



Beneath the Surface: Exploring the Role of Gender in Indonesia's Climate Justice Struggle through the Lens of Water Access

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Abstract

This study explores the intersection of gender and climate justice in Indonesia, focusing on the unequal access to water resources in the context of climate change. Women, particularly in rural and marginalized communities, often bear the brunt of water scarcity, which is exacerbated by climate-induced changes such as shifting rainfall patterns, droughts, and extreme weather events. Through qualitative interviews and participatory research with local communities, the study investigates how gender shapes both vulnerability to and agency in responding to water crises. The research critically examines the role of women in water management, as well as the gendered impacts of policies aimed at climate adaptation and water resource governance. While men traditionally control water access and distribution, women play a crucial role in managing household water needs and advocating for sustainable water practices. The study argues that gender-sensitive approaches to climate justice are essential for equitable water access, and that policies must recognize and address the unique challenges faced by women in water-scarce regions. By highlighting the ways in which gender dynamics influence both vulnerability and resilience, the research contributes to the broader conversation on integrating social equity into climate justice frameworks, offering policy recommendations to ensure more inclusive and effective climate adaptation strategies in Indonesia.



[Studi ini mengeksplorasi keterkaitan antara gender dan keadilan iklim di Indonesia, dengan fokus pada akses yang tidak merata terhadap sumber daya air dalam konteks perubahan iklim. Perempuan, khususnya di komunitas pedesaan dan terpinggirkan, seringkali menanggung beban terberat dari kelangkaan air, yang diperparah oleh perubahan akibat iklim seperti pergeseran pola curah hujan, kekeringan, dan peristiwa cuaca ekstrem. Melalui wawancara kualitatif dan penelitian partisipatif dengan komunitas lokal, studi ini menyelidiki bagaimana gender membentuk kerentanan dan kemampuan perempuan dalam menanggapi krisis air. Penelitian ini secara kritis mengkaji peran perempuan dalam pengelolaan air, serta dampak gender dari kebijakan yang bertujuan untuk adaptasi iklim dan tata kelola sumber daya air. Meskipun secara tradisional laki-laki mengendalikan akses dan distribusi air, perempuan memainkan peran penting dalam mengelola kebutuhan air rumah tangga dan mengadvokasi praktik air berkelanjutan. Studi ini berpendapat bahwa pendekatan yang peka gender terhadap keadilan iklim sangat penting untuk akses air yang adil, dan bahwa kebijakan harus mengakui dan mengatasi tantangan unik yang dihadapi perempuan di daerah yang kekurangan air. Dengan menyoroti bagaimana dinamika gender memengaruhi kerentanan dan ketahanan, penelitian ini berkontribusi pada percakapan yang lebih luas tentang pengintegrasian kesetaraan sosial ke dalam kerangka keadilan iklim, serta menawarkan rekomendasi kebijakan untuk memastikan strategi adaptasi iklim yang lebih inklusif dan efektif di Indonesia.]

Keywords: Gender, Climate Justice, Water Access, Indonesia, Climate Adaptation

Introduction

Climate change has increasingly transformed water security into one of the most critical environmental and social challenges of the twenty-first century. Rising temperatures, shifting precipitation patterns, prolonged droughts, and increasing climate variability have intensified pressures on freshwater availability, particularly in developing countries where communities remain highly dependent on climate-sensitive water resources (Bates et al., 2008; IPCC, 2022). In Indonesia, these challenges are becoming increasingly visible through recurring droughts, declining groundwater availability, saltwater intrusion in coastal areas, and disruptions to agricultural and domestic water supplies. Although Indonesia possesses significant freshwater resources, unequal geographical distribution, rapid urbanization, ecosystem degradation, and inadequate water governance have contributed to persistent inequalities in water access (Nugroho et al., 2021). Consequently, water insecurity is not merely an environmental problem but also a question of social justice concerning who has access to, control over, and decision-making power regarding essential resources.

Within climate justice scholarship, water access represents a fundamental dimension of environmental inequality because climate impacts are experienced unevenly across social groups. Climate justice approaches emphasize that climate change does not affect populations equally; rather, vulnerability is shaped by historical inequalities, economic conditions, institutional structures, and social identities (Schlosberg & Collins, 2014; Sultana, 2014). Communities with limited economic resources and weaker political representation often experience greater exposure to climate-related risks while possessing fewer adaptive capacities. In this context, water insecurity illustrates the intersection between environmental change and social inequality because access to water determines not only physical survival but also health, livelihoods, food security, and social wellbeing. Therefore, understanding climate justice requires examining not only the distribution of climate impacts but also the social processes that determine resource access and adaptation opportunities.

Gender represents one of the most significant yet frequently overlooked dimensions of climate vulnerability and adaptation. Across many developing regions, women are often primarily responsible for household water collection, domestic water management, and maintaining household resilience during periods of environmental stress (Dankelman, 2010; Eastin, 2018). These responsibilities mean that climate-induced water scarcity frequently increases women's unpaid labor burden, reduces available time for education or economic activities, and generates additional health risks. However, gendered climate vulnerability should not be interpreted as women being inherently vulnerable; rather, vulnerability emerges from socially constructed roles, unequal access to resources, and limited participation in environmental decision-making processes (Arora-Jonsson, 2011; Djoudi et al., 2016). Thus, gender analysis provides an important framework for understanding how climate change interacts with existing systems of inequality.

The relationship between gender and water access is particularly relevant in Indonesia, where social norms and household responsibilities often assign women a central role in managing water-related activities. In many rural and climate-sensitive areas, women are responsible for securing water for cooking, sanitation, childcare, and household consumption, while formal water governance structures frequently remain dominated by male actors (Resurrección, 2013). This creates a paradox: women possess extensive practical knowledge regarding local water conditions and adaptation strategies, yet they often remain excluded from formal decision-making institutions responsible for water management. As a result, climate adaptation policies that fail to incorporate gender perspectives may unintentionally reinforce existing inequalities by overlooking women's experiences, knowledge, and adaptive capacities.

The concept of climate justice provides a useful analytical framework for examining these dynamics because it connects environmental challenges with questions of equity, recognition, and participation. A gender-sensitive climate justice perspective argues that effective adaptation requires more than technological interventions or infrastructure development; it requires addressing structural inequalities that shape vulnerability and resilience (Kaijser & Kronsell, 2014; Tschakert et al., 2017). In the context of water governance, this means recognizing women not only as affected populations but also as active agents of adaptation and environmental management. Such an approach challenges traditional models of climate governance that often prioritize technical solutions while neglecting social relations and power structures influencing access to environmental resources.

Despite growing international attention to gender and climate change, significant research gaps remain regarding how gender shapes water access and climate adaptation experiences in Indonesia. Existing studies have extensively examined climate vulnerability, water governance, and rural livelihoods, but fewer studies have integrated gender analysis into discussions of water-based climate justice. Moreover, policy frameworks frequently acknowledge gender equality as an important principle while providing limited mechanisms to ensure meaningful participation of women in water governance and climate adaptation planning. Addressing this gap is essential for developing more inclusive climate policies capable of responding to the differentiated experiences of climate-affected communities.

Therefore, this article examines the relationship between gender, climate justice, and water access in Indonesia. It explores three central questions: (1) How does gender shape access to and control over water resources in climate-affected communities? (2) What roles do women play in responding to water scarcity and climate adaptation? and (3) To what extent do existing water and climate policies address gendered inequalities? By placing water access at the center of analysis, this study contributes to broader debates on climate justice by demonstrating that equitable climate adaptation requires recognition of gendered experiences, participation, and community-based knowledge systems.

Methods

This study employs a qualitative participatory research approach to examine the relationship between gender, climate justice, and water access in climate-vulnerable communities in Indonesia. A qualitative design is selected because the research focuses on understanding lived experiences, social relations, and institutional processes that shape unequal access to water resources, rather than measuring vulnerability solely through quantitative indicators (Denzin & Lincoln, 2018). Drawing on feminist political ecology and climate justice perspectives, the study conceptualizes gender not merely as a demographic

category but as a social structure influencing resource access, decision-making authority, and adaptive capacity (Rocheleau et al., 1996; Elmhirst, 2015). This approach enables the research to examine how climate-related water insecurity is experienced differently by women and men and how existing governance arrangements recognize or marginalize gendered knowledge and adaptation practices.

Data were collected through three complementary methods: semi-structured interviews, participatory community engagement, and policy document analysis. Interviews were conducted with community members, including women and men living in climate-sensitive areas affected by water insecurity, focusing on experiences of water scarcity, household adaptation strategies, gendered responsibilities, and participation in water governance. Participatory observations and community discussions were used to capture local practices of water management and collective adaptation strategies, particularly women's informal roles in sustaining household and community resilience. In addition, relevant policy documents related to water governance, climate adaptation, and gender mainstreaming were analyzed to identify the extent to which institutional frameworks address gender inequalities. The combination of multiple data sources allows methodological triangulation and provides a more comprehensive understanding of the interaction between climate impacts, social relations, and governance structures (Flick, 2018).

The collected data were analyzed using thematic analysis guided by a gender-sensitive climate justice framework. The analysis focused on three dimensions of justice: distributive justice, examining unequal exposure to water insecurity and resource access; procedural justice, assessing participation and decision-making opportunities; and recognition justice, evaluating whether women's experiences and knowledge are acknowledged within adaptation processes (Schlosberg, 2007; Walker, 2012). Ethical considerations were maintained throughout the research through informed consent, confidentiality protection, and respect for community knowledge and cultural contexts. Following feminist research principles, participants were treated as knowledge contributors rather than merely research subjects, recognizing their agency and lived experiences in shaping understandings of climate adaptation and water governance (Cornwall & Jewkes, 1995).

Analysis and Discussion

A. Gendered Experiences of Water Scarcity: Beyond Physical Shortage toward Social Inequality

Water scarcity in Indonesia should not be understood solely as a consequence of climatic variability or insufficient water availability; rather, it represents a socially differentiated experience shaped by gender relations, household responsibilities, and unequal access to resources. The analysis

demonstrates that climate-induced water stress produces uneven burdens within communities, with women frequently experiencing greater responsibilities in securing, managing, and allocating household water resources. During periods of drought or reduced water availability, women often become responsible for identifying alternative water sources, adjusting household consumption patterns, and ensuring water availability for domestic activities. These responsibilities increase women's unpaid labor burden and contribute to what feminist scholars identify as "time poverty," whereby environmental pressures reduce opportunities for education, employment, and participation in public decision-making (Moser, 1993; Eastin, 2018). Therefore, water insecurity represents not only an environmental challenge but also a social process through which existing gender inequalities are reproduced.

The gendered consequences of water scarcity also reveal limitations within conventional approaches to climate vulnerability assessment. Climate adaptation policies frequently emphasize physical exposure, infrastructure deficits, or economic losses while paying insufficient attention to the unequal distribution of social responsibilities associated with environmental change. From a climate justice perspective, such approaches risk producing incomplete understandings of vulnerability because they overlook how social institutions determine who bears the costs of climate impacts (Schlosberg & Collins, 2014). Women's experiences of water insecurity demonstrate that vulnerability emerges from the interaction between climate hazards and pre-existing social structures, including gender norms, labor divisions, and limited political representation. Consequently, two households facing similar levels of water scarcity may experience climate impacts differently depending on gender relations and resource access within the household and community.

Furthermore, the analysis challenges the tendency to portray women only as vulnerable victims of climate change. While women often experience disproportionate burdens, they simultaneously develop important forms of environmental knowledge and adaptive capacity through their daily engagement with water systems. Feminist political ecology emphasizes that women's relationships with natural resources generate situated knowledge regarding seasonal changes, resource availability, and community-based adaptation strategies (Rocheleau et al., 1996; Elmhirst, 2015). In many Indonesian communities, women's practical knowledge regarding water conservation, household adaptation, and resource management represents an important but frequently unrecognized contribution to climate resilience. Therefore, a gender-sensitive climate justice approach must move beyond vulnerability narratives and acknowledge women as active agents in shaping adaptation practices.

B. Gender Roles in Water Management: Recognition, Agency, and Unequal Decision-Making Power

The findings indicate that gender relations significantly influence patterns of water management and adaptation. Women often occupy central roles in everyday water governance because household water responsibilities are closely connected with cooking, sanitation, childcare, and family health. However, despite their extensive involvement in managing water resources, women's participation in formal decision-making processes remains limited. This creates a distinction between practical involvement and institutional recognition: women may manage water on a daily basis but remain excluded from community-level discussions regarding infrastructure development, resource allocation, and governance priorities. Such patterns reflect what climate justice scholars identify as a failure of recognitional and procedural justice, where affected groups are insufficiently acknowledged and excluded from decisions that directly influence their lives (Fraser, 2008; Walker, 2012).

This gap between responsibility and authority illustrates a broader challenge within environmental governance systems. Many water management institutions continue to operate through technical and administrative frameworks that prioritize engineering expertise and formal authority while undervaluing experiential and community-based knowledge. As a result, adaptation interventions may fail to address the practical realities of water insecurity. For example, infrastructure-focused approaches may increase water availability but overlook questions regarding accessibility, affordability, safety, and household-level management practices. Gender-sensitive climate adaptation requires recognizing that effective water governance depends not only on physical infrastructure but also on understanding social relations surrounding resource use (Sultana, 2011).

The analysis also reveals that women's adaptive practices frequently occur through informal networks and community cooperation rather than through formal institutional channels. Women often develop collective strategies such as sharing water resources, organizing household-level conservation practices, and disseminating environmental knowledge within communities. These forms of adaptation demonstrate significant social resilience but remain largely invisible within official climate governance frameworks. This invisibility reflects a broader tendency in climate policy to prioritize measurable technical outcomes while marginalizing forms of knowledge and adaptation that emerge from everyday social practices (Arora-Jonsson, 2011). Recognizing women's adaptive agency therefore requires transforming governance approaches from top-down intervention models toward more participatory and inclusive systems.

However, emphasizing women's agency should not obscure the structural inequalities that constrain their participation. Celebrating women's resilience without addressing unequal responsibilities may unintentionally reinforce

expectations that women should absorb the consequences of inadequate governance. A transformative climate justice approach must therefore combine recognition of women's knowledge with efforts to redistribute decision-making power and institutional authority. In other words, gender-responsive adaptation should not merely involve adding women into existing governance structures but should question and reform the structures that produce unequal participation in the first place.

C. Gender-Blind Climate and Water Policies: Institutional Limitations in Achieving Climate Justice

The analysis of Indonesian climate and water governance policies reveals a significant tension between formal commitments to gender equality and the limited integration of gender perspectives into implementation mechanisms. Although gender mainstreaming has become increasingly recognized within environmental policy frameworks, gender considerations are often treated as additional components rather than as fundamental principles shaping climate adaptation planning. This reflects a broader global challenge where climate policies frequently acknowledge gender inequality rhetorically but fail to address the institutional arrangements that reproduce unequal outcomes (Resurrección, 2013; Bee et al., 2021).

A major limitation of gender-blind policy approaches is their tendency to conceptualize communities as homogeneous groups. Such approaches assume that climate impacts and adaptation needs are shared equally among community members, ignoring differences in responsibilities, vulnerabilities, and capacities. In the context of water governance, this assumption is problematic because women and men often interact with water resources differently due to socially constructed roles. Policies that focus primarily on increasing water supply or improving infrastructure may therefore overlook critical questions regarding who manages water, who benefits from interventions, and whose knowledge informs decision-making processes.

From a climate justice perspective, these institutional limitations represent failures of both procedural and recognitional justice. Procedural injustice occurs when women and marginalized groups lack meaningful opportunities to participate in governance decisions, while recognitional injustice emerges when their experiences and knowledge are undervalued within policy frameworks (Schlosberg, 2007). Therefore, improving gender responsiveness in water governance requires more than increasing women's participation numbers; it requires creating institutional conditions where women's perspectives can influence planning priorities and adaptation strategies.

The Indonesian context illustrates the importance of moving from gender inclusion toward gender transformation. Gender-inclusive policies may acknowledge women as beneficiaries of climate programs, but transformative

approaches recognize women as decision-makers, knowledge producers, and leaders in environmental governance. This distinction is crucial because climate justice requires addressing the power relations that shape vulnerability rather than simply managing the consequences of inequality. Without such transformation, adaptation policies risk reproducing existing social hierarchies while claiming to promote resilience.

D. Toward Gender-Responsive Climate Justice: Reframing Adaptation and Water Governance

The findings suggest that achieving climate justice in Indonesia requires a fundamental reframing of water governance from a supply-oriented approach toward a rights-based and socially inclusive model. Water access should be understood not only as an issue of infrastructure provision but also as a matter of justice involving participation, recognition, and equitable distribution. A gender-responsive approach contributes to this transformation by highlighting how climate impacts are mediated through social relations and by emphasizing the importance of incorporating diverse forms of knowledge into adaptation processes.

Women's experiences demonstrate that local adaptation practices already exist within communities, but these practices require stronger institutional recognition and support. Community-based adaptation approaches that integrate women's knowledge can enhance the effectiveness and legitimacy of climate responses because they are grounded in local environmental realities (Tschakert et al., 2017). Rather than replacing local practices with externally designed solutions, climate governance should create spaces where community knowledge and scientific expertise can interact.

Nevertheless, gender-responsive climate governance should avoid framing women's participation as merely instrumental for achieving adaptation goals. Women's inclusion is not valuable only because it improves policy effectiveness; it is fundamentally a question of justice and democratic legitimacy. Recognizing women's rights, knowledge, and leadership represents an ethical requirement for addressing climate change equitably. Therefore, gender-sensitive water governance should involve institutional reforms that strengthen women's participation in decision-making, improve access to resources, and challenge social norms that limit environmental citizenship.

Ultimately, the struggle for climate justice in Indonesia's water governance reveals that environmental challenges cannot be separated from questions of power and inequality. Climate change intensifies existing vulnerabilities, but governance choices determine whether these vulnerabilities are reproduced or transformed. By placing gender at the center of analysis, this study demonstrates that sustainable water adaptation requires not only technical innovation but also social transformation. Climate justice is achieved when those most affected by

environmental change are recognized not merely as vulnerable populations but as essential actors in shaping more equitable and resilient futures.

Conclusion

This study demonstrates that water insecurity in Indonesia represents not only an environmental challenge but also a gendered climate justice issue. By examining water access through a gender-sensitive perspective, the analysis reveals that climate impacts are experienced unevenly due to existing social structures, unequal responsibilities, and differences in decision-making power. Women frequently bear disproportionate burdens in managing household water needs and responding to climate-induced scarcity, yet their knowledge and adaptive contributions remain insufficiently recognized within formal water governance systems. These conditions reflect broader dimensions of climate injustice, particularly distributive, procedural, and recognitional inequalities. However, the study also highlights that women should not be understood merely as vulnerable groups; rather, they are active agents who develop adaptive strategies, maintain community resilience, and contribute valuable ecological knowledge. Therefore, achieving climate justice requires moving beyond technical approaches to water adaptation and addressing the social and institutional structures that shape vulnerability and participation.

The findings have important implications for climate and water governance in Indonesia and other climate-vulnerable contexts. Gender-responsive adaptation should be integrated as a central component of water governance rather than treated as an additional policy consideration. This requires strengthening women's participation in decision-making processes, recognizing local and gendered knowledge systems, and developing community-based adaptation strategies that reflect diverse experiences of climate change. Future research should further explore comparative gender-climate dynamics across different regions of Indonesia and examine how institutional reforms can translate gender commitments into meaningful governance transformations. By placing gender equality at the center of climate adaptation, water governance can move toward more inclusive, equitable, and resilient pathways that address both environmental challenges and the social inequalities underlying them.

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