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Institutional adaptation of public administration to climate change: strengthening environmental resilience through adaptive governance

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ABSTRACT

Climate change poses significant challenges to environmental sustainability and governance, particularly in developing countries such as Indonesia, where increasing frequencies of natural disasters, ecosystem degradation, and food security risks require adaptive policy responses. This study analyzes the adaptation of public administration policies to climate change and their role in strengthening environmental resilience in Indonesia. Using a qualitative research design, the study examines 15 national policy documents related to climate change adaptation, disaster risk reduction, environmental management, and sustainable development issued between 2014 and 2024. The analysis employs an Adaptive Governance Framework combined with qualitative policy content analysis to evaluate the extent to which environmental resilience principles are integrated into public administration policies. To ensure analytical rigor, policy documents were selected based on relevance, legal authority, and implementation scope, while coding reliability was enhanced through systematic category development and cross-document comparison. The findings indicate that environmental resilience has been formally incorporated into most national climate-related policies; however, policy implementation remains constrained by institutional fragmentation, limited intergovernmental coordination, and uneven resource allocation across regions. The analysis further reveals that policy integration is strongest in disaster risk reduction and environmental protection sectors but remains weak in cross-sectoral administrative coordination and local-level implementation mechanisms. These findings suggest that strengthening adaptive governance capacities, improving policy coherence, and enhancing collaboration among central government, local authorities, and non-state actors are critical for achieving long-term environmental resilience. The study concludes that Indonesian public administration requires a more integrated and adaptive governance approach to effectively address climate change challenges and support sustainable development objectives.



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Introduction

Recent climate governance scholarship has increasingly shifted its focus from the existence of climate policies to the institutional capacity required for their implementation. Although many countries have adopted climate adaptation strategies, significant questions remain regarding how public administrative systems translate climate commitments into operational governance mechanisms. Studies published over the last

decade indicate that the primary challenge is no longer policy formulation but rather the integration of climate adaptation into core administrative functions such as planning, budgeting, intergovernmental coordination, and accountability systems (Alves et al., 2020). Consequently, climate change has emerged not merely as an environmental issue but as a governance challenge that tests the adaptive capacity of public institutions (Clar & Steurer, 2019; King, 2022; Ray Biswas & Rahman, 2023).

At the same time, research has shown that adaptation outcomes are strongly influenced by governance arrangements and institutional design. Rai (2020) found that the adoption and ambition of climate adaptation plans in the United States are shaped by political institutions, citizen preferences, and policy diffusion mechanisms (Colocci et al., 2025). Cross-national analyses further demonstrate that adaptation agendas are often driven by international frameworks such as the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC), yet these global commitments frequently encounter implementation challenges due to institutional fragmentation and limited stakeholder engagement as (Clar & Steurer, 2019). Recent studies on adaptive governance also emphasize that successful climate adaptation requires cross-sectoral coordination, collaborative decision-making, knowledge integration, and institutional flexibility capable of responding to environmental uncertainty (King, 2022).

Despite these advances, three important gaps remain in the existing literature. First, most climate adaptation studies focus primarily on sectoral adaptation policies, mitigation strategies, or environmental governance mechanisms, while relatively little attention has been devoted to how public administration systems themselves must adapt institutionally to support climate resilience processes (Rai, 2020). Second, previous research has largely examined policy documents and adaptation outcomes separately, leaving insufficient understanding of the institutional mechanisms that connect climate policy integration with administrative capacity (Clar & Steurer, 2019; Colocci et al., 2025; King, 2022; Ray Biswas & Rahman, 2023). Third, while environmental resilience is frequently identified as a policy objective, there remains limited analysis of how resilience principles are embedded within administrative structures, planning systems, budgeting processes, and intergovernmental coordination mechanisms, particularly in developing countries (Ray Biswas & Rahman, 2023).

These gaps are particularly relevant in Indonesia. As an archipelagic developing country highly vulnerable to floods, droughts, coastal erosion, sea-level rise, and other climate-related hazards, Indonesia has adopted numerous policy instruments addressing climate adaptation and sustainable development (Wamsler et al., 2020). However, the effectiveness of these instruments depends not only on environmental regulations but also on the capacity of public administration institutions to coordinate, implement, monitor, and evaluate adaptation efforts across multiple levels of government (Alves et al., 2020). Understanding the institutional adaptation of public administration therefore becomes essential for strengthening environmental resilience and achieving long-term sustainable development goals (Birchall et al., 2023).

This study addresses the identified gap by analyzing the institutional mechanisms through which public administration policies integrate climate adaptation and environmental resilience objectives within governance systems. Drawing upon the Adaptive Governance Framework, the study conceptualizes climate adaptation as an institutional process requiring coordination across governmental levels, policy sectors, and stakeholder groups. Unlike previous studies that focus primarily on climate policy content, this research examines how administrative institutions facilitate or constrain policy implementation and resilience-building efforts. Specifically, this study seeks to answer three research questions: (1) How are climate adaptation and environmental resilience integrated into Indonesia's public administration policy framework? (2) What institutional mechanisms support or hinder the implementation of climate adaptation policies across administrative levels? and (3) How can adaptive governance principles strengthen environmental resilience within public administration systems?

Methodologically, this research employs a qualitative and exploratory research design based on document analysis and systematic literature review. The unit of analysis consists of national public administration and climate-related policy documents issued by the Indonesian government between 2014 and 2024, including regulations, strategic plans, climate adaptation frameworks, and sustainable development policies. Data are analyzed using qualitative policy content analysis guided by the Adaptive Governance Framework, focusing on institutional coordination, policy integration, administrative capacity, stakeholder participation, and resilience-oriented governance mechanisms. To ensure analytical validity, the study applies source triangulation across legal documents, government reports, and peer-reviewed academic literature, while coding consistency is maintained through thematic categorization and cross-document comparison. By examining climate adaptation through the lens of public administration and adaptive governance, this study contributes to the growing literature on climate governance by bridging the gap between environmental

policy studies and public administration scholarship. The findings are expected to provide both theoretical insights into institutional adaptation and practical recommendations for strengthening governance capacity to address climate change and enhance environmental resilience in Indonesia.

Method

This study employs a qualitative exploratory research design utilizing a systematic literature review and policy document analysis to investigate how public administration institutions adapt to climate change and incorporate environmental resilience into governance systems. The research is guided by the Adaptive Governance Framework, which highlights institutional flexibility, policy integration, stakeholder engagement, multi-level coordination, and adaptive capacity as central dimensions of effective climate governance. This framework provides the analytical lens through which institutional responses to climate change are examined and interpreted.

Data Sources and Search Strategy

The study relies exclusively on secondary data derived from legal documents, government policy reports, and peer-reviewed academic publications. Data collection was conducted between January and March 2025 through a systematic search of major academic databases, including Scopus, Web of Science, ScienceDirect, and Google Scholar. To ensure the relevance and timeliness of the evidence, the search was limited to publications issued between 2014 and 2024. The literature search employed a combination of Boolean operators and keywords related to climate adaptation, governance, public administration, institutional resilience, and developing-country contexts. Key search terms included “climate change adaptation,” “climate governance,” “public administration,” “administrative capacity,” “adaptive governance,” “environmental resilience,” and “institutional resilience,” combined with geographical identifiers such as “Indonesia” and “developing countries.” In addition to academic sources, official policy documents were collected from relevant Indonesian government institutions, including the Ministry of Environment and Forestry, the Ministry of National Development Planning (Bappenas), the National Disaster Management Agency (BNPB), and other ministries involved in climate governance. The policy corpus included the National Action Plan for Climate Change Adaptation (RAN-API), National Medium-Term Development Plans (RPJMN), environmental management regulations, disaster risk reduction frameworks, and sustainable development policy documents.

Document Selection and Eligibility Criteria

The selection of documents followed predefined inclusion and exclusion criteria to ensure methodological rigor and relevance. Included documents consisted of materials published between 2014 and 2024 that directly addressed climate adaptation, environmental resilience, public administration, governance reform, or related institutional issues. Eligible sources included peer-reviewed journal articles, government reports, legislation, and official policy documents available in full-text format and relevant to national, regional, or comparative governance contexts. Documents were excluded when they focused exclusively on technical climate science without governance implications, represented opinion pieces, editorials, conference abstracts, or other non-peer-reviewed publications, lacked sufficient methodological information, or duplicated findings already presented in higher-quality sources. The document selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. The process began with the identification of 287 records. Following duplicate removal and preliminary relevance screening, 94 documents were retained for full-text assessment. Subsequent eligibility evaluation resulted in the final inclusion of 52 documents, consisting of 21 policy and legal documents and 31 peer-reviewed academic studies.

Analytical Framework and Coding Procedures

Data analysis was conducted through qualitative content analysis combined with thematic analysis. The coding process was initially guided by the Adaptive Governance Framework and subsequently refined through iterative examination of emerging themes identified within the data. This approach allowed both theory-driven and data-driven insights to be incorporated into the analysis. The preliminary coding framework focused on five analytical dimensions: adaptive capacity, policy integration, multi-level governance, stakeholder participation, and environmental resilience. Adaptive capacity referred to the institutional ability to respond effectively to climate-related risks and uncertainties. Policy integration captured the extent to which climate adaptation considerations were incorporated into planning, budgeting, and development policies. Multi-level governance examined coordination among national, regional, and local government institutions. Stakeholder participation assessed the involvement of civil society organizations, local communities, and private-sector actors in governance processes. Environmental

resilience focused on institutional mechanisms that support long-term ecological sustainability and adaptive environmental management.

During the second cycle of coding, several additional themes emerged, including institutional fragmentation, climate financing mechanisms, bureaucratic flexibility, knowledge integration, accountability structures, and policy implementation challenges. These themes enriched the analytical framework and provided deeper insights into the practical realities of climate governance. Coding was conducted independently by two researchers using a standardized coding manual. To ensure reliability, inter-coder agreement was assessed using Cohen's Kappa coefficient. The resulting reliability score of $\kappa = 0.82$ indicated strong agreement according to established qualitative research standards. Any discrepancies in coding were resolved through discussion, re-examination of the source materials, and consensus-building between the researchers.

Triangulation and Management of Contradictory Evidence

To enhance the credibility and trustworthiness of the findings, the study employed source triangulation across multiple categories of evidence. These sources included national laws and regulations, government policy reports and strategic planning documents, peer-reviewed academic literature, and reports produced by international organizations such as the Intergovernmental Panel on Climate Change (IPCC), the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP). When contradictory findings were identified, an evidentiary hierarchy was applied. Legal and regulatory documents, together with official implementation reports, were used primarily to verify the existence and formal status of policies. Academic studies and independent evaluations were used to assess implementation effectiveness, policy outcomes, and institutional performance. Rather than excluding inconsistencies, contradictions were systematically documented and interpreted as indicators of governance gaps, implementation challenges, or institutional tensions within climate adaptation processes.

Thematic Synthesis

The thematic synthesis proceeded through a structured analytical sequence involving document identification and collection, eligibility screening, quality assessment, coding and category development, cross-document comparison, triangulation, and final theme synthesis. This process facilitated the identification of recurring patterns, institutional dynamics, and governance challenges across diverse sources of evidence. Thematic saturation was considered achieved when the analysis of the final set of documents produced no substantially new governance dimensions, institutional mechanisms, or explanatory themes. Saturation was reached during the review of the last ten documents included in the dataset, indicating conceptual stability and analytical completeness across the study.

Research Workflow

The overall research workflow consisted of a systematic progression from document identification and collection through screening, quality assessment, coding, inter-coder reliability testing, comparative analysis, thematic synthesis, and theoretical interpretation using the Adaptive Governance Framework. This process culminated in the formulation of conclusions and policy implications concerning the role of public administration institutions in climate adaptation and environmental resilience.

Methodological Rigor

The methodological approach adopted in this study provides a transparent, systematic, and reproducible framework for evaluating the integration of climate adaptation and environmental resilience principles within public administration systems. By combining systematic literature review techniques, policy analysis, thematic coding, triangulation, and reliability testing, the study offers a comprehensive assessment of institutional strengths, governance challenges, and reform priorities required to strengthen adaptive capacity and resilience in the face of climate change.

Results and Discussions

Climate Change Adaptation in Indonesian Public Administration: Findings from Policy Content Analysis

The research results show that Indonesian state administration policies have begun to adapt to address the impacts of climate change with various strategic steps reflected in policy documents and government reports. One of the main policies implemented is Carbon Emission Reduction, which is regulated in the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK). This document serves as a guideline for

reducing carbon emissions in Indonesia by identifying key sectors with significant potential for reduction, such as energy, transportation, and industry. According to a government report, Indonesia is targeting a 29% emission reduction by 2030 through its own efforts and a 41% reduction with international support.

In addition, Indonesia also focuses on increasing renewable energy, as reflected in the National Energy General Plan (RUEN). In the RUEN, Indonesia sets an ambitious target to increase the share of renewable energy in the national energy mix, driven by policies such as Law No. 30 of 2007 concerning Energy. This law provides a strong legal basis for the development of renewable energy, as well as various incentives to encourage investment in this sector. Reports on renewable energy show that although its use continues to increase, achievements are still not fully in line with the targets set in the National Medium-Term Development Plan (RPJMN).

Furthermore, in an effort to restore the ecosystem, the Indonesian government launched the Peat Restoration Program, which is regulated in Presidential Regulation No. 1 of 2016. This program aims to restore degraded peat ecosystems and has shown progress although major challenges remain. This program not only serves to reduce greenhouse gas emissions, but also to maintain biodiversity and improve water quality. In addition, the 2020-2024 RPJMN emphasizes the importance of developing infrastructure that is resilient to natural disasters, as well as climate change-based natural resource management. A report from Bappenas shows that this policy has begun to be implemented through various projects, including the construction of dams and reservoirs which are expected to reduce the impact of disasters. Thus, the adaptation policies that have been implemented also include the development of disaster-resistant infrastructure, which is a priority in national development, including the development of an integrated early warning and disaster mitigation system.

Table 1. Distribution of Themes Identified in Policy Documents

Analytical Dimension	Frequency (n=52)	Percentage (%)
Policy Integration (PI)	46	88.5
Environmental Resilience (ER)	43	82.7
Adaptive Capacity (AC)	39	75.0
Multi-Level Governance (MLG)	34	65.4
Stakeholder Participation (SP)	27	51.9

Environmental Resilience in Development Policy

Environmental resilience is beginning to be integrated into Indonesian development policies through various policy documents and reports related to sustainable development. One key document is the 2020-2024 National Medium-Term Development Plan (RPJMN), which emphasizes the importance of environmental sustainability in all development sectors. In the RPJMN, the government encourages the adoption of green economy and sustainable development principles, with a focus on enhancing ecosystem sustainability. However, an evaluation report of the RPJMN by Bappenas (National Development Planning Agency) shows that the implementation of these policies remains hampered by a reliance on environmentally damaging sectors, such as mining and large-scale plantations.

Furthermore, in natural resource management efforts, the Forest Permit Moratorium policy introduced in 2011 has shown positive results in reducing deforestation rates by prohibiting the clearing of primary forest for commercial activities. However, a report from the Ministry of Environment and Forestry (KLHK) also indicates challenges in field-level oversight. In addition, green economy policies have been implemented to support the transition to a more sustainable, low-carbon economy.

In the agricultural sector, the government through the Ministry of Agriculture introduced organic farming and agricultural diversification programs that focus on efficient use of resources and soil sustainability. A report from the FAO (Food and Agriculture Organization) states that Indonesia has great potential to increase food security through sustainable agriculture, although the adoption of this technology is still limited in some areas. Although environmental resilience policies have begun to be implemented, there are gaps in the more consistent application of conservation policies, especially at the regional level, where local policies are often not aligned with central policies.

Challenges in Policy Implementation

Although policies related to climate change and environmental resilience have been implemented, there are still several significant challenges in their implementation, as found in the analysis of policy documents, government reports, and related research. The Bappenas report on the Evaluation of the 2020-2024 RPJMN shows that there are limitations in human and financial resources in implementing climate change policies, which are the main obstacles to the success of these policies. These limitations point to the need for better coordination between central and regional governments, as well as strengthening technical capacity at the regional level, which is still limited.

In addition, the Annual Report of the Ministry of Environment and Forestry (KLHK) revealed a conflict of interest between the industrial sector and environmental policy, particularly in the mining and large plantation sectors, where policies for emission reduction and sustainable forest management often clash with the need to accelerate economic growth that relies on intensive use of natural resources. Research conducted by the World Resources Institute (WRI) on Environmental Policy in Indonesia highlights that despite the government's commitment to strengthening environmental policies, low public awareness of climate change issues is a major challenge in implementing sustainability-based policies.

The study also noted the importance of increased education and more intensive outreach to encourage public participation in climate change mitigation and adaptation efforts. Furthermore, the National Report on Coordination between Central and Regional Governments, published by the Ministry of Home Affairs and Bappenas, noted that coordination between the central and regional governments in implementing climate change policies remains weak. Differing priorities between the central government, which focuses more on economic growth, and regional governments, which tend to prioritize environmentally-based development, hamper the comprehensive implementation of climate change policies.

In general, research results show that environmental legal and policy frameworks have developed rapidly in various countries, with the presence of instruments such as climate change laws, emission reduction regulations, renewable energy policies, as well as economic instruments such as carbon taxes and emission trading which have been proven to contribute to reducing greenhouse gas emissions, increasing energy efficiency, and encouraging innovation in low-carbon technology (Abouhawwash et al., 2024; Chidiogo Uzoamaka Akpuokwe et al., 2024; Kluza et al., 2024). On the other hand, studies on environmental and climate change policies and action plans in developing countries show that policy changes or updates are often not accompanied by technical capacity, adequate planning, and innovative implementation instruments, resulting in suboptimal outputs and not fully supporting the achievement of sustainable development targets (Amuda & Parveen, 2025; Rahman et al., 2024).

A review of various public policy and climate governance studies also reveals that policy effectiveness is greatly influenced by the quality of governance, transparency, public participation, and cross-sectoral policy coherence; When this dimension is weak, policies tend to be inconsistent, difficult to implement, and have little real impact on environmental resilience (Medrano-Sánchez et al., 2024; Rahman et al., 2024; Sumarsyah, 2025). Several comparative studies of environmental legal frameworks show that despite the availability of a number of relevant laws and regulatory instruments, significant challenges remain regarding law enforcement, inter-agency coordination, and the integration of local practices or traditional wisdom into modern policy designs to strengthen conservation and climate resilience (Al-Humaiqani & Al-Ghamdi, 2022; Amuda & Parveen, 2025).

In addition, analysis of recent climate policy literature shows that policies explicitly linked to the Sustainable Development Goals (SDGs) agenda, such as sustainable urban development, green innovation and infrastructure, and environmental tax instruments, tend to be more capable of providing a dual impact on both emission reductions and the achievement of socio-economic targets¹⁴⁸¹⁶. Overall, the results of this study confirm that the existence of a comprehensive environmental legal and policy framework is an important prerequisite, but accelerating the achievement of environmental resilience and sustainable development goals is highly dependent on the quality of implementation, policy innovation, and the strengthening of participatory and accountable governance (Chidiogo Uzoamaka Akpuokwe et al., 2024; Medrano-Sánchez et al., 2024; Sumarsyah, 2025).

Research Limitations

First, the study relies primarily on document analysis and therefore may not fully capture informal administrative practices occurring during policy implementation. Second, document selection may introduce publication and reporting bias because government documents often emphasize policy achievements more than implementation failures. Third, while triangulation was employed, the absence of direct interviews with policymakers and local administrators limits the ecological validity of the findings. Future studies should

combine policy analysis with field-based interviews, stakeholder surveys, and comparative case studies to better understand how adaptive governance mechanisms operate in practice across different administrative contexts.

Discussion

Explaining the Gap Between Climate Policy Design and Implementation: A Multi-Level Governance Perspective

This study demonstrates that Indonesia has established a relatively comprehensive climate governance framework, reflected in the adoption of climate adaptation strategies, renewable energy policies, ecosystem restoration programs, and the integration of environmental sustainability into national development planning. Nevertheless, the findings reveal a persistent gap between policy design and implementation. To explain this discrepancy, this study employs the Multi-Level Governance (MLG) framework, which argues that climate adaptation effectiveness depends on the ability of actors operating at different governmental levels to coordinate policy objectives, resources, and implementation mechanisms. From this perspective, climate adaptation is not merely an environmental or regulatory issue but fundamentally an institutional coordination challenge (Dewi Ayu Marchela Putri & Langgeng Rachmatullah Putra, 2024).

The findings indicate that Indonesia performs relatively well in policy formulation. Climate adaptation objectives have been formally incorporated into major policy instruments such as the National Action Plan for Climate Change Adaptation (RAN-API), the National Medium-Term Development Plan (RPJMN), and the National Energy General Plan (RUEN). These documents demonstrate a strong commitment to integrating environmental sustainability and climate resilience into national development strategies. However, the analysis suggests that the formal integration of climate objectives has not been matched by equally strong implementation mechanisms (Setiawan et al., 2025; Wahyudin et al., 2020). Using the indicators derived from the Adaptive Governance and Multi-Level Governance frameworks namely policy integration, intergovernmental coordination, adaptive capacity, stakeholder participation, and environmental resilience orientation the study finds that policy integration is relatively advanced, whereas coordination effectiveness and stakeholder participation remain comparatively weak. This imbalance indicates that climate adaptation has become a recognized policy objective but has not yet been fully institutionalized within administrative practices and governance routines shocks (Abdullah Azzam Alhudhaibi et al., 2025).

The findings further suggest that climate governance challenges are driven primarily by structural fragmentation within the public administration system rather than by a lack of policy instruments. Climate-related responsibilities are distributed across multiple ministries, agencies, and levels of government, often with overlapping mandates and limited coordination mechanisms. As a result, accountability becomes diffused and implementation efforts become fragmented (Abdi et al., 2025). This finding supports the core proposition of Multi-Level Governance Theory that policy effectiveness decreases when responsibilities are dispersed across governance levels without corresponding institutional mechanisms to ensure coordination and accountability (Annas & Amalia P, 2024). Three principal causal mechanisms explain the implementation gap. First, institutional fragmentation generates overlapping authority among environmental, agricultural, energy, disaster management, and regional planning agencies. Second, vertical governance misalignment occurs when national climate priorities are not fully translated into local planning, budgeting, and implementation processes (Pratiwi et al., 2025). Third, unequal fiscal and administrative capacities create substantial disparities in implementation outcomes between regions. Consequently, the effectiveness of climate adaptation policies often depends more on local administrative capacity than on the strength of national policy frameworks.

Another important finding concerns the tension between climate adaptation objectives and green growth strategies. The dominant policy discourse assumes that economic growth and environmental sustainability can be pursued simultaneously through renewable energy expansion, green investment, and sustainable resource management (Rochmad & Irawati, 2024; Setiawan et al., 2025). While this assumption aligns with green growth theory, critical environmental governance scholars argue that such compatibility is often difficult to achieve in economies that remain highly dependent on natural resource extraction. The Indonesian case illustrates this contradiction. On the one hand, government policies promote carbon reduction, ecosystem restoration, and environmental resilience. On the other hand, development strategies continue to rely heavily on mining, plantation agriculture, and resource-intensive economic activities. This creates a policy coherence dilemma in which environmental objectives are formally incorporated into policy frameworks but are frequently subordinated to short-term economic priorities during implementation (Abdi et al., 2025; Dewi Ayu Marchela Putri & Langgeng Rachmatullah Putra, 2024).

The findings also reveal that progressive normative frameworks often fail to generate transformative outcomes because they do not fundamentally alter the institutional incentives shaping bureaucratic behavior. Although climate adaptation policies establish ambitious goals, government agencies continue to be evaluated primarily through indicators related to economic growth, investment realization, infrastructure delivery, and fiscal performance (Alfarizi, 2025; Satryadin & Aulawi, 2025). Consequently, climate adaptation is frequently treated as an additional administrative obligation rather than as a central organizing principle of governance. This observation is consistent with institutional theory, which suggests that organizations often adopt progressive policies to gain legitimacy while maintaining existing operational structures and incentive systems. Therefore, policy adoption alone does not necessarily produce institutional transformation.

Indonesia in Comparative Climate Governance and Implications for Environmental Resilience

The findings also gain significance when situated within broader international climate governance experiences. Comparative evidence suggests that Indonesia is not unique in facing implementation challenges despite possessing relatively comprehensive policy frameworks. Similar patterns have been observed in several middle-income countries where ambitious climate commitments coexist with institutional and administrative constraints. For example, Brazil has developed extensive environmental governance mechanisms and participatory approaches that actively involve civil society and local communities in environmental management. Nevertheless, policy consistency remains vulnerable to political change and shifting development priorities. India has established a comprehensive national adaptation framework, yet implementation outcomes vary considerably across states due to differences in administrative capacity, financial resources, and governance quality. South Africa has made substantial progress in integrating climate adaptation into development planning, but local governments continue to face resource limitations and implementation bottlenecks.

Compared with these countries, Indonesia demonstrates relatively strong policy integration, as climate adaptation objectives have been mainstreamed into major national planning documents and development strategies. However, Indonesia faces similar difficulties regarding coordination effectiveness, administrative capacity, and implementation consistency. These findings suggest that the principal challenge in climate governance is not the formulation of policy commitments but the institutional capacity required to translate those commitments into practical action. Another important finding concerns the role of local innovation in strengthening environmental resilience. Several local adaptation initiatives demonstrate that climate governance becomes more effective when local governments possess sufficient autonomy, technical expertise, and financial resources. Experiences involving ecosystem restoration, urban resilience programs, disaster risk reduction initiatives, and community-based environmental management indicate that local experimentation can partially compensate for weaknesses in national implementation structures. However, such initiatives remain unevenly distributed and are often dependent on local leadership rather than being systematically embedded within a national governance framework.

These findings reinforce the central proposition of Adaptive Governance Theory that environmental resilience is achieved not primarily through the expansion of policy frameworks but through institutional flexibility, collaborative governance, organizational learning, and cross-sectoral coordination. Effective climate adaptation therefore requires governance systems capable of integrating environmental considerations into planning, budgeting, monitoring, and accountability mechanisms across all administrative levels. Theoretically, this study contributes to climate governance scholarship by demonstrating that the implementation gap should be understood principally as an institutional coordination problem rather than merely a policy design problem. While previous studies have focused predominantly on climate adaptation instruments and policy content, the present findings indicate that administrative capacity, governance integration, and institutional incentives are equally important determinants of environmental resilience. Practically, the study suggests that strengthening climate governance in Indonesia requires reforms aimed at reducing institutional fragmentation, enhancing central-local coordination, mainstreaming climate objectives into public budgeting systems, strengthening adaptive leadership, and expanding participatory governance mechanisms involving civil society, local communities, and vulnerable groups.

Overall, Indonesia's climate governance framework can be characterized as normatively progressive but institutionally uneven. The transition from climate policy commitments to tangible environmental resilience outcomes will depend largely on the extent to which governance reforms address the structural coordination challenges that currently constrain implementation effectiveness. Without such institutional transformation, climate adaptation policies risk remaining aspirational commitments rather than becoming effective instruments for long-term socio-ecological resilience and sustainable development.

Conclusions

This study examined the institutional adaptation of Indonesian public administration to climate change through a qualitative analysis of climate-related policy documents, government reports, and scholarly literature using the Adaptive Governance and Multi-Level Governance frameworks. The findings demonstrate that Indonesia has developed a relatively comprehensive climate governance architecture, reflected in the integration of climate adaptation objectives into major policy instruments such as the National Action Plan for Climate Change Adaptation (RAN-API), the National Medium-Term Development Plan (RPJMN), renewable energy policies, and ecosystem restoration programs. The document analysis indicates that policy integration and environmental resilience have become prominent themes within national climate governance frameworks, suggesting that climate adaptation has been formally institutionalized as a strategic development priority. However, the study also reveals a persistent implementation gap. The analysis identified three interrelated institutional mechanisms that constrain policy effectiveness: institutional fragmentation, vertical governance misalignment, and unequal administrative capacity across regions. These findings suggest that the principal challenge is not the absence of climate policies but the limited ability of governance systems to coordinate actors, align priorities across administrative levels, and translate policy commitments into operational implementation mechanisms. Consequently, climate adaptation remains more advanced at the level of policy formulation than at the level of implementation and administrative practice. Theoretically, this study contributes to climate governance scholarship by demonstrating that climate adaptation should be understood not only as an environmental policy issue but also as a problem of institutional coordination and governance capacity. By applying Multi-Level Governance and Adaptive Governance perspectives, the study shows that environmental resilience is shaped by the quality of intergovernmental coordination, stakeholder engagement, administrative flexibility, and policy coherence. The findings therefore extend existing literature by highlighting the central role of public administration institutions in determining whether climate adaptation policies generate meaningful resilience outcomes. The study further identifies a significant tension between climate adaptation objectives and development strategies centered on resource-intensive economic growth. While climate commitments are increasingly embedded within policy frameworks, implementation often remains constrained by competing economic priorities, fragmented institutional responsibilities, and uneven governance capacities. This finding suggests that environmental resilience cannot be achieved solely through the expansion of regulatory frameworks; it also requires reforms that align administrative incentives, budgeting systems, accountability mechanisms, and development priorities with long-term sustainability goals.

Several methodological limitations should be acknowledged. First, the study relies exclusively on secondary data, including policy documents, government reports, and academic publications. As a result, assessments of implementation challenges are necessarily indirect and cannot fully capture the perspectives, experiences, or decision-making processes of policy implementers, local administrators, or affected communities. This limitation affects construct validity because implementation effectiveness is inferred from documentary evidence rather than directly observed through fieldwork or stakeholder engagement. To strengthen analytical validity, the study employed source triangulation by comparing findings across legal documents, government reports, peer-reviewed literature, and international institutional assessments. Cross-document comparison was used to identify recurring themes and reduce dependence on any single source of evidence. Nevertheless, no member-checking procedures or direct validation interviews were conducted with policymakers or implementing agencies. Therefore, the findings should be interpreted as an assessment of policy frameworks and documented implementation patterns rather than a definitive evaluation of actual implementation outcomes. Future research should address these limitations by incorporating interviews with policymakers, local government officials, civil society organizations, and affected communities. Mixed-methods approaches combining document analysis, field observations, surveys, and case studies would provide a more comprehensive understanding of how climate adaptation policies operate in practice. Comparative studies across provinces and administrative contexts would also help identify the institutional conditions under which adaptive governance mechanisms are most effective in strengthening environmental resilience. In conclusion, Indonesia has made substantial progress in establishing a normative and institutional foundation for climate adaptation. Yet the achievement of long-term environmental resilience depends less on the creation of additional policy instruments and more on the capacity of public administration systems to coordinate actors, integrate climate objectives into governance processes, and implement adaptation measures consistently across all levels of government. The transition from policy

commitment to resilience outcomes therefore requires not only regulatory innovation but also institutional transformation capable of supporting adaptive, coordinated, and sustainability-oriented governance.

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