Andaya, 2023). The law also institutionalizes the principle of FPIC before any development project can proceed within indigenous territory. Through the National Commission on Indigenous Peoples, the Philippines created a specific administrative body responsible for protecting indigenous rights and resolving customary land disputes (Fadiyah & Muhammad, 2026). Although implementation challenges still exist, the Philippine framework demonstrates that agricultural development can be conditioned upon prior consent and legal recognition of ancestral land. The lesson for Indonesia is highly relevant because South Papua currently suffers from weak consultation mechanisms and limited recognition of customary ownership in practice. Indonesia could adopt a stronger statutory mechanism that legally requires indigenous consent and formally maps customary territories before strategic projects are approved.

New Zealand provides a different but equally important comparative model because it approaches indigenous land governance through partnership and treaty-based recognition. The legal foundation of Māori land rights derives from the Treaty of Waitangi and is strengthened through the Te Ture Whenua Māori Act 1993, which recognizes Māori customary land and Māori freehold land as legally protected categories. Under this framework, Māori land cannot easily be alienated because the law prioritizes retention of land within indigenous communities and recognizes cultural attachment as part of legal ownership (Quigg & Russell, 2026). The Māori Land Court also plays a central role in protecting customary interests and ensuring that land governance reflects tikanga Māori or Māori customary principles (Quigg & Russell, 2026). Unlike highly centralized development systems, New Zealand's governance model increasingly incorporates indigenous participation into environmental and resource management processes. The comparative significance of New Zealand lies in its recognition that indigenous land is not merely an economic commodity but also a cultural and intergenerational trust. For Indonesia, the lesson is that customary tenure should not only be acknowledged symbolically within constitutional provisions, but should also be protected institutionally through dedicated legal forums, participatory governance, and restrictions on arbitrary land conversion. New Zealand's experience shows that solidarity does not stop at symbolic recognition of indigenous peoples, but is translated into institutions that enable shared governance in natural resource management. This model demonstrates that sustainable development is more easily achieved when the state builds partnership relationships with indigenous communities.

Table 2. Comparative Framework of Indigenous Land Protection and Food Estate Governance

Comparative Dimension	Indonesia	Brazil	Philippines	New Zealand
Legal Recognition of Indigenous Rights	Constitutional recognition under Article 18B(2), but implementation remains fragmented	Constitutional recognition with protection through Constitution, Law No. 12.651/2012, and FUNAI	Strong statutory recognition through IPRA 1997 of ancestral domains and customary law	Treaty-based recognition through the Treaty of Waitangi and Te Ture Whenua Māori Act 1993
Participation and FPIC	Weak indigenous participation and inadequate FPIC	Public participation exists, but FPIC is less institutionalized	Mandatory FPIC supervised by the National Commission on Indigenous Peoples	Shared governance with Māori participation in environmental decision-making
Environmental Protection	Executive-driven land conversion accelerates deforestation	Forest conservation integrated with indigenous territorial protection	Environmental protection linked with ancestral domain recognition and consent	Māori stewardship integrated into sustainable land management
Indigenous Role in Climate Governance	Limited involvement in environmental governance	Indigenous territories support climate mitigation and reduce deforestation	Indigenous participation through statutory institutions	Māori communities are partners in climate and resource governance

Source: Andaya (2023), Quigg & Russell (2026), Reydon et al. (2022)

When these three countries are compared, an important common pattern emerges: successful governance of land-based development depends on strong legal recognition of indigenous territory before development occurs. The comparison shows that the three countries develop forms of solidarity thru different approaches. Brazil emphasizes ecological solidarity thru the protection of forest areas and indigenous territories, the Philippines prioritizes procedural solidarity thru FPIC and the recognition of indigenous territories, while New Zealand develops institutional solidarity thru partnerships between the state and indigenous communities. These differences show that the protection of indigenous peoples does not depend on a specific legal model, but rather on the consistency of the state in integrating indigenous rights into development policies. Brazil emphasizes constitutional forest and territorial protection, the Philippines emphasizes statutory recognition and FPIC mechanisms, while New Zealand emphasizes treaty-based partnership and institutional participation. In contrast, Indonesia's food estate governance in South Papua remains dominated by executive acceleration, centralized land allocation, and project-oriented regulation (Enala et al., 2025). Although Indonesia's Constitution already recognizes customary communities under Article 18B paragraph (2), implementation remains fragmented because sectoral regulations often prioritize strategic investment and administrative speed over indigenous participation (Triwahyuningsih et al., 2026). The comparison therefore highlights that the problem in South Papua is not merely the absence of legal norms, but the weakness of institutional enforcement and the dominance of a development paradigm that treats customary territory as available land reserves for national projects.

Another comparative lesson concerns the relationship between indigenous tenure and climate governance. In Brazil and New Zealand, indigenous land protection increasingly forms part of environmental and climate policy itself. Brazilian policymakers and indigenous ministries have openly argued that demarcated indigenous territories are among the most effective barriers against deforestation, while New Zealand's environmental governance increasingly incorporates Māori perspectives in conservation and land management (Raftopoulos & Morley, 2025). These experiences are important because they demonstrate that indigenous communities are not barriers to development, but key actors in ecological sustainability. Therefore, global solidarity in climate governance cannot be separated from local solidarity toward indigenous communities. The protection of indigenous territories has proven to provide ecological benefits that transcend national borders thru emission reduction, biodiversity conservation, and enhanced ecosystem resilience (Sakapaji et al., 2024). This perspective shows that investing in the protection of indigenous communities is also an investment in global climate interests. South Papua reflects the opposite tendency, where indigenous tenure is often treated as an administrative obstacle to be bypassed in the name of national food production. The comparative evidence therefore suggests that Indonesia should reposition customary communities as environmental partners whose territorial management systems contribute to climate resilience and forest preservation rather than undermine them.

The three countries also demonstrate that legal certainty for indigenous land creates greater long-term stability for development itself. In the Philippines, the issuance of ancestral domain titles provides clearer territorial recognition and reduces uncertainty regarding ownership claims. In New Zealand, Māori land governance institutions create legal mechanisms for dispute resolution and intergenerational stewardship. In Brazil, although conflict still occurs, constitutional recognition and court decisions have strengthened the legal status of indigenous territories against arbitrary encroachment (Pataxó, 2022). By contrast, South Papua continues to experience overlapping claims, weak customary mapping, and limited indigenous participation in project planning. This creates a governance environment where conflict becomes structurally embedded within development policy. The lesson for Indonesia is that recognizing customary land at an early stage is not an obstacle to investment, but rather a prerequisite for preventing prolonged disputes, environmental degradation, and social resistance.

In the end, the experiences of Brazil, the Philippines, and New Zealand show that the success of agricultural land governance is not only determined by the country's ability to increase food production but also by its ability to build solidarity between development interests, the protection of indigenous communities, and environmental sustainability. These three countries demonstrate that the recognition of customary land rights, effective participation mechanisms, and ecological protection are the main foundations of equitable development. For Indonesia, this comparative lesson shows that the reform of food estate governance cannot be achieved merely thru the improvement of sectoral regulations, but requires the strengthening of local solidarity thru respect for indigenous peoples' rights and global solidarity thru policies aligned with climate change commitments and sustainable development. Thus, food security is not positioned as a goal that contradicts the protection of indigenous peoples' rights and the environment, but rather as a result of legal governance that can integrate these three interests in a balanced manner.

4. Conclusion

Normatively, the expansion of food areas in South Papua has a legal basis that cannot be separated from the framework of the Indonesian Constitution, particularly the guarantee of the right to a good and healthy environment, the recognition and respect of indigenous peoples, and the principle that natural resources shall be managed for the greatest welfare of the people. However, this legal basis does not automatically render the project substantively legitimate when its implementation contradicts the principles of sustainability, ecological prudence, and the protection of indigenous rights. Although various regulations, including the Environmental Protection and Management Law, the Forestry Law, and policies concerning National Strategic Projects, authorize large-scale food development, the predominance of administrative acceleration has weakened the protective function of environmental and indigenous rights safeguards. Accordingly, the principal challenge lies not in the absence of legal norms but in the inconsistency between constitutional commitments and policy implementation, which continues to prioritize centralized development over ecological sustainability and indigenous participation.

The expansion of agricultural areas in South Papua therefore represents not only a question of food security but also an issue of climate justice and indigenous rights. Large-scale land conversion accelerates deforestation, increases carbon emissions, and disproportionately transfers environmental burdens to indigenous communities whose livelihoods, cultural identity, and spiritual values are closely connected to customary territories. The absence of meaningful FPIC further undermines participatory governance and weakens the legitimacy of development policies. Drawing on the comparative experiences of Brazil, the Philippines, and New Zealand, Indonesia should strengthen the legal recognition of indigenous tenure, institutionalize effective FPIC mechanisms, and establish participatory governance that places indigenous communities as partners in decision-making. In addition, climate justice principles should be systematically integrated into food estate policies by aligning food security objectives with forest conservation, indigenous land protection, and sustainable development, thereby ensuring that future agricultural expansion is both constitutionally legitimate and environmentally just.

5. References

- Adanma, U. M., & Ogunbiyi, E. O. (2024). A Comparative Review of Global Environmental Policies for Promoting Sustainable Development and Economic Growth. *International Journal of Applied Research in Social Sciences*, 6(5), 954–977.
- Alfiqri, K., Rathana, I., Jusuf, D. I., & Ruslina, E. (2025). Harmonisasi Regulasi: Kunci Stabilitas Hukum dalam Investasi dan Pembangunan Ekonomi Pasca Pemberlakuan UU Cipta Kerja. *Siyasah Jurnal Hukum Tatanegara*, 4(1), 1–26.

- Alvarado, L. J. (2022). *Study on Consultation and Free, Prior and Informed Consent with Indigenous Peoples in Africa*. The International Work Group for Indigenous Affairs (IWGIA).
- Andaya, R. P. (2023). *The Indigenous Peoples' Rights Act (R.A. 8371), Programs Projects, and Activities in Tagudin, Ilocos Sur: Basis for Strategic Implementation Plan*. <https://doi.org/10.2139/ssrn.4565378>
- Arif, A. (2024). "Food Estate" Merauke Tingkatkan Emisi Indonesia Dua Kali Lipat. *Kompas*. <https://www.kompas.id/artikel/food-estate-merauke-tingkatkan-emisi-indonesia-dua-kali-lipat>
- Askar, M. W. (2024). *Hutan Lenyap, Emisi Melejit: Food Estate Merauke Mempercepat Krisis Iklim*. Center of Economic and Law Studies (Celios).
- Awirya, A. A., Sianipar, K. E. N., Kurniawan, A., & Sasanti, I. A. (2025). Enhancing Economic Benefits from Forest Preservation In Papua, Indonesia: A Review. *Nature Environment and Pollution Technology*, 24(2), 1–14. <https://doi.org/10.46488/NEPT.2025.v24i02.D1695>
- Bado, B. (2022). *Model Pendekatan Kualitatif: Telaah dalam Metode Penelitian Ilmiah*. Tahta Media Group.
- Belseran, C. J., & Elisabeth, A. (2026). Ketika Proyek Pangan dan Energi Papua Gerus Alam dan HAM. *Mongabay*. <https://mongabay.co.id/2026/03/04/ketika-proyek-pangan-dan-energi-papua-gerus-alam-dan-ham/>
- Casla, K., & Sandner, M. (2024). Solidarity as Foundation for Economic, Social and Cultural Rights. *Human Rights Law Review*, 24(2), 1–21. <https://doi.org/10.1093/hrlr/ngae011>
- Christina, B. (2024). Explainer: How Indonesia's Deforestation Persists Despite Moratorium. *Reuters*. <https://www.reuters.com/business/environment/how-indonesias-deforestation-persists-despite-moratorium-2024-06-20/>
- Clark, J. N. (2023). Harm, Relationality and More-than-Human Worlds: Developing the Field of Transitional Justice in New Posthumanist Directions. *International Journal of Transitional Justice*, 17(1), 15–31. <https://doi.org/10.1093/ijtj/ijac025>
- Clay, K., & Cooper, L. (2022). Safeguarding against Harm in a Climate-Smart Forest Economy: Definitions, Challenges, and Solutions. *Sustainability*, 14(7), 1–13. <https://doi.org/10.3390/su14074209>
- De, M., & Dhote, M. (2024). Conservation of Natural Resources to address Climate Change and International Solidarity. *International Journal of Multidisciplinary and Current Educational Research (IJMCER)*, 6(2), 1–10.
- Desa, M. (2026). Akankah Deforestasi di Papua Dapat di Cegah? Ketika Deforestasi Mengancam Masyarakat Adat dan Masa Depan Hutan Terakhir Indonesia. *Masterplan Desa*. <https://www.masterplandes.com/desa-adat/akankah-deforestasi-di-papua-dapat-di-cegah-ketika-deforestasi-mengancam-masyarakat-adat-dan-masa-depan-hutan-terakhir-indonesia/>
- Doman, D. (2020). Penerapan Prinsip Pembangunan Berkelanjutan dan Ekonomi Berwawasan dalam Peraturan Perundang-Undangan Penggunaan Kawasan Hutan dalam Rangka PSN Pasca Pengesahan Perpres 66/2020. *Jurnal Hukum Lingkungan Indonesia*, 7(1), 71–97. <https://doi.org/10.38011/jhli.v7i1.222>
- Dwiartama, A., Akbar, Z. A., Ariefiansyah, R., Maury, H. K., & Ramadhan, S. (2024). Conservation, Livelihoods, and Agrifood Systems in Papua and Jambi, Indonesia: A Case for Diverse Economies. *Sustainability*, 16(5), 1996. <https://doi.org/10.3390/su16051996>
- Enala, S. H., Jalal, N., & Adam, A. F. (2025). Analisis Peran dan Kewenangan Aktor Administrasi Publik dalam Proyek Pangan Nasional di Papua Selatan: Perspektif Multi-Level Governance. *Musamus Journal of Public Administration*, 7(2), 369–377.

- Eswaran, M. (2023). The Wrongs of Property Rights: The Erosion of Indigenous Communal Land Rights and Its Welfare Consequences. *Canadian Public Policy*, 49(3), 267–292. <https://doi.org/10.3138/cpp.2022-054>
- Fadiyah, H. R., & Muhammad, F. A. (2026). Legal Protection of Indigenous Communities From Natural Resource Exploitation: A Comparative Study of Indonesia and The Philippines. *Journal of Law, Politic and Humanities*, 6(3), 2031–2042.
- Features. (2022). Melepas Ratusan Juta Emisi Karbon demi 2,7 Juta Ha Food Estate di Selatan Papua. *Features*. <https://jubi.id/features/2022/melepas-ratusan-juta-emisi-karbon-di-selatan-papua/>
- Federico, M. (2024). On Lands and Dispossession: The Relevance and Potential of Property Law for the Constitutional Recognition of the Rights of Indigenous Peoples. *Comparative Law Review*, 15(3), 56–83.
- Ferguson, C. E., Marie Green, K., & Switzer Swanson, S. (2022). Indigenous Food Sovereignty Is Constrained by “Time Imperialism.” *Geoforum*, 133(1), 20–31. <https://doi.org/10.1016/j.geoforum.2022.05.003>
- Firman, & Sofian, M. (2025). Otonomi Khusus Papua dari Perspektif Politik Afirmasi Orang Asli Papua di Pemerintahan. *Jurnal Pemerintahan Dan Politik*, 10(3), 522–540.
- Fischer, H. W., Chhatre, A., Duddu, A., Pradhan, N., & Agrawal, A. (2023). Community Forest Governance and Synergies Among Carbon, Biodiversity, and Livelihoods. *Nature Climate Change*, 13(12), 1340–1347. <https://doi.org/10.1038/s41558-023-01863-6>
- Goodstats. (2025). Deforestasi 2025 Meluas ke Seluruh Pulau di Indonesia, Papua Catat Lonjakan Tertinggi. *Goodstats*. <https://data.goodstats.id/statistic/deforestasi-2025-meluas-ke-seluruh-pulau-di-indonesia-papua-catat-lonjakan-tertinggi-3M8at>
- Grattan, S. (2024). At U.N. Summit, Historic Agreement to Give Indigenous Groups Voice on Nature Conservation Decisions. *Associated Press*. <https://apnews.com/article/biodiversity-cop16-colombia-decisions-indigenous-53a8b16befaf621d75a2fc9b9828c2a8>
- Hanum, W. N., & Firmandayu, N. (2026). Constitutional Guarantee of Ecological Damage Restoration within the Environmental Corruption Nexus. *IJCCJ: Indonesian Journal of Crime and Criminal Justice*, 2(2), 232–259.
- Hehanussa, D. J. A., Margie Gladies Sopacua, Surya, A., & Titahelu, J. A. S. (2023). *Metode Penelitian Hukum*. Widina Bhakti Persada Bandung.
- Hormio, S. (2023). Collective Responsibility for Climate Change. *WIREs Climate Change*, 14(4), 1–14. <https://doi.org/10.1002/wcc.830>
- Islam, Md. M. (2022). Distributive Justice in Global Climate Finance—Recipients’ Climate Vulnerability and the Allocation of Climate Funds. *Global Environmental Change*, 73, 1–15. <https://doi.org/10.1016/j.gloenvcha.2022.102475>
- Jones, S., & Mitchell, C. (2025). World’s Largest Deforestation Project. *Mighty Earth*. <https://mightyeearth.org/article/worlds-largest-deforestation-project/>
- Kusniati, R. (2024). Free, Prior, and Informed Consent Principles as Indigenous Peoples’ Right: Soft Law or Hard Law? *Jambe Law Journal*, 7(1), 169–193. <https://doi.org/10.22437/home.v7i1.350>
- Lakshmi, A., Mariska, D., & Bernard, S. (2025). Indonesia Calls in Military to Help Clear Forests at Rapid Pace. *Financial Times*. <https://www.ft.com/content/27a6bd42-aa95-449f-97b7-7a086da42bac?syn-25a6b1a6=1>
- Lushombo, L. W. (2025). Ecological Sustainability for “Life on Land”: Wellspring of Indigenous Knowledge. *Religions*, 16(3), 1–21. <https://doi.org/10.3390/rel16030311>

- Manek, L. M. (2025). Carbon Footprint of Indonesia's Tropical Forests: Between Conservation, Commodity, and Climate Crisis. *Journal of Horizon*, 2(2), 16–27.
- McIntyre, O. (2025). Solidarity and Community Interests in International Environmental and Natural Resources Law. *Journal of Energy & Natural Resources Law*, 43(4), 633–650. <https://doi.org/10.1080/02646811.2025.2503637>
- Midhol, A. B., & Nugraha, I. A. (2024). Analisis Urgensi Pembentukan Daerah Otonomi Khusus Provinsi Papua Selatan Tahun 2022. *Restorica: Jurnal Ilmiah Ilmu Administrasi Negara dan Ilmu Komunikasi*, 10(2), 89–103.
- Monasari, S., & Edrisy, I. F. (2025). Perlindungan Hukum bagi Masyarakat Adat atas Hak Tanah dalam Perspektif Hukum Nasional. *PESHUM: Jurnal Pendidikan, Sosial dan Humaniora*, 4(2), 3533–3543.
- Mueller, B. (2021). Property Rights and Violence in Indigenous Land in Brazil. *Land Use Policy*, 116(1), 1–41.
- Mulyani, M., Faturachmat, F., Alam, S., & Sahide, M. A. K. (2025). Food Estate Policy in South Papua as a Solution: A Discourse Analysis. *IOP Conference Series: Earth and Environmental Science*, 1553(1), 1–9. <https://doi.org/10.1088/1755-1315/1553/1/012044>
- Nancy, & Miharja, M. (2026). Strategi Hukum dan Kebijakan Publik dalam Mewujudkan Transisi Energi Berkeadilan di Era Perubahan Iklim. *IBLAM Law Review*, 6(1), 111–124. <https://doi.org/10.52249/ilr.v6i1.652>
- Ningrum, S., & Nurfaiziya, S. (2026). Land Tenure Reform and Food Security: A Systematic Review of Agrarian Policies in the Global South. *Cogent Social Sciences*, 12(1), 1–17. <https://doi.org/10.1080/23311886.2026.2619371>
- Nugraha, X., Wibisono, A. M. A., Angelia, A., S., B. O., & Answendy, P. R. (2023). Strengthening Customary Forest Rights for Indigenous People in Indonesia Green Constitution Framework. *Jurnal Kajian Pembaruan Hukum*, 3(2), 217–250. <https://doi.org/10.19184/jkph.v3i2.43367>
- Nugroho, G. A., Irsyad, A. W., & Zuhriyah, S. A. (2026). Analysis of the National Strategic Project (PSN) Food Estate in Merauke from the Perspective of Islamic Law, Human Rights, and the Environment. *Jallu Law Review*, 1(1), 1–19.
- Nurhasan, M., Maulana, A. M., Ariesta, D. L., Usfar, A. A., Napitupulu, L., Rouw, A., Hurulean, F., Hapsari, A., Heatubun, C. D., & Ickowitz, A. (2022). Toward a Sustainable Food System in West Papua, Indonesia: Exploring the Links Between Dietary Transition, Food Security, and Forests. *Frontiers in Sustainable Food Systems*, 5(1), 1–20. <https://doi.org/10.3389/fsufs.2021.789186>
- Nurhayati, I. (2023). *Metodologi Penelitian Hukum: Teori dan Praktik*. Kencana.
- Nurhidayah, A., & Rusdi, A. M. (2025). Strengthening the Role of Indigenous Communities in Sustainable Natural Resource Governance. *Jurnal Sosial Dan Sains*, 5(9), 2924–2930.
- Ohlsson, J. (2026). Exploring Sustainability, Indigenous Rights, and Decoloniality: A Content Analysis of Human Rights Language in SDG Reports. In *Decolonizing the Sustainable Development Goals* (pp. 85–101). Springer Nature.
- Ohoiwutun, M. G., Rahman, A., & Haryanti, T. (2026). Otonomi Khusus Papua: Dari Amanat Konstitusional ke Desain Kelembagaan Pembentukan Peraturan Daerah Khusus. *ASIPPER: Jurnal Ilmu Perundang-undangan*, 2(1), 27–39.
- Pangestu, I. A., Handayani, I. G. A. K. R., & Karjoko, L. (2024). Problematisation of Forest Estate Policy in the Implementation of Food Estate. In A. K. Jaelani, I. Irwansyah, F. Fernhout, A. A. Paolini, M. R. Palil, H. Tegnan, O. Parama Astirin, S. Sutarno, P. Covarrubia, B. Sobirov, & R. Rahim (Eds.), *Proceedings of the International Conference on Cultural Policy and Sustainable*

- Development (ICPSD 2024)* (Vol. 869, pp. 150–158). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-315-3_22
- Papua, W. L. H. I. (WALHI). (2025). PSN Pangan dan Energi di Papua: Kekerasan Terbuka Negara Terhadap Lingkungan dan Masyarakat Adat Papua. *Wahana Lingkungan Hidup Indonesia (WALHI) Papua*. <https://www.walhi.or.id/psn-pangan-dan-energi-di-papua-kekerasan-terbuka-negara-terhadap-lingkungan-dan-masyarakat-adat-papua>
- Pataxó, S. (2022). The Judicialization of Indigenous Territories in Brazil: Judicial Power and the Obstacles to Demarcation. *Tipiti: Journal of the Society for the Anthropology of Lowland South America*, 18(1), 114–118. <https://doi.org/10.70845/2572-3626.1365>
- Purnomo, A., Salmawati, S., & Banggu, M. (2025). Political Representation of Indigenous Papuans in the Special Autonomy Era: Case Study of Local Democracy in Southwest Papua. *Journal of Contemporary Local Politics*, 4(1), 70–80. <https://doi.org/10.46507/jclp.v4i1.714>
- Putri, E. F. S., & Murdjoko, A. (2024). Dinamika Deforestasi dan Degradasi Hutan di Provinsi Papua. *CASSOWARY*, 7(2), 30–41.
- Quigg, R., & Russell, E. (2026). Indigenous Rights and Managed Public Land: A Critical Treaty Analysis of Parks And Reserves in New Zealand. *Local Environment*, 31(7), 1016–1033. <https://doi.org/10.1080/13549839.2025.2543308>
- Qurbani, I. D., & Rafiqi, I. D. (2022). Prospective Green Constitution in New and Renewable Energy Regulation. *Legality: Jurnal Ilmiah Hukum*, 30(1), 68–87. <https://doi.org/10.22219/ljih.v30i1.18289>
- Raftopoulos, M., & Morley, J. (2025). Problematising Environmental Governance And The Politics Of Natural Resource Sovereignty In Brazil. *Globalizations*, 22(5), 817–836. <https://doi.org/10.1080/14747731.2024.2423534>
- Rasman, A., Theresia, E. S., & Aginda, M. F. (2023). Analisis Implementasi Program Food Estate sebagai Solusi Ketahanan Pangan Indonesia. *Holistic: Journal of Tropical Agriculture Sciences*, 1(1), 71–85. <https://doi.org/10.61511/hjtas.v1i1.2023.183>
- Reydon, B., Siqueira, G. P., Passos, D. S., & Honer, S. (2022). Unclear Land Rights and Deforestation: Pieces of Evidence from Brazilian Reality. *Land*, 12(1), 1–17. <https://doi.org/10.3390/land12010089>
- Sakapaji, S. C., Molinos, J. G., Parilova, V., Gavrielyeva, T., & Yakovleva, N. (2024). Navigating Legal and Regulatory Frameworks to Achieve the Resilience and Sustainability of Indigenous Socioecological Systems. *Resources*, 13(4), 1–24. <https://doi.org/10.3390/resources13040056>
- Saputra, A. W., & Hasmarini, M. I. (2025). Apakah Foreign Direct Investment dan Pertumbuhan Ekonomi Menyebabkan Emisi Karbon di Indonesia? *Jurnal Economic Resource*, 8(2), 859–866.
- Soembari, R., & Yandendai, L. (n.d.). Perlindungan Hukum Hak Atas Tanah Ulayat Orang Asli Papua Terhadap Ekspansi Proyek Strategis Nasional Di Provinsi Papua Selatan. *Jurnal Hukum Cassowary*, 2(2), 94–110.
- Suwarno, E., & Harahap, I. (2025). Analisis Kritis Akses dan Eksklusi dalam Regulasi Kehutanan Undang-Undang Nomor 41 Tahun 1999 tentang Kehutanan. *Andrew Law Journal*, 4(1), 162–177.
- Thontowi, J., & Wartini, S. (2023). Effectuating Food Sovereignty without Violating the Rights of Indigenous People: A Case Study of the Merauke Integrated Food and Energy Estate Project. *KnE Social Sciences*, 1(1), 616–624. <https://doi.org/10.18502/kss.v8i9.13376>
- Triwahyuningsih, Waeno, M., & Nugraha, B. S. (2026). Decentralisation in Regional Governance Law: The Paradox and Non-Functionality of Indigenous Rights and Environmental Protection in

- Indonesia. *Journal of Law, Environmental and Justice*, 3(3), 739–744. <https://doi.org/10.62264/jlej.v3i3.211>
- Vandito, R. L., & Paramesti, A. (2024). Partisipasi Politik Masyarakat Adat dalam Konflik Agraria di Papua: Studi Kasus Partisipasi Suku Awyu Melawan Pt Megakarya Jaya Raya dan Pt Kartika Cipta Pratama. *PUBLICIANA*, 17(2), 91–106.
- Veronika, Y., Balawangga, P. S. M., Wonda, N. N., Nope, L. I., & Subandi, Y. (2025). Pandangan Hak Asasi Manusia terhadap Kerusakan Lingkungan Akibat Deforestasi Masif dalam Proyek Food Estate di Merauke, Papua Selatan Tahun 2024. *Jurnal Ilmiah Multidisipin*, 3(7), 487–496. <https://doi.org/10.60126/jim.v3i7.1121>
- Vita, N. N. (2026). Tanggung Jawab Negara terhadap Implementasi Prinsip Parens Patriae dalam Sistem Hukum Lingkungan Indonesia. *Jurnal Dharmawangsa*, 20(1), 467–484.
- Widiarty, W. S. (2024). *Buku Ajar Metode Penelitian Hukum*. Publika Global Media.
- Wiryani, F. K., & Ramadhan, F. (2025). *Keadilan Agraria: Relasi Konstitusi, Hak Menguasai Negara, dan Konflik Struktural*. Setara Press.
- Wisnaeni, F., & Najib, A. A. (2025). National Food Security and Local Sovereignty: Legal-Ecological Critique of Indonesia's Food Estate Policy. *Current Research in Nutrition and Food Science Journal*, 13(3), 1320–1334. <https://doi.org/10.12944/CRNFSJ.13.3.22>
- Yahya, A. S. (2025). The Recognition and Protection of Indigenous Peoples' Rights Within the Framework of Regional Autonomy in Indonesia. *Natapraja*, 13(2), 176–192. <https://doi.org/10.21831/natapraja.v13i2.84838>
- Zein, Y. A., Utomo, A. P., Ali, M. H., Idris, R., & Adriansyah, D. (2025). Indigenous, Diversity, and the Future of Human Rights in Regional Legal Systems. *Journal of Human Rights, Culture and Legal System*, 5(2), 581–607.