

FRAGMENTATION IN THE IMPLEMENTATION OF INDONESIA'S 2030 NATIONALLY DETERMINED CONTRIBUTION: A WHOLE-OF- GOVERNMENT PERSPECTIVE

Ningrum Fauziah Yusuf¹⁾*, Farida Nuraeni Yusuf²⁾
*UIN Sunan Gunung Djati Bandung, Indonesia¹⁾**
Universitas Padjadjaran, Bandung, Indonesia²⁾
*Email: ningrumfzhy@uinsgd.ac.id**

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Abstract

The implementation of Nationally Determined Contributions (NDCs) presents a significant challenge for climate change governance, particularly as the 2030 target deadline approaches. Although Indonesia has strengthened its commitment through an Enhanced NDC and formulated various supporting policies, implementation on the ground continues to face obstacles that reveal fragmentation within government governance. This study aims to analyze the fragmentation of 2030 NDC implementation in Indonesia using a "Whole of Government" perspective. It employs a qualitative approach involving document analysis of various national and international policy documents including the Enhanced NDC, the First Biennial Transparency Report, the 2025–2029 National Medium-Term Development Plan (RPJMN), OECD reports, and other supporting materials. The findings indicate that NDC implementation is still hampered by three primary forms of fragmentation: suboptimal horizontal integration among ministries and agencies, weak vertical integration between central and regional governments, and disparities in institutional capacity across regions. These factors result in policy implementation that is sectoral and inconsistent, failing to fully support the achievement of the 2030 Enhanced NDC targets. This study contributes to the field of public administration by demonstrating that climate change policy implementation within a multilevel governance system must be understood through the lens of government integration (Whole of Government) rather than merely as an issue of interagency coordination.

Keywords: Nationally Determined Contribution, Implementation Fragmentation, Institutional Capacity, Whole of Government.

A. INTRODUCTION

Climate change is no longer viewed solely as an environmental issue but has evolved into a global governance challenge that requires policy integration across sectors and multiple levels of government. Although nearly all countries have expressed their commitments through Nationally Determined Contributions (NDCs) under the implementation of the Paris Agreement, the findings of the First Global Stocktake indicate that the current pace of global emissions reduction remains insufficient to keep the increase in global temperature within the

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1.5°C threshold. This situation reflects a shift in the international climate agenda from merely encouraging countries to establish emission reduction targets to ensuring that these commitments are translated into effective, integrated, and accountable policy implementation. This shift has become increasingly urgent as 2030 represents a critical milestone for achieving NDC targets. Consequently, governments' capacity to coordinate cross-sectoral policies, align implementation across different levels of government, and ensure consistency in policy execution has become a determining factor in the success of global emission reduction efforts (Calvin et al., 2023; UNFCCC, 2023).

Within the global climate change mitigation agenda, Indonesia occupies a strategic position due to its vast tropical forests while simultaneously facing significant emissions from the energy, forestry and land use, agriculture, waste, and industrial processes sectors. As part of its implementation of the Paris Agreement, the Government of Indonesia has updated its commitments through the Enhanced Nationally Determined Contribution (Enhanced NDC) by increasing its emission reduction target to 31.89% through domestic efforts and 43.20% with international support by 2030, compared with the Business-as-Usual (BAU) scenario. These commitments have subsequently been integrated into various national policy instruments, including the 2025–2029 National Medium-Term Development Plan (RPJMN), the Indonesia's FOLU Net Sink 2030 Operational Plan, energy transition policies, and strengthened climate financing as part of the country's low-carbon development strategy. Despite the increasingly comprehensive policy framework, official reports indicate that implementation challenges remain substantial. Findings from Indonesia's First Biennial Transparency Report (BTR) and the Global Stocktake emphasize that accelerating emissions reduction requires stronger implementation across all levels of government if the Enhanced NDC 2030 targets are to be achieved effectively (Government of Indonesia, 2022; UNFCCC, 2024).

The existence of various policy instruments demonstrates that the principal challenge in implementing Indonesia's NDC no longer lies in the availability of regulations or the country's commitment to achieving the Enhanced Nationally Determined Contribution (NDC) 2030 targets. Rather, the challenge emerges when these commitments must be implemented within a governance system involving multiple sectors, stakeholders, and levels of government. This situation demands policy integration capable of aligning national development priorities with sectoral policies and local government needs. In practice, NDC implementation continues to encounter numerous obstacles, including overlapping institutional authorities, inadequate synchronization between the central and local governments, and uneven institutional capacity among local governments to mainstream emission reduction targets into planning and budgeting documents. Indonesia's First Biennial Transparency Report further identifies strengthening institutional governance, enhancing cross-sectoral coordination, building local government capacity, and harmonizing data and reporting systems as essential prerequisites for accelerating the achievement of the 2030 NDC targets (Government of Indonesia, 2024).

Research on the implementation of the Nationally Determined Contribution (NDC) in Indonesia indicates that academic attention has continued to expand alongside the increasing complexity of climate governance. Several studies have focused on NDC policy implementation as part of Indonesia's national commitment to fulfilling the Paris Agreement, emphasizing the importance of harmonizing sectoral policies and strengthening regulatory

support to promote low-carbon development (Ayuningsih et al., 2023; Wongkar, 2021). Other studies have explored climate governance through enhanced collaboration among stakeholders, including government institutions, the private sector, civil society, and international organizations in supporting national emission reduction targets (Djalante et al., 2021). Additional research has highlighted the importance of climate finance, fiscal incentives, and green investment mobilization as critical factors supporting NDC implementation, particularly in accelerating energy transition and sustainable development (Buchner et al., 2023). While these studies have made valuable contributions, most continue to conceptualize NDC implementation challenges primarily as issues of inter-agency coordination, stakeholder collaboration, or financial constraints, without sufficiently explaining how bureaucratic fragmentation and weak governmental integration shape the dynamics of NDC implementation within a multilevel governance system.

Although previous studies have provided important insights into NDC implementation in Indonesia, most have concentrated on inter-agency coordination, stakeholder collaboration, and climate financing as the principal determinants of implementation success. These approaches have not fully explained why the existing policy instruments and coordination mechanisms continue to produce fragmented, sectoral implementation rather than an optimally integrated approach. This gap suggests that NDC implementation challenges are not solely related to relationships among actors but also concern the government's capacity to overcome bureaucratic fragmentation through horizontal policy integration across sectors, strengthening vertical integration between the central and local governments, and developing adequate institutional capacity at the local level. Based on these considerations, this study adopts the Whole of Government (WoG) perspective developed by Christensen and Lægreid as its analytical framework to examine NDC implementation as a challenge of governmental integration rather than merely one of coordination. Through this perspective, the study seeks to make a conceptual contribution to the development of public administration scholarship while broadening the understanding of climate policy implementation governance in Indonesia.

The existing gap in studies on the implementation of the Nationally Determined Contribution (NDC) highlights the need for an analytical approach capable of explaining implementation challenges more comprehensively within the context of public governance. Accordingly, this study aims to analyze the fragmentation of Indonesia's 2030 NDC implementation through the Whole of Government (WoG) perspective. Specifically, the analysis examines how horizontal integration (cross-sectoral policy integration), vertical integration (the relationship between the central and local governments), and the institutional capacity of local governments influence the implementation of Indonesia's emission reduction policies. In doing so, this study is expected to enrich the field of public administration by proposing the Whole of Government (WoG) perspective as an analytical framework for understanding the implementation of cross-sectoral policies within Indonesia's climate governance system.

B. LITERATURE REVIEW

Public Administration Fragmentation and the Emergence of the Whole-of-Government (WoG) Approach

Developments in public administration over the last few decades reveal a paradigm shift in how government operates. Public sector reforms influenced by the New Public Management (NPM) approach have encouraged government organizations to become more flexible and performance-oriented, while granting organizational units greater authority to enhance public service efficiency. While this approach has indeed fostered various innovations in governance, it has simultaneously led to intensified organizational specialization, causing agencies to operate largely within the confines of their own mandates and sectoral targets. This situation has gradually created fragmentation in governance, where policies, organizational structures, and implementation processes evolve in isolation, lacking adequate integration mechanisms (Ferlie, 2014).

Fragmentation in the public sector arises when increasing organizational differentiation is not matched by integration mechanisms capable of aligning goals, processes, and policy implementation. Each government organization possesses distinct mandates, accountability systems, resources, and performance indicators, leading decision-making to occur primarily within the boundaries of individual jurisdictions. This environment fosters a "silo mentality"—an organizational tendency to prioritize sectoral interests over overarching governmental objectives. In such contexts, cross-sectoral public policies frequently encounter implementation hurdles, ranging from overlapping authority and uncoordinated planning to a lack of operational cohesion among organizations. Christensen and Laegreid (2007) emphasize that the primary challenge for modern governance is not merely establishing inter-agency communication, but creating integration mechanisms that can mitigate organizational fragmentation and yield more unified government action.

Christensen and Laegreid (2007) explain that while the specialization of functions and authority can boost organizational efficiency, it simultaneously heightens the risk of divergence in goals, work processes, and accountability across agencies if not balanced by adequate integration mechanisms. Thus, differentiation, fragmentation, and integration are not standalone concepts; rather, they form an interconnected sequence that explains the dynamics of modern governance. This conceptual relationship is summarized in the following table.

Table 1. Conceptual relationships from a WoG perspective.

Konsep	Characteristics	Governance Implications
Differentiation	Increasingly specialized division of functions, organization, and authority.	Enhances efficiency and sectoral expertise, but increases organizational complexity.
Fragmentation	Organizations operate based on their respective goals, procedures, and accountability, without adequate integration.	Gives rise to a silo mentality, policy overlaps, and difficulties in cross-sector implementation.

Integration	Alignment of goals, processes, and implementation across organizations through a Whole-of-Government approach.	Promotes policy consistency, inter-agency synergy, and the effectiveness of cross-sector policy implementation.
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(Source: Adapted from Christensen and Lægreid, 2007)

As shown in Table 1, organizational differentiation is essentially a logical consequence of the increasing complexity of governmental functions. Problems arise when this differentiation evolves into fragmentation, whereby each organization operates according to its own priorities, mechanisms, and accountability systems without adequate integration. Under such conditions, cross-sectoral policies become difficult to implement in an integrated manner, even when regulations, resources, and inter-agency coordination mechanisms are already in place. In response to this challenge, Christensen and Lægreid developed the Whole of Government (WoG) approach as a means of addressing public sector fragmentation by emphasizing the importance of strengthening governmental integration through the alignment of policy objectives, processes, and implementation across organizations and different levels of government (Christensen & Lægreid, 2007).

The primary implication of public sector fragmentation is not only the separation of organizational structures but also the increasing difficulty governments face in producing integrated public policies. Individual organizations tend to develop their own priorities, operational procedures, and performance measures, causing both policy formulation and implementation to proceed in a fragmented, sector-specific manner. In such circumstances, inter-agency coordination remains necessary as a mechanism for facilitating communication and information exchange. However, coordination alone is often insufficient to overcome differences in organizational goals, interests, and accountability systems that characterize individual institutions.

Christensen and Lægreid (2011) argue that the principal challenge of modern governance is not merely to establish working relationships among government agencies but to create an integrated system capable of aligning policies, administrative processes, and governmental implementation within a common framework of shared objectives. Consequently, addressing fragmentation requires a shift in perspective—from a coordination-oriented approach toward one that places governmental integration at the core of public policy implementation.

The growing fragmentation within the public sector demonstrates that conventional coordination approaches are no longer adequate to address the increasing complexity of contemporary governance. On this basis, Christensen and Lægreid developed the Whole of Government (WoG) approach, which emphasizes integration throughout the entire governance process. This approach is founded on the assumption that the effectiveness of government depends not only on the performance of individual organizations but also on the government's capacity to achieve coherence in the formulation, implementation, and evaluation of public policies. Accordingly, the Whole of Government approach should not be understood merely as a mechanism for inter-agency coordination but rather as a governance framework that emphasizes integration across organizations, sectors, and levels of government in pursuit of common objectives.

Christensen and Lægreid (2007) define the Whole of Government (WoG) as an approach designed to reduce public sector fragmentation by strengthening both horizontal and vertical coordination and integration among government institutions. Thus, the primary focus of the Whole of Government approach extends beyond ensuring that individual organizations operate effectively within their respective jurisdictions. Instead, it seeks to ensure that the entire system of government functions as an integrated whole in addressing complex, cross-sectoral public issues.

The Whole of Government Analytical Framework for NDC Implementation

The Whole of Government (WoG) approach developed by Christensen and Lægreid places governmental integration at the core of public policy implementation, particularly for policies involving multiple organizations and cross-sectoral collaboration. This approach argues that addressing complex public problems requires integrated policies, unified organizational structures, and coordinated governmental processes. Consequently, government agencies and institutions should not operate in isolation (i.e., in organizational silos) but should instead collaborate toward achieving shared objectives.

In this study, the analysis of Nationally Determined Contribution (NDC) implementation focuses on two principal dimensions: horizontal integration (cross-sectoral policy integration) and vertical integration (the relationship between the central and local governments). Horizontal integration is employed to examine the extent to which ministries and government agencies involved in NDC implementation are able to align policies, clarify the division of responsibilities, establish effective coordination mechanisms, and implement programs that collectively contribute to achieving the same emission reduction targets. This dimension is intended to determine whether these institutions function as a unified policy system or continue to operate independently within sectoral boundaries (Christensen & Lægreid, 2007).

Vertical integration, on the other hand, is used to explain how the relationship between the central government and local governments influences the implementation of NDC policies. The analysis focuses on how national climate policies are translated into planning, implementation, and reporting processes at the local level. This perspective is particularly important because the success of NDC implementation depends not only on the quality of national policies but also on the capacity of all levels of government to implement these policies consistently and in a coordinated manner. In addition to these two dimensions, this study also considers the institutional capacity of local governments as a contextual factor influencing the effectiveness of governmental integration, rather than as a formal dimension of the Whole of Government framework. Institutional capacity includes the availability of human resources, regulatory support, information systems, organizational capabilities, and other supporting resources that enable local governments to implement emission reduction policies effectively. Accordingly, institutional capacity is positioned as a contextual factor that helps explain why the level of governmental integration may vary across different regions.

Based on this analytical framework, the study examines the implementation of Indonesia's 2030 NDC through the Whole of Government perspective to explain how bureaucratic fragmentation influences the effectiveness of emission reduction policy implementation. The analysis focuses on the interaction between horizontal integration, vertical integration, and the

institutional capacity of local governments in shaping a more integrated governance system for the implementation of Indonesia's Nationally Determined Contribution (NDC).

C. RESEARCH METHODOLOGY

This study employs a qualitative approach using a case study design to analyze the fragmentation of the implementation of Indonesia's 2030 Nationally Determined Contribution (NDC). The qualitative approach was selected because it enables the researcher to gain a comprehensive and in-depth understanding of the phenomenon and to interpret what actually occurs in practice (Sugiyono, 2013). Meanwhile, the case study design was chosen because the research focuses on a single contemporary phenomenon namely, the implementation of Indonesia's 2030 Nationally Determined Contribution (NDC) which is examined within the context of real-world public governance (Yin & Mudzakir, 2019).

The data for this study were collected through document analysis of various documents relevant to the implementation of Indonesia's 2030 Nationally Determined Contribution (NDC). This data collection technique was selected because NDC implementation constitutes a public policy that is formally documented through regulations, planning documents, implementation reports, and official publications describing both the policy formulation and implementation processes. Document analysis also enables the researcher to obtain comprehensive information regarding policy direction, the distribution of institutional responsibilities, coordination mechanisms, and the dynamics of cross-sectoral policy implementation without altering the original context of the data being examined (Bowen, 2009).

The data sources consist of national policy documents, implementation reports, and scholarly publications. The policy documents analyzed include Indonesia's Enhanced Nationally Determined Contribution (Enhanced NDC), the First Biennial Transparency Report (BTR), the Indonesia FOLU Net Sink 2030 Operational Plan, the 2025–2029 National Medium-Term Development Plan (RPJMN), and various regulations related to climate change governance. To provide a broader understanding of NDC implementation within the global context, this study also utilizes reports published by the United Nations Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC), and other relevant international organizations. In addition, scholarly articles from national and international journals are used to strengthen the conceptual analysis, identify developments in previous research, and compare the findings of this study with those reported in the existing literature.

Table 2. Data Sources

Document Type	Sources	Information Analyzed
Climate commitment document	Indonesia's Enhanced NDC	Emission reduction targets, priority sectors, implementation strategies
Implementation report	First Biennial Transparency Report (2024)	Implementation achievements, challenges, MRV mechanisms
Planning document	RPJMN 2025–2029	Integration of NDCs into national development

Sectoral document	Indonesia FOLU Net Sink 2030 Operational Plan	Forestry sector implementation
International report	UNFCCC, IPCC	Global context and implementation evaluation
Scientific article	Scopus/SINTA-indexed journals	Theoretical and empirical benchmarks

Source: Compiled by the author from various literature, 2026

Data were collected through documentary analysis by identifying, reviewing, and selecting documents based on their relevance to the research focus. All selected documents were subsequently classified into several categories, including policy documents, implementation reports, regulations, and scholarly publications. This process was undertaken to obtain information regarding the actors involved, the distribution of institutional responsibilities, cross-sectoral integration mechanisms, the relationship between the central and local governments, and institutional capacity in the implementation of the Nationally Determined Contribution (NDC). The collected data were then analyzed systematically using the Whole of Government (WoG) perspective to identify forms of implementation fragmentation and the factors influencing the effectiveness of achieving Indonesia's 2030 NDC targets.

This study adopts the Whole of Government (WoG) perspective developed by Christensen and Lægreid as its primary analytical framework for examining the fragmentation of the implementation of Indonesia's 2030 Nationally Determined Contribution (NDC). The analysis focuses on two principal dimensions—horizontal integration and vertical integration—which explain integration across government agencies and between different levels of government. To provide a more comprehensive understanding of policy implementation, the study also incorporates institutional capacity as an analytical dimension that explains the ability of local government institutions to support cross-sectoral policy integration. Analyzing NDC implementation requires not only effective governmental integration but also sufficient organizational capacity to translate national policies into effective implementation at the local level.

Table 3. Operationalization of the Analytical Framework

Focus of Analysis	Analysis Indicators	Data Sources
Horizontal integration	Synchronization of policies across ministries/agencies, clarity regarding the division of authority, coordination mechanisms	Enhanced NDC, RPJMN, FOLU Net Sink, BTR
Vertical integration	Integration of central and regional policies, implementation of RAD-GRK/RPJMD, reporting mechanisms	RPJMN, BTR, local government documents
Institutional capacity	Human resource capacity, regulatory support, data availability, resources, implementation capabilities	BTR, KLH reports, scientific articles

Source: Compiled by the author from various literature, 2026.

D. RESULT AND DISCUSSION

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Fragmentation of NDC Implementation in Horizontal Integration

The implementation of Indonesia's Nationally Determined Contribution (NDC) is designed as a cross-sectoral policy requiring the involvement of multiple ministries and government agencies. This is reflected in the Enhanced Nationally Determined Contribution (Enhanced NDC) document, which identifies the energy, Forestry and Other Land Use (FOLU), agriculture, waste, and industrial processes sectors as priority areas for achieving the country's 2030 greenhouse gas (GHG) emission reduction targets. The cross-sectoral nature of the policy demonstrates that achieving the NDC targets does not fall within the authority of a single institution; rather, it depends on the government's ability to establish policy coherence among organizations with different mandates, resources, and sectoral interests (Government of Indonesia, 2022, 2024).

The institutional structure for NDC implementation demonstrates a relatively clear division of responsibilities at the central government level. The Ministry of Environment serves as the national focal point for the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and is responsible for greenhouse gas emissions inventory, the preparation of transparency reports, and coordination of NDC target achievement. Meanwhile, the Ministry of Energy and Mineral Resources leads the energy transition by increasing the share of renewable energy in the national energy mix and reducing dependence on fossil fuels. Within the forestry sector, implementation is guided by the Indonesia's FOLU Net Sink 2030 Operational Plan, while the Ministry of National Development Planning (Bappenas) is responsible for integrating NDC targets into the national development planning framework. In addition, the Ministry of Finance has developed various climate financing instruments, including climate budget tagging, to support the financing of emission reduction programs (Government of Indonesia, 2022, 2024; Ministry of National Development Planning, 2024).

Although institutional responsibilities have been designed to be complementary, the analysis of policy documents indicates that horizontal integration among ministries has not yet been fully optimized. Indonesia's First Biennial Transparency Report (BTR) identifies several ongoing challenges, including the harmonization of cross-sectoral policies, data synchronization, strengthening monitoring systems, and ensuring consistency in reporting across government institutions (Government of Indonesia, 2024). These findings indicate that while each ministry has fulfilled its respective sectoral mandate, the mechanisms required to integrate planning, implementation, and evaluation across sectors remain insufficiently developed. Similar conclusions are reflected in the Global Stocktake, which emphasizes that the effectiveness of climate policy implementation depends not only on the existence of national emission reduction targets but also on the government's capacity to establish integrated and coherent governance across all sectors of development (UNFCCC, 2023).

From the Whole of Government (WoG) perspective, these findings suggest that relationships among ministries continue to rely more heavily on coordination mechanisms than on genuine governmental integration. Christensen and Lægreid (2007) argue that while administrative coordination is an essential prerequisite, it is insufficient to overcome the fragmentation resulting from organizational specialization within the public sector. Horizontal integration requires the alignment of policy objectives, decision-making mechanisms, resource allocation, and shared accountability among the organizations involved. The findings of this

study indicate that Indonesia's NDC implementation has made progress in establishing coordination forums and clarifying institutional roles. However, these mechanisms have not yet produced fully integrated cross-sectoral policies because individual ministries remain primarily oriented toward their own sector-specific targets and performance indicators. Consequently, Indonesia's NDC implementation currently reflects administrative collaboration rather than the deeper form of governmental integration envisioned by the Whole of Government approach (Christensen & Lægheid, 2007).

Table 4. Coordination of NDC Implementation

Ministries/Agencies	NDC Implementation Mandate	Instruments	Potential for Fragmentation
KLH/BPLH	NDC coordination, GHG inventory, BTR, SRN-PPI	Enhanced NDC, BTR	Acts as a coordinator but lacks direct authority over implementation in other sectors.
Ministry of Energy and Mineral Resources	Energy transition and renewable energy mix	RUKN, energy transition roadmap	Energy sector targets are pursued based on sectoral priorities.
Ministry of Forestry	FOLU Net Sink 2030	FOLU Operational Plan	Focus on forestry sector targets.
Bappenas	Integration of NDC into the RPJMN	RPJMN (National Medium-Term Development Plan)	Strong integration at the planning stage, but implementation depends on technical ministries.
Ministry of Finance	Climate finance	Climate Budget Tagging, climate finance	Financing mechanisms do not automatically align cross-sectoral implementation.

Source: Compiled by the author from various sources, 2026

The findings indicate that the implementation of Indonesia's Nationally Determined Contribution (NDC) has been supported by a relatively clear division of responsibilities among ministries and government agencies. However, this distribution of functions has not automatically resulted in integrated policymaking. The OECD (2019) emphasizes that cross-sectoral policies, including sustainable development and climate change agendas, require whole-of-government coordination that not only connects organizations through coordination forums but also promotes policy coherence, ensuring that policy objectives, instruments, and implementation processes across sectors reinforce one another. Without such integration,

individual organizations tend to pursue their own sectoral mandates, thereby increasing the risk of policy overlap, program duplication, and conflicts among sectoral priorities (OECD, 2025).

The various coordination mechanisms established by the Indonesian government demonstrate that an institutional foundation has been developed to support NDC implementation. Nevertheless, the existence of coordination forums and the allocation of responsibilities among ministries have not automatically produced integrated policymaking. According to the OECD (2025), whole-of-government coordination should be directed toward achieving policy coherence that is, alignment in policy objectives, instruments, and implementation across sectors rather than merely providing channels for inter-agency communication. Consequently, the effectiveness of cross-sectoral policy implementation depends not only on the intensity of coordination but also on the government's ability to integrate planning, decision-making, and implementation processes comprehensively (OECD, 2025).

The OECD (2025) further reports that this challenge is not unique to Indonesia. According to Government at a Glance 2025, among the 24 member countries analyzed, 15 countries (63%) have established formal mechanisms for communication among ministries. However, only three countries (13%) have institutional mandates explicitly designed to strengthen policy coherence and resolve cross-sectoral conflicts of interest (OECD, 2025). These findings indicate that establishing coordination mechanisms is an important first step but is insufficient to ensure genuine governmental integration. In the context of Indonesia's NDC implementation, this condition is reflected in the continued dominance of sectoral approaches in the implementation of emission reduction programs, despite the availability of various coordination mechanisms (Government of Indonesia, 2024).

The Whole of Government (WoG) perspective developed by Christensen and Lægreid (2007) helps explain why existing coordination mechanisms have not yet produced fully integrated implementation. They argue that bureaucratic fragmentation arises when public organizations prioritize their sectoral mandates over broader governmental objectives. Therefore, horizontal integration requires more than coordination forums; it also demands the alignment of policy goals, decision-making processes, resource allocation, and shared accountability. Based on the findings of this study, Indonesia's NDC implementation continues to be characterized by a predominance of coordination-oriented approaches rather than genuine governmental integration, allowing cross-sectoral policy fragmentation to persist.

The implementation of Indonesia's Nationally Determined Contribution (NDC) demonstrates that the government has established various mechanisms for cross-ministerial and inter-agency coordination through the distribution of institutional responsibilities, the formulation of sectoral policies, and the strengthening of planning, reporting, and monitoring systems. However, the analysis indicates that these mechanisms have not been sufficient to eliminate fragmentation in policy implementation. The Whole of Government perspective explains that administrative coordination does not necessarily lead to policy integration if each organization continues to focus primarily on its own sectoral mandates and performance targets (Christensen & Lægreid, 2007). Consequently, the challenge of implementing the NDC extends beyond building horizontal integration among ministries; it also depends on the extent to which national policies can be translated consistently into implementation at the local level.

Accordingly, the next section focuses on the dimension of vertical integration to examine how the relationship between the central government and local governments influences the effectiveness of implementing Indonesia's 2030 NDC.

Fragmentation of NDC Implementation in Vertical Integration

Unlike horizontal integration, which focuses on relationships among ministries, the implementation of the Nationally Determined Contribution (NDC) is also largely determined by the government's ability to translate national targets into policies and programs across all levels of government. Because climate change policy is inherently cross-jurisdictional, achieving the Enhanced NDC targets cannot rely solely on the central government. Instead, it requires the active involvement of provincial and district/city governments through planning, budgeting, and the implementation of low-carbon development programs (Government of Indonesia, 2022, 2024).

The implementation of the Nationally Determined Contribution (NDC) is fundamentally a multi-level governance process in which national targets must be translated systematically into policies, planning frameworks, and implementation activities at every level of government. In Indonesia, the commitments outlined in the Enhanced NDC do not remain merely as national policy documents; they must be integrated into national and subnational development planning documents, translated into sectoral policies, and implemented through local government programs and budgeting processes. This demonstrates that the success of NDC implementation depends heavily on the continuity and alignment of relationships between the central and local governments, ensuring that all levels of government pursue consistent policy directions, targets, and implementation mechanisms. This process is illustrated by the author in the following figure:



Figure 1. Vertical Integration Flow and Potential Points of Fragmentation Implementation of the 2030 Nationally Determined Contribution (NDC) in Indonesia

(Source: Processed by the author based on Indonesia's Enhanced NDC (2022), RPJMN 2025–2029, and Christensen & Laegreid (2007).)

Figure 1 illustrates that the fragmentation of the implementation of Indonesia's 2030 Nationally Determined Contribution (NDC) does not occur randomly; rather, it emerges at several critical stages of the policy implementation process. Based on the document analysis, three key points have the potential to generate fragmentation.

The first point arises when the Enhanced NDC targets, which have been integrated into the National Medium-Term Development Plan (RPJMN), are translated into local government policies. At this stage, local governments have the authority to establish development priorities based on their respective regional characteristics. Consequently, the degree to which NDC targets are integrated into the Regional Medium-Term Development Plans (RPJMDs) may vary across regions.

The second point occurs during the translation of planning documents into sectoral programs through the Regional Action Plan for Greenhouse Gas Emission Reduction (RAD-GRK), the Regional Action Plan for Climate Change Adaptation (RAD-API), and their implementation by local government agencies. At this stage, differences in institutional authority, sectoral priorities, and inter-agency coordination capacity may lead to fragmented or partial implementation.

The third point is found in the regional budgeting process, where emission reduction programs must compete with other development priorities within the Regional Revenue and Expenditure Budget (APBD). Variations in fiscal capacity and the level of commitment among local governments result in inconsistent financial support for NDC implementation.

These three critical points demonstrate that the principal challenge of NDC implementation does not lie in the formulation of national commitments but rather in the translation of those commitments into a multi-level governance system. Accordingly, implementation fragmentation occurs primarily as policies move from the national level to the local level and are subsequently translated into programs and budget allocations. This finding reinforces the Whole of Government (WoG) argument that the successful implementation of cross-sectoral policies cannot rely solely on formal coordination mechanisms but instead requires vertical integration capable of maintaining policy consistency across all levels of government (Christensen & Lægareid, 2007).

The implementation of the NDC has been designed in accordance with Indonesia's hierarchical national development planning system. Normatively, the targets established in the Enhanced NDC are incorporated into the National Medium-Term Development Plan (RPJMN) as the foundation for national development planning. These targets are then further translated into the Regional Medium-Term Development Plans (RPJMDs), the Regional Government Work Plans (RKPDs), the Regional Action Plans for Greenhouse Gas Emission Reduction (RAD-GRK), the Regional Action Plans for Climate Change Adaptation (RAD-API), and ultimately into local government programs and budget allocations. Under this framework, each level of government is expected to remain consistently aligned so that emission reduction targets are not confined to national policy documents but are effectively realized through

program implementation at the local level (Government of Indonesia, 2024; Ministry of National Development Planning, 2024).

Table 5 Fragmentation of Vertical Integration in the Implementation of the 2030 Nationally Determined Contribution (NDC)

Implementation Stages	Document Findings	Forms of Fragmentation	WoG Interpretation
Enhanced NDC → RPJMN	The Enhanced NDC targets have been integrated into the 2025–2029 National Medium-Term Development Plan (RPJMN) as part of the low-carbon development and climate resilience agenda.	No significant indications of fragmentation have been found at the national planning stage.	Vertical integration is relatively strong at the central government level.
RPJMN → RPJMD	Enhanced NDC document (2022) for the integration of national targets.	The translation of national targets into regional planning documents has not been uniform.	Vertical integration remains partial.
RPJMD → RKPD and OPD Programs	Regional development priorities are tailored to the specific needs and capacities of each region; consequently, the mainstreaming of climate issues remains inconsistent across regions.	Synchronization between medium-term planning and annual programs varies across regions.	Fragmentation becomes apparent at the implementation stage.
RAD-GRK/RAD-API	The "National Circumstances" and "Domestic MRV" sections of the 2024 Biennial Transparency Report (BTR) serve as references for regional capacity building, inventory processes, and reporting.	The implementation of climate policies remains dependent on the commitment and capacity of local governments.	Implementation fragmentation is relatively high.
Regional Budgeting	While the government has provided instruments for regional climate action, their implementation and updating vary by region and are not yet fully aligned with Enhanced NDC targets.	Budgetary support for NDC implementation is uneven.	Vertical integration is not yet optimal.
Emissions Inventory and Reporting	Climate program financing is influenced by regional fiscal capacity, development priorities, and the ability to allocate	Data quality and reporting systems vary across regions.	Uneven implementation capacity hinders

budgets for mitigation and adaptation actions.	vertical integration.
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Source: Compiled by the author based on Indonesia's Enhanced NDC (2022), the First Biennial Transparency Report (Government of Indonesia, 2024), the RPJMN 2025–2029 (Bappenas, 2025), and various documents from the Ministry of Environment and Forestry (KLHK).

Normatively, local governments already possess various planning instruments that can be used to integrate Nationally Determined Contribution (NDC) targets into regional development. However, the analysis indicates that this process has not been implemented uniformly. While some regions have incorporated climate change issues into their Regional Medium-Term Development Plans (RPJMDs), Regional Government Work Plans (RKPDs), and regional action plans, others continue to treat climate change as a sector-specific issue that remains disconnected from regional planning and budgeting systems (Government of Indonesia, 2024).

From the Whole of Government (WoG) perspective, this condition suggests that vertical relationships across different levels of government have not yet resulted in comprehensive policy integration. Christensen and Lægreid (2007) argue that vertical integration requires more than simply transferring policies from the central government to local governments; it also requires ensuring that policy objectives, resources, implementation mechanisms, and accountability systems are consistently aligned across all levels of government. When this alignment is lacking, national policies risk remaining strategic documents without being translated into concrete actions at the local level.

These findings indicate that the fragmentation of NDC implementation in Indonesia is not solely caused by weak coordination among ministries but is also influenced by the lack of effective vertical integration between the central and local governments. Consequently, a gap exists between the national targets established through the Enhanced NDC and the capacity of local governments to integrate those targets into their planning, budgeting, and development implementation systems. This situation demonstrates that the successful implementation of the NDC depends largely on the government's ability to establish an integrated multi-level governance system that enables national commitments to be translated consistently into local-level action.

Fragmentation of NDC Implementation from the Perspective of Institutional Capacity

The implementation of the Nationally Determined Contribution (NDC) faces challenges not only in establishing horizontal integration among ministries and vertical integration between the central and local governments but also in strengthening the institutional capacity of the organizations responsible for policy implementation. Ultimately, the effectiveness of both forms of integration is highly dependent on the institutional capacity of the organizations involved. In other words, the existence of regulations, coordination mechanisms, and clearly defined institutional responsibilities will not result in effective implementation unless they are supported by adequate institutional capacity. From the Whole of Government perspective, institutional capacity serves as the foundation that enables government organizations to work collectively toward achieving shared policy objectives (Christensen & Lægreid, 2007).

Although the Indonesian government has established various institutional mechanisms to support the implementation of the Nationally Determined Contribution (NDC), Indonesia's First Biennial Transparency Report (BTR) identifies capacity building as one of the highest priorities in climate policy implementation. The report highlights the need to strengthen the capacities of both central and local governments in conducting greenhouse gas (GHG) inventories, developing Measurement, Reporting, and Verification (MRV) systems, harmonizing cross-sectoral data, and improving reporting systems through the National Registry System for Climate Change Control (SRN-PPI) and SIGN SMART. Furthermore, the BTR emphasizes that effective NDC implementation requires stronger human resources, institutional capacity, and technical support to ensure that all institutions can consistently perform planning, implementation, monitoring, and reporting functions. These findings demonstrate that the challenges of NDC implementation extend beyond the availability of regulations and coordination mechanisms and are also influenced by the readiness of government institutions to carry out their assigned responsibilities (Government of Indonesia, 2024).

Several interrelated aspects directly influence the implementation of the NDC at the regional level. The first aspect concerns human resource capacity. Findings from the First Biennial Transparency Report indicate that strengthening the competencies of government officials remains a priority, particularly in greenhouse gas inventory preparation, the implementation of Measurement, Reporting, and Verification (MRV) systems, and the reporting of climate mitigation and adaptation actions. This suggests that the technical capabilities of government personnel are not evenly distributed across regions, resulting in significant variations in the quality of NDC implementation among local governments (Government of Indonesia, 2024).

The second aspect relates to the fiscal and organizational capacity of local governments. The ability of individual regions to allocate resources for climate mitigation and adaptation programs varies considerably, despite the central government's efforts to develop climate financing mechanisms that support the integration of low-carbon development into the national planning system. Differences in fiscal capacity, development priorities, and the institutional readiness of Regional Government Agencies (OPDs) have resulted in NDC targets not always being consistently integrated into Regional Medium-Term Development Plans (RPJMDs), Regional Government Work Plans (RKPDs), agency strategic plans, and regional budgeting documents. Consequently, climate change continues to be regarded in many regions as a sector-specific program rather than an integrated component of overall regional development planning (Government of Indonesia, 2024).

These disparities in institutional capacity demonstrate that the fragmentation of NDC implementation is influenced not only by relationships among ministries or between the central and local governments but also by the ability of individual institutions to perform their governmental functions effectively. From the Whole of Government perspective, institutional capacity is a fundamental prerequisite for achieving governmental integration because it enables organizations to possess relatively comparable capabilities in translating shared policy objectives into planning, budgeting, implementation, and reporting processes. Therefore, strengthening institutional capacity should not be understood merely as improving the

competencies of individual organizations but also as an effort to develop the government's collective capacity to work in an integrated manner toward achieving the Enhanced NDC 2030 targets (Christensen & Lægheid, 2007).

Differences in institutional capacity across regions result in varying levels of implementation readiness, thereby affecting the ability of local governments to translate national targets into regional policies, programs, and reporting systems. Based on the analysis of various official documents, the forms of institutional capacity disparities affecting NDC implementation are summarized in the following table.

Table 6. Analysis of Institutional Capacity Disparities in the Implementation of the 2030 Nationally Determined Contribution (NDC)

Capacity Aspects	Document Findings	Impact on NDC Implementation	WoG Interpretation
Human Resources	Regional technical capacity still needs to be enhanced	Planning and reporting lack uniformity	Uneven capacity
Data	Harmonization of GHG inventorying is still under development	Monitoring data is difficult to compare	Suboptimal information integration
Information Systems	SRN-PPI and SIGN SMART are already in place	Implementation requires further strengthening	Coordination infrastructure beginning to take shape
Funding	Climate financing varies across regions	Program implementation is uneven	Fiscal capacity disparities
Institutional Framework	Coordination mechanisms are already in place	Effectiveness depends on organizational capacity	Suboptimal institutional integration

(Source: Compiled by the author from various sources, 2026)

Based on the table above, it is evident that various factors such as human resource competence, data quality, fiscal capacity, and organizational ability to integrate NDC targets into planning and budgeting have resulted in uneven policy implementation. From a "Whole-of-Government" perspective, this situation demonstrates that government integration can only be achieved if every institution possesses adequate capacity to carry out coordination, planning, implementation, and accountability functions in an integrated manner. Therefore, strengthening institutional capacity must be viewed as an integral part of the strategy to

enhance horizontal and vertical integration, thereby reducing fragmentation in NDC implementation in Indonesia (Christensen & Lægheid, 2007).

Consequently, fragmentation in NDC implementation cannot be regarded merely as an issue of inter-agency coordination; it is also a consequence of disparities in institutional capacity that affect each institution's ability to effectively translate, implement, and integrate policies. From a "Whole-of-Government" perspective, institutional capacity is a fundamental prerequisite for achieving government integration, as it enables organizations to possess relatively comparable capabilities in translating shared goals into policy planning, budgeting, implementation, and reporting. Thus, strengthening institutional capacity should be understood not only as enhancing individual organizational competence but also as an effort to build the government's collective capacity to work in an integrated manner toward achieving the 2030 Enhanced NDC targets (Christensen & Lægheid, 2007).

E. CONCLUSION

This study demonstrates that the implementation of Indonesia's 2030 Nationally Determined Contribution (NDC) continues to face challenges arising from a governance system that has not yet achieved optimal integration. Although the government has strengthened its climate commitments through the Enhanced NDC, established various supporting regulations, and developed cross-sectoral coordination mechanisms, policy implementation remains fragmented across different levels of government. Analysis using the Whole of Government (WoG) perspective reveals that horizontal integration among ministries and government agencies has not yet produced sufficient policy coherence, resulting in policies supporting the achievement of NDC targets continuing to operate largely within sectoral frameworks. At the same time, vertical integration between the central and local governments has not been consistently achieved, particularly in translating national targets into regional development planning documents, budgeting processes, and local-level program implementation.

In addition to challenges related to horizontal and vertical integration, this study finds that institutional capacity is a critical factor contributing to variations in NDC implementation across different regions. Differences in human resource capacity, the quality of greenhouse gas emissions inventory data, fiscal capacity, and the ability of local government agencies to integrate climate change considerations into planning and budgeting processes have resulted in uneven policy implementation. These findings indicate that the fragmentation of NDC implementation is the product of the interaction between weak horizontal integration, weak vertical integration, and disparities in institutional capacity. Therefore, the effectiveness of NDC implementation depends not only on the existence of coordination mechanisms but also on the government's ability to establish integrated governance capable of aligning policy objectives, policy instruments, and implementation across all levels of government.

From a theoretical perspective, this study extends the application of the Whole of Government framework developed by Christensen and Lægheid within the field of public administration, particularly as a means of explaining the implementation of climate change policies in a multi-level governance system. From a practical perspective, the findings suggest that strengthening NDC implementation should focus on enhancing policy coherence across ministries and government agencies, reinforcing integration between the central and local

governments within planning and budgeting systems, and improving the institutional capacity of local governments to implement NDC targets more consistently. These efforts are expected not only to reduce implementation fragmentation but also to improve the effectiveness of achieving the Enhanced NDC 2030 targets as part of Indonesia's commitment to addressing climate change.

Overall, this study demonstrates that the challenges of implementing the Nationally Determined Contribution (NDC) in Indonesia extend beyond issues of coordination and are fundamentally rooted in the absence of comprehensive governmental integration. Weak cross-sectoral integration, insufficient alignment between the central and local governments, and disparities in institutional capacity have resulted in uneven policy implementation. Accordingly, the Whole of Government (WoG) approach is essential for fostering policy integration and strengthening a more effective and sustainable climate governance system.

REFERENCES

- Ayuningsih, A. N., Oktaviani, M. A., Chandra, A., Athyah, N., Manda M., P. D., Citra, Z., & Sulaiman, S. D. (2023). RATIFIKASI PARIS AGREEMENT DAN PENGAPLIKASIAN NATIONAL DETERMINED CONTRIBUTION (NDC) INDONESIA. *JISIP UNJA (Jurnal Ilmu Sosial Ilmu Politik Universitas Jambi)*, 7(1), 60–69. <https://doi.org/10.22437/jisipunja.v7i1.21859>
- Bowen, G. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9, 27–40. <https://doi.org/10.3316/QRJ0902027>
- Buchner, B., Naran, B., Padmanabhi, R., Stout, S., Strinati, C., Wignarajah, D., & Miao, G. (2023). *Global Landscape of Climate Finance 2023*. Climate Policy Initiative.
- Calvin, K., et al. (2023). *IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]*. IPCC, Geneva, Switzerland. <https://doi.org/10.59327/IPCC/AR6-9789291691647>
- Christensen, T., & Lægreid, P. (2007). The Whole-of-Government Approach to Public Sector Reform. *Public Administration Review*, 67(6), 1059–1066. <https://doi.org/10.1111/j.1540-6210.2007.00797.x>
- Djalante, R., Jupesta, J., & Aldrian, E. (2021). *Climate Change Research, Policy and Actions in Indonesia*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-55536-8>
- Ferlie, E. (2014). Tom Christensen and Per Laegreid, *The Ashgate Research Companion to New Public Management. Local Government Studies*, 40(4), 644–646. <https://doi.org/10.1080/03003930.2014.916883>
- Government of Indonesia. (2022). *Enhanced Nationally Determined Contribution Republic of Indonesia*. Ministry of Environment and Forestry.
- Government of Indonesia. (2024). *Indonesia First Biennial Transparency Report (BTR1) under the Enhanced Transparency Framework*. Ministry of Environment and Forestry.
- Kementerian Perencanaan Pembangunan Nasional. (2024). *Rencana Pembangunan Jangka Menengah Nasional (RPJMN) 2025–2029*. Bappenas.

- OECD. (2025). *Government at a Glance 2025*. OECD Publishing.
<https://doi.org/10.1787/0efd0bcd-en>
- Prof. Dr. Sugiyono. (2013). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*. Alfabeta.
- UNFCCC. (2023). *Technical dialogue of the first global stocktake: Synthesis report by the co-facilitators on the technical dialogue*. United Nations Framework Convention on Climate Change.
- UNFCCC. (2024). *Biennial Transparency Reports*.
- Wongkar, E. E. L. T. (2021). Achieving the Nationally Determined Contribution (NDC) in Forestry Sectors: Challenges for Indonesia. *IKAT: The Indonesian Journal of Southeast Asian Studies*, 5(1), 17. <https://doi.org/10.22146/ikat.v5i1.64974>
- Yin, R. K., & Mudzakir, M. D. (2019). *Studi Kasus Desain & Metode*. Rajawali Pers.