



Environmental Justice and Land Rights: Analyzing the Impact of the 1945 Constitution and the Law on Agrarian Reform in Climate Adaptation Policies

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DOI: <https://doi.org/10.65815/d18ewa66>

Submitted: 21-09-2024

Revised: 11-01-2025, 22-03-2025

Accepted: 15-04-2025

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Abstract

This paper analyzes the intersection of environmental justice, land rights, and climate adaptation policies in Indonesia, focusing on the impact of the 1945 Constitution and the Law on Agrarian Reform (UU No. 5/1960) in shaping land use and access amidst climate change challenges. As Indonesia faces escalating climate impacts such as flooding, droughts, and coastal erosion, land rights become a crucial element in both environmental justice and adaptation strategies. The 1945 Constitution, which enshrines land as a state asset with the potential for distribution to achieve social justice, and the Agrarian Reform Law, which aims to redistribute land for the benefit of landless peasants, are key legal frameworks that govern land use and ownership. This study examines how these legal instruments intersect with climate adaptation policies, particularly in the context of marginalized communities that are disproportionately affected by environmental degradation and land dispossession. Using a combination of legal analysis, case studies, and interviews with affected communities, the research explores how land tenure systems, agrarian reform policies, and climate adaptation measures can be harmonized to promote both environmental sustainability and social equity. Findings indicate that while the 1945 Constitution and the Agrarian Reform Law offer potential tools for



advancing land justice, their implementation often falls short, particularly in the face of growing pressures from development projects, deforestation, and corporate land grabs. The paper argues that integrating environmental justice into land rights policies is essential for effective climate adaptation, particularly for vulnerable populations who rely on secure land tenure for their livelihoods and resilience.

[Tulisan ini menganalisis keterkaitan antara keadilan lingkungan, hak atas tanah, dan kebijakan adaptasi iklim di Indonesia, dengan fokus pada dampak Konstitusi 1945 dan Undang-Undang Reformasi Agraria (UU No. 5/1960) dalam membentuk penggunaan dan akses lahan di tengah tantangan perubahan iklim. Seiring dengan meningkatnya dampak iklim di Indonesia seperti banjir, kekeringan, dan erosi pantai, hak atas tanah menjadi elemen penting dalam keadilan lingkungan dan strategi adaptasi. Konstitusi 1945, yang menetapkan tanah sebagai aset negara dengan potensi distribusi untuk mencapai keadilan sosial, dan Undang-Undang Reformasi Agraria, yang bertujuan untuk mendistribusikan kembali tanah demi kesejahteraan petani tanpa tanah, merupakan kerangka hukum utama yang mengatur penggunaan dan kepemilikan tanah. Studi ini meneliti bagaimana instrumen hukum ini beririsan dengan kebijakan adaptasi iklim, khususnya dalam konteks masyarakat marginal yang terkena dampak tidak proporsional dari degradasi lingkungan dan penggusuran lahan. Dengan menggunakan kombinasi analisis hukum, studi kasus, dan wawancara dengan komunitas yang terdampak, penelitian ini mengeksplorasi bagaimana sistem kepemilikan tanah, kebijakan reformasi agraria, dan langkah-langkah adaptasi iklim dapat diselaraskan untuk mendorong keberlanjutan lingkungan dan kesetaraan sosial. Temuan menunjukkan bahwa meskipun Konstitusi 1945 dan Undang-Undang Reformasi Agraria menawarkan potensi alat untuk memajukan keadilan tanah, implementasinya seringkali kurang memadai, terutama dalam menghadapi tekanan yang semakin meningkat dari proyek pembangunan, deforestasi, dan penguasaan lahan oleh perusahaan. Makalah ini berpendapat bahwa mengintegrasikan keadilan lingkungan ke dalam kebijakan hak atas tanah sangat penting untuk adaptasi iklim yang efektif, khususnya bagi populasi rentan yang bergantung pada kepemilikan tanah yang aman untuk mata pencaharian dan ketahanan mereka.]

Keywords: Environmental Justice, Land Rights, Agrarian Reform, Climate Adaptation, Indonesia 1945 Constitution

Introduction

A. Background and Context

Climate change has become one of the most critical challenges confronting sustainable development, particularly in countries where environmental vulnerability intersects with persistent social and economic inequalities. Indonesia represents one of the countries highly exposed to climate-related risks

due to its extensive coastal areas, dependence on climate-sensitive livelihoods, and geographical vulnerability as the world's largest archipelagic nation. Increasing occurrences of flooding, prolonged droughts, coastal erosion, sea-level rise, and ecosystem degradation have generated significant implications for food security, rural livelihoods, settlement patterns, and socioeconomic stability (Intergovernmental Panel on Climate Change [IPCC], 2023). These impacts are not experienced uniformly across society; rather, they disproportionately affect communities whose livelihoods depend directly on land and natural resources, including smallholder farmers, coastal populations, indigenous peoples, and rural communities (Adger et al., 2014).

Within this context, land has become a central issue in climate adaptation and environmental justice debates. Land is not merely an economic asset or a spatial resource for development; it represents a foundation of livelihood security, cultural identity, social relations, and ecological resilience. Secure access to land enables communities to invest in sustainable practices, maintain ecosystem functions, and participate effectively in adaptation initiatives. Conversely, insecure land tenure, unresolved ownership disputes, and exclusion from decision-making processes can increase vulnerability by limiting communities' ability to access adaptation resources, recover from climate-related disasters, and exercise control over their environmental futures (Sikor et al., 2017). Therefore, land rights constitute a critical institutional foundation for understanding how climate risks are distributed and how adaptation benefits are allocated.

The relationship between climate change and land governance has become increasingly complex due to competing pressures between environmental protection, economic development, and social justice. In Indonesia, land-use transformation driven by infrastructure development, industrial agriculture, mining activities, urban expansion, and conservation initiatives has intensified conflicts over access, control, and ownership of land resources. These conflicts often involve communities with limited legal recognition of their customary or traditional land rights, creating conditions where climate adaptation policies may unintentionally reproduce existing inequalities (Bakker & Moniaga, 2010). For example, large-scale development projects intended to support economic growth or climate mitigation may generate displacement risks, restrict community access to natural resources, or undermine local adaptive capacities when implemented without meaningful participation.

These dynamics demonstrate that climate adaptation is not solely a technical challenge involving infrastructure, technology, or ecosystem management. Rather, adaptation is fundamentally a political and institutional process shaped by questions of rights, power relations, and resource distribution (Eriksen et al., 2021). Consequently, examining climate adaptation through the lens of environmental justice provides important insights into whether

adaptation strategies adequately address the needs and rights of vulnerable communities.

B. Environmental Justice, Land Rights, and Climate Adaptation

Environmental justice has emerged as an important theoretical framework for examining the unequal distribution of environmental risks, benefits, and decision-making power among different social groups. Initially developed through struggles against environmental inequalities, the concept has expanded to address broader questions concerning climate change, resource governance, and sustainable development (Schlosberg, 2007). Contemporary environmental justice scholarship emphasizes that environmental problems are not only ecological issues but also questions of social equity, recognition, and political inclusion.

A widely accepted framework identifies three interconnected dimensions of environmental justice: distributive justice, procedural justice, and recognitional justice (Fraser, 2008; Schlosberg, 2007). Distributive justice concerns the fair allocation of environmental resources, risks, and benefits. In the context of climate adaptation, this dimension raises questions regarding who receives adaptation investments, who bears the costs of climate policies, and whether vulnerable populations receive adequate protection. Procedural justice emphasizes meaningful participation in environmental decision-making, recognizing that communities affected by climate policies should have the ability to influence planning processes. Recognitional justice focuses on acknowledging the identities, knowledge systems, cultural values, and rights of marginalized groups, including indigenous communities and traditional land users (Whyte, 2018).

Land rights are closely connected to all three dimensions of environmental justice. From a distributive perspective, unequal access to land often determines differential exposure to climate risks and unequal access to adaptation opportunities. Communities with insecure tenure may lack incentives or legal authority to undertake long-term adaptation measures, while those excluded from land governance processes may bear disproportionate environmental burdens. From a procedural perspective, land governance decisions frequently determine whose voices are included or excluded in climate adaptation planning. From a recognitional perspective, the protection of indigenous and customary land rights reflects broader acknowledgment of diverse relationships between communities and ecosystems (Sikor et al., 2017).

Recent climate adaptation literature increasingly argues that resilience cannot be achieved without addressing underlying social vulnerabilities. Adaptation interventions that ignore land inequality and historical patterns of exclusion may enhance technical resilience while failing to reduce social vulnerability. In some cases, adaptation policies may even create new forms of

injustice by restricting access to resources, displacing communities, or prioritizing powerful stakeholders over marginalized groups (Eriksen et al., 2021). Therefore, a rights-based approach to climate adaptation requires attention not only to environmental outcomes but also to the legal and institutional arrangements governing access to land and natural resources.

From this perspective, land rights represent more than legal ownership claims; they constitute mechanisms through which communities obtain security, recognition, and adaptive capacity. Strengthening land tenure security has been identified as an important pathway for improving climate resilience because it enables communities to engage in long-term resource management, access financial support, and participate more effectively in governance processes (FAO, 2021). However, achieving land justice remains challenging in many developing countries where historical inequalities, competing development priorities, and institutional fragmentation continue to shape land governance outcomes.

C. Legal Context: Indonesia's Constitutional and Agrarian Framework

Indonesia's approach to land governance is fundamentally shaped by constitutional principles and agrarian legislation. The 1945 Constitution provides the foundation for natural resource governance through Article 33, which states that land, water, and natural resources are controlled by the state and utilized for the greatest prosperity of the people. This constitutional provision establishes a distinctive model of state responsibility, where control over natural resources is not understood merely as ownership authority but as a mandate to ensure public welfare and equitable resource management (Butt & Lindsey, 2018).

The constitutional principle of state control has significant implications for environmental justice and climate adaptation. On one hand, it provides a normative basis for the government to regulate land use, protect ecosystems, and ensure equitable access to resources. On the other hand, broad interpretations of state authority have historically enabled extensive government intervention in land allocation, sometimes resulting in conflicts between state development priorities and community land claims (Lucas & Warren, 2013). This tension reflects a central challenge in Indonesian land governance: balancing state authority over natural resources with recognition of community rights and social justice.

The primary legal instrument governing land relations is Law No. 5 of 1960 on Basic Agrarian Principles (Undang-Undang Pokok Agraria/UUPA). The UUPA was introduced as a comprehensive reform framework intended to replace colonial land institutions and establish a more equitable agrarian order. It emphasizes social functions of land ownership, limits excessive concentration of land control, and provides a legal foundation for agrarian reform aimed at reducing historical inequalities (Bakker & Moniaga, 2010).

However, despite its progressive objectives, the implementation of agrarian reform has faced persistent challenges. Land redistribution programs have progressed slowly, while overlapping claims between communities, government agencies, and private corporations remain widespread. These challenges have significant implications for climate adaptation because insecure land rights often limit the capacity of vulnerable communities to participate in environmental management and benefit from adaptation initiatives.

The intersection between constitutional environmental principles, agrarian reform, and climate adaptation therefore represents an important but insufficiently explored area of research. While existing studies have examined land conflicts, agrarian politics, and environmental governance in Indonesia, limited attention has been given to how constitutional and agrarian frameworks influence climate justice outcomes. Understanding this relationship is particularly important as Indonesia increasingly integrates climate adaptation into national development planning.

D. Research Objectives and Questions

This study examines the relationship between constitutional land governance, agrarian reform, and climate adaptation through an environmental justice perspective. While climate adaptation policies increasingly emphasize resilience and sustainability, their effectiveness depends significantly on whether they address underlying questions of land access, rights recognition, and social inclusion. The study has three main objectives:

1. To analyze how the 1945 Constitution and Law No. 5/1960 on Agrarian Principles shape the recognition and protection of land rights within Indonesia's climate adaptation policies.
2. To evaluate the extent to which Indonesia's constitutional and agrarian frameworks promote environmental justice for climate-vulnerable and marginalized communities.
3. To identify legal, institutional, and governance gaps that hinder the integration of land justice into climate adaptation strategies.

Based on these objectives, the study addresses the following research questions:

RQ1: How do Indonesia's constitutional and agrarian legal frameworks influence land rights protection within climate adaptation governance?

RQ2: To what extent do existing land governance frameworks advance distributive, procedural, and recognitional dimensions of environmental justice?

RQ3: What legal and institutional challenges limit the integration of land justice into Indonesia's climate adaptation policies?

By addressing these questions, this research contributes to emerging debates on climate justice, environmental law, and sustainable development by

demonstrating that land rights should be understood as a fundamental institutional foundation for equitable climate adaptation.

Literature Review

A. Environmental Justice and Climate Adaptation

Environmental justice has become an influential analytical framework for examining the unequal social consequences of environmental change and governance interventions. Initially emerging from environmental movements that challenged the disproportionate exposure of marginalized communities to pollution and ecological risks, environmental justice scholarship has expanded to address broader questions of resource distribution, political participation, recognition, and human rights (Schlosberg, 2007). In the context of climate change, environmental justice provides a critical perspective for understanding why climate impacts are experienced differently across societies and why adaptation policies may produce uneven outcomes among social groups.

Climate adaptation is increasingly recognized as a socially embedded process rather than merely a technical response to environmental hazards. Traditional adaptation approaches have often focused on improving infrastructure, technological capacity, and ecosystem management. However, such approaches may overlook the structural factors that determine vulnerability, including poverty, unequal resource access, political exclusion, and insecure land tenure (Adger et al., 2014). Consequently, contemporary climate adaptation research emphasizes that resilience cannot be achieved without addressing the social and institutional conditions that shape communities' ability to anticipate, respond to, and recover from climate impacts.

Environmental justice scholarship commonly identifies three interconnected dimensions: distributive justice, procedural justice, and recognitional justice (Fraser, 2008; Schlosberg, 2007). Distributive justice focuses on the allocation of environmental benefits, risks, and resources. Within climate adaptation governance, this dimension concerns whether adaptation investments reach communities most exposed to climate risks and whether the burdens associated with climate policies are distributed fairly. For example, adaptation projects that protect urban economic centers while neglecting vulnerable rural or coastal populations may reduce aggregate climate risks while reinforcing existing inequalities.

Procedural justice emphasizes participation, transparency, and inclusion in environmental decision-making processes. Climate adaptation decisions often involve competing interests regarding land use, infrastructure development, conservation, and resource allocation. When affected communities lack meaningful opportunities to participate in these decisions, adaptation policies may fail to reflect local priorities and knowledge systems (Few et al., 2007).

Therefore, participatory governance is increasingly viewed as a prerequisite for legitimate and effective adaptation.

Recognition justice extends this analysis by emphasizing the importance of acknowledging diverse identities, cultural values, and historical experiences. This dimension is particularly relevant for indigenous peoples and traditional communities whose relationships with land are shaped by cultural, spiritual, and ecological connections rather than purely economic considerations (Whyte, 2018). Failure to recognize these relationships may result in adaptation strategies that marginalize local knowledge and undermine community resilience.

Land tenure represents a critical intersection between these dimensions of environmental justice and climate adaptation. Secure land rights influence communities' ability to invest in adaptation measures, access financial support, and maintain sustainable resource management practices. Conversely, insecure tenure increases vulnerability by limiting legal protection, reducing incentives for long-term investment, and increasing exposure to displacement caused by development or climate-related interventions (Sikor et al., 2017). Thus, land governance should be considered a fundamental component of climate adaptation policy rather than a separate issue within environmental management.

B. Land Rights, Tenure Security, and Climate Resilience

The relationship between land rights and climate resilience has received increasing attention within sustainability and development studies. Land tenure systems determine not only who can access and use land but also who has authority over environmental decision-making and resource management. In many developing countries, particularly those experiencing rapid economic transformation, land rights remain contested due to overlapping claims between communities, governments, and private actors (Cotula, 2021).

Secure land tenure is widely recognized as an important factor influencing adaptive capacity. Communities with legally recognized land rights generally possess greater incentives and ability to undertake long-term adaptation practices, such as sustainable agriculture, ecosystem restoration, water management, and climate-resilient livelihood strategies (FAO, 2021). By contrast, communities operating under uncertain or informal tenure arrangements may avoid investments that require long-term commitment because they face risks of eviction, land acquisition, or policy changes.

The importance of land tenure security is particularly evident in rural and indigenous contexts. Smallholder farmers, forest-dependent communities, and coastal populations often rely directly on natural resources for their livelihoods and are therefore highly sensitive to climate variability. However, these groups frequently lack formal recognition of their land rights, creating a situation where those most dependent on ecosystems have the least institutional protection

(Larson et al., 2013). This represents a significant environmental justice concern because climate vulnerability is not simply determined by physical exposure but also by unequal access to social, legal, and political resources.

The literature on climate adaptation increasingly challenges the assumption that stronger land ownership alone automatically produces resilience. While tenure security is important, adaptation outcomes also depend on broader governance conditions, including access to markets, financial resources, extension services, and political representation (Eriksen et al., 2021). Therefore, land justice requires not only redistribution or formal recognition but also institutional arrangements that enable communities to meaningfully exercise their rights.

In Indonesia, land tenure insecurity remains a major factor influencing vulnerability among rural and indigenous communities. Despite constitutional recognition of social welfare principles and legal provisions for agrarian reform, overlapping land claims and weak recognition of customary territories continue to generate conflicts. These conflicts have implications for climate adaptation because communities without secure tenure often experience difficulties accessing government adaptation programs and participating in land-use planning processes.

C. Agrarian Reform, Land Justice, and Sustainable Development

Agrarian reform has historically been associated with efforts to address unequal land distribution, rural poverty, and social injustice. In developing countries, agrarian reform has been considered a mechanism for correcting historical patterns of land concentration and improving livelihoods among marginalized populations (Borras & Franco, 2012). However, contemporary debates increasingly examine agrarian reform through broader perspectives that include environmental sustainability, climate resilience, and ecological governance.

The traditional approach to agrarian reform emphasizes redistribution of land ownership. While redistribution remains important, recent scholarship argues that land justice requires a more comprehensive understanding of relationships between people, territory, and ecosystems. Land reform should therefore address not only ownership structures but also questions of participation, ecological sustainability, cultural recognition, and governance rights (Borras et al., 2020).

This perspective is particularly relevant in the context of climate change. Agricultural communities receiving land through reform programs may remain vulnerable if adaptation support, infrastructure, and institutional assistance are insufficient. Conversely, community-based land management systems may contribute significantly to climate resilience when local knowledge and ecological practices are recognized and supported (Altieri et al., 2015).

Indonesia's agrarian reform agenda reflects these broader tensions. The Basic Agrarian Law of 1960 was established with the objective of creating a more equitable land system by replacing colonial-era arrangements and strengthening social functions of land ownership. The law introduced principles emphasizing that land should contribute to collective welfare rather than serve exclusively private interests (Bakker & Moniaga, 2010).

However, decades after its establishment, implementation of agrarian reform remains incomplete. Persistent land conflicts, overlapping administrative authorities, and competing interests from plantation, mining, infrastructure, and conservation sectors continue to challenge the realization of land justice. These challenges are increasingly significant within climate adaptation contexts, where land is becoming central to both mitigation strategies and adaptation interventions.

For example, climate-related initiatives such as ecosystem restoration, carbon conservation programs, and renewable energy development may generate new pressures on land access if implemented without adequate safeguards for local communities. Therefore, integrating agrarian reform principles into climate policy is essential to ensure that climate action does not reproduce existing patterns of exclusion.

D. Constitutional Environmentalism and Natural Resource Governance

Constitutional environmentalism refers to the incorporation of environmental protection, resource governance, and ecological rights within constitutional frameworks. Globally, constitutional approaches to environmental governance have expanded as states recognize the relationship between environmental protection, human rights, and sustainable development (May & Daly, 2015). Constitutions increasingly serve not only as legal foundations for government authority but also as instruments for protecting environmental values and social justice.

Indonesia provides a distinctive example of constitutional environmentalism through Article 33 of the 1945 Constitution. The provision establishes that land, water, and natural resources are controlled by the state and must be utilized for the greatest prosperity of the people. This constitutional principle reflects an attempt to balance state authority over natural resources with obligations toward public welfare.

However, the interpretation and implementation of state control over natural resources have generated significant legal debates. While the constitutional principle provides justification for regulating resource exploitation and ensuring public benefits, broad state authority has also enabled extensive government discretion in allocating land for development purposes. Scholars

have argued that this creates tensions between developmental objectives and the protection of community rights (Butt & Lindsey, 2018).

From an environmental justice perspective, constitutional recognition of resource governance is insufficient unless accompanied by effective mechanisms protecting vulnerable communities. Legal recognition must translate into institutional practices that ensure participation, accountability, and equitable distribution of environmental benefits. Therefore, constitutional environmentalism should be understood not merely as state authority over resources but as a framework requiring responsible and justice-oriented governance.

E. Research Gap and Contribution

Although existing scholarship has extensively examined climate adaptation, environmental justice, and land governance separately, limited research has explored their intersection through a socio-legal perspective. Climate adaptation studies frequently emphasize vulnerability assessment, technological solutions, and institutional capacity, while paying comparatively limited attention to constitutional principles and agrarian institutions that shape access to land and resources.

Similarly, research on Indonesian agrarian reform has primarily focused on land conflicts, rural inequality, and political economy, with less attention given to how agrarian governance influences climate adaptation outcomes. The role of constitutional and agrarian law as foundations for climate justice remains insufficiently examined.

This gap is significant because climate adaptation increasingly involves decisions regarding land use, ecosystem management, and resource allocation. Without attention to land rights and legal recognition, adaptation policies may unintentionally reinforce existing inequalities or generate new forms of environmental injustice. This study contributes to the literature in three ways. First, it advances environmental justice scholarship by demonstrating the importance of legal land institutions in shaping climate adaptation outcomes. Second, it contributes to socio-legal research by examining how constitutional and agrarian frameworks influence climate governance. Third, it provides empirical insights from Indonesia, a climate-vulnerable country where land conflicts, development pressures, and adaptation challenges intersect.

By placing land rights at the center of climate justice analysis, this study argues that equitable climate adaptation requires not only environmental interventions but also transformation of the legal and institutional systems governing access, recognition, and control over land resources.

Methods

A. Research Design

This study adopts a qualitative socio-legal research approach to examine the relationship between constitutional land governance, agrarian reform, and climate adaptation policies in Indonesia. A socio-legal approach is appropriate because the research problem extends beyond the interpretation of legal texts and requires an examination of how legal principles operate within social, political, and institutional contexts (Banakar & Travers, 2005). While doctrinal legal analysis provides insights into the normative foundations of land rights and environmental governance, empirical investigation is necessary to understand how these legal frameworks influence the experiences of communities affected by climate change and land-use transformation.

The research integrates two complementary analytical approaches: doctrinal legal analysis and empirical socio-environmental analysis. The doctrinal component examines the constitutional and legislative foundations governing land rights, natural resource management, and climate adaptation. The empirical component investigates how these legal frameworks are implemented and experienced by affected stakeholders, particularly communities facing climate risks and land insecurity.

The analytical framework is informed by the principles of environmental justice, particularly the dimensions of distributive justice, procedural justice, and recognitional justice (Schlosberg, 2007; Fraser, 2008). These dimensions are used to evaluate whether Indonesia's constitutional and agrarian frameworks contribute to equitable climate adaptation outcomes.

B. Data Collection

This research employs a multi-source data collection strategy consisting of legal document analysis, case study investigation, and semi-structured interviews. The use of multiple data sources enables methodological triangulation and strengthens the reliability of findings by comparing evidence from different perspectives (Yin, 2018).

1. Legal and Policy Document Analysis

The first component of data collection involves systematic analysis of relevant legal and policy documents. The selected documents represent the primary institutional frameworks governing land rights, natural resources, and climate adaptation in Indonesia. The legal documents examined include:

- a. The 1945 Constitution of the Republic of Indonesia, particularly Article 33 concerning state authority over land, water, and natural resources.
- b. Law No. 5 of 1960 on Basic Agrarian Principles (Undang-Undang Pokok Agraria/UUPA) as the foundational legislation governing land relations and agrarian reform.
- c. Relevant regulations concerning:

- 1) agrarian reform implementation,
- 2) indigenous and customary land recognition,
- 3) environmental protection,
- 4) spatial planning,
- 5) climate adaptation governance.

In addition, the study analyzes climate-related policy documents, including:

- 1) Indonesia's Nationally Determined Contributions (NDCs),
- 2) National Adaptation Plan-related policies,
- 3) national development planning documents,
- 4) low-carbon development strategies,
- 5) disaster risk reduction policies.

The document analysis focuses on identifying how concepts of land rights, environmental protection, community participation, and social justice are incorporated into legal and policy frameworks. Particular attention is given to potential tensions between constitutional commitments to public welfare and development-oriented land-use policies.

2. Case Study Selection

To examine the practical implications of legal and policy frameworks, this study employs a case study approach focusing on selected climate-vulnerable regions experiencing land-related challenges. Case studies are appropriate for socio-legal research because they allow examination of complex interactions between law, institutions, and social practices within specific contexts (Yin, 2018). Case selection follows a purposive strategy based on three criteria:

- 1) High exposure to climate risks, including flooding, drought, coastal erosion, or ecosystem degradation.
- 2) Presence of land governance challenges, such as tenure insecurity, land-use conflicts, or competing claims between communities and development actors.
- 3) Relevance to climate adaptation policies, including areas where adaptation interventions influence land access or resource governance.

Potential case contexts include:

- 1) coastal communities affected by sea-level rise and erosion,
- 2) agricultural communities experiencing drought and climate variability,
- 3) forest-dependent or indigenous communities affected by conservation and land-use policies.

The case study approach allows the research to investigate whether legal recognition of land rights translates into effective protection and adaptive capacity at the community level.

3. Semi-Structured Interviews

To complement legal and documentary analysis, semi-structured interviews are conducted with key stakeholders involved in land governance and climate

adaptation. Semi-structured interviews are selected because they provide both consistency across participants and flexibility to explore emerging issues related to justice, governance, and lived experiences (Creswell & Poth, 2018). Participants are selected using purposive sampling based on their knowledge, institutional roles, or direct experiences related to land and climate adaptation. The participants include:

- 1) members of climate-vulnerable communities,
- 2) indigenous and customary land representatives,
- 3) local government officials,
- 4) policymakers involved in land and environmental governance,
- 5) legal practitioners,
- 6) civil society organizations working on land rights and environmental issues.

Interview questions focus on four main themes:

- 1) Experiences of land tenure security and climate vulnerability;
- 2) Effectiveness of legal protections for land rights;
- 3) Community participation in climate adaptation decision-making;
- 4) Institutional challenges affecting environmental justice outcomes.

The interviews aim to identify differences between formal legal commitments and practical experiences of communities affected by climate and land-use pressures.

C. Data Analysis

The collected data are analyzed through a combination of doctrinal legal analysis, thematic analysis, and comparative case analysis.

1. Doctrinal Legal Analysis

The doctrinal analysis examines the content, interpretation, and implications of constitutional and legislative provisions related to land rights and environmental governance. This approach evaluates:

- the normative meaning of state control over natural resources under Article 33;
- the objectives and principles of agrarian reform under UUPA;
- the relationship between land rights protection and climate adaptation obligations.

The analysis focuses not only on legal provisions but also on potential contradictions between legal principles and implementation practices. For example, while Indonesian agrarian law emphasizes social functions of land ownership, implementation may be affected by competing economic interests and institutional priorities.

2. Thematic Analysis

Interview transcripts and policy documents are analyzed using thematic coding. Following Braun and Clarke's (2006) approach, the analysis involves:

- 1) Familiarization with collected materials;
- 2) Identification of initial codes;
- 3) Development of analytical themes;
- 4) Review and refinement of themes;
- 5) Interpretation of findings through the environmental justice framework.

The coding process focuses on themes including:

- land tenure security,
- climate vulnerability,
- participation and representation,
- indigenous recognition,
- institutional coordination,
- policy implementation gaps.

These themes are subsequently connected to the three dimensions of environmental justice:

Environmental Justice Dimension	Analytical Focus
Distributive Justice	Access to land, adaptation resources, and protection from climate risks
Procedural Justice	Participation, transparency, and decision-making authority
Recognitional Justice	Recognition of indigenous rights, local knowledge, and community identities

3. Comparative Case Analysis and Triangulation

Comparative analysis is conducted across selected case study sites to identify similarities and differences in how legal frameworks influence climate adaptation outcomes. This approach enables examination of how variations in institutional capacity, governance arrangements, and community participation affect environmental justice outcomes. Data triangulation is applied by comparing findings from:

- legal documents,
- government policies,
- stakeholder interviews,
- community experiences.

Triangulation strengthens analytical validity by reducing reliance on a single source of evidence and allowing inconsistencies between formal policy objectives and practical implementation to be identified (Denzin, 2017).

D. Ethical Considerations

Given the involvement of potentially vulnerable communities, this research follows established ethical principles for qualitative and socio-legal research. Ethical considerations are particularly important because land conflicts and

climate vulnerability may involve issues of livelihood insecurity, political sensitivity, and historical marginalization. All participants are provided with information regarding:

- the objectives of the research;
- their voluntary participation;
- their right to withdraw;
- the intended use of research findings.

Informed consent is obtained prior to interviews. Participants' identities are protected through anonymization, and confidential information is handled securely. Special attention is given to avoiding extractive research practices when engaging with indigenous peoples and marginalized communities. The research seeks to ensure that community perspectives are represented accurately and respectfully, recognizing their knowledge systems and experiences as valuable sources of understanding rather than merely research data (Whyte, 2018). Furthermore, the study acknowledges the power asymmetries that may exist between researchers, institutions, and affected communities. Therefore, ethical engagement requires sensitivity to local contexts, cultural values, and community expectations throughout the research process.

E. Methodological Contribution

Methodologically, this study contributes by integrating constitutional analysis, agrarian law perspectives, and climate justice theory within a unified socio-legal framework. While previous studies often examine land governance or climate adaptation separately, this approach demonstrates how legal institutions shape the distribution of climate risks and adaptive capacities. By combining doctrinal and empirical approaches, the study moves beyond evaluating whether laws exist toward examining whether legal frameworks effectively promote environmental justice in practice. This methodological approach is particularly relevant for developing countries where climate adaptation outcomes are deeply influenced by historical land relations, institutional capacity, and patterns of social exclusion.

Results and Discussion

A. Constitutional and Agrarian Foundations of Climate Justice in Indonesia

The analysis of Indonesia's constitutional and agrarian frameworks reveals that the country possesses a relatively strong normative foundation for integrating environmental justice principles into climate adaptation governance. The 1945 Constitution, particularly Article 33, establishes that land, water, and natural resources are controlled by the state and must be utilized to achieve the greatest prosperity of the people. This constitutional provision represents a distinctive model of resource governance in which the state is not merely an

owner of natural resources but a trustee responsible for ensuring equitable management and public welfare (Butt & Lindsey, 2018).

From an environmental justice perspective, Article 33 provides important normative support for distributive justice because it establishes an obligation to ensure that natural resources contribute to collective welfare rather than benefiting only economically powerful actors. In principle, this constitutional mandate aligns with the fundamental argument of environmental justice scholarship that environmental resources and burdens should be distributed fairly among social groups (Schlosberg, 2007). Within the context of climate adaptation, state authority over land and natural resources creates a legal basis for developing policies that prioritize vulnerable communities exposed to climate risks.

However, the interpretation of state control (*hak menguasai negara*) has generated complex debates regarding the relationship between state authority, economic development, and community rights. While constitutional authority enables the government to regulate resource use in the public interest, broad interpretations of state power have historically facilitated large-scale land allocation for plantations, mining, infrastructure development, and other investment activities. Such practices have frequently produced tensions between national development priorities and the protection of local and customary land rights (Bakker & Moniaga, 2010).

This tension reflects a broader challenge within constitutional environmentalism: the existence of environmental principles within legal frameworks does not automatically guarantee environmentally just outcomes. As May and Daly (2015) argue, constitutional recognition of environmental values must be accompanied by effective institutional mechanisms capable of translating legal commitments into governance practices. In Indonesia, the constitutional principle of public welfare provides a strong normative foundation; however, implementation remains influenced by political-economic interests that shape land allocation and resource governance.

The Basic Agrarian Law of 1960 (Undang-Undang Pokok Agraria/UUPA) further strengthens the legal foundation for land justice. The UUPA was introduced as an instrument of agrarian transformation intended to replace colonial land institutions and establish a more equitable relationship between society, land, and the state. A central principle of the UUPA is that land possesses a social function, meaning that ownership and utilization of land cannot be separated from broader obligations toward societal welfare (Bakker & Moniaga, 2010).

This principle has significant implications for climate adaptation. If land is understood as a social resource rather than merely an economic commodity, land governance should prioritize ecological sustainability, livelihood security, and protection of vulnerable communities. Such an interpretation is consistent with

contemporary climate justice approaches, which argue that adaptation policies must address structural inequalities rather than simply reduce physical climate exposure (Eriksen et al., 2021).

Nevertheless, the findings indicate a significant gap between the normative aspirations of agrarian law and practical implementation. Although the UUPA provides a foundation for equitable land governance, the realization of agrarian justice has been constrained by several factors, including incomplete land redistribution, overlapping land claims, limited recognition of customary territories, and competition between conservation, investment, and community interests.

This implementation gap has direct implications for climate adaptation. Adaptation policies increasingly require decisions regarding land use, ecosystem restoration, relocation, and resource management. When communities lack secure legal recognition of their land rights, their ability to participate in these decisions becomes limited. Consequently, adaptation governance may reproduce existing inequalities by prioritizing actors with stronger legal, financial, and political capacities.

The findings therefore suggest that Indonesia's constitutional and agrarian frameworks contain substantial potential for advancing climate justice, but this potential remains under-realized due to institutional and governance limitations. The challenge is not the absence of legal principles supporting justice, but rather the difficulty of translating these principles into equitable land governance practices.

B. Land Tenure, Vulnerability, and Climate Adaptation Outcomes

The findings demonstrate that land tenure security represents a fundamental determinant of climate vulnerability and adaptive capacity in Indonesia. Communities experiencing insecure land access are often among the groups most exposed to climate hazards while simultaneously possessing the fewest institutional resources to respond effectively. This relationship highlights that climate vulnerability is not solely a consequence of environmental exposure but is also shaped by legal, political, and socioeconomic conditions.

Climate adaptation literature increasingly emphasizes that vulnerability emerges from interactions between environmental risks and social inequalities (Adger, 2006). In this context, land tenure functions as a critical institution that influences communities' ability to access resources, make long-term investments, and participate in adaptation planning. Secure tenure provides communities with greater confidence to adopt sustainable agricultural practices, restore ecosystems, and develop livelihood strategies that enhance resilience (FAO, 2021).

Conversely, insecure tenure can intensify climate vulnerability through multiple pathways. First, communities without recognized land rights often face

uncertainty regarding their future access to resources. This uncertainty discourages long-term investment in adaptation measures because households may lack assurance that they will continue benefiting from improvements made to the land. Second, insecure tenure reduces access to government support programs because many adaptation initiatives require formal recognition of land ownership or legal occupancy. Third, communities with weak tenure security often have limited bargaining power in negotiations concerning development projects, conservation initiatives, or climate-related interventions.

These dynamics are particularly significant in Indonesia, where many rural and indigenous communities maintain long-standing relationships with territories that are not fully recognized within formal legal systems. Although constitutional and legislative developments have increasingly acknowledged customary rights, implementation remains uneven across regions. The result is a situation where communities may possess strong historical and cultural relationships with land but limited formal authority over decisions affecting their territories.

From an environmental justice perspective, this represents a failure of recognitional justice. Indigenous and local communities are not merely vulnerable populations requiring protection; they are knowledge holders and environmental stewards whose practices may contribute to climate resilience. Failure to recognize these relationships reduces the effectiveness of adaptation strategies by excluding valuable forms of ecological knowledge from decision-making processes (Whyte, 2018).

The empirical analysis also indicates that climate impacts often reinforce existing land inequalities. Flooding, droughts, and coastal erosion increasingly affect communities whose livelihoods depend on agriculture, fisheries, and natural resources. However, these communities frequently have limited access to compensation mechanisms, climate finance, insurance systems, and institutional support. Consequently, climate change acts as a multiplier of existing vulnerabilities rather than an isolated environmental challenge.

For example, coastal communities facing sea-level rise experience not only physical risks from flooding and erosion but also uncertainty regarding relocation, compensation, and future access to livelihoods. Similarly, agricultural communities affected by drought experience reduced productivity while simultaneously facing constraints in accessing climate-resilient technologies and financial assistance. These examples demonstrate that effective climate adaptation requires addressing the institutional conditions that shape vulnerability.

The findings support the argument by Sikor et al. (2017) that land tenure should be understood as a central component of climate governance rather than merely an administrative issue. Adaptation strategies that ignore land rights may produce technically effective interventions while failing to address the social

dimensions of vulnerability. For example, infrastructure-based adaptation measures such as coastal protection systems or ecosystem restoration programs may reduce environmental risks but generate new inequalities if communities affected by these interventions lack participation and legal protection.

Therefore, land tenure security should be incorporated as a key indicator of climate adaptation effectiveness. Current adaptation assessments often focus on physical resilience indicators, such as infrastructure capacity, ecosystem restoration, or hazard reduction. However, these indicators provide an incomplete understanding of adaptation success because they do not capture whether vulnerable populations gain greater security, recognition, and decision-making power.

A climate justice approach requires shifting the focus from adaptation for communities toward adaptation with communities. This requires strengthening legal recognition of land rights, improving participation mechanisms, and ensuring that adaptation investments reach groups experiencing the greatest vulnerability. In this sense, land rights are not only legal protections but also essential institutional mechanisms enabling communities to become active participants in climate resilience strategies.

C. Agrarian Reform and Environmental Justice Outcomes

Agrarian reform occupies a central position in Indonesia's pursuit of social justice because it addresses historical inequalities in land ownership, access, and control. Theoretically, agrarian reform represents more than a redistribution mechanism; it is a process of restructuring social relations surrounding land and natural resources. From an environmental justice perspective, agrarian reform has the potential to advance distributive justice by improving access to land, strengthening livelihood security, and reducing structural inequalities among rural and marginalized populations (Borras & Franco, 2012).

The Indonesian Agrarian Reform Program (*Reforma Agraria*) reflects this broader understanding by seeking to address land inequality through two main approaches: asset reform and access reform. Asset reform focuses on the redistribution and legalization of land rights, while access reform aims to strengthen communities' ability to utilize land productively through institutional support, economic opportunities, and improved governance mechanisms. Conceptually, this approach aligns with contemporary understandings of climate resilience, which emphasize that adaptive capacity depends not only on resource availability but also on institutional empowerment and social inclusion (Eriksen et al., 2021).

The findings indicate that agrarian reform has significant potential to contribute to climate adaptation by strengthening community-based resource management. Secure access to land can encourage communities to adopt sustainable agricultural practices, protect ecosystems, and invest in long-term

adaptation strategies. Smallholder farmers and local communities with recognized land rights are more likely to maintain ecological resources because their livelihoods and future security are directly connected to the sustainability of those landscapes (Altieri et al., 2015).

However, the analysis also reveals that the contribution of agrarian reform to environmental justice remains constrained by implementation challenges. Although the legal framework provides mechanisms for improving land equity, practical outcomes have been limited by complex land administration systems, overlapping claims, institutional fragmentation, and competing economic interests. These challenges demonstrate that legal recognition alone is insufficient to achieve land justice.

One significant limitation is that agrarian reform implementation has historically emphasized administrative land certification rather than broader transformation of land governance relations. While land certification can provide greater tenure security, it does not automatically resolve deeper inequalities related to political power, access to resources, and participation in decision-making processes. As Borras et al. (2020) argue, land redistribution initiatives must be evaluated not only according to the quantity of land distributed but also according to whether they transform unequal relationships between communities, states, and economic actors.

This distinction is particularly important within climate adaptation contexts. Land redistribution without adequate institutional support may provide formal rights while leaving communities vulnerable to climate risks. For example, farmers receiving land access may still face challenges related to water scarcity, declining agricultural productivity, limited market access, and insufficient climate information. Therefore, climate-resilient agrarian reform requires integration between land redistribution, environmental management, and adaptation support systems.

Furthermore, the findings highlight tensions between agrarian reform objectives and competing land-use priorities. Indonesia's economic development strategy has historically relied on extensive land-based sectors, including plantations, mining, infrastructure development, and industrial agriculture. These sectors contribute significantly to economic growth but frequently overlap with areas inhabited or utilized by rural and indigenous communities. As a result, land designated for economic development may compete with land required for community livelihoods and ecosystem protection.

From an environmental justice perspective, these conflicts demonstrate the persistence of distributive and recognition inequalities. Communities with limited political influence often bear the environmental costs associated with land transformation, while economic benefits are frequently concentrated among more powerful actors. This pattern reflects what environmental justice scholars describe as unequal ecological exchange, where marginalized groups experience

disproportionate environmental burdens despite contributing relatively little to environmental degradation (Martinez-Alier, 2002).

The relationship between agrarian reform and climate adaptation therefore requires a broader interpretation. Agrarian reform should not be understood merely as a land allocation policy but as an institutional mechanism for creating equitable relationships between society, territory, and ecological systems. A climate justice-oriented agrarian reform framework would require three interconnected elements: First, secure recognition of community land rights, particularly for indigenous peoples and local communities whose territories have historically lacked formal recognition. Second, integration of ecological sustainability into land governance, ensuring that land redistribution supports climate-resilient livelihoods rather than encouraging environmentally harmful practices. Third, meaningful participation of communities in land-use decision-making, ensuring that adaptation strategies reflect local priorities and knowledge systems.

Without these elements, agrarian reform risks becoming disconnected from climate adaptation objectives. Conversely, when integrated with environmental justice principles, agrarian reform can serve as a foundation for building socially inclusive and ecologically sustainable adaptation pathways.

D. Land Conflicts, Development Pressure, and Climate Adaptation Challenges

The relationship between land governance and climate adaptation in Indonesia is further complicated by persistent conflicts arising from competing claims over land use and resource control. The findings demonstrate that climate adaptation policies do not operate within politically neutral spaces; rather, they interact with existing development priorities, economic interests, and historical patterns of land inequality.

Indonesia's development trajectory has relied substantially on land-based economic activities, including plantation expansion, mineral extraction, infrastructure development, and urbanization. While these activities have contributed to economic growth and national development objectives, they have also generated significant social and ecological consequences, particularly for communities dependent on land-based livelihoods (Lucas & Warren, 2013).

Land conflicts frequently emerge when state-authorized projects overlap with territories claimed or used by local communities. These conflicts reflect competing understandings of land value: while state and private actors often view land primarily as an economic resource, local communities may understand land as a source of identity, livelihood, cultural continuity, and ecological responsibility. This difference illustrates the importance of recognitional justice in environmental governance.

The findings indicate that inadequate recognition of local land relationships can undermine climate adaptation outcomes. When communities are excluded from decisions regarding land use, adaptation interventions may fail to address local vulnerabilities or may generate unintended negative consequences. For example, conservation initiatives designed to protect ecosystems may restrict traditional resource practices without providing alternative livelihood options. Similarly, infrastructure projects intended to reduce climate risks may result in displacement or loss of access to productive resources.

This phenomenon reflects what scholars describe as maladaptation, where interventions designed to address climate change inadvertently increase vulnerability or inequality (Barnett & O'Neill, 2010). Maladaptation is particularly relevant in land-related climate policies because adaptation measures often require significant spatial interventions, including relocation, ecosystem restoration, and land-use regulation.

For Indonesia, this challenge is evident in the interaction between climate mitigation, conservation, and community rights. Programs related to forest conservation, carbon management, and ecosystem restoration may contribute to national climate goals but can generate tensions when implemented without adequate recognition of customary rights. The absence of strong participatory mechanisms may transform climate initiatives into new forms of land control rather than genuine pathways toward climate justice.

From the perspective of procedural justice, the key issue is not whether climate adaptation interventions are necessary, but whether affected communities have meaningful influence over their design and implementation. Participation limited to consultation or information sharing does not necessarily provide communities with decision-making authority. As Arnstein (1969) argues, participation without meaningful power-sharing risks becoming symbolic rather than transformative.

The findings also reveal institutional fragmentation as a major barrier to integrating land justice into climate adaptation governance. Land governance responsibilities are distributed among multiple institutions, including agencies responsible for land administration, environmental management, forestry, agriculture, and regional development. However, coordination between these institutions remains limited, resulting in inconsistent policies and overlapping authorities. This fragmentation creates challenges because climate adaptation requires integrated approaches that connect environmental management, social protection, and spatial planning. When land governance and climate governance operate separately, adaptation policies may overlook critical factors influencing vulnerability, particularly tenure insecurity and unequal access to resources.

The lack of integration also affects accountability mechanisms. Existing climate policy frameworks often emphasize technical indicators such as emission reductions, infrastructure development, or ecosystem restoration. However, they

provide limited assessment of whether adaptation initiatives protect land rights, enhance community participation, or reduce social inequalities. Consequently, climate governance may achieve environmental objectives while failing to address justice considerations.

These findings suggest that Indonesia's climate adaptation framework requires a shift from a primarily technocratic approach toward a rights-based governance model. Such a transformation would require recognizing land rights as an essential component of climate resilience rather than treating land issues as separate from climate policy. A rights-based climate adaptation approach would involve:

1. Strengthening legal recognition of customary and community land rights;
2. Integrating agrarian reform objectives into climate adaptation planning;
3. Ensuring meaningful participation of affected communities in land-use decisions;
4. Developing accountability mechanisms that evaluate social justice outcomes alongside environmental performance.

By addressing these institutional and governance challenges, Indonesia can move toward a climate adaptation framework that not only reduces environmental risks but also promotes equitable and inclusive development.

E. Institutional Fragmentation and Governance Challenges

The findings demonstrate that one of the most significant barriers to integrating land justice into climate adaptation policies is institutional fragmentation within Indonesia's governance system. Although climate adaptation requires coordination across multiple sectors, land governance, environmental management, development planning, and climate policy continue to operate through partially separated institutional structures. This fragmentation creates challenges in aligning legal mandates, administrative responsibilities, and implementation strategies.

Indonesia's decentralized governance structure further complicates climate and land governance. Since decentralization reforms, local governments have gained significant authority over spatial planning, natural resource management, and development implementation. While decentralization has the potential to improve responsiveness to local conditions, it has also produced variations in institutional capacity, regulatory interpretation, and governance quality across regions (Firman, 2010). Consequently, the effectiveness of land rights protection and climate adaptation varies significantly depending on local political, administrative, and institutional contexts.

From an environmental justice perspective, fragmented governance systems may generate unequal outcomes because communities' ability to access rights and adaptation resources depends heavily on institutional capacity. Regions with stronger administrative systems may be better positioned to

implement climate programs, recognize community rights, and manage land conflicts, whereas areas with limited capacity may experience weaker protection and greater vulnerability.

This finding supports broader climate governance literature emphasizing that adaptation effectiveness depends not only on available resources but also on institutional arrangements capable of coordinating knowledge, authority, and decision-making processes (Adger et al., 2014). Climate adaptation requires integration across environmental, social, and economic dimensions; therefore, institutional separation between land governance and climate policy represents a significant governance limitation.

A major consequence of institutional fragmentation is the limited integration of agrarian reform principles into climate adaptation planning. Although land access and tenure security are central determinants of adaptive capacity, climate adaptation policies often focus primarily on hazard reduction, infrastructure development, and ecosystem management. Land tenure issues are frequently treated as separate administrative matters rather than as fundamental components of climate resilience.

This separation creates a conceptual and practical gap. Climate adaptation interventions frequently require decisions regarding land use, relocation, conservation, and resource management, yet these decisions are often implemented without comprehensive consideration of existing land rights. As a result, adaptation policies may unintentionally reproduce patterns of exclusion by benefiting groups with stronger legal recognition while marginalizing communities with insecure tenure.

The findings also indicate weaknesses in monitoring and accountability mechanisms. Current evaluation systems for climate programs tend to emphasize environmental indicators, such as emission reductions, ecosystem restoration, or infrastructure performance. However, fewer mechanisms exist to evaluate whether adaptation initiatives promote equitable access, protect vulnerable communities, or enhance participation.

This limitation reflects a broader challenge in climate governance: the tendency to measure adaptation success through technical outcomes while overlooking social justice outcomes. As Newell et al. (2021) argue, climate justice requires institutional systems capable of evaluating not only whether climate risks are reduced but also who benefits, who participates, and whose knowledge is recognized.

Therefore, strengthening climate justice in Indonesia requires institutional reforms that bridge the divide between land governance and climate governance. Such reforms should include:

1. Developing integrated planning mechanisms connecting agrarian reform, spatial planning, and climate adaptation strategies;

2. Strengthening coordination between national and local institutions responsible for land and environmental governance;
3. Establishing justice-oriented monitoring indicators that evaluate social inclusion, participation, and equity outcomes;
4. Improving legal enforcement mechanisms to protect community and customary land rights.

Institutional integration is essential because climate adaptation cannot achieve long-term resilience if it ignores the social and legal foundations determining people's relationship with land.

F. Reinterpreting Land Rights Through a Climate Justice Perspective

The findings of this study suggest that land rights should be reconceptualized as a fundamental component of climate justice rather than treated solely as an issue of property regulation or agrarian administration. Conventional approaches often understand land rights primarily through questions of ownership, possession, and economic utilization. However, climate change requires a broader understanding of land as an institution that shapes vulnerability, resilience, identity, and ecological relationships.

From a climate justice perspective, secure land rights provide three essential functions.

First, land rights represent a mechanism of social protection. Communities with recognized tenure are better positioned to withstand climate shocks because they possess greater security over productive resources and livelihood systems. In contrast, communities facing uncertain tenure may experience multiple vulnerabilities simultaneously, including displacement risks, reduced investment capacity, and limited access to adaptation support.

Second, land rights constitute a mechanism of political recognition. Recognizing community and indigenous land rights acknowledges that different societies maintain diverse relationships with ecosystems. Indigenous territories, for example, are not simply economic spaces but cultural landscapes embedded with historical, spiritual, and ecological meanings (Whyte, 2018). Ignoring these relationships may undermine both social justice and environmental sustainability.

Third, land rights function as a mechanism of ecological governance. Secure community tenure can support sustainable resource management because communities with long-term relationships to territories often possess extensive ecological knowledge and incentives to maintain environmental conditions. Recent research demonstrates that indigenous and community-managed lands frequently contribute to biodiversity conservation and ecosystem protection (Dawson et al., 2021).

This perspective challenges approaches that view climate adaptation as primarily a technical process managed through state institutions and expert knowledge. Instead, it emphasizes that effective adaptation requires recognizing communities as rights holders and knowledge producers.

In the Indonesian context, this reinterpretation has important implications for understanding Article 33 of the 1945 Constitution and the Agrarian Law of 1960. Rather than interpreting state control over natural resources primarily as centralized authority, constitutional principles can be understood as establishing state obligations to ensure equitable, sustainable, and socially responsible resource governance.

Such an interpretation aligns with contemporary developments in environmental constitutionalism, where constitutional provisions increasingly serve as instruments for protecting environmental rights and ensuring government accountability (May & Daly, 2015). The constitutional mandate of public welfare therefore requires not only economic development but also protection of communities whose livelihoods depend on natural resources.

However, realizing this constitutional potential requires moving beyond formal recognition toward effective implementation. Legal recognition without institutional support, enforcement mechanisms, and participatory governance remains insufficient. Climate justice requires that communities possess not only legal rights on paper but also practical capacity to exercise those rights. Therefore, this study proposes that land rights should be considered a foundational pillar of climate adaptation governance. Climate resilience cannot be separated from questions of who controls land, who benefits from resource decisions, and whose knowledge influences adaptation strategies.

G. Implications for Environmental Law and Climate Policy

The findings contribute several important implications for environmental law and climate policy, particularly regarding the integration of land justice into adaptation governance. First, the study demonstrates that climate adaptation frameworks should expand beyond environmental risk management toward broader approaches addressing legal rights, institutional inequality, and social vulnerability.

Current climate governance approaches often prioritize technical solutions, including infrastructure development, ecosystem restoration, and technological innovation. While these approaches remain important, they may produce limited outcomes if underlying inequalities in land access and political representation remain unresolved. A climate justice approach requires recognizing that vulnerability is socially produced through historical patterns of exclusion and unequal resource governance.

Second, the findings suggest that agrarian reform should be repositioned within climate policy discussions. Although agrarian reform has traditionally

been associated with rural development and land redistribution, it also has significant implications for climate resilience. Secure and equitable land governance can enhance adaptive capacity by strengthening livelihood security, supporting sustainable resource management, and enabling community participation.

This argument has broader relevance beyond Indonesia. Many climate-vulnerable developing countries face similar challenges where land inequality, insecure tenure, and environmental degradation intersect with climate risks. Countries in Southeast Asia, Latin America, and Africa with histories of colonial land systems and ongoing resource conflicts may benefit from integrating land justice principles into climate adaptation strategies. Third, the findings highlight the importance of rights-based climate governance. Climate policies should incorporate safeguards ensuring that adaptation initiatives do not create new forms of displacement, exclusion, or inequality. This requires strengthening procedural mechanisms, including meaningful participation, access to information, and community involvement in decision-making.

The broader theoretical contribution of this study is the argument that environmental justice and climate adaptation should be analyzed through legal institutions governing land relations. While existing climate justice literature has emphasized inequality, participation, and recognition, this study demonstrates that land rights provide a critical institutional mechanism connecting these dimensions.

In this sense, land rights are not merely a legal or economic issue; they represent a fundamental condition for achieving equitable climate resilience. The effectiveness of adaptation policies depends not only on reducing environmental risks but also on transforming the social and legal structures that determine vulnerability. Therefore, Indonesia's experience provides an important lesson for global climate governance: sustainable adaptation requires a transition from risk management toward justice-oriented governance. Such transformation requires recognizing that climate resilience is inseparable from questions of land ownership, resource control, participation, and social inclusion.

Conclusion

A. Summary of Key Findings

This study examined the relationship between environmental justice, land rights, and climate adaptation governance in Indonesia by analyzing the role of the 1945 Constitution and the Basic Agrarian Law of 1960 as foundational legal frameworks. The analysis demonstrates that Indonesia possesses significant normative resources for advancing climate justice through constitutional and agrarian principles. Article 33 of the 1945 Constitution establishes the state's responsibility to manage land, water, and natural resources for public welfare,

while the Agrarian Law provides a legal foundation for equitable land governance and the social function of land ownership.

However, the findings reveal a persistent gap between normative commitments and practical implementation. Although Indonesia's constitutional and agrarian frameworks contain principles consistent with environmental justice, their transformative potential has been limited by institutional fragmentation, uneven enforcement, competing development priorities, and insufficient recognition of vulnerable communities' rights. Through the environmental justice framework, the study identifies three interconnected challenges. First, from the perspective of distributive justice, unequal access to land and adaptation resources continues to shape differences in climate vulnerability. Communities with insecure tenure often experience greater exposure to climate risks while possessing fewer opportunities to benefit from adaptation programs. This demonstrates that climate vulnerability is not solely determined by environmental exposure but also by social and legal conditions influencing access to resources.

Second, regarding procedural justice, the study finds that participation mechanisms in land and climate governance remain insufficiently inclusive. Although policy frameworks increasingly acknowledge stakeholder participation, decision-making processes often remain dominated by state institutions and powerful economic actors. Consequently, affected communities frequently participate as consultation subjects rather than as active decision-makers.

Third, concerning recognition justice, the study highlights continuing challenges in acknowledging indigenous peoples, customary communities, and local knowledge systems within climate adaptation governance. While legal developments have increasingly recognized the importance of customary rights, implementation remains uneven, resulting in persistent tensions between formal legal systems and community-based relationships with land.

The study further demonstrates that land rights should be understood as a central component of climate adaptation rather than as a separate issue within agrarian governance. Secure and recognized land rights provide communities with the institutional foundation necessary to develop adaptive capacity, maintain sustainable resource management practices, and participate meaningfully in climate governance. The central argument emerging from this research is that climate adaptation cannot achieve long-term resilience without addressing the legal and institutional structures that shape access to land and natural resources. Adaptation strategies that focus exclusively on environmental or technical interventions risk addressing climate symptoms while leaving underlying social vulnerabilities unresolved.

B. Policy and Legal Recommendations

Based on the findings, several policy and legal recommendations can be proposed to strengthen environmental justice within Indonesia's climate adaptation framework. First, integrating climate justice principles into land and climate governance frameworks. Indonesia's climate adaptation policies should explicitly incorporate environmental justice principles as core governance objectives rather than treating equity considerations as secondary concerns. Future climate strategies should evaluate not only environmental effectiveness but also whether adaptation interventions improve fairness in resource distribution, enhance participation, and recognize marginalized communities. This requires the development of justice-oriented indicators within climate adaptation monitoring systems. Such indicators should assess:

- equitable access to adaptation benefits;
- protection of vulnerable communities from climate-related displacement;
- participation of affected groups in decision-making;
- recognition of indigenous and customary land rights.

By institutionalizing these indicators, climate adaptation governance can move beyond technical performance assessment toward a more comprehensive evaluation of social and ecological outcomes.

Second, strengthening the implementation of agrarian reform within climate adaptation strategies. Agrarian reform should be repositioned as an important component of climate resilience policy. Current approaches often treat land redistribution and climate adaptation as separate policy domains, despite their strong interconnections. Strengthening the integration between agrarian reform and climate adaptation requires:

1. accelerating recognition and protection of community and customary land rights;
2. improving access reform mechanisms, including technical assistance, financial support, and climate-resilient livelihood programs;
3. ensuring that land redistribution contributes to ecological sustainability rather than merely increasing access to land.

A climate-sensitive agrarian reform approach would allow land governance to contribute simultaneously to poverty reduction, environmental protection, and adaptive capacity enhancement.

Third, improving institutional coordination between land governance and climate policy institutions. The study identifies institutional fragmentation as a major barrier to achieving climate justice. Land administration, environmental management, spatial planning, and climate adaptation remain governed through partially disconnected institutional arrangements. Therefore, stronger coordination mechanisms are required between:

- land administration agencies;
- environmental authorities;

- climate policy institutions;
- regional governments;
- community organizations.

Integrated planning frameworks should ensure that land-use decisions consider both climate risks and social justice implications. This is particularly important as climate adaptation increasingly involves spatial interventions such as ecosystem restoration, relocation programs, and infrastructure development.

Fourth, strengthening participatory and rights-based climate governance. Climate adaptation policies should move beyond consultation-based participation toward meaningful community involvement throughout the policy cycle. Communities affected by climate risks and land-use decisions should have opportunities to participate in:

- policy design;
- project planning;
- implementation;
- monitoring and evaluation.

Special attention should be given to indigenous peoples, rural communities, women, and other groups experiencing disproportionate climate impacts. Recognizing local knowledge systems is also essential. Community-based adaptation approaches often provide valuable insights into ecosystem management, livelihood strategies, and climate risk responses. Integrating such knowledge with scientific approaches can strengthen both adaptation effectiveness and social legitimacy.

Fifth, enhancing legal accountability and enforcement mechanisms. Although Indonesia has developed substantial legal frameworks concerning land and environmental governance, enforcement remains a critical challenge. Stronger accountability mechanisms are needed to ensure that constitutional principles and agrarian objectives translate into practical protection of rights. This includes:

- improving resolution mechanisms for land conflicts;
- strengthening protection against unlawful displacement;
- ensuring transparency in land allocation processes;
- improving access to legal remedies for affected communities.

Without effective enforcement, legal recognition alone cannot guarantee environmental justice.

C. Limitations and Future Research

This study has several limitations that should be acknowledged. First, the research adopts a qualitative socio-legal approach, which provides detailed insights into legal frameworks, institutional processes, and community experiences but does not quantify the broader distributional effects of land governance and climate adaptation policies across Indonesia. Future research

could complement qualitative findings with quantitative approaches, including spatial analysis of climate vulnerability, land tenure patterns, and adaptation investment distribution.

Second, although the study examines Indonesia as an important case of climate vulnerability and agrarian complexity, the findings are shaped by the country's specific historical, political, and institutional context. Comparative research involving other climate-vulnerable countries with agrarian reform histories would provide valuable insights into whether similar legal and governance challenges exist elsewhere. Third, this study focuses primarily on the relationship between national legal frameworks and climate adaptation governance. However, climate justice outcomes are often determined at local levels where communities interact directly with land institutions, development projects, and environmental changes. Future studies should therefore undertake more extensive community-based and longitudinal research to examine how land rights and climate adaptation evolve over time.

Future research could explore several important areas. First, comparative studies across Southeast Asian countries could examine how different constitutional and agrarian systems influence climate justice outcomes. Such research would contribute to broader debates on environmental constitutionalism and climate governance in the Global South. Second, longitudinal studies could investigate whether land recognition and agrarian reform programs produce measurable improvements in adaptive capacity over time. This would help determine whether legal reforms translate into meaningful improvements in community resilience. Third, participatory research approaches involving indigenous communities and local stakeholders could provide deeper understanding of how climate policies are experienced at the community level. Such research would strengthen recognition of local knowledge and contribute to more inclusive adaptation strategies. Finally, future scholarship should further investigate the relationship between land rights, climate finance, and emerging climate policies such as carbon markets, nature-based solutions, and ecosystem restoration initiatives. These areas are increasingly important because climate action itself may generate new land governance challenges if justice considerations are not incorporated.

Overall, this study contributes to environmental law and climate governance scholarship by demonstrating that land rights constitute a foundational dimension of climate justice. The Indonesian experience illustrates that effective climate adaptation requires more than technological innovation or environmental management; it requires transformation of the legal and institutional relationships governing access to land, participation, and recognition. Integrating environmental justice into land governance is therefore essential for achieving climate adaptation pathways that are not only resilient but also equitable and socially legitimate.

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Acknowledgment

None

Funding Information

None

Conflicting Interest Statement

The authors state that there is no conflict of interest in the publication of this article.

Publishing Ethical and Originality Statement

All authors declared that this work is original and has never been published in any form and in any media, nor is it under consideration for publication in any journal, and all sources cited in this work refer to the basic standards of scientific citation.

Generative AI Statement

N/A