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Ecological Justice or Environmental Exclusion? The Impact of Renewable Energy Development on Indigenous Rights in Sulawesi

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Abstract

This research critically examines the tension between ecological justice and environmental exclusion in the context of renewable energy development in Sulawesi, Indonesia. As the global push for clean energy intensifies, indigenous communities in Sulawesi have increasingly found their ancestral lands repurposed for renewable energy projects, such as hydroelectric dams, wind farms, and geothermal plants. This study explores the implications of these developments on indigenous land rights, environmental justice, and socio-economic equity. Using a mixed-methods approach, the research combines legal analysis, interviews with indigenous leaders, and field observations to assess the broader impacts of renewable energy policies on local communities. The findings reveal a significant gap between the state's green energy agenda and the protection of indigenous rights, with many projects advancing without meaningful consultation or compensation. While renewable energy offers ecological benefits, its development has led to the displacement of indigenous peoples, loss of traditional livelihoods, and the erosion of cultural heritage. The study argues that without integrating indigenous rights into the renewable energy framework, these projects risk perpetuating environmental exclusion rather than promoting ecological justice. This research contributes to the growing discourse on the intersections of energy policy, indigenous rights, and environmental justice, offering policy recommendations for more inclusive and just approaches to renewable energy development.

[*Penelitian ini secara kritis mengkaji ketegangan antara keadilan ekologis dan pengucilan lingkungan dalam konteks pengembangan energi terbarukan di Sulawesi, Indonesia. Seiring dengan meningkatnya dorongan global untuk energi bersih, masyarakat adat di Sulawesi semakin sering mendapati tanah leluhur mereka dialihkan untuk proyek-proyek energi terbarukan, seperti bendungan PLTA, ladang angin, dan pembangkit listrik panas bumi. Studi ini mengeksplorasi implikasi perkembangan ini terhadap hak atas tanah masyarakat adat, keadilan lingkungan, dan kesetaraan sosial-ekonomi. Dengan menggunakan pendekatan metode campuran, penelitian ini menggabungkan analisis hukum, wawancara dengan para pemimpin adat, dan observasi lapangan untuk menilai dampak yang lebih luas dari kebijakan energi terbarukan terhadap masyarakat lokal. Temuan menunjukkan adanya kesenjangan yang signifikan antara agenda energi hijau negara dan perlindungan hak-hak masyarakat adat, dengan banyak proyek yang berjalan tanpa konsultasi atau kompensasi yang berarti. Meskipun energi terbarukan menawarkan manfaat ekologis, pengembangannya telah menyebabkan penggusuran masyarakat adat, hilangnya mata pencaharian tradisional, dan erosi warisan budaya. Studi ini berpendapat bahwa tanpa mengintegrasikan hak-hak masyarakat adat ke dalam kerangka energi terbarukan, proyek-proyek ini berisiko melanggengkan pengucilan lingkungan daripada mempromosikan keadilan ekologis. Penelitian ini berkontribusi pada wacana yang berkembang mengenai keterkaitan antara kebijakan energi, hak-hak masyarakat adat, dan keadilan lingkungan, serta menawarkan rekomendasi kebijakan untuk pendekatan yang lebih inklusif dan adil terhadap pengembangan energi terbarukan.*]

Keywords: Ecological Justice, Indigenous Rights, Renewable Energy, Environmental Exclusion, Sulawesi

Introduction

A. Renewable Energy Transition and Emerging Justice Challenges

The global transition toward renewable energy has become one of the principal strategies for addressing climate change and achieving long-term sustainable development. International commitments under the Paris Agreement and the Sustainable Development Goals (SDGs) have encouraged governments to accelerate investments in renewable energy technologies, including hydropower, geothermal energy, wind farms, and solar power, as alternatives to fossil fuel-based energy systems. Renewable energy is widely promoted as an environmentally sustainable pathway capable of reducing greenhouse gas emissions while supporting economic development and energy security. However, an expanding body of scholarship argues that the sustainability of renewable energy should not be evaluated solely by its contribution to carbon reduction. Instead, increasing attention has been directed toward the social and political consequences of renewable energy expansion, particularly regarding the

distribution of environmental benefits and burdens among different social groups. Recent studies demonstrate that renewable energy projects frequently generate conflicts over land acquisition, environmental governance, and community participation, especially where large-scale infrastructure intersects with Indigenous territories and ecologically sensitive landscapes (Jenkins et al., 2016; Sovacool & Dworkin, 2015; Temper et al., 2020). Consequently, the transition to low-carbon energy has shifted scholarly debates from questions of technological feasibility toward broader concerns regarding justice, equity, and democratic governance within sustainability transitions.

Although renewable energy is generally associated with environmental sustainability, growing evidence suggests that its implementation may unintentionally reproduce new forms of environmental inequality. Large-scale renewable energy infrastructure—including hydropower dams, geothermal facilities, and utility-scale wind projects—often requires extensive land conversion, infrastructure development, and long-term control over natural resources. These processes may disproportionately affect Indigenous peoples and rural communities whose livelihoods, cultural identities, and customary governance systems are closely connected to their ancestral territories. Rather than functioning exclusively as instruments of climate mitigation, renewable energy projects may create new forms of dispossession through unequal access to decision-making, inadequate compensation, and limited recognition of customary land rights (Sankaran & McIntyre-Mills, 2022). A recent systematic review of renewable energy and Indigenous peoples further demonstrates that renewable energy transitions frequently impose disproportionate social and ecological costs on Indigenous communities while simultaneously creating opportunities for more equitable governance only where Indigenous participation, self-determination, and rights recognition are meaningfully institutionalized (Long et al., 2026). These findings indicate that renewable energy transitions should be understood not only as environmental interventions but also as governance processes that redistribute power, resources, and environmental risks across society.

Indonesia represents a particularly important context for examining these governance challenges because it simultaneously pursues ambitious renewable energy targets and possesses one of the world's largest areas of customary lands inhabited by diverse Indigenous communities. Within this broader context, Sulawesi has emerged as a strategic region for renewable energy expansion due to its substantial hydropower, geothermal, and wind energy potential, which is increasingly incorporated into national energy planning (Sarjiya et al., 2023). At the same time, many proposed and existing renewable energy projects overlap with customary territories where local communities maintain long-standing social, cultural, and economic relationships with land and natural resources. This intersection between energy transition and Indigenous land governance creates

a critical policy challenge: achieving decarbonization objectives while ensuring that renewable energy development does not reproduce patterns of environmental exclusion historically associated with extractive industries. As international scholarship increasingly argues, the legitimacy of renewable energy transitions depends not only on environmental effectiveness but also on their ability to uphold justice, participation, and Indigenous rights throughout project planning and implementation (Sovacool et al., 2021; Acosta-Rodríguez et al., 2024).

B. Indigenous Peoples and Renewable Energy Development in Indonesia

Indonesia possesses one of the world's richest socio-cultural and ecological landscapes, with hundreds of Indigenous communities (masyarakat hukum adat) whose identities, governance systems, and livelihoods remain closely connected to customary territories. These communities have historically exercised customary authority over forests, rivers, mountains, and coastal ecosystems through locally embedded institutions that regulate land use, resource management, and environmental stewardship. A growing body of scholarship demonstrates that Indigenous territories frequently coincide with areas of high ecological value, making Indigenous peoples important actors in biodiversity conservation and climate resilience (Garnett et al., 2018; Fa et al., 2020). Nevertheless, despite increasing international recognition of Indigenous rights through instruments such as the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), the legal protection of customary land tenure in Indonesia remains fragmented and often contingent upon administrative recognition by the state. This situation has generated persistent tensions between statutory land administration and customary governance, particularly where development projects are prioritized under national economic and infrastructure policies (Bedner & Arizona, 2019; Butt, 2014). Consequently, Indigenous communities frequently encounter legal uncertainty regarding land tenure, creating conditions in which large-scale development initiatives—including renewable energy projects—may proceed without fully recognizing customary ownership or collective decision-making institutions.

The rapid expansion of renewable energy infrastructure has introduced new dimensions to these long-standing governance challenges. Indonesia's commitment to increasing the proportion of renewable energy within its national energy mix has encouraged substantial investment in hydropower, geothermal energy, wind farms, and other low-carbon technologies, many of which are located in resource-rich regions where Indigenous communities have historically occupied and managed land. Although renewable energy projects are promoted as environmentally sustainable alternatives to fossil fuel development, their implementation frequently requires extensive land acquisition, changes in land

use, and long-term control over strategic natural resources. International research increasingly demonstrates that renewable energy transitions can reproduce governance patterns historically associated with mining, forestry, and large-scale infrastructure development when social safeguards are weak or participation mechanisms remain ineffective (Jenkins et al., 2016; Sovacool et al., 2021). Rather than eliminating environmental conflicts, renewable energy projects may shift the sources of conflict from carbon-intensive industries to disputes concerning land rights, access to natural resources, and community participation. These findings challenge the assumption that renewable energy development is inherently socially sustainable and instead emphasize that the justice dimensions of the energy transition require careful examination alongside environmental objectives.

Sulawesi represents an especially significant case within this broader debate because the island has become one of Indonesia's emerging renewable energy frontiers while simultaneously containing extensive customary territories and ecologically important landscapes. National energy planning identifies Sulawesi as a strategic region for expanding hydropower, geothermal energy, and wind power to support economic growth and regional electrification (Sarjiya et al., 2023). However, many renewable energy projects are proposed or developed in areas where Indigenous communities maintain long-standing relationships with forests, rivers, watersheds, and agricultural landscapes that are central to their cultural identity and local economies. The conversion of these landscapes for renewable energy infrastructure may alter patterns of land access, restrict customary resource use, and transform ecological systems upon which local livelihoods depend. International scholarship has increasingly recognized that such conflicts are not merely disputes over land ownership but reflect competing understandings of development, sustainability, and environmental governance (Temper et al., 2020; Avila, 2018). While governments often frame renewable energy expansion as a national climate priority, affected communities may perceive these projects as threatening cultural continuity, environmental integrity, and collective self-determination. This divergence illustrates that the transition to renewable energy is simultaneously an ecological, legal, and political process that reshapes relationships between the state, markets, and Indigenous peoples.

These developments underscore the need to examine renewable energy governance through a framework that extends beyond environmental performance or energy efficiency. Existing policy discussions in Indonesia continue to focus primarily on investment incentives, energy security, and emission reduction targets, while comparatively less attention has been devoted to evaluating whether renewable energy governance adequately protects Indigenous rights and ensures equitable participation in decision-making. From the perspective of ecological justice, renewable energy should not be assessed

solely according to its capacity to reduce greenhouse gas emissions but also according to whether its benefits and burdens are distributed fairly, whether affected communities are meaningfully involved in governance processes, and whether customary relationships with land receive adequate legal recognition (Schlosberg, 2007; Walker, 2012). This perspective is particularly relevant in Sulawesi because the expansion of renewable energy occurs within socially and ecologically complex landscapes where questions of environmental sustainability cannot be separated from issues of land tenure, cultural rights, and institutional justice. Accordingly, understanding the relationship between renewable energy development and Indigenous rights requires moving beyond conventional energy policy analysis toward a more integrated examination of ecological justice and environmental governance.

C. Ecological Justice versus Environmental Exclusion

The concept of ecological justice has emerged as an important theoretical development within environmental governance scholarship, extending beyond the conventional framework of environmental justice by recognizing that justice encompasses not only relationships among human beings but also the integrity of ecological systems upon which human and non-human life depends. Early environmental justice literature primarily focused on the unequal distribution of environmental harms and benefits among different social groups, emphasizing issues such as pollution, environmental racism, and unequal exposure to environmental risks (Schlosberg, 2007; Walker, 2012). While this distributive perspective remains fundamental, subsequent scholarship argues that environmental governance must also address procedural justice, recognitional justice, and the protection of ecological relationships that sustain communities and biodiversity (Schlosberg & Collins, 2014). Ecological justice therefore broadens the analytical framework by acknowledging that environmental sustainability cannot be achieved solely through reducing environmental degradation or greenhouse gas emissions; it also requires governance systems that respect cultural diversity, protect ecological integrity, and ensure that development processes do not marginalize communities whose livelihoods depend directly on natural ecosystems (Baxter, 2005; Washington et al., 2018). Consequently, ecological justice provides a multidimensional perspective for evaluating whether renewable energy transitions genuinely contribute to sustainable development rather than merely replacing one form of resource exploitation with another.

Within this broader theoretical framework, increasing scholarly attention has been directed toward the phenomenon of environmental exclusion, whereby environmental protection or sustainability initiatives unintentionally reproduce social inequalities through unequal access to land, natural resources, and decision-making processes. Environmental exclusion differs from traditional

environmental degradation because it frequently occurs under the discourse of conservation, climate mitigation, or green development. In such circumstances, projects promoted as environmentally beneficial may nevertheless restrict customary resource access, displace local populations, or transfer environmental governance authority away from Indigenous communities toward state institutions or private investors (Hall, Hirsch, & Li, 2011; Fairhead, Leach, & Scoones, 2012). Similar dynamics have been described through related concepts such as green grabbing, green colonialism, and accumulation by conservation, all of which highlight how environmental objectives may become intertwined with broader political and economic processes of territorial control (Borras & Franco, 2018; Dunlap & Fairhead, 2014).

These debates suggest that the environmental legitimacy of renewable energy projects cannot be evaluated solely by their contribution to decarbonization. Rather, the governance processes through which renewable energy is implemented—including land acquisition, public participation, legal recognition of customary rights, and benefit-sharing mechanisms—must also be examined to determine whether sustainability policies reinforce or reduce existing inequalities increasingly intersects with legally pluralistic systems of land governance and diverse Indigenous customary institutions. In regions such as Sulawesi, renewable energy development occurs within landscapes that are simultaneously ecological assets, customary territories, and strategic investment zones. These overlapping claims create governance challenges that cannot be adequately explained through conventional environmental policy frameworks focused exclusively on energy production or emissions reduction. Instead, they require an analytical approach capable of assessing whether renewable energy governance recognizes Indigenous rights, protects ecological relationships, and distributes environmental benefits and burdens fairly. By adopting ecological justice as its principal analytical framework, this study argues that evaluating renewable energy development should extend beyond measuring environmental performance to include broader questions of legal recognition, procedural fairness, and socio-ecological equity. Such an approach contributes to the growing international literature advocating for rights-based energy governance, particularly in developing countries where climate mitigation objectives increasingly intersect with longstanding issuesisi kekosongan tersebut. Setelah itu, pendahuluan akan ditutup dengan kontribusi teoretis dan praktis penelitian sebelum masuk ke.

The intersection between ecological justice and environmental exclusion has become particularly significant in contemporary debates on renewable energy governance. Although renewable energy is widely regarded as a cornerstone of global climate mitigation strategies, an expanding body of literature demonstrates that energy transitions are inherently political processes that redistribute resources, institutional authority, and environmental risks across

different actors (Jenkins et al., 2016; Sovacool & Dworkin, 2015). Large-scale renewable energy projects frequently require substantial land conversion and infrastructure development, creating new forms of competition over land use, particularly in regions inhabited by Indigenous peoples. As a result, renewable energy transitions may generate distributive inequalities through unequal allocation of economic benefits, procedural injustices through inadequate consultation and participation, and recognitional injustices through the marginalization of Indigenous knowledge systems and customary governance institutions (Heffron & McCauley, 2018; Sovacool et al., 2021). These concerns have encouraged scholars to move beyond technological assessments of renewable energy and instead evaluate whether energy transitions are socially inclusive, culturally appropriate, and institutionally accountable. Accordingly, ecological justice provides a comprehensive analytical framework for examining renewable energy governance because it integrates environmental sustainability with questions of rights, participation, institutional legitimacy, and long-term socio-ecological resilience.

This theoretical perspective is particularly relevant to the Indonesian context, where renewable energy expansion increasingly intersects with legally pluralistic systems of land governance and diverse Indigenous customary institutions. In regions such as Sulawesi, renewable energy development occurs within landscapes that are simultaneously ecological assets, customary territories, and strategic investment zones. These overlapping claims create governance challenges that cannot be adequately explained through conventional environmental policy frameworks focused exclusively on energy production or emissions reduction. Instead, they require an analytical approach capable of assessing whether renewable energy governance recognizes Indigenous rights, protects ecological relationships, and distributes environmental benefits and burdens fairly. By adopting ecological justice as its principal analytical framework, this study argues that evaluating renewable energy development should extend beyond measuring environmental performance to include broader questions of legal recognition, procedural fairness, and socio-ecological equity. Such an approach contributes to the growing international literature advocating for rights-based energy governance, particularly in developing countries where climate mitigation objectives increasingly intersect with longstanding issues of land rights, environmental governance, and Indigenous self-determination (Whyte, 2017; Temper et al., 2020).

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Literature Review

A. Ecological Justice: Expanding Environmental Justice Beyond Human-Centred Governance

Ecological justice has emerged as a significant theoretical development within environmental governance scholarship, extending earlier debates on environmental justice by questioning the anthropocentric assumptions that have traditionally shaped environmental law and public policy. Early environmental justice scholarship was primarily concerned with the unequal distribution of environmental harms among human populations, particularly marginalized racial, ethnic, and socio-economic groups. These studies demonstrated that environmental risks—including pollution, hazardous waste, and ecosystem degradation—were disproportionately borne by disadvantaged communities, while the benefits of industrial development were often enjoyed elsewhere (Bullard, 1990; Schlosberg, 2007). Subsequent scholarship broadened this distributive perspective by emphasizing that justice also requires equitable participation in environmental decision-making and institutional recognition of historically marginalized communities (Fraser, 2008; Walker, 2012). This evolution transformed environmental justice from a framework focused largely on pollution control into a multidimensional theory encompassing distributive, procedural, and recognitional justice. Nevertheless, scholars have argued that even these expanded formulations remain predominantly human-centred because they continue to conceptualize justice primarily in terms of relationships among people rather than considering the intrinsic value of ecosystems and non-human nature (Baxter, 2005; Washington et al., 2018). Ecological justice

responds to this limitation by proposing that sustainable governance must simultaneously protect ecological integrity and ensure fairness in human–environment relationships.

Unlike conventional environmental justice, ecological justice emphasizes that ecological systems are not merely resources supporting human welfare but constitute interconnected communities whose integrity is essential for both environmental sustainability and social well-being. This perspective draws upon developments in ecological ethics, political ecology, and sustainability science, arguing that environmental governance should recognize the reciprocal relationships between human societies and natural systems rather than treating ecosystems solely as objects of economic management (Baxter, 2005; Washington et al., 2018). From this perspective, justice requires more than equitable distribution of environmental goods and burdens; it also requires maintaining ecological resilience, protecting biodiversity, and respecting the long-term capacity of ecosystems to sustain both present and future generations. Such an approach is increasingly relevant in the context of climate change, where environmental degradation simultaneously threatens ecological processes, human livelihoods, and cultural identities. Consequently, ecological justice integrates distributive, procedural, recognitional, and intergenerational dimensions of justice into a broader framework capable of evaluating whether environmental policies contribute to socially equitable and ecologically sustainable outcomes (Schlosberg & Collins, 2014; Martin et al., 2016). This multidimensional perspective has become particularly influential in debates concerning climate governance, biodiversity conservation, and sustainable development because it acknowledges that environmental sustainability cannot be separated from broader questions of social justice and institutional legitimacy.

Recent scholarship has further demonstrated that ecological justice provides an important analytical lens for evaluating renewable energy transitions, which increasingly reshape relationships among states, markets, local communities, and ecological systems. Although renewable energy is widely promoted as a cornerstone of global decarbonization strategies, its development frequently requires extensive land conversion, infrastructure expansion, and long-term environmental transformation. These processes may generate new forms of environmental inequality when the ecological benefits of renewable energy are achieved at the expense of communities whose customary territories become sites of energy production (Jenkins et al., 2016; Sovacool et al., 2021). Ecological justice therefore challenges the assumption that renewable energy projects are inherently sustainable by arguing that environmental sustainability should be assessed through both ecological outcomes and governance processes. Policies that successfully reduce greenhouse gas emissions but simultaneously undermine Indigenous land rights, weaken local participation, or erode ecological relationships cannot be regarded as fully just or sustainable. This

perspective is particularly relevant in developing countries where renewable energy expansion often intersects with legally pluralistic land governance systems and competing claims over natural resources (Temper et al., 2020; Dunlap, 2018). Accordingly, ecological justice offers a more comprehensive framework for assessing renewable energy governance because it links environmental protection with questions of legal recognition, democratic participation, and socio-ecological resilience.

From the perspective of this study, ecological justice serves not merely as a normative principle but as the primary analytical framework for examining the relationship between renewable energy development and Indigenous rights in Sulawesi. The concept enables a systematic evaluation of whether renewable energy governance distributes environmental benefits and burdens fairly (distributive justice), provides meaningful opportunities for Indigenous participation in decision-making (procedural justice), recognizes customary land rights and Indigenous knowledge systems (recognitional justice), and maintains the ecological conditions necessary for sustaining Indigenous livelihoods and biodiversity (ecological integrity) (Schlosberg, 2007; Walker, 2012; Whyte, 2017). Integrating these dimensions moves the analysis beyond narrow assessments of renewable energy efficiency or carbon reduction and instead situates energy transitions within broader debates concerning environmental governance, legal pluralism, and social equity. Consequently, ecological justice provides a coherent theoretical foundation for investigating whether renewable energy development in Sulawesi represents a genuinely just transition or instead reproduces new forms of environmental exclusion under the broader discourse of sustainable development.

B. Indigenous Rights in Environmental Governance

The recognition of Indigenous peoples' rights has become an increasingly important component of contemporary environmental governance, reflecting a broader shift from state-centred resource management toward more inclusive and rights-based approaches to sustainable development. International legal instruments have progressively acknowledged that Indigenous communities possess distinct cultural identities, governance institutions, and relationships with land that require legal protection beyond conventional property rights. The adoption of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) in 2007 marked a significant milestone by affirming Indigenous peoples' collective rights to self-determination, traditional territories, natural resources, and participation in decisions affecting their communities (Gilbert, 2016). These developments have influenced international environmental governance by recognizing that biodiversity conservation, climate action, and sustainable resource management are more likely to succeed when Indigenous peoples are treated as rights holders rather than merely as stakeholders or project

beneficiaries (Doyle, 2015; Garnett et al., 2018). Consequently, contemporary governance frameworks increasingly regard Indigenous rights as integral to environmental sustainability rather than external constraints on development.

A central principle within rights-based environmental governance is Free, Prior and Informed Consent (FPIC), which establishes that Indigenous peoples should have the opportunity to participate meaningfully in decisions concerning projects that may affect their customary lands, resources, or cultural heritage. FPIC extends beyond procedural consultation by requiring that participation occur before project approval, be based on adequate and accessible information, and remain free from coercion or undue influence (Barelli, 2012). International scholarship consistently identifies FPIC as a mechanism for reducing socio-environmental conflict, strengthening institutional legitimacy, and improving the long-term sustainability of development projects (Ward, 2011; Hanna & Vanclay, 2013). However, the effectiveness of FPIC depends largely on domestic legal implementation. In many jurisdictions, including Indonesia, consultation processes often remain procedural rather than substantive, with Indigenous communities participating only after strategic decisions have already been made. As a result, participation may satisfy formal administrative requirements without enabling Indigenous peoples to influence project design, negotiate equitable benefit-sharing arrangements, or protect customary land rights.

Indonesia illustrates the complexities the purposes of this study, Indigenous rights constitute a normative benchmark for evaluating renewable energy governance rather than a separate object of legal analysis. Renewable energy projects increasingly occupy landscapes where customary tenure systems shape access to land, natural resources, and cultural practices. Consequently, assessing the justice of renewable energy development requires examining whether governance arrangements adequately recognize Indigenous rights to participation, land tenure, and self-determination. This perspective complements the ecological justice framework developed in the previous section by providing concrete legal and governance criteria through which distributive, procedural, and recognitional justice can be assessed. Although the Constitution recognizes the existence of *masyarakat hukum adat*, the practical recognition of customary territories remains dependent on sectoral legislation and administrative procedures that vary across regions and government institutions. The landmark decision of the Constitutional Court No. 35/PUU-X/2012, which affirmed that customary forests are not part of state forests, represented an important legal development by strengthening constitutional recognition of Indigenous land rights. Nevertheless, scholars argue that implementation remains uneven due to fragmented institutional authority, overlapping land administration systems, and inconsistent procedures for recognizing customary communities and territories (Bedner & Arizona, 2019; Butt, 2014). These governance challenges become particularly significant in the context of renewable energy development, where

national investment priorities may intersect with customary land claims and environmental protection objectives. Accordingly, the effectiveness of rights-based governance depends not only on constitutional recognition but also on institutional capacity to translate legal principles into consistent administrative practice.

For the purposes of this study, Indigenous rights constitute a normative benchmark for evaluating renewable energy governance rather than a separate object of legal analysis. Renewable energy projects increasingly occupy landscapes where customary tenure systems shape access to land, natural resources, and cultural practices. Consequently, assessing the justice of renewable energy development requires examining whether governance arrangements adequately recognize Indigenous rights to participation, land tenure, and self-determination. This perspective complements the ecological justice framework developed in the previous section by providing concrete legal and governance criteria through which distributive, procedural, and recognitional justice can be assessed. Rather than treating Indigenous rights as competing with environmental objectives, this study adopts the growing scholarly consensus that secure Indigenous tenure and meaningful participation are fundamental conditions for achieving environmentally sustainable and socially legitimate energy transitions (Fa et al., 2020; Dawson et al., 2021). Integrating these principles into renewable energy governance therefore represents not only a legal obligation but also a practical strategy for reducing conflict and strengthening the long-term legitimacy of the energy transition.

C. Renewable Energy Governance and the Just Energy Transition

Renewable energy governance has evolved from a predominantly technical and economic concern into a broader field that incorporates questions of institutional design, social legitimacy, and environmental justice. Early renewable energy policies primarily focused on increasing energy security, reducing greenhouse gas emissions, and accelerating the deployment of low-carbon technologies through market incentives and infrastructure investment. While these objectives remain central to global climate policy, recent scholarship argues that the success of energy transitions should not be measured exclusively by installed renewable capacity or emission reductions. Instead, increasing attention has been directed toward the governance processes through which renewable energy projects are planned, implemented, and regulated, particularly regarding transparency, accountability, participation, and the equitable distribution of benefits and burdens (Bridge et al., 2013; Sovacool & Dworkin, 2015). This governance perspective recognizes that energy transitions are inherently political processes involving multiple actors whose interests frequently compete over land, natural resources, and development priorities. Consequently, renewable energy governance has become an important analytical

framework for examining whether decarbonization strategies simultaneously advance environmental sustainability and social justice.

The emergence of the just energy transition concept further expands this governance perspective by emphasizing that climate mitigation policies must also address issues of equity, inclusion, and social protection. Originally developed within debates on labour transitions in carbon-intensive industries, the concept has evolved into a broader framework that examines how the costs and benefits of energy transitions are distributed across society (Heffron & McCauley, 2018; Newell & Mulvaney, 2013). Contemporary scholarship identifies three interrelated dimensions of a just energy transition. First, transitions should distribute economic opportunities, environmental benefits, and social costs fairly among affected populations. Second, decision-making processes should ensure meaningful participation and transparency throughout project planning and implementation. Third, governance institutions should recognize the rights, identities, and knowledge systems of communities directly affected by renewable energy development (Jenkins et al., 2016; Sovacool et al., 2021). These principles extend beyond questions of energy efficiency by evaluating whether renewable energy policies contribute to broader objectives of democratic governance and sustainable development. Accordingly, a just energy transition requires integrating environmental effectiveness with legal recognition, institutional accountability, and social inclusion.

These governance challenges are particularly significant in developing countries where renewable energy expansion frequently intersects with complex systems of land tenure, legal pluralism, and resource-dependent livelihoods. In many cases, renewable energy infrastructure—including hydropower reservoirs, geothermal facilities, transmission networks, and wind farms—is developed in rural or forested landscapes that are simultaneously inhabited, managed, or claimed by Indigenous and local communities. Although such projects contribute to national climate commitments, they may also generate disputes over land acquisition, restrictions on customary resource use, and unequal access to the economic benefits associated with renewable energy investments (Avila, 2018; Temper et al., 2020). Recent studies therefore argue that governance failures rather than renewable energy technologies themselves constitute the principal source of socio-environmental conflict. Weak institutional coordination, inadequate public participation, limited recognition of customary tenure, and insufficient accountability mechanisms may undermine the legitimacy of renewable energy projects even when their environmental objectives are widely supported (Dunlap, 2018; Sovacool et al., 2021). This perspective shifts scholarly attention from technological innovation toward the institutional conditions necessary for achieving socially equitable energy transitions.

Within the Indonesian context, renewable energy governance continues to be shaped primarily by national priorities related to energy security, economic

development, and investment promotion. Although these objectives are essential for supporting decarbonization and meeting international climate commitments, they do not automatically ensure that renewable energy development is socially inclusive or environmentally just. Existing regulatory frameworks place considerable emphasis on accelerating renewable energy investment, while comparatively less attention is devoted to integrating Indigenous land rights, customary governance institutions, and participatory decision-making into project development. This imbalance becomes particularly visible in regions such as Sulawesi, where renewable energy expansion increasingly overlaps with customary territories characterized by legal pluralism and ecological significance. Consequently, evaluating renewable energy governance requires moving beyond assessments of regulatory efficiency or investment performance toward examining whether institutional arrangements effectively reconcile climate objectives with Indigenous rights and ecological integrity. This study adopts the just energy transition perspective as an institutional complement to ecological justice, enabling a comprehensive analysis of how renewable energy governance can either facilitate socially inclusive sustainability transitions or contribute to new forms of environmental exclusion.

D. Research Gap and Conceptual Framework

The foregoing discussion demonstrates that the contemporary literature has made substantial progress in explaining ecological justice, Indigenous rights, and renewable energy governance as individual fields of inquiry. Ecological justice scholarship has expanded conventional understandings of environmental governance by emphasizing distributive, procedural, recognitional, and ecological dimensions of justice (Schlosberg, 2007; Schlosberg & Collins, 2014). Parallel developments within international human rights law have strengthened recognition of Indigenous peoples as collective rights holders whose participation and land tenure security constitute essential components of sustainable environmental governance (Gilbert, 2016; Doyle, 2015). Likewise, studies on renewable energy governance and the just energy transition have demonstrated that successful decarbonization depends not only on technological innovation but also on transparent institutions, meaningful public participation, and equitable governance arrangements (Jenkins et al., 2016; Heffron & McCauley, 2018). Although these bodies of scholarship provide valuable theoretical foundations, they have largely evolved as separate research traditions with limited conceptual integration.

A significant limitation of the existing literature is the tendency to examine renewable energy development either as a technical climate mitigation strategy or as a question of environmental governance without sufficiently incorporating Indigenous land rights into the analytical framework. Studies on energy transitions frequently evaluate renewable energy projects in terms of policy

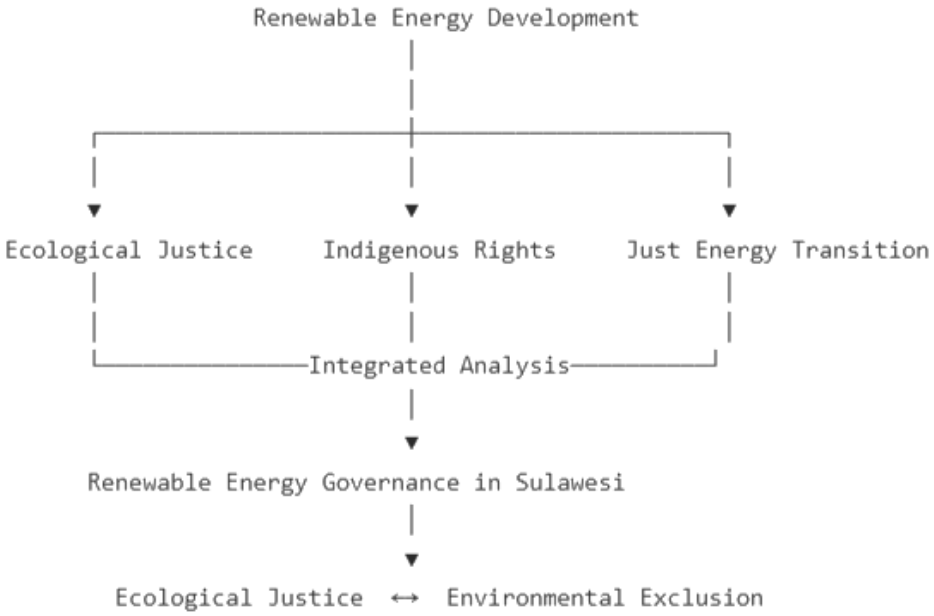
effectiveness, investment performance, or carbon reduction, while legal scholarship on Indigenous rights often concentrates on constitutional recognition, customary land tenure, or human rights protection independently of climate and energy policies (Bedner & Arizona, 2019; Sovacool et al., 2021). As a consequence, relatively little attention has been devoted to understanding how renewable energy projects may simultaneously contribute to environmental sustainability and generate new forms of exclusion through land acquisition, limited participation, or inadequate recognition of customary governance systems. This conceptual separation is particularly evident in the Global South, where renewable energy expansion commonly occurs in legally pluralistic landscapes characterized by overlapping claims between state institutions, private investors, and Indigenous communities (Temper et al., 2020; Avila, 2018). Consequently, current scholarship provides only limited guidance for evaluating whether renewable energy governance genuinely advances ecological justice or merely relocates environmental burdens under the broader discourse of green development.

This gap is especially relevant in Indonesia, where renewable energy policies are increasingly implemented alongside ambitious commitments to climate mitigation and sustainable development. While national policy frameworks prioritize renewable energy investment and energy security, comparatively few studies have examined how these policies interact with customary land governance, Indigenous participation, and environmental justice in regions experiencing rapid infrastructure expansion. Sulawesi represents a particularly important context because it combines significant renewable energy potential with extensive Indigenous territories and ecologically sensitive landscapes. Despite these characteristics, socio-legal analyses that integrate ecological justice, Indigenous rights, and renewable energy governance remain limited. Existing research has generally addressed these issues separately, resulting in fragmented understandings of the institutional conditions necessary for achieving a socially just energy transition. This fragmentation underscores the need for a more integrated analytical approach capable of examining renewable energy governance as both an environmental and a legal justice issue.

Accordingly, this study develops a conceptual framework that integrates three complementary perspectives. First, ecological justice provides the overarching normative framework for evaluating whether renewable energy governance promotes equitable relationships between society and the environment through distributive, procedural, recognitional, and ecological dimensions of justice (Schlosberg, 2007; Washington et al., 2018). Second, Indigenous rights provide the legal benchmark for assessing whether renewable energy policies respect customary land tenure, collective self-determination, and meaningful participation, particularly through principles such as Free, Prior and Informed Consent (FPIC) (Gilbert, 2016; Barelli, 2012). Third, the just energy

transition perspective explains how institutional arrangements influence the fairness, legitimacy, and inclusiveness of renewable energy development (Heffron & McCauley, 2018; Sovacool & Dworkin, 2015). By combining these perspectives, the study moves beyond conventional evaluations based solely on renewable energy capacity or environmental performance and instead examines whether renewable energy development in Sulawesi achieves climate objectives while simultaneously protecting Indigenous rights and ecological integrity. This integrated framework forms the analytical basis for the subsequent examination of Indonesia's renewable energy governance and its implications for ecological justice.

Figure 1.
Conceptual Framework of the Study



Methods

A. Research Design: A Qualitative Socio-Legal Approach

This study employs a qualitative socio-legal research design to examine the relationship between renewable energy development, Indigenous rights, and ecological justice in Sulawesi, Indonesia. A socio-legal approach is appropriate because the research problem extends beyond the interpretation of formal legal rules and involves examining how legal frameworks interact with social realities, institutional practices, and power relations in environmental governance (Banakar & Travers, 2005; Hall, Hirsch, & Li, 2011). Unlike conventional doctrinal legal research that primarily focuses on the internal coherence of legal texts, socio-legal analysis investigates how laws operate within broader political, economic, and social contexts. In the context of renewable energy development, this approach enables the study to examine not only the regulatory framework

governing energy transitions but also the implications of these regulations for Indigenous land rights, participation, and environmental justice.

The research adopts an interpretive and critical analytical orientation. The interpretive dimension focuses on understanding how renewable energy policies, environmental regulations, and Indigenous rights frameworks construct concepts of sustainability, development, and participation. Meanwhile, the critical dimension examines whether existing governance arrangements reproduce structural inequalities by privileging state and market interests over customary institutions and local communities. This orientation is consistent with scholarship on political ecology and environmental justice, which emphasizes that environmental governance is shaped by power relations, competing claims over resources, and unequal capacities to influence decision-making processes (Robbins, 2012; Walker, 2012). Therefore, renewable energy development is analyzed not merely as a technological transition but as a governance process involving questions of authority, rights recognition, and environmental distribution.

The study does not seek to measure the quantitative impacts of renewable energy projects or establish causal relationships between energy development and social outcomes. Instead, it aims to critically evaluate the normative and institutional dimensions of renewable energy governance through the analytical framework developed in the literature review. Specifically, the study examines whether renewable energy governance arrangements in Sulawesi are consistent with the principles of ecological justice, Indigenous rights protection, and just energy transition. This methodological orientation allows the research to contribute to broader theoretical debates concerning how sustainability transitions can be designed to avoid reproducing existing forms of environmental exclusion.

B. Data Sources and Collection

The study relies primarily on qualitative documentary analysis using three categories of data sources: legal documents, policy materials, and academic literature. First, primary legal sources include Indonesian legislation and regulatory instruments governing renewable energy development, environmental protection, land governance, and Indigenous rights. These include relevant provisions within Indonesia's energy policy framework, environmental regulations, spatial planning regulations, and legal instruments concerning the recognition of Indigenous communities and customary territories. International legal instruments, particularly the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and principles related to Free, Prior and Informed Consent (FPIC), are also examined as normative references for evaluating Indonesia's governance framework.

Second, the study analyzes government policy documents related to Indonesia's energy transition agenda, renewable energy development strategies, and national sustainability commitments. These documents are examined to identify dominant policy narratives, institutional priorities, and assumptions underlying renewable energy expansion. Particular attention is given to how policy frameworks conceptualize development objectives, environmental protection, and community participation. This analysis is important because policy documents often represent the institutional priorities of the state and reveal potential tensions between national energy objectives and local rights-based concerns.

Third, the research incorporates peer-reviewed academic literature from international journals indexed in major academic databases, including Scopus. The literature was selected based on three thematic criteria: (1) ecological justice and environmental justice theory; (2) Indigenous rights and environmental governance; and (3) renewable energy transitions and energy justice. The literature review serves two purposes: establishing the theoretical foundation of the research and providing comparative perspectives on similar governance challenges in other geographical contexts. Through this combination of legal, policy, and scholarly sources, the study develops a comprehensive understanding of how renewable energy governance interacts with Indigenous rights and ecological justice principles.

C. Data Analysis

The collected materials were analyzed through qualitative thematic analysis combined with critical legal interpretation. Thematic analysis was conducted to identify recurring patterns related to Indigenous rights recognition, participation mechanisms, land governance, environmental protection, and energy transition objectives (Braun & Clarke, 2006). Rather than treating legal and policy documents as neutral instruments, the analysis examined how particular concepts of development, sustainability, and environmental governance are constructed within institutional frameworks.

The analytical process was guided by the conceptual framework developed in previous section, consisting of three interconnected dimensions: ecological justice, Indigenous rights, and just energy transition. First, the principle of distributive justice was used to examine how renewable energy development allocates environmental benefits and burdens among different social groups. Second, procedural justice was applied to assess the extent to which Indigenous communities are provided meaningful opportunities to participate in decisions affecting their territories. Third, recognitional justice was employed to evaluate whether customary land rights, Indigenous identities, and traditional ecological knowledge are adequately acknowledged within governance processes.

Critical legal analysis was further applied to identify potential tensions between formal legal recognition and practical governance arrangements. This method enables examination of whether existing legal frameworks sufficiently protect Indigenous rights or whether institutional structures continue to prioritize centralized development objectives. By integrating thematic analysis with socio-legal interpretation, the study evaluates renewable energy governance not only according to legal compliance but also according to broader principles of justice, legitimacy, and sustainability.

D. Research Limitations and Ethical Considerations

As a non-empirical socio-legal study, this research does not involve direct interviews, surveys, or participant observation. Therefore, it does not claim to represent the lived experiences of all Indigenous communities affected by renewable energy development in Sulawesi. Instead, the study focuses on institutional structures, legal frameworks, and governance arrangements that shape the relationship between renewable energy projects and Indigenous rights. This limitation is acknowledged because community-level experiences may vary depending on local political, cultural, and ecological contexts.

Nevertheless, documentary-based socio-legal analysis provides important insights into structural conditions that influence environmental governance outcomes. By examining legal norms, policy assumptions, and institutional arrangements, the research identifies broader governance challenges that may affect multiple communities across different locations. Future empirical studies could complement this analysis by incorporating participatory research methods involving Indigenous communities and local stakeholders. From an ethical perspective, the study follows principles of responsible scholarship by avoiding the misrepresentation of Indigenous knowledge systems and recognizing Indigenous peoples as rights holders rather than merely subjects of development impacts. The analysis is guided by respect for Indigenous self-determination and international standards concerning Indigenous participation in environmental decision-making.

Analaysis and Discussion

A. Renewable Energy Expansion and Indigenous Territories in Sulawesi

Indonesia's renewable energy transition has increasingly positioned Sulawesi as a strategic region for low-carbon energy development due to its substantial potential in hydropower, geothermal energy, and other renewable resources. National energy policies have identified renewable energy expansion as a critical component of Indonesia's commitment to reducing greenhouse gas emissions while simultaneously supporting economic growth, industrial development, and regional electrification. Within this policy narrative, renewable

energy projects are commonly presented as environmentally preferable alternatives to fossil fuel-based energy systems. However, the spatial characteristics of renewable energy development create significant governance challenges because many renewable energy resources are located in rural and ecologically sensitive areas that overlap with Indigenous territories and customary landscapes. Research on energy transitions demonstrates that renewable infrastructure is not geographically neutral; rather, it depends on access to land, water, forests, and ecological resources that often sustain local communities and Indigenous livelihoods (Bridge et al., 2013; Sovacool & Dworkin, 2015). Therefore, renewable energy expansion involves not only technological transformation but also the reconfiguration of relationships between states, corporations, communities, and ecosystems.

In Sulawesi, this tension is particularly evident because renewable energy development occurs within landscapes characterized by complex interactions between ecological value, customary governance, and economic interests. Indigenous communities in the region have historically maintained social and cultural relationships with forests, rivers, agricultural areas, and other natural resources through customary institutions that regulate resource use and environmental stewardship. These relationships represent more than economic dependence; they constitute forms of ecological knowledge and collective identity embedded within specific territories. Nevertheless, renewable energy planning frequently approaches land primarily through administrative and economic categories, emphasizing availability, investment potential, and infrastructure feasibility rather than recognizing the cultural and social meanings attached to landscapes. Political ecology scholars have emphasized that such approaches may transform historically governed spaces into development zones controlled by external actors, creating conflicts over authority and resource access (Robbins, 2012; Hall, Hirsch, & Li, 2011). Consequently, renewable energy projects may unintentionally reproduce patterns of territorial control previously associated with extractive industries, despite being framed within the discourse of sustainability.

The central issue is therefore not whether renewable energy contributes to climate mitigation, but whether the processes through which renewable energy is developed align with principles of ecological justice. From an ecological justice perspective, a renewable energy project cannot be considered fully sustainable if its environmental benefits are achieved through the marginalization of communities whose territories support such development. This concern reflects broader debates on the "just transition," which argue that climate policies must address both ecological objectives and social inequalities created during structural transformations (Newell & Mulvaney, 2013; Heffron & McCauley, 2018). In the Indonesian context, renewable energy development raises questions regarding who receives the benefits of clean energy production and who bears the

social and ecological costs associated with land transformation. While national governments and energy investors may benefit from increased energy capacity and economic opportunities, Indigenous communities may experience restrictions on land access, changes in livelihood systems, and weakened control over customary territories.

Therefore, the expansion of renewable energy in Sulawesi should be analyzed as a governance issue involving competing visions of sustainability rather than simply as an addressing climate change and reducing dependence on fossil fuels. On the other hand, without adequate institutional safeguards, renewable energy projects may generate new forms of environmental exclusion by prioritizing national climate objectives over local rights and ecological relationships. This tension illustrates why energy transition debates increasingly emphasize justice as a central analytical category rather than a secondary consideration. The case of Sulawesi demonstrates that renewable energy governance must address not only the question of how much clean energy is produced but also how such energy is produced, whose interests are prioritized, and whether affected communities possess meaningful environmental solution.

This analysis reveals a fundamental tension within contemporary energy transitions. On one hand, renewable energy development represents an essential pathway for addressing climate change and reducing dependence on fossil fuels. On the other hand, without adequate institutional safeguards, renewable energy projects may generate new forms of environmental exclusion by prioritizing national climate objectives over local rights and ecological relationships. This tension illustrates why energy transition debates increasingly emphasize justice as a central analytical category rather than a secondary consideration. The case of Sulawesi demonstrates that renewable energy governance must address not only the question of how much clean energy is produced but also how such energy is produced, whose interests are prioritized, and whether affected communities possess meaningful authority over decisions concerning their territories. Accordingly, renewable energy expansion should be evaluated through a framework that integrates climate objectives with Indigenous rights protection and ecological justice principles.

B. Legal Recognition and Institutional Limitations of Indigenous Rights

Indonesia's legal framework provides formal recognition of Indigenous peoples and their customary rights; however, the practical protection of these rights remains constrained by institutional fragmentation and competing development priorities. The Indonesian Constitution recognizes the existence of Indigenous communities (masyarakat hukum adat) and acknowledges their traditional rights as long as they remain consistent with national principles and statutory regulations. This constitutional recognition represents an important

normative foundation for Indigenous rights protection. Nevertheless, scholars have highlighted that recognition within the Indonesian legal system remains conditional rather than automatic because Indigenous communities are required to undergo administrative verification and formal recognition processes conducted by state authorities (Butt, 2014; Bedner & Arizona, 2019). This institutional requirement creates a significant gap between constitutional acknowledgment and practical rights protection, particularly in regions where customary communities lack sufficient administrative capacity or political influence to obtain formal recognition. As a result, communities may possess strong historical and cultural relationships with their territories while simultaneously facing legal uncertainty regarding ownership, management authority, and participation rights in development decisions.

The complexity of Indigenous rights recognition becomes more pronounced when renewable energy projects intersect with customary territories. Unlike conventional private property systems, Indigenous land tenure is often based on collective relationships between communities, ecosystems, and ancestral territories. Such relationships may not always correspond with formal cadastral systems or state-based administrative categories used in development planning. Consequently, renewable energy governance frameworks that rely primarily on statutory land classifications may fail to adequately capture the social and ecological dimensions of Indigenous territorial relationships. Legal pluralism scholars argue that conflicts over natural resources frequently emerge because state legal systems tend to prioritize formal administrative authority while marginalizing alternative forms of customary governance (von Benda-Beckmann, 2002; Li, 2014). In this context, renewable energy projects may receive legal authorization from state institutions while simultaneously generating legitimacy conflicts among communities whose customary rights are insufficiently recognized. The resulting tension demonstrates that legal approval does not necessarily equate to social legitimacy or environmental justice.

A critical issue concerns the limited integration of Indigenous participation principles into renewable energy decision-making processes. International standards, particularly the principle of Free, Prior and Informed Consent (FPIC), emphasize that Indigenous communities should have meaningful authority over decisions affecting their lands and resources (Barelli, 2012; Doyle, 2015). However, in many development contexts, participation mechanisms remain limited to consultation procedures rather than genuine processes of consent and negotiation. This distinction is particularly important because consultation allows communities to express concerns, while consent implies a stronger recognition of their decision-making authority. Previous studies have demonstrated that inadequate participation mechanisms frequently contribute to environmental conflicts because affected communities perceive development decisions as externally imposed rather than collaboratively constructed (Hanna

& Vanclay, 2013; O'Faircheallaigh, 2017). Within renewable energy governance, the absence of meaningful participation may undermine the legitimacy of projects that are environmentally beneficial at the national level but socially contested at the local level.

Furthermore, institutional limitations are reinforced by the fragmented governance structure governing land, energy, and environmental management in Indonesia. Renewable energy development involves multiple regulatory domains, including energy policy, environmental licensing, spatial planning, and land administration. However, coordination among these sectors remains challenging because each institution operates according to different priorities and regulatory objectives. Energy institutions often emphasize investment acceleration and infrastructure development, while environmental and Indigenous rights institutions focus on conservation and social protection objectives. This fragmentation can create situations where renewable energy projects comply with sectoral regulations but fail to adequately address broader justice considerations. From an ecological justice perspective, such institutional fragmentation represents a governance failure because it separates environmental objectives from questions of recognition, participation, and social equity (Schlosberg & Collins, 2014). Therefore, the challenge is not merely the absence of legal recognition but the inability of existing institutions to translate normative commitments into effective protection mechanisms.

The analysis demonstrates that Indonesia's renewable energy governance faces a fundamental contradiction: while the state increasingly promotes clean energy development as part of its climate commitments, the institutional mechanisms necessary to ensure Indigenous inclusion remain insufficiently developed. This contradiction does not suggest that renewable energy expansion is incompatible with Indigenous rights; rather, it indicates that the governance model through which renewable energy is implemented determines whether such projects contribute to ecological justice or reproduce environmental exclusion. Strengthening Indigenous rights protection requires moving beyond symbolic recognition toward substantive legal and institutional reforms, including clearer recognition procedures, stronger participation mechanisms, and integration of FPIC principles into renewable energy planning. Without such reforms, renewable energy transitions risk repeating historical patterns in which environmental objectives are pursued through centralized decision-making and unequal distribution of social and ecological costs.

C. Renewable Energy Development as Ecological Justice or Environmental Exclusion?

The expansion of renewable energy in Sulawesi illustrates the fundamental ambiguity of contemporary sustainability transitions: renewable energy projects may simultaneously represent progress toward climate mitigation while

producing new forms of social and ecological inequality. This contradiction reflects a broader debate within environmental governance concerning whether green development initiatives necessarily generate more equitable relationships between society and nature. From an ecological justice perspective, environmental sustainability cannot be evaluated solely through the reduction of greenhouse gas emissions or the replacement of fossil fuel technologies. Rather, sustainability must also be assessed according to how environmental benefits and burdens are distributed, whose knowledge systems are recognized, and whether affected communities maintain meaningful control over ecological decisions that influence their lives (Schlosberg, 2007; Washington et al., 2018). In this regard, renewable energy development in Indigenous territories creates a critical analytical dilemma. While renewable energy contributes to global climate objectives, projects that undermine customary land rights or exclude Indigenous participation may reproduce the same structural inequalities that ecological justice seeks to overcome. Therefore, the central question is not whether renewable energy is environmentally beneficial, but whether the governance mechanisms surrounding renewable energy development are capable of producing socially and ecologically just outcomes.

The concept of environmental exclusion provides an important explanation for understanding this contradiction. Environmental exclusion occurs when particular groups are marginalized from access to environmental resources, decision-making processes, or the benefits generated from environmental governance initiatives. Unlike traditional forms of environmental harm associated with industrial pollution or resource extraction, environmental exclusion may occur through policies and projects that are publicly framed as sustainable or environmentally necessary. Research on political ecology has demonstrated that conservation initiatives, carbon offset schemes, and other forms of green development can produce exclusionary outcomes when environmental objectives are pursued through centralized decision-making and unequal power relations (Fairhead, Leach, & Scoones, 2012; Borras & Franco, 2018). Renewable energy projects may generate similar dynamics when Indigenous territories are treated primarily as sites for achieving national climate objectives rather than as living landscapes embedded within cultural, social, and ecological relationships. In such situations, the language of sustainability may unintentionally legitimize forms of territorial control that limit Indigenous autonomy and transform communities from environmental decision-makers into passive recipients of development outcomes.

The application of this framework to Sulawesi reveals several dimensions of potential environmental exclusion. First, distributive exclusion may occur when the economic and environmental benefits of renewable energy development are primarily captured by national institutions, investors, or urban consumers, while local communities experience restrictions on land use, livelihood transformation,

or ecological disruption. Energy infrastructure often produces benefits at broader regional or national scales, whereas the environmental and social impacts are concentrated among communities living near project sites. This uneven distribution reflects what environmental justice scholars describe as the unequal allocation of environmental advantages and disadvantages among different social groups (Walker, 2012; Jenkins et al., 2016). Second, procedural exclusion emerges when Indigenous communities have limited opportunities to influence decisions regarding projects affecting their territories. Although consultation mechanisms may exist within formal governance procedures, they often do not provide communities with meaningful authority to negotiate project terms or reject developments inconsistent with their social and ecological priorities. Third, recognitional exclusion occurs when Indigenous relationships with land are reduced to economic interests rather than acknowledged as complex cultural and ecological systems. Such reductionism marginalizes Indigenous knowledge and undermines alternative models of environmental stewardship.

Nevertheless, interpreting renewable energy development as environmental exclusion does not imply that renewable energy projects are inherently unjust or incompatible with Indigenous rights. Rather, the critical issue lies in the institutional conditions under which these projects are designed and implemented. Renewable energy can contribute to ecological justice when governance systems recognize Indigenous communities as active partners, incorporate customary knowledge into decision-making, ensure equitable benefit-sharing, and protect collective rights over ancestral territories. Studies on Indigenous participation in environmental governance demonstrate that Indigenous-managed landscapes frequently contribute to biodiversity conservation, climate resilience, and sustainable resource management (Garnett et al., 2018; Fa et al., 2020). Therefore, Indigenous rights should not be viewed as obstacles to climate action but as essential components of effective and legitimate sustainability transitions. A rights-based approach to renewable energy development can transform potential conflicts into opportunities for collaborative environmental governance.

Based on this analysis, renewable energy development in Sulawesi should be understood as occupying a contested space between ecological justice and environmental exclusion. Current governance arrangements demonstrate that renewable energy expansion has the potential to reproduce exclusionary patterns when climate objectives are prioritized over Indigenous rights, local participation, and ecological relationships. However, these outcomes are not inevitable; they are produced by specific institutional choices concerning land governance, participation, and resource distribution. The distinction between ecological justice and environmental exclusion therefore depends on whether renewable energy governance recognizes the social and ecological dimensions of sustainability. A transition that focuses exclusively on decarbonization risks

creating a form of "green development" that reduces emissions while maintaining unequal power relations. Conversely, a transition grounded in ecological justice can contribute to climate mitigation while strengthening Indigenous rights, democratic participation, and long-term ecological resilience.

D. Toward a Rights-Based Renewable Energy Transition

The analysis demonstrates that achieving a sustainable renewable energy transition requires moving beyond a carbon-centred approach toward a rights-based governance framework that integrates ecological integrity, Indigenous rights, and democratic participation. Contemporary climate policies frequently evaluate the success of energy transitions through measurable indicators such as emission reductions, renewable energy capacity, and investment growth. While these indicators remain important, they provide only a partial understanding of sustainability because they do not adequately capture the social and institutional consequences of energy transformation. A rights-based approach argues that climate mitigation strategies must also consider how decisions are made, whose interests are prioritized, and whether vulnerable communities possess meaningful opportunities to influence environmental governance processes (Jenkins et al., 2016; Heffron & McCauley, 2018). In the context of renewable energy development in Sulawesi, this perspective suggests that the legitimacy of energy projects depends not only on their contribution to national climate objectives but also on their ability to respect Indigenous territorial rights, recognize customary knowledge systems, and maintain equitable relationships between communities and ecosystems.

A central implication of this approach is the need to reposition Indigenous peoples from passive recipients of development benefits to active participants in energy governance. Existing models of renewable energy planning frequently operate through centralized decision-making structures in which state institutions and private investors define development priorities, while local communities participate only during limited stages of project implementation. Such approaches risk reinforcing unequal power relations by treating Indigenous communities primarily as groups affected by development rather than as legitimate governance actors. In contrast, rights-based approaches emphasize that Indigenous participation should involve meaningful decision-making authority, including access to information, negotiation regarding project impacts, and recognition of collective rights over customary territories. The principle of Free, Prior and Informed Consent (FPIC) provides an important institutional mechanism for achieving this objective because it establishes participation as a matter of rights rather than administrative procedure (Barelli, 2012; Doyle, 2015). Integrating FPIC principles into renewable energy governance would strengthen institutional legitimacy while reducing the likelihood of socio-environmental conflicts.

Furthermore, a rights-based renewable energy transition requires a transformation in how policymakers understand the relationship between environmental protection and Indigenous rights. Historically, development debates have often presented these issues as competing objectives, with environmental protection or Indigenous rights perceived as potential constraints on economic growth and infrastructure expansion. However, emerging scholarship challenges this assumption by demonstrating that Indigenous territorial governance can contribute significantly to biodiversity conservation, ecosystem resilience, and climate adaptation (Garnett et al., 2018; Dawson et al., 2021). Indigenous communities frequently possess extensive ecological knowledge derived from long-term interactions with local environments, and their governance systems may support sustainable resource management practices that complement broader climate objectives. Therefore, protecting Indigenous rights should not be understood as an obstacle to renewable energy development but as an institutional strategy for improving environmental outcomes and strengthening the legitimacy of sustainability transitions.

For Indonesia, particularly in regions such as Sulawesi, these findings suggest the importance of reforming renewable energy governance through greater institutional integration between energy policy, environmental regulation, and Indigenous rights protection. Current governance structures remain fragmented, with different institutions responsible for energy development, land administration, environmental assessment, and Indigenous recognition. Such fragmentation creates situations where renewable energy projects may satisfy sector-specific legal requirements while failing to address broader questions of justice and social legitimacy. A more integrated governance model would require stronger coordination among relevant institutions, clearer procedures for recognizing customary territories, and the incorporation of social justice indicators into renewable energy planning and evaluation. These reforms would align Indonesia's renewable energy transition with broader international principles of sustainable development and climate justice.

Ultimately, the transition toward renewable energy should not be understood merely as a technological shift from fossil fuels to cleaner energy sources but as a broader transformation of social and ecological relationships. The experience of renewable energy development in Sulawesi illustrates that climate action can produce contradictory outcomes when environmental objectives are separated from questions of rights, participation, and justice. A transition that prioritizes only emissions reduction may unintentionally reproduce patterns of exclusion associated with earlier forms of resource development. Conversely, a rights-based transition grounded in ecological justice provides an opportunity to reconcile climate mitigation with Indigenous empowerment and ecological protection. Therefore, the future legitimacy of renewable energy governance depends on whether sustainability policies are

capable of integrating environmental goals with principles of justice, recognition, and democratic accountability.

Conclusion

This study examined whether renewable energy development in Sulawesi represents a pathway toward ecological justice or a potential mechanism of environmental exclusion by analysing the intersection between renewable energy governance, Indigenous rights, and sustainability transitions. The findings demonstrate that renewable energy expansion cannot be evaluated solely through its contribution to climate mitigation, emission reduction, or energy security objectives. While renewable energy projects provide important opportunities for reducing dependence on fossil fuels and supporting Indonesia's low-carbon transition, their sustainability is fundamentally shaped by governance arrangements concerning land rights, participation, and recognition of Indigenous communities. The analysis reveals that existing renewable energy governance frameworks continue to face institutional limitations in integrating customary land rights and meaningful participation mechanisms into project planning and implementation. Consequently, renewable energy development may reproduce forms of environmental exclusion when climate objectives are pursued through centralized decision-making structures that marginalize Indigenous knowledge, territorial relationships, and community-based ecological governance. However, these outcomes are not inherent characteristics of renewable energy itself; rather, they reflect governance choices that determine whether energy transitions reinforce existing inequalities or contribute to more inclusive and just sustainability pathways.

Theoretically, this study contributes to the growing literature on just energy transitions by integrating ecological justice, Indigenous rights, and renewable energy governance into a unified analytical framework. It argues that climate action should be understood not only as a technological and environmental challenge but also as a question of rights, recognition, and institutional legitimacy. From this perspective, Indigenous rights protection should not be considered an obstacle to renewable energy development but an essential foundation for achieving socially and ecologically sustainable transitions. For Indonesia, particularly in regions such as Sulawesi, strengthening renewable energy governance requires moving beyond investment-oriented approaches toward rights-based frameworks that incorporate meaningful participation, recognition of customary territories, and stronger accountability mechanisms. The implementation of principles such as Free, Prior and Informed Consent (FPIC), improved coordination between energy and land governance institutions, and greater integration of Indigenous ecological knowledge represent important steps toward ensuring that renewable energy policies contribute to ecological justice rather than environmental exclusion. These lessons are relevant not only

for Indonesia but also for other climate-vulnerable countries in the Global South where renewable energy expansion increasingly intersects with Indigenous territories and contested landscapes.

This study has several limitations that provide opportunities for future research. As a qualitative socio-legal study based primarily on legal and policy analysis, the research does not capture the diverse lived experiences of Indigenous communities affected by specific renewable energy projects across Sulawesi. Future studies could complement this analysis through empirical research involving participatory methods, community-based approaches, and comparative case studies across different renewable energy sectors, including hydropower, geothermal, and wind energy. Longitudinal research would also be valuable for examining how renewable energy governance evolves over time and whether institutional reforms effectively strengthen Indigenous participation and ecological justice outcomes. By expanding empirical engagement with affected communities, future scholarship can further clarify how renewable energy transitions can be designed to achieve both climate objectives and meaningful social transformation.

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