

*Full-Length Research Article***Coal Conflict in Indigenous Lands: A Study of Climate Justice Erosion and Threats to Indigenous Forests in West Kutai, East Kalimantan**Dewi Risnawati^{*}, Ameylia Puspita Rosa Dyah Ayu Arintyas, Gusti Naufal Rizky Perdana

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ABSTRACT

Expansion of coal mining into indigenous territories has created serious climate justice concerns, particularly in relation to how environmental burdens are distributed as well as how communities are involved in decision-making. However, studies that examine both aspects together remain scarce. This research investigates how climate justice has been undermined within the Dayak Benuaq community in Muara Tae Village, West Kutai, East Kalimantan. Using a qualitative case study approach informed by critical political ecology, data were gathered through interviews, observations, and document reviews. Findings indicate that climate injustice operates through two interconnected pathways. The first relates to unequal environmental impacts, reflected in widespread presence concerning mining permits which are distributed across the West Kutai region in accordance with (*Izin Usaha Pertambangan/IUP*), totaling 4,608 permits covering an area of 20,381.59 km², equivalent to 20,275 ha, overlap between concessions as well as customary land, degradation concerning Nayan River, loss concerning sacred areas, and absence concerning legal recognition for customary forests. The second concerns exclusion from decision-making processes, including a lack of meaningful Free, Prior, and Informed Consent (FPIC) procedures and administrative boundary changes that reduced customary territory. Mining activities were also found to weaken transmission of traditional ecological knowledge and disrupt cultural systems tied to customary forest governance. These findings highlight the importance of strengthening FPIC requirements, protecting claimed customary forests from new mining permits, and accelerating legal recognition of indigenous forest rights in West Kutai.

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1. Introduction

West Kutai Regency in East Kalimantan is widely known not only for its ecological importance but also as the ancestral homeland of the Dayak Benuaq people. For this community, customary forests represent far more than economic assets; they are closely connected to spiritual belief, cultural identity, and everyday survival, reflecting a corpus–cosmos–praxis relationship that characterizes Indigenous Law Communities (*Masyarakat Hukum Adat/MHA*) (Shiquan et al. 2022). International and national frameworks, including the Paris Agreement, the Sustainable Development Goals (SDGs), and Constitutional Court Decision No. 35/PUU-X/2012, formally acknowledge the significance of indigenous territories for equitable and sustainable resource management (Nurhidayah and Rusdi 2025). Nevertheless, the situation in West Kutai presents a

contrasting reality. Among Indonesia's major coal-producing regions, East Kalimantan has experienced intensive extractive development. The area contains 4,608 mining permit locations spread across 20,381.59 km², while 40 large private plantation companies hold permits covering 562,355 ha. Together, these developments have created overlapping claims, legal uncertainty and increasing pressure on indigenous land rights, a condition described in this study as "Coal Crisis" (Majumdar et al. 2025; Raharja et al. 2024).

This issue deserves attention because Indonesia remains the world's largest coal exporter. Yet, the processes through which mining activities simultaneously undermine climate justice and indigenous livelihoods have not been sufficiently examined. As international efforts to reduce dependence on fossil fuels intensify, communities living closest to extraction sites often bear the greatest environmental and social consequences while receiving the least protection from existing governance systems. Understanding these dynamics is therefore important not only for theoretical discussions but also for designing more effective policy responses.

Critical political ecology argues that environmental degradation should be understood as a consequence of unequal power relations rather than as a purely technical or ecological issue (Green and Healy 2022; Zhang 2024). Within the climate justice literature, two major dimensions are commonly identified. The first concerns the unequal distribution of environmental burdens borne by indigenous peoples, while the second concerns their exclusion from political and administrative decision-making processes. Scholars have further identified the absence of free, prior and informed consent (FPIC), as recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), as one of the key drivers of procedural injustice (Porter et al. 2020; Trimmel et al. 2024). Similarly, access theory suggests that communities may formally possess land rights yet remain disadvantaged due to legal ambiguity and unequal power relations that favor state and corporate actors (Bebbington et al. 2018). Existing research in East Kalimantan has examined environmental damage, governance weaknesses and indigenous resistance separately, but these themes have rarely been analyzed together within a single framework (Arsyad et al. 2025; Dewi 2025; Nasir 2023; Spencer et al. 2023).

A critical gap remains: no study has simultaneously examined how coal mining, both licensed and illegal, operates as a mechanism concerning climate justice erosion across its distributive as well as procedural dimensions while constituting an existential threat to customary forests together with traditional ecological knowledge (TEK) as cultural-ecological capital concerning MHA in West Kutai (Spencer et al. 2023; Wardhani 2025).

This study therefore investigates: through what mechanisms does coal mining erode climate justice and pose existential threats to customary forests for the Dayak Benuaq community in Muara Tae Village, Jempang Subdistrict, West Kutai? The unit of analysis constitutes the process of climate justice erosion, examined across two dimensions: (a) distributive injustice, disproportionate ecological burden distribution; and (b) procedural injustice, marginalization in decision-making and environmental governance. The study aims to: (1) analyze mechanisms concerning climate justice erosion, as well as (2) identify legal, ecological and socio-cultural threats to customary forests and TEK-based cultural sustainability concerning MHA (Arsyad et al. 2025; Dewi 2025).

2. Materials and Methods

This study aims to examine the processes of climate justice erosion experienced by indigenous peoples amid the expansion of extractive industries, with a focus on coal mining practices in West Kutai Regency, East Kalimantan. It seeks to understand how power relations, environmental governance, and development ideology interact to produce ecological and social injustice for indigenous peoples, generating critical and contextual knowledge relevant to both policy development and academic inquiry (Parsons et al. 2021). Fieldwork was conducted from 28 October 2025 to 19 January 2026.

2.1. Research Location

This study applies a qualitative approach alongside a single-case study design (Hunziker and Blankenagel 2024). This design is appropriate because it enables an in-depth, contextually grounded examination of socio-ecological phenomena that are both specific to their geographical setting and analytically representative of broader structural dynamics in extractive-industry conflicts (Yin 2018). A case study approach is integrated alongside critical political ecology as its theoretical framework, which emphasizes how power relations, state policies, corporate interests, and development narratives shape inequalities in natural resource management and exacerbate conditions of climate injustice (Green and Healy 2022). This combination has been demonstrated to generate valid, rigorous and analytical findings within complex socio-ecological settings (Majumdar et al. 2025; Parsons et al. 2021).

Ontologically, this study views socio-ecological reality as a product of interactions between human and non-human actors, including forests, land, rivers and mining landscapes. Epistemologically, the study is oriented toward interpretive-critical inquiry, positioning lived experiences, indigenous knowledge systems and community narratives concerning Dayak Benuaq as primary sources for understanding the structural injustices they face.

2.2. Location and Case Selection

The study was conducted in Muara Tae Village, Jempang District, West Kutai Regency (Fig. 1). Field activities took place between 28 October 2025 and 19 January 2026. The village was deliberately selected for its distinctive socio-ecological position within the regional landscape. Although much of its customary territory remains relatively protected from direct mining and plantation operations, the village is surrounded by active extractive concessions and large-scale agribusiness development. This places Muara Tae at a critical intersection between indigenous forest conservation and the expansion of resource exploitation.

Dayak Benuaq represents part of the larger Dayak Benuaq ethnic group, one of the major indigenous communities of Kalimantan. Approximately 30% of Muara Tae residents are Dayak Benuaq, while the remaining 70% are migrants from various regions of Indonesia, including Toraja, Batak, and Javanese communities (Telapak 2011). Community affairs are governed by *Lembaga Adat Ohong Anggung*, a customary institution responsible for enforcing customary law, managing territory and resolving local disputes.

Resource extraction activities within Jempang District date back to 1971, when PT Sumber Mas began operating a logging concession under a *Hak Pengusahaan Hutan* (HPH) permit. Coal extraction later expanded into the area when PT Gunung Bayan Pratama Coal initiated exploration and production activities in Muara Tae around 1996–1997. At that time, nearly half of the village

area fell within the company's concession boundary (Telapak 2011). This long history of extractive development has made Muara Tae an important location for examining the relationship between mining expansion and climate justice concerns (Arsyad et al. 2025; Purwadi 2025).

During the research period, the Dayak Benuaq community continued to pursue recognition of their customary forest through several avenues. First, they participated in the formal customary forest recognition process administered by the Ministry of Environment and Forestry. By 2025, four proposals from West Kutai had been submitted, although no ministerial decree had yet been issued for Muara Tae. Second, community representatives engaged alongside the West Kutai regional government under Regional Regulation (*Peraturan Daerah*; *Perda*) No. 13 of 2017 on the recognition and protection of indigenous communities, as well as *Perda* No. 14 of 2017 on customary status and territory. Third, advocacy efforts were carried out in collaboration with civil society organizations, particularly *Aliansi Penyelamat Hutan Kutai Barat* (APHKB) (Arsyad et al. 2025; Purwadi 2025).

Location of Muara Tae Village and Coal Mining Concessions, Jempang Sub-district, West Kutai Regency, East Kalimantan Province, Indonesia

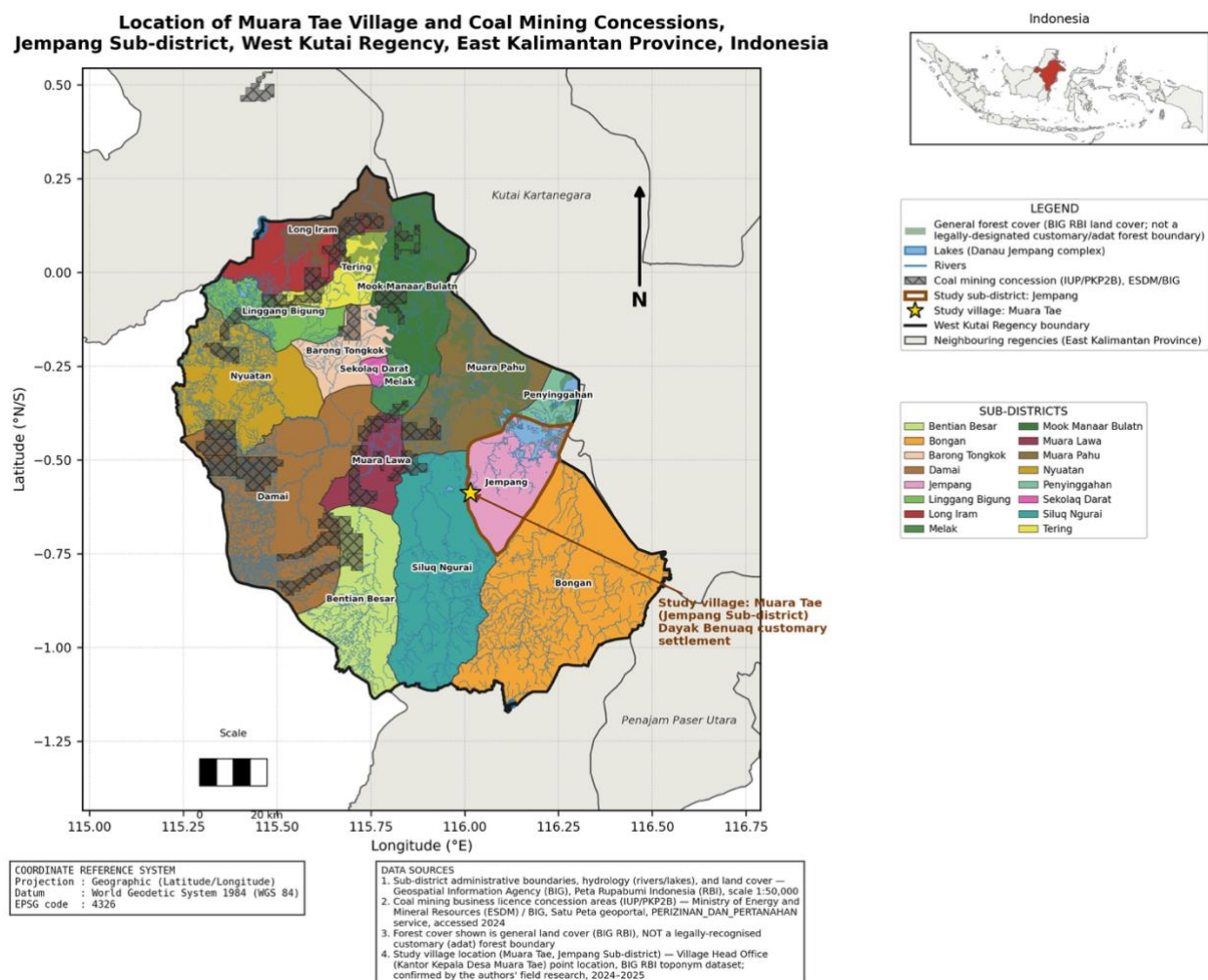


Fig. 1. Location of Muara Tae Village and coal mining concessions (IUP/PKP2B) in Jempang Sub-district, West Kutai Regency, East Kalimantan Province, Indonesia. Data sources for administrative boundaries, hydrology, and land cover: Geospatial Information Agency (BIG), Peta Rupabumi Indonesia (RBI), at a scale of 1:50,000. Coal mining concession data: Ministry of Energy and Mineral Resources (ESDM) / BIG Satu Peta geoportal (accessed 2026).

2.3. Analysis Unit

The unit of analysis is the process of climate justice erosion experienced by the Dayak Benuaq indigenous community, examined across two dimensions: (a) distributive injustice: the disproportionate imposition of ecological and social burdens on indigenous peoples as a consequence of extractive industry operations; and (b) procedural injustice: the systematic marginalization of indigenous peoples in decision-making processes concerning mining licensing, environmental governance, and territorial management. Data were collected at both the individual and community levels: semi-structured interviews at the individual level and participatory and non-participatory observation at the community level.

2.4. Data Collection Techniques

Data collection was conducted using three main techniques (De Sordi 2024).

a. In-depth semi-structured interviews

Semi-structured interviews were conducted with 6 purposively selected key informants across four categories: (1) leaders and members of the Traditional Institution Ohong Anggung (Communities); (2) Muara Tae residents whose livelihoods are directly affected by mining operations (Communities); (3) representatives of the Regional Environmental Agency (*Dinas Lingkungan Hidup*) (Government); and (4) civil society organization representatives engaged in indigenous rights advocacy in West Kutai (Communities). Informants were selected based on direct relevance to the research focus and capacity to provide substantive knowledge of the socio-ecological and governance dimensions under examination. Interviews with mining company representatives were planned but could not be conducted due to restricted access and heightened political tensions between the companies and the community during fieldwork.

b. Participatory and non-participatory observation

Observations covered environmental conditions within and around mining concession boundaries, including river degradation, open pit mine voids, and changes in forest cover, as well as the daily livelihood activities of indigenous community members that reflect their ecological relationship with the customary forest landscape.

c. Document analysis

Document analysis was conducted on official and unofficial sources relevant to mining governance and the recognition of indigenous peoples' rights in East Kalimantan, particularly West Kutai Regency. Official documents analyzed included: Mining Business Permits (*Izin Usaha Pertambangan/IUP*) issued under Law No. 4 of 2009 on Mineral and Coal Mining as amended by Law No. 3 of 2020; Environmental Impact Assessment (*Analisis Mengenai Dampak Lingkungan/AMDAL*) documents under Law No. 32 of 2009 on Environmental Protection and Management and Government Regulation No. 22 of 2021; the Regional Spatial Plan (*Rencana Tata Ruang Wilayah/RTRW*) of East Kalimantan Province and West Kutai Regency under Law No. 26 of 2007 on Spatial Planning; and regional regulations on the recognition and protection of customary law communities referring to Constitutional Court Decision No. 35/PUU-X/2012. Additional documents reviewed included Corporate Social Responsibility (CSR) reports under Law No. 40 of 2007 on Limited Liability Companies, mining concession maps, media reports, and reports from civil society organizations, as well as field documentation produced by Telapak (2011) on corporate operations and community impacts in Muara Tae. These documents were used collectively to trace legal relations, spatial

conflicts, and structural power configurations between the state, corporations, and indigenous peoples.

2.5. Data Analysis

Data analysis was conducted thematically with reference to the principles of critical discourse analysis. Data from interviews, observations, and documents were systematically reduced, categorized, and interpreted to identify patterns of power relations, dominant and counter-narratives, forms of indigenous resistance, and the socio-ecological consequences of mining practices (De Sordi 2024). Thematic analysis combined with critical discourse analysis has been validated as an appropriate and scientifically rigorous method for examining power dynamics, marginalization, and structural injustice in qualitative socio-ecological research (Green and Healy 2022; Parsons et al. 2021).

2.6. Data Validation

Data validity was established through multi-layered triangulation: cross-verification across interviews, observation, and documentary sources; method triangulation comparing data obtained through different collection techniques; researcher reflexivity throughout fieldwork and analysis to minimize interpretive bias; and member checking with key informants to verify consistency between the research's interpretations and community experiences (Court et al. 2017). Preliminary analytical conclusions were systematically returned to informants and cross-checked against documentary evidence before being confirmed as final interpretations, ensuring findings reflect both the researcher's analytical framework and the experiential reality of the Dayak Benuaq community.

2.7. Research Ethics

Research followed established ethical principles throughout all stages of data collection and analysis. These included obtaining informed consent, protecting participant confidentiality, and respecting indigenous knowledge systems and political agency. Particular attention was paid to minimizing social, legal, and political risks associated with participation, given the sensitive nature of ongoing land rights disputes involving indigenous communities.

3. Results and Discussion

3.1. The Context of Muara Tae: Regulations, Local Village Wisdom, and Natural Resources

Muara Tae in West Kutai Regency functions as a customary domain, socio-ecologically inhabited by the Dayak Benuaq community. This territory not only holds natural resource reserves, including high-value coal, but also serves as a living space that sustains the social, cultural, and ecological sustainability of indigenous peoples. Within this context, Muara Tae exemplifies what the political ecology literature identifies as the classic “resource curse” paradox: territories characterized by exceptional ecological richness in which the intensification of extractive industries proceeds in direct proportion to the deepening of local ecological and social vulnerability (Zhang 2024).

The scale of extractive pressures on West Kutai is substantial and empirically documented. West Kutai Regency covers a total area of 20,381.59 km², comprising 16 subdistricts, 190 villages,

and 4 urban wards, a territory whose ecological and administrative complexity is compounded by intense concentration of extractive concessions. Regional spatial data record 4,608 Mining Business Permit (*Izin Usaha Pertambangan/IUP*) features within the district, alongside 40 private plantation companies (*Perusahaan Besar Swasta/PBS*) holding combined palm oil location permits covering 562,355 ha, palm oil IUP covering 473,053 ha, and land use rights (*Hak Guna Usaha/HGU*) covering 282,663 ha. To contextualize this figure: the total gazetted forest estate in East Kalimantan Province covers approximately 8.04–8.15 million ha, yet the cumulative footprint of extractive permits in West Kutai alone, across the coal mining and plantation sectors, already represents territorial pressure that structurally compresses the space available for customary forest governance. Although precise overlap calculation between the IUP boundary and the gazetted forest area in West Kutai remains incomplete, the sheer density of concession features relative to the district area constitutes prima facie evidence of the systemic territorial conflict this study examines (Raharja et al. 2024; Spencer et al. 2023).

Within a specific case concerning Muara Tae, the most consequential corporate actor remains PT Gunung Bayan Pratama Coal, operating under a Coal Contract concerning Work (*Perjanjian Karya Pengusahaan Pertambangan Batubara/PPKP2B*) Permit No. 190.K/37.02/DJB/2017 alongside WIUP Code 1300003032014046, covering a concession area of 20,275 ha, valid from 21 February 2017. PT Bayan Resources (parent group) also holds an Integrated Processing Permit (*Izin Pemrosesan Produksi/IPP*) alongside Permit No. 81201161016940002 (Modi ID: 2920003002019408), valid from 2 January 2023 to 2 January 2029. The concession boundary for these permits demonstrably overlaps with the customary territorial claim of the Dayak Benuaq community, generating spatial conflict and central legal and ecological tensions examined in this study (Raharja et al. 2024; Wardhani 2025).

Applying Bebbington et al. (2018) and Majumdar et al. (2025) access theory, which analytically distinguishes between formal right to access resources and structural ability to benefit from them, the situation in Muara Tae illustrates how the Dayak Benuaq community holds a nominal customary tenure claim affirmed under Constitutional Court Decision No. 35/PUU-X/2012, yet remains effectively excluded from exercising meaningful territorial control. This exclusion operates not through a single act concerning dispossession but through compounding structural mechanisms: legal ambiguity in forest classification, absence of a formal ministerial decree recognizing customary forest, plus superior political and economic capital concerning concession-holding corporations that enable them to translate formal permits into on-the-ground territorial dominance (Arsyad et al. 2025; Purwadi 2025).

The status of customary forest recognition in West Kutai directly illustrates this structural gap. As of 2025, no final ministerial decree establishing formal, recognized *hutan adat* in Muara Tae has been issued. Four customary forest proposals in West Kutai, Anyaang Apoq (± 336 ha), Mountain concerning Menaliq (± 327.21 ha), Teluyetn Jarikng Lestari (± 474 ha), and Hemaq Bojooq Ngahan (± 45 ha), totaling approximately 1,182 ha, remain under active field verification, as documented by a verification team appointed under Director General Decree concerning Social Forestry No. 14 of 2025. The sole formal gazetted customary forest within the district to date remains *Hutan Adat* Hemaq Beniung in Kampung Juaq Asa, Barong Tongkok Subdistrict, at 48.85 ha. Although West Kutai has established a regional legal foundation through Regional Regulation No. 13 of 2017 on recognition and protection of indigenous law communities (*Masyarakat Hukum Adat/MHA*) and Perda No. 14 of 2017 on customary status and territory, these instruments have not translated into enforceable spatial protection for Muara Tae's customary domain. This gap

between local normative recognition and the absence of formal forest status remains a precise mechanism through which, as [Ahmad and Ibrahim \(2025\)](#) and [Majumdar et al. \(2025\)](#) argue, structural access operates: capital interests exploit legal ambiguity that states have failed to resolve ([Ahmad and Ibrahim 2025](#); [Majumdar et al. 2025](#)).

Normatively, mining governance in Indonesia refers to the national regulatory framework, particularly Law No. 32 of 2009 on Environmental Protection and Management, which emphasizes administrative compliance through Environmental Impact Assessment (*Analisis Mengenai Dampak Lingkungan/AMDAL*), Environmental Management and Monitoring Effort (*Upaya Pengelolaan Lingkungan Hidup–Upaya Pemantauan Lingkungan Hidup/UPKL-UPLH*), and post-mining supervision. However, in practice, these formal instruments consistently fail to guarantee substantive recognition of indigenous people's rights when customary territory is targeted for large-scale extraction. The dominant regulatory paradigm remains procedural and technocratic, positioning indigenous people as objects in impact assessment rather than as sovereign subjects in natural resource governance ([Purwadi 2025](#); [Shiquan et al. 2022](#)).

These findings are consistent with an interview conducted with an official from West Kutai Regional Environmental Agency (*Dinas Lingkungan Hidup/DLH*), which revealed that principles concerning free, prior and informed consent (FPIC) have not been institutionalized as an explicit requirement in environmental licensing; it is considered only when social conflict is categorized as a substantial impact within the environmental assessment document.

“Formally, evidence concerning FPIC alongside the Muara Tae indigenous community constitutes not yet a mandatory requirement in AMDAL or UKL-UPL form, but it can constitute a determining factor in environmental feasibility if social conflict is assessed as a significant impact”. (Government)

This statement confirms that recognition of customary rights remains conditional: indigenous peoples' living spaces remain structurally vulnerable to extractive interests that are legally legitimized precisely because FPIC is treated as contingent rather than foundational. Although DLH officials indicate that the climate-related dimension, including estimated emissions from land clearing and loss of carbon sequestration capacity, has been incorporated into the AMDAL technical evaluation, this approach remains technocratic. It does not guarantee substantive protection for customary land tenure systems ([Samanlangi 2024](#)).

Beyond formal regulation, local wisdom of the Dayak Benuaq community in Muara Tae forms the foundation of their relationship with the forest and the surrounding ecosystem. This traditional knowledge is not only a relationship to the utilization of natural resources but also reflects a value system that positions nature as an integral entity in social as well as cultural life, which literature on traditional ecological knowledge (TEK) identifies as an adaptive, place-based governance system oriented toward long-term ecological balance ([Czarny 2023](#); [Nepal 2025](#)). The global literature on climate justice affirms that indigenous people's participation in and control over their territories are essential prerequisites for effective and equitable climate mitigation and conservation schemes, including REDD+, which frequently fail to achieve substantive justice precisely because they bypass indigenous people's direct territorial agency ([Porter et al. 2020](#)).

Unlike formal regulatory logic, which treats nature as an object to be managed, the Dayak Benuaq community views customary forests as an integral socio-ecological system, a source of livelihood, a hydrological buffer, a spiritual space, and a basis for collective identity. Forests along the upper Nayan River serve as a community's primary source of clean water and also support hunting and the collection of traditional medicinal plants.

This relationship is reinforced by customary practices and cultural rituals that have historically functioned as culture-based conservation mechanisms. *Belian* consists of healing and spiritual ceremonies conducted by a customary practitioner (*Belian*) to restore balance between the human community and the spirit world regarding the forest, performed during illness, harvest and moments of ecological disruption. *Gugu Tahun* is an annual thanksgiving ceremony marking the agricultural and forest cycle, in which the community collectively reaffirms its obligation to maintain the forest as a living cosmological entity. Together, these ritual systems embed ecological responsibility within sacred practice, constituting a cosmological conservation framework inseparable from its territorial base, without which structural cultural disintegration ensues (Rai and Dhakal 2024; Shiquan et al. 2022). A critical marker of this sacred landscape remains the *Banggeris* tree (*Koompassia excelsa*), a towering dipterocarp species of deep cosmological significance in Dayak culture and legally protected under Indonesian forestry law. Its felling, through corporate operations, constitutes not only ecological loss but also an act of epistemic violence against community, territorial and spiritual sovereignty.

“There are trees and places that, according to custom, should not be disturbed. But the company still entered; ancestral graves were dismantled without any customary ceremony”. (Communities)

Rai and Dhakal (2024) argue that indigenous knowledge is often given little real power within the formal governance system. In many cases, TEK is treated either as cultural heritage to be preserved or as unscientific. Under both conditions, its legal and territorial significance becomes weakened. This creates a contradiction inside Muara Tae. Natural resources are used to justify the expansion of coal extraction. Yet, the benefits generated from those resources and the environmental damage caused by extraction are not shared equally among affected groups.

The interview conducted in Muara Tae showed that the company's arrival was followed by a land acquisition process conducted under highly unequal conditions. Community members often had limited information about transactions, while the company had greater knowledge and a stronger bargaining position. As a result, negotiations were marked by a clear imbalance in both information and power.

“At that time, our parents did not know the value of land. Land was exchanged for rice or goods, because they were promised a better life”. (Communities)

This situation reflects the transactional access mechanism described by Bebbington et al. (2018) and Majumdar et al. (2025). Under this pattern, companies do not necessarily obtain control over resources through direct expropriation. Instead, access is gained by exploiting information asymmetries and unequal negotiating positions. When government fails to address these imbalances, control over resources can gradually shift from local communities to corporations without meaningful consent from those most affected (Majumdar et al. 2025).

In addition to losing their land, communities continue to suffer ongoing ecological impacts. Former mining ponds in the upper reaches of the Nayan River have been left open, causing severe deterioration in water quality and the collapse of the local fish population, consistent with documented patterns of post-mining hydrological degradation across extractive frontiers in Indonesian Borneo (Ciszewski 2019; Nasir 2023). This condition directly undermines community food security and health while deepening local-level climate vulnerability.

“The river water now looks clean, but it is undrinkable. Fish become rare, so we are struggling”. (Communities)

Overall, context concerning Muara Tae demonstrates that natural resource wealth does not translate into local prosperity. On contrary, configuration concerning power relations analyzed through (Bebbington et al. 2018; Majumdar et al. 2025) access theory reveals how resource extraction produces disproportionate ecological as well as social burden on Dayak Benuaq community through compounding structural mechanism: 4,608 IUP feature registered across West Kutai 20,381.59 km²; a 20,275 ha PKP2B concession held by way of PT Gunung Bayan Pratama Coal (Permit No. 190.K/37.02/DJB/2017) direct overlapping community customary domain; 40 plantation company holding permit covering up to 562,355 ha across district; and continued absence concerning formal *hutan adat* recognition for Muara Tae alongside only one gazetted customary forest (Hemaq Beniung, 48.85 ha, SK No. 4618/MENLHK-PSKL/PKTHA/PSL.1/9/2017) confirmed across entire district, while four additional proposal remain under verification as concerning 2025. Together, these conditions constitute a structural architecture of legally sanctioned dispossession, in which a formal permit system overrides customary tenure claims that the state has affirmed in principle but failed to protect in practice. From a climate justice perspective, Muara Tae remains a concrete illustration of how communities contributing minimal greenhouse gas emissions bear the greatest cumulative impact concerning large-scale extractive activity, a condition that constitutes distributive injustice in its outcome and procedural injustice in its systematic exclusion of indigenous peoples from governance decisions that produce it (Porter et al. 2020; Trimmel et al. 2024).

3.2. Mining vs. Power Dynamics: The Struggle for Living Space and Ecological Conflict

The agrarian conflict in Muara Tae, West Kutai, East Kalimantan, is a clear example of how the clash of interests between the state, extractive capital, and indigenous peoples has created a long and systematic process of dispossession. Since the New Order era, the Dayak Benuaq customary area in Muara Tae has been subjected to successive waves of extractive industry concessions beginning with Forest Concession Rights (*Hak Pengusahaan Hutan/HPH*), followed by Industrial Timber Plantations (*Hutan Tanaman Industri/HTI*), and eventually coal mining long before the expansion of palm oil plantations entered the area (Haug 2018). The entry of these industries coincided with a state policy that refused to recognize communal customary ownership, effectively treating customary territories as legally vacant state land available for allocation by concession (Boué and Colin 2018). This legal framework enabled the systematic conversion of indigenous living space into investment space through the licensing bureaucracy, a process through which, as Bebbington et al. (2018) demonstrate, extractive infrastructure and permit systems structurally displace customary territorial claims without requiring formal expropriation, by exploiting the legal ambiguity the state has failed to resolve (Boué and Colin 2018). This is the condition that the people of Muara Tae began to experience in the early 1970s, when PT Sumber Mas opened the HPH concession, followed by the HTI industry and, in 1993, by the entry of the coal mining company PT Gunung Bayan Pratama Coal (Boué and Colin 2018). The change in land status from the outset was carried out without collective understanding.

“He said that customary forests must have a decree from the ministry. Forestry is included in PT Borneo Surya Mining’s cadastral survey. We do not even understand what cadastral means. All we know is that our ancestors did not work there, but now it belongs to someone else?”. (Communities)

This statement highlights the vast gap between the logic of state law and the logic of customary space. Communities understand their living space through historical practices of sacred sites, ecological boundaries, and spiritual connections to the forest, not through certification documents. When the state legal regime reclassifies customary space as investment space, communities lose the legal basis for defending territories they have managed for generations (Wily 2018). The exploitation of living space has been compounded by the commodification logic applied by mining companies, which systematically ignores the ecological and spiritual values embedded in the landscape, resulting in compensation patterns that are deeply and structurally unequal.

“PT Gunung Bayan entered Muara Tae. In the past, they exchanged one sack of rice for 1 ha, a radio for 1 ha, a 4×6 m² house for 5–6 ha of land”. (Communities)

This compensation model reflects a fundamental imbalance in knowledge and bargaining power, which Majumdar et al. (2025) identify as a defining feature of extractivist dispossession, wherein resource acquisition proceeds through systematic exploitation of indigenous communities’ informational disadvantage and structurally unequal negotiating positions that state governance fails to correct (Rai and Dhakal 2024). Once land is designated as released, the community receives no long-term benefit: they are employed only as operators, not in strategic positions, while the ecological and economic value of their land accrues entirely to the corporation. This pattern, as Jiménez-Mérida et al. (2022) term it, “labor without benefit”, deepens community structural vulnerability. Even food resources become scarce, as the destruction of forest habitat eliminates pigs and fish, which constitute the community’s primary protein source.

Local power dynamics significantly accelerate the erosion of living space. Decentralization resulting from regional autonomy transferred substantial permit-issuing authority to district heads (*bupatis*), making them a central actor in state–capital relations (Suprijadi 2019). Former Regent of West Kutai, Ismael Thomas, is documented to have issued overlapping mining and plantation permits that collectively exceeded the regency's total area (Suprijadi 2019). At the administrative level, a pivotal moment in the Muara Tae conflict was the issuance of West Kutai Regent Decree No. 146.3/K.525/2012, which redrew the administrative boundary between Muara Ponak and Muara Tae, incorporating the 638-ha Utaq Melinau customary block into administrative territory concerning Muara Ponak (Ahmad and Ibrahim 2025; Naggara et al. 2018). This boundary manipulation provided palm oil companies PT Borneo Surya Mining Jaya (BSMJ) and PT Munte Waniq Jaya Perkasa (MWJP) with a formal legal basis for clearing land, despite their unambiguous status as customary territory (Nasir et al. 2025).

“The district once shifted our boundaries because we rejected palm oil. Previously, the boundaries were only marked by rivers and hills”. (Communities)

This manufactured boundary dispute triggered horizontal conflict between Muara Tae and Muara Ponak, while obscuring the root cause: a local government decision that systematically privileged investment interests over customary territorial claims. Beyond administrative manipulation of space, corporate and government pressure also produced internal fragmentation within the community. Some residents eventually reached agreements with companies, while others remained opposed. Masrani, the village chief who had consistently opposed palm oil expansion since 1990, was removed from his position through a corporate-backed petition, a concrete demonstration of how corporations deploy political influence to neutralize critical indigenous leadership (Haryono et al. 2020).

Ecological consequences of these overlapping extractive operations are severe and multidimensional. Indigenous forests serve as a primary source of livelihood for communities, providing medicine, timber, food, and sacred space. Upstream mining operations have transformed the river catchment into an excavated waste pond that continues to pollute the Nayan River (*Sungai Nayan*) watershed.

“Mining upstream, the excavated pits form pools that flow into the river. Not only is bathing unpleasant, but our fruit also rots due to pollution. The white/natural fish that inhabited the river are gone. Only toman and cica fish remain”. (Communities)

This pattern of hydrological degradation is consistent with documented evidence of mining-induced deterioration of water quality across Indonesian Borneo (Ciszewski 2019; Spencer et al. 2023). The decline in fish diversity constitutes not only an ecological loss but a direct threat to food sovereignty (Naika et al. 2024). Within the framework of ecological distribution conflicts (EDC), the loss of access to water and food sources constitutes a form of ecological dispossession that produces structural poverty for communities who bear the material costs of extraction without receiving its economic benefits (Temper et al. 2018).

Ecological threat extends across the material, spiritual and cultural dimensions. Several sacred traditional sites have been destroyed or encroached upon through company operations. The sacred site concerning Bumut Klumpak, historically a ritual space for the Benuaq community, is now surrounded by the PT London Sumatra and PT Borneo Surya Mining Jaya concessions. Damage to a sacred site, including the felling of a *Banggeris* tree (*Koompassia excelsa*), demonstrates total disregard for the cultural and cosmological values of the Dayak Benuaq people (Polontoh et al. 2025). Eviction involving the scattering of ancestral grave bones without performance of the Kwangkay funerary ceremony, which requires ritual slaughter of a pig or buffalo, constitutes a form of irreversible cultural desecration that cannot be restored through any financial compensation. The loss of a sacred site erases collective identity and cosmological memory, which Rai and Dhakal (2024) identify as epistemic injustice: the systematic invalidation of indigenous knowledge and sacred geography by the technocratic rationality of the state and extractive capital.

From a climate justice perspective, the destruction of sacred sites and customary forests directly contributes to environmental degradation in the region. West Kutai Environmental Agency (DLH) stated that the AMDAL document already includes assessments of greenhouse gas emissions, carbon sequestration and a reclamation plan. However, inclusion in this technical study does not address the broader issue of indigenous peoples' exclusion from decisions that affect their territories and livelihoods.

“Formally, evidence concerning free, prior and informed consent (FPIC) alongside the Muara Tae indigenous community constitutes not yet a mandatory requirement in AMDAL or UKL-UPL form, but it can constitute a determining factor in environmental feasibility if social conflict or violations concerning customary rights are identified as significant impacts”. (Government)

This case demonstrates how environmental governance in Indonesia often prioritizes compliance over meaningful protection of indigenous rights. Although regulatory requirements may be fulfilled on paper, indigenous communities are not always given adequate opportunities to influence decisions. Trimmel et al. (2024) identify this condition as procedural injustice, which is commonly found in environmental conflicts associated with extractive industries and climate-related inequality.

When the legal and administrative channels failed to provide an outcome the community considered fair, the residents turned to the customary form of resistance. One important example was the Dayak Benuaq Berinuk Customary Oath, held on 10 May 2014. Through this ceremony, community member reaffirmed their territorial claim by invoking ancestral authority. Neither a company representative nor a government official attended the event. Many residents interpreted this absence as an indirect acknowledgment of the legitimacy of their claim (Haryono et al. 2020). Within the Dayak belief system, violating such an oath can entail spiritual consequences, fostering a sense of accountability beyond the framework of state law (Yovanda 2020).

A community member also attempted to resolve the conflict through the Roundtable on Sustainable Palm Oil (RSPO). However, the process attracted considerable criticism. Assessment bodies were appointed without broad agreement from the affected community. The company continued operating while complaints were still under review, and the larger question of territorial sovereignty was narrowed into a technical discussion of administrative boundaries (Afrizal et al. 2023; Yovanda 2020). Reflecting these concerns, Abdon Nababan, former Secretary General of AMAN, encouraged the indigenous community to lodge complaints with the national human rights institution, particularly *Komnas HAM*. He argued that RSPO had not functioned as a genuinely neutral mechanism for resolving disputes involving indigenous people (Haryono et al. 2020).

Experience with Muara Tae illustrates how state authority, corporate interests and weaknesses in the regulatory system can interact to produce structural inequality. These inequalities marginalize the indigenous community, damage the forest ecosystem, and weaken climate justice efforts. As discussed by Bebbington et al. (2018) and Majumdar et al. (2015), the issue extends beyond simple disagreement over land ownership or administrative boundaries. Instead, it reflects a broader institutional system in which legal and governance arrangements often facilitate the erosion of indigenous rights rather than prevent it. Despite these challenges, people in Muara Tae continue to defend their territory not only as ancestral land but also as a shared ecological and cultural space. In doing so, they challenge the development approach that primarily views customary land as a resource for investment and economic growth (Haryono et al. 2020; Rai and Dhakal 2024).

3.3. Critical Reflection: The Risks of Climate Crisis and Local Resistance: A Comparison of Muara Tae and Villages in Jempang Subdistrict from the Perspective of Climate Justice and Political Ecology

The environmental impacts in Muara Tae and other villages in Jempang District cannot be viewed as isolated incidents. Through thematic coding of interview data, field observations and documentary sources, four interconnected themes emerged: environmental degradation and climate vulnerability, exclusion from environmental governance, cultural and knowledge-based dispossession and indigenous resistance. Similar findings emerged across community interviews, government interviews, field observations and official documents, strengthening their credibility through triangulation. From a political ecology perspective, these patterns reveal a continuing power imbalance, an unequal environmental burden and a weakening of indigenous rights despite differences within local settings (Rai and Dhakal 2024). Extractive activity in West Kutai has not only altered the landscape and ecosystem but also affected the indigenous community's social, political and knowledge systems. By combining perspectives from climate justice, environmental governance, ecological distribution conflict (EDC), epistemic injustice and indigeneity studies,

findings suggest that mining activity within indigenous territory forms part of broader ecological and colonial processes affecting the wider Jempang area, including Muara Tae.

One of the most prominent themes identified during the coding process was environmental degradation and growing climate vulnerability. This issue appeared repeatedly in interviews with indigenous residents, field observations and government documents discussing environmental impact. Participants described declining water quality, decreasing fish populations and an increasing number of abandoned mining pits. Field observations confirmed the presence of many mining voids surrounding the customary territory, while an official environmental report documented vegetation loss and reduced carbon storage capacity. As one participant explained:

“A mining company operates inside the upper section of a small river and converts that area into a mining pond. Within Muara Tae alone, there are around 30 abandoned mining pits that have not been properly closed, and their water eventually flows into the Nayan River. Because of this, river water that was once safe to drink can no longer be used for that purpose. Even when water appears clear, bathing with it leaves skin feeling sticky and hair feeling stiff, as though strong hair oil has been applied. Native fish species known locally as ‘white fish’ have also disappeared, leaving mainly giant snakehead fish (*ikan toman*) plus mudskipper (*ikan cicak*)”. (Communities)

These conditions represent more than a simple case concerning pollution. They indicate wider ecological disruption associated with extractive activity. The disappearance of native fish species, declining household water quality and changes in the local water system illustrate how mining-related land conversion can affect environmental processes at multiple levels (Spencer et al. 2023). Similar concerns were raised by West Kutai Environmental Agency (DLH), which linked these impacts to extensive vegetation clearing and major landscape change.

“Land clearing emissions and carbon sequestration loss represent a significant impact in environmental impact assessment (EIA), especially when they constitute a reduction in vegetation cover”. (Government)

Evidence gathered from interviews, field observations, and official environmental documents consistently indicates that ecological degradation in Muara Tae constitutes a measurable socio-ecological reality rather than a subjective perception. From a climate justice perspective, this situation reflects distributive injustice because indigenous communities experience most environmental costs while receiving relatively limited benefits from resource extraction activities. Within the Environmental Governance literature, such outcomes suggest inadequate protection of upstream forest ecosystems, which function as critical ecological buffers. Political ecology further interprets these environmental impacts as outcomes of unequal power structures, in which indigenous populations disproportionately bear the consequences of extractive development that primarily serves state and corporate interests (Zhang 2024).

Another important theme identified during analysis was exclusion from the environmental governance process. Many interview participants reported limited consultation, inadequate participation in the licensing process, and the marginalization of indigenous authority in decision-making. These concerns appeared consistent across both the community and government interviews, providing strong evidence of governance shortfalls. The key issue involved a mining and plantation company entering customary territory without meaningfully implementing the principle of Free, Prior and Informed Consent (FPIC).

“FPIC exists as not yet an explicit requirement, but it does have an impact when social conflict arises as a principal consequence”. (Government)

Without proper FPIC implementation, the company can access indigenous territory without genuine social approval from the affected community. Residents frequently reported that permits were issued without meaningful consultation with the customary leader or the indigenous institution responsible for managing the traditional territory. As a result, important decisions affecting indigenous land often proceeded without adequate community involvement.

“Permit abruptly surfaced without knowledge concerning traditional leaders... our land was incorporated in the company’s right to cultivate (*Hak Guna Usaha/HGU*)”. (Communities)

Consistency between government statements and community testimony suggests that procedural injustice is embedded in the existing governance structure rather than the result of an isolated administrative mistake. Examination of law, regulation and policy documents further indicates that indigenous participation remains conditional and limited rather than formally guaranteed. From the perspective of Environmental Governance, this situation reflects a systemic failure to ensure meaningful public participation. From the perspective of Indigeneity Studies, it represents a process that reduces political influence over indigenous people. These conditions are inconsistent with Constitutional Court Decision MK35/2012, the Village Law of 2014, and Article 32 concerning the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), all of which recognize indigenous territorial rights.

The third category identified through thematic analysis was cultural and epistemic dispossession. Across multiple interviews, participants repeatedly linked environmental degradation to the destruction of sacred places, ancestral heritage, and customary practices. Field observations and documentary evidence regarding customary territorial claims and cultural sites supported these accounts. One participant stated:

“The ancestral graves were demolished, bones scattered everywhere. In fact, moving bones requires a *Kuangkai* ceremony”. (Communities)

The destruction of sacred places such as the *Banggeris* tree, *Bumut Kelumpak* and other ancestral sites can be understood as a form of epistemic injustice, where indigenous knowledge systems are given lower priority in technocratic development. Similar accounts were repeatedly reported by different informants, indicating that cultural loss is not merely a secondary consequence of extractive activity but a central aspect of the conflict itself. Political ecology interprets these actions as a form of epistemic colonialism that undermines legitimacy concerning indigenous knowledge. Meanwhile, indigeneity studies view sacred places as important sources of identity, collective memory and cultural continuity. Their destruction therefore represents more than physical damage; it also weakens the historical, spiritual and territorial connection that links the indigenous community to their ancestral land.

Ecological degradation also directly affects indigenous food sovereignty. Loss of customary forests reduces access to agricultural land, medicinal plants, and hunting grounds. Residents explain:

“The farmland has become mining ponds, and fruit now rots quickly”. (Communities)

The DLH similarly emphasized the limitations of current reclamation practices:

“Reclamation should not be limited to planting trees, but many have yet to restore ecological functions”. (Government)

Comparisons between community experiences and government assessments further indicate that post-mining reclamation frequently fails to restore the ecological functions necessary for sustaining indigenous livelihoods. Reduced access to clean water sources and traditional food resources demonstrates that environmental recovery remains incomplete. Within the ecological

distribution conflicts (EDC) framework, this condition can be understood as a form of ecological dispossession that contributes to structural poverty plus long-term vulnerability among affected populations (Naika et al. 2024).

A further category emerging from the analysis was indigenous resistance and counter-governance. Interviews revealed a range of collective efforts aimed at protecting customary territories, including rejection of compensation offers, participatory mapping initiatives, and collaboration with advocacy networks. Documentary records concerning indigenous mobilization and customary forest recognition reinforced these observations. Despite sustained external pressure, indigenous communities have continued to develop organized forms of resistance.

“We cleared large areas of land at the border so that the company could not enter”.
(Communities)

Residents explained that the Muara Tae community has spent more than a decade mapping customary territory, refusing compensation schemes and building alliances alongside civil society organizations. Long-term consistency in these efforts, together with confirmation from multiple sources, indicates that resistance constitutes not a spontaneous reaction but a deliberate strategy for maintaining territorial control and political autonomy. Political Ecology characterizes such actions as forms of environmentalism among marginalized communities. At the same time, Indigeneity Studies interprets them as expressions of self-determination and counter-governance that challenge state-centered approaches to natural resource management (Rai and Dhakal 2024).

Collectively, four themes identified through thematic analysis, namely ecological degradation, procedural exclusion, cultural dispossession, and indigenous resistance, demonstrate that climate injustice in Muara Tae constitutes a multidimensional and structurally produced phenomenon. Convergence across interview data, field observations, and documentary evidence strengthens the credibility of these findings and confirms that conflict extends beyond environmental damage alone. Ecological decline, legal marginalization, cultural disruption, and collective resistance operate as interconnected dimensions concerning broader socio-ecological transformation. Consequently, conflict in Jempang should be understood not only as an environmental dispute but also as a climate justice issue, a governance challenge, and a struggle over indigenous rights and territorial sovereignty. In this context, the coal industry does more than alter physical landscapes; it redistributes environmental burdens, reshapes authority structures, and transforms human-environment relationships within Dayak Benuaq customary territory.

4. Conclusions

This study demonstrates that coal mining in Muara Tae, West Kutai, produces climate justice erosion through two structurally intertwined mechanisms: distributive and procedural injustice. Distributive injustice manifested through the disproportionate ecological burden imposed on the Dayak Benuaq land community, including 4,608 IUP features across West Kutai's 20,381.59 km², a 20,275 ha PKP2B concession directly overlapping customary territory, severe Nayan River hydrological degradation, and destruction of sacred sites including *Banggeris* trees (*Koompassia excelsa*). Procedural injustice was carried out through the continued absence of formal *hutan adat* recognition for Muara Tae, the non-institutionalization of free, prior and informed consent (FPIC) in environmental impact assessment (AMDAL) processes and administrative boundary manipulation that legally displaced 638 ha of customary territory. Using thematic analysis across four interconnected patterns ecological degradation and climate vulnerability, procedural

exclusion in environmental governance, cultural and epistemic dispossession, and indigenous resistance confirms that the extractive industry in West Kutai constitutes a structural architecture of legally sanctioned dispossession that restructures not only landscapes but also the social, political, and epistemic foundations of indigenous communities. This study is limited to a qualitative case study and does not provide quantitative carbon emission assessments or financial audits of corporate revenue flows; therefore, future research is suggested to examine similar patterns of customary forest governance failure across other regencies in East Kalimantan and assess the long-term effectiveness of post-mining reclamation in restoring traditional ecological knowledge (TEK) systems and the spiritual functions of customary landscapes. Findings carry direct policy implications: institutionalizing FPIC as a mandatory requirement in mining licensing, a moratorium on new concessions overlapping unresolved customary forest claims, and accelerating formal *hutan adat* recognition as enforceable spatial protection for indigenous territories in West Kutai.

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Author Contributions

D.R.: Conceptualization, Methodology, Software, Validation, Investigation, Writing – Original Draft Preparation; A.P.R.D.A.A.: Formal Analysis, Resources, Data Curation, Writing – Review and Editing, Visualization; G.N.R.P.: Supervision, Project Administration, Funding Acquisition, Writing – Review and Editing.

Conflict of Interest

The authors declare no conflict of interest.

Declaration of Generative AI And AI-Assisted Technologies in the Manuscript Preparation

The authors used Turnitin and Scispace to facilitate a more thorough and structured discourse throughout the development of this work. After using these tools/services, the authors reviewed and revised the text as required. The authors are fully responsible for the content of the publication.

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