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DELIVERING WASTE MANAGEMENT IN DECENTRALIZED GOVERNANCE: CENTRALIZED INTERGOVERNMENTAL COORDINATION IN RIAU PROVINCE, INDONESIA

ABSTRACT: Waste management in decentralized governance systems presents a public service delivery challenge that depends on coordination across levels of government. This study examines centralized intergovernmental coordination as a mode of waste management service delivery in Riau Province, Indonesia, focusing on how the arrangement operates and what advantages and limitations it creates under conditions of uneven administrative capacity. Drawing on public service delivery, network governance, and intergovernmental relations scholarship, the study employs a qualitative single-case design using semi-structured interviews, document analysis, and network visualization. The findings show that waste management in Riau is delivered through a centralized intergovernmental arrangement characterized by strong vertical coordination and limited horizontal interaction among municipalities. Provincial actors function as intermediary coordinators linking national policy direction and municipal implementation. This arrangement supports basic administrative alignment and steering capacity, but it also constrains inter-municipal learning, limits adaptive problem-solving, and contributes to uneven implementation outcomes across jurisdictions. The study contributes to public policy and public administration scholarship by showing that decentralization does not automatically generate locally autonomous or horizontally integrated service delivery. Under conditions of uneven administrative capacity, decentralized governance may instead produce centralized intergovernmental delivery arrangements with distinct strengths and limitations. Empirically, the study extends research on waste management service delivery to a provincial context in the Global South and offers lessons for other decentralized regions facing similar coordination and implementation trade-offs.

KEYWORDS: *Waste management service delivery; decentralized governance; intergovernmental coordination; service delivery arrangements; implementation outcomes.*

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1. INTRODUCTION

Waste management in decentralized governance systems presents a persistent public service delivery problem rather than merely a technical or environmental challenge. In principle, decentralization is expected to improve responsiveness, distribute authority, and enable local governments to adapt service delivery to regional needs. Yet research on decentralization has long shown that the formal redistribution of authority does not automatically produce effective service delivery arrangements. Instead, decentralized systems often face fragmented responsibilities, uneven administrative capacity, and coordination failures across levels of government, all of which complicate the delivery of essential public services (Wright, 1988; Peters and Pierre, 2016; Agranoff and McGuire, 2017). In the case of waste management, these challenges are especially salient because service delivery depends on sustained coordination across national, provincial, and municipal actors, as well as on the alignment of planning, reporting, financing, and operational implementation. The key policy issue, therefore, is not only whether decentralized governments are formally responsible for waste services, but how those services are actually organized and delivered under conditions of institutional asymmetry.

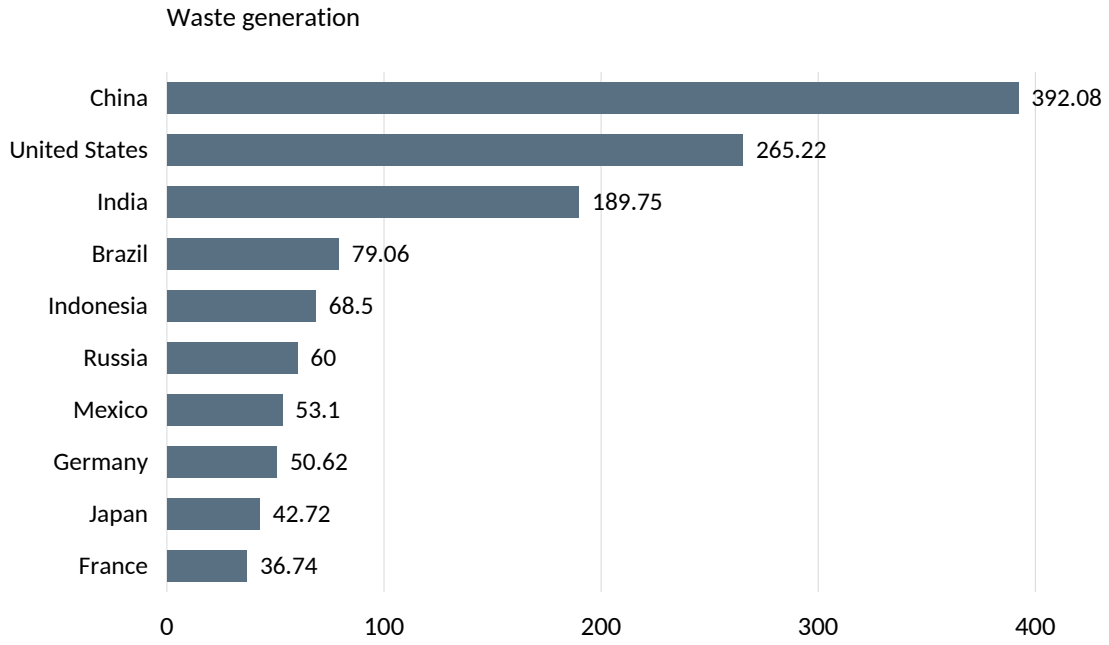
Globally, waste generation has increased alongside urbanization, population growth, and changing consumption patterns, placing growing pressure on public service delivery systems. Indonesia reflects this wider challenge, as national waste generation continues to impose substantial demands on local governments responsible for waste management under decentralized governance. These global and national trends indicate that the central issue is not only the volume of waste produced, but how waste management service delivery is institutionally organized, coordinated, and implemented across governmental levels.

In the Indonesian context, national data indicate that waste generation has continued to increase in recent years, placing substantial pressure on subnational governments responsible for service delivery under decentralized governance. Despite the formal allocation of responsibility to municipalities, implementation outcomes remain uneven across regions, reflecting variations in administrative capacity, infrastructure provision, and institutional coordination. This pattern suggests that the central challenge of waste management is not limited to the scale of waste generation itself, but lies in how service delivery is organized and coordinated across multiple levels of government. Under these

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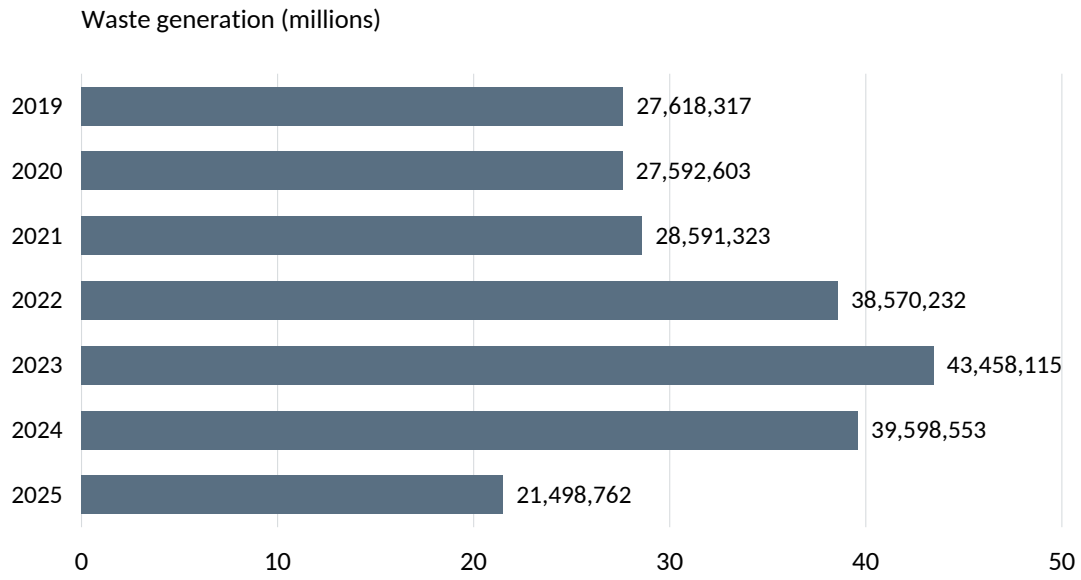
conditions, the effectiveness of decentralized waste management depends less on formal authority distribution and more on the structure of intergovernmental coordination that links national objectives with local implementation.

Figure 1: Global Waste Generation by Selected Countries



Source: *The Atlas of Sustainable Development Goals 2024, World Bank.*

Figure 2: Waste Generation Trends in Indonesia, 2019–2025



Source: *National Waste Management Information System (SIPSN), Ministry of Environment and Forestry, Indonesia, 2025.*

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This issue connects directly to broader debates in public policy and public administration on modes of service delivery. Public service delivery is not shaped solely by legal assignments of authority, but by the institutional arrangements through which actors coordinate responsibilities, mobilize resources, and implement policy objectives. In decentralized governance, these arrangements may take different forms, ranging from more dispersed and locally autonomous models to more centralized intergovernmental arrangements in which coordination capacity is concentrated in a limited set of actors. As Agranoff and McGuire (2003, 2017) argue, intergovernmental coordination increasingly operates through networked arrangements rather than through simple hierarchical control. Similarly, Klijn and Koppenjan (2016) show that governance outcomes depend not only on formal institutional design, but also on how interaction is structured across actors. From a service delivery perspective, this means that the effectiveness of decentralized waste management depends on the specific arrangement through which coordination is organized and translated into implementation.

Network governance theory provides an important lens for understanding these arrangements. Rhodes (1997) first conceptualized governance as a shift from hierarchical government toward interorganizational networks, while Kickert, Klijn, and Koppenjan (1997) and Sørensen and Torfing (2007) further emphasized interdependence, negotiation, and relational coordination in complex policy settings. Building on this literature, Provan and Kenis (2008) argue that network outcomes are shaped by governance structure, centralization, and actor positioning, while Klijn and Koppenjan (2016) demonstrate that network structures affect information exchange, coordination capacity, and implementation performance. Much of this literature suggests that decentralized settings should allow greater horizontal interaction and more distributed forms of coordination. However, this expectation remains incomplete when applied to subnational service delivery systems characterized by uneven administrative capacity. Under such conditions, coordination may become concentrated in intermediary actors that perform brokerage functions across levels of government, thereby creating a more centralized mode of service delivery than decentralization theory might initially predict.

This limitation becomes clearer when network governance is read alongside intergovernmental relations scholarship. Wright (1988) shows that decentralization

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redistributes authority while simultaneously intensifying coordination demands. Agranoff and McGuire (2003, 2017) extend this argument by demonstrating that multi-level governance increasingly depends on networked forms of intergovernmental management. At the same time, Peters and Pierre (2016) argue that decentralization frequently produces overlapping mandates, fragmented authority, and uneven capacity across subnational jurisdictions. In service delivery sectors such as waste management, these conditions create a structural tension: while local governments are expected to deliver services, effective delivery may depend on coordination mechanisms that remain centralized at intermediate levels of government. This suggests that the relevant analytical problem is not simply whether intergovernmental actors are connected, but what type of service delivery arrangement emerges, how it operates, and what trade-offs it creates for decentralized implementation.

The policy relevance of this problem is reinforced by empirical developments in waste management. Studies of municipal and environmental governance show that service delivery outcomes in waste management depend heavily on intergovernmental coordination, institutional alignment, and the capacity to manage implementation across multiple jurisdictions (Klok et al., 2018; Cheon and Ahn, 2020; Piedrahita, Palacios, and Ramirez, 2021; Cheon and Ahn, 2025). Yet much of this literature is derived from OECD contexts, where coordination infrastructures and administrative capacities differ substantially from those found in many developing regions. As a result, there remains limited understanding of how decentralized regions outside the OECD organize waste management service delivery when local capacity is uneven and vertical authority relations remain strong. This leaves an important gap in the literature: insufficient explanation of the advantages and limitations of centralized intergovernmental service delivery arrangements in decentralized governance settings, especially in the Global South.

This study addresses that gap through an analysis of waste management service delivery in Riau Province, Indonesia. Rather than treating waste management primarily as an environmental issue, the study conceptualizes it as a question of how intergovernmental service delivery is organized under decentralization. Riau provides an analytically important case because the province occupies an intermediary position between national policy direction and municipal implementation, making it possible to examine how coordination capacity is structured, how services are delivered across governmental levels, and how the

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current arrangement shapes implementation outcomes. The case is therefore relevant not only for understanding provincial governance in Indonesia, but also for informing broader debates on how decentralized regions can organize complex public services when institutional resources are unevenly distributed.

The article examines centralized intergovernmental coordination as a mode of waste management service delivery in decentralized governance. It argues that under conditions of uneven administrative capacity, decentralized governance may not produce a dispersed or locally autonomous service delivery model. Instead, service delivery may become organized through centralized intergovernmental coordination in which intermediary actors concentrate brokerage functions, channel interaction vertically, and shape the distribution of implementation capacity across jurisdictions. This arrangement may support administrative alignment and policy steering, but it may also constrain horizontal learning, limit collaborative problem-solving, and contribute to uneven service delivery outcomes. The core analytical issue, therefore, is not whether centralized coordination exists, but what strengths and limitations it creates as a mode of decentralized service delivery.

To address this issue, the article is guided by three research questions.

RQ1. What type of intergovernmental service delivery arrangement characterizes waste management in Riau Province?

RQ2. How does this intergovernmental service delivery arrangement shape coordination and implementation across levels of government?

RQ3. What are the advantages and limitations of this arrangement for decentralized waste management service delivery?

By structuring the analysis around these questions, the study links governance structure to service delivery performance and identifies the trade-offs embedded in the current arrangement.

This study contributes to public policy and public administration scholarship by explaining how centralized intergovernmental coordination operates as a mode of waste management service delivery under decentralization. It shows that uneven administrative capacity may concentrate brokerage functions in intermediary actors, producing both administrative coherence and implementation constraints.

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2. THEORETICAL FRAMEWORK

This study conceptualizes waste management in decentralized governance as a problem of public service delivery organized through intergovernmental coordination. Rather than treating service delivery as the automatic consequence of formal decentralization, the study examines the institutional arrangement through which waste management services are actually coordinated and implemented across levels of government. To explain this process, the framework integrates insights from public service delivery, network governance, and intergovernmental relations (IGR). This integrated perspective makes it possible to identify the type of service delivery arrangement that characterizes waste management in Riau Province, to explain how this arrangement structures coordination and implementation, and to assess its advantages and limitations under conditions of uneven administrative capacity.

2.1 Public Service Delivery in Decentralized Governance

Public administration scholarship has long recognized that decentralization does not by itself ensure effective public service delivery. While decentralization is often justified on the grounds of responsiveness, flexibility, and local adaptation, its practical consequences depend on how responsibilities, resources, and coordination mechanisms are organized across levels of government. Wright (1988) shows that the redistribution of authority across governmental levels often intensifies coordination demands rather than resolving them. Peters and Pierre (2016) similarly argue that decentralized governance frequently produces fragmented authority and overlapping responsibilities, thereby complicating the organization of public services. In this sense, service delivery outcomes depend not only on which level of government is formally responsible, but also on the institutional arrangement through which implementation is coordinated in practice.

In policy sectors characterized by interdependence and territorial fragmentation, service delivery often requires institutional arrangements that extend beyond individual local governments. Waste management represents such a sector because service provision depends on sustained coordination across planning, collection, transport, treatment, disposal, and monitoring functions. Studies of environmental and local service delivery demonstrate that these functions are rarely performed through isolated local autonomy alone; instead, they are shaped by broader intergovernmental arrangements that distribute

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coordination capacity unevenly across actors (Klok et al., 2018; Cheon and Ahn, 2020; Piedrahita, Palacios, and Ramirez, 2021). This means that the key analytical question is not merely whether services are decentralized, but what mode of service delivery emerges under decentralization and what trade-offs it creates for implementation.

2.2 Network Governance as a Lens on Service Delivery Arrangements

Network governance theory provides an important analytical lens for examining how public services are delivered when implementation depends on interaction among multiple organizations. Rhodes (1997) first conceptualized governance as a shift from hierarchical government toward interorganizational networks, while Kickert, Klijn, and Koppenjan (1997) and Sørensen and Torfing (2007) emphasized that governance in complex settings depends on interdependence, negotiation, and relational coordination rather than command alone. In this tradition, public service delivery can be understood as the outcome of structured interaction among multiple actors whose roles, resources, and influence are distributed unevenly.

A central insight of this literature is that governance outcomes depend on network structure. Kenis and Schneider (1991) and Klijn (1996) show that policy processes are shaped by patterns of interaction, actor positioning, and resource dependencies. Provan and Kenis (2008) further argue that network effectiveness depends on the mode of governance adopted, including the degree of centralization and the concentration of coordination functions. Klijn and Koppenjan (2016) similarly demonstrate that network structures shape information exchange, coordination capacity, and implementation performance. Applied to service delivery, this means that the organization of public services depends not only on formal policy design, but also on how coordination is structured among actors in practice.

This perspective is especially relevant for decentralized waste management. In principle, decentralized systems are often expected to enable more horizontal and locally responsive forms of coordination. However, network governance theory also suggests that under conditions of complexity, uncertainty, and uneven capacity, coordination may become concentrated in a limited set of actors that perform brokerage and steering functions. As Provan and Kenis (2008) note, centralized network forms may enhance coordination capacity, but they can also constrain broad participation and horizontal interaction. This creates an

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important analytical tension for service delivery: a more centralized arrangement may support administrative coherence, while simultaneously limiting collaborative adaptation across implementing actors.

2.3 Intergovernmental Relations and Centralized Coordination under Decentralization

Intergovernmental relations scholarship helps explain why such centralized arrangements may emerge in formally decentralized systems. Wright (1988) argues that decentralization redistributes authority but also multiplies coordination pressures across governmental levels. Agranoff and McGuire (2003, 2017) extend this insight by showing that intergovernmental governance increasingly depends on networked forms of coordination rather than simple hierarchy. In such systems, intermediary governments often play a critical role because they connect national policy direction with local implementation capacity.

This is particularly important where administrative capacity is uneven. Peters and Pierre (2016) show that subnational governments in decentralized systems frequently differ in institutional capability, fiscal resources, and technical expertise. Under these conditions, provinces or equivalent intermediary actors may become the principal holders of coordination capacity, not because decentralization has failed formally, but because implementation depends on concentrated brokerage in practice. Agranoff (2007) and McGuire (2006) likewise emphasize that effective intergovernmental management depends on the ability of actors to operate across organizational boundaries, mobilize coordination resources, and sustain interaction among institutions with differing capacities and incentives.

Within network governance theory, Provan and Kenis (2008) distinguish between different modes of network governance, including shared governance, lead organization governance, and Network Administrative Organization (NAO). The NAO model is particularly relevant where coordination demands are high and where a dedicated administrative actor is needed to coordinate otherwise fragmented participants. In this study, NAO is used to conceptualize centralized intergovernmental coordination as a specific service delivery arrangement in which coordination capacity is concentrated in an intermediary administrative actor.

This literature suggests that decentralized service delivery may be organized through centralized intergovernmental coordination rather than through fully distributed local

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autonomy. Such arrangements can be understood as a specific mode of service delivery in which intermediary actors mediate policy objectives, structure vertical interaction, and stabilize implementation across jurisdictions. However, because coordination is concentrated rather than broadly shared, such arrangements may also generate uneven access to information, weak inter-municipal learning, and differentiated implementation capacity across local governments.

2.4 Waste Management Service Delivery and Implementation Trade-Offs

The waste management literature reinforces the importance of these trade-offs. Research shows that municipal waste outcomes depend on institutional coordination, administrative alignment, and the ability to manage implementation across multiple actors and jurisdictions. Klok et al. (2018) demonstrate that intergovernmental coordination matters for local service delivery performance in environmental governance. Cheon and Ahn (2020) show that municipal waste performance is shaped by variations in local administrative capacity, while Piedrahita, Palacios, and Ramirez (2021) highlight the importance of coordinated intergovernmental arrangements in decentralized waste governance. More recently, Cheon and Ahn (2025) argue that networked administration influences waste governance performance by affecting how coordination is structured across public actors.

Taken together, these studies suggest that waste management service delivery cannot be assessed solely in terms of formal decentralization or local responsibility. Instead, the relevant question is what type of delivery arrangement governs implementation and what strengths and weaknesses it generates. A more centralized intergovernmental arrangement may improve baseline coordination, policy alignment, and reporting consistency. At the same time, it may reduce horizontal learning, constrain locally adaptive problem-solving, and contribute to uneven service delivery outcomes across municipalities. These trade-offs are particularly relevant in subnational contexts outside the OECD, where coordination infrastructures may remain vertically organized and local administrative capacity may vary substantially.

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2.5 Integrated Analytical Framework

By integrating public service delivery, network governance, and intergovernmental relations, this study develops an analytical framework for examining centralized intergovernmental coordination as a mode of waste management service delivery in decentralized governance. This framework shifts the focus from formal decentralization alone to the institutional arrangement through which services are actually coordinated and implemented. It therefore provides the analytical basis for addressing three linked questions: what type of service delivery arrangement characterizes waste management in Riau Province, how this arrangement shapes coordination and implementation across governmental levels, and what advantages and limitations it creates for decentralized service delivery.

In analytical terms, the framework suggests that when administrative capacity is uneven across jurisdictions, decentralization may not generate horizontally distributed coordination or locally autonomous service delivery. Instead, coordination resources may become concentrated in intermediary actors that perform brokerage functions across levels of government. Under these conditions, the service delivery arrangement is expected to rely on strong vertical coordination, limited horizontal interaction, and unevenly distributed implementation capacity. Such an arrangement may support administrative alignment and policy steering, but it may also constrain collaborative learning and contribute to uneven service delivery outcomes across municipalities.

This framework contributes to public administration and public policy scholarship in two ways. First, it links network governance and intergovernmental relations to the study of service delivery arrangements, thereby moving beyond descriptive accounts of coordination toward an analysis of delivery modes and their trade-offs. Second, it extends these debates to a provincial context in the Global South, where decentralized governance is often shaped by institutional asymmetry, layered authority relations, and uneven implementation capacity. In doing so, the framework provides analytical leverage for understanding not only how intergovernmental coordination is structured, but also what that structure means for the practical delivery of public services.

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3. METHODS

3.1 Research Design

This study adopts a qualitative single-case study design to examine how waste management service delivery is organized through intergovernmental coordination in a decentralized governance system. A qualitative case study is appropriate because it enables in-depth analysis of coordination processes, institutional interactions, and implementation dynamics among governmental actors involved in service delivery. This design makes it possible to examine not only how authority is formally distributed, but also how service delivery arrangements operate in practice under conditions of uneven administrative capacity.

The analysis is guided by a service delivery perspective informed by network governance and intergovernmental relations. This approach is consistent with the study's focus on identifying the intergovernmental arrangement that characterizes waste management service delivery in Riau Province, examining how this arrangement shapes coordination and implementation, and assessing its advantages and limitations in decentralized governance.

3.2 Case Selection and Context

Riau Province was selected as the case study due to its strategic position within Indonesia's decentralized governance system. As a provincial government, Riau functions as an intermediary administrative level responsible for coordinating national policy objectives and municipal service delivery. This intermediary role makes the province a relevant site for examining how waste management service delivery is organized through intergovernmental coordination in practice.

Demographic trends further intensify coordination demands in the province. Riau experienced sustained population growth between 2020 and 2023, which expanded municipal service delivery pressures and increased the administrative complexity of waste management across jurisdictions. This contextual condition provides an analytically relevant setting for examining how intergovernmental service delivery arrangements respond to rising coordination demands, without treating population growth as an outcome variable.

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Riau therefore constitutes an analytically strategic case for examining how provincial governments function as intermediary coordination nodes in decentralized intergovernmental service delivery.

3.3 Data Collection

Data were collected using multiple qualitative sources to support analytical triangulation. First, semi-structured interviews were conducted with key informants drawn from provincial government agencies, municipal governments, and related public organizations involved in waste management. Informants were selected based on their formal administrative roles and direct involvement in intergovernmental coordination processes. Interviews focused on administrative responsibilities, coordination mechanisms, decision-making practices, and intergovernmental interactions.

Semi-structured interviews were conducted with 12 key informants representing different levels of government and organizations involved in waste management service delivery in Riau Province. Informants were selected through purposive sampling based on their formal responsibilities in policy coordination, planning, and operational implementation of waste management programs.

The interview participants included officials from the Provincial Environmental Agency (DLH Provinsi), representatives from municipal environmental agencies, and actors from community-based waste management initiatives. These actors were selected because they participate directly in intergovernmental coordination processes related to waste management planning, reporting, and operational implementation.

Interviews lasted between 45 and 90 minutes and were conducted between March and July 2024. All interviews were recorded and transcribed to support systematic qualitative analysis.

Second, document analysis was conducted on policy documents, regulations, planning reports, and official administrative records related to waste management and environmental governance. These documents were used to identify formal authority structures, policy objectives, and institutional arrangements that shape intergovernmental coordination.

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Document analysis complemented interview data by providing institutional context and supporting interpretation of governance practices.

3.4 Analytical Strategy

The study employs qualitative thematic analysis to examine patterns of intergovernmental coordination, service delivery arrangement, and implementation in provincial waste management. Interview transcripts and documentary materials were systematically coded to identify recurring themes related to administrative roles, authority distribution, coordination mechanisms, brokerage functions, and service delivery constraints across governmental actors.

Network visualization was generated using Gephi software to map coordination relationships among governmental and non-governmental actors involved in waste management service delivery in Riau Province. Nodes represent institutional actors participating in the service delivery arrangement, while edges represent coordination interactions identified through interview data and document analysis. The visualization supports qualitative interpretation of the arrangement by illustrating patterns of centralization, actor positioning, and connectivity within the intergovernmental system.

The coding process combined deductive categories derived from public service delivery, network governance, and intergovernmental relations theory with inductive themes emerging from interview and documentary data.

3.5 Analytical Framework and Link to Research Questions

The analysis is guided by public service delivery, network governance, and intergovernmental relations theory. Specifically, the study draws on the Network Administrative Organization (NAO) perspective to examine whether and how centralized coordination mechanisms emerge as part of a wider intergovernmental service delivery arrangement in provincial waste management. This framework provides analytical leverage for assessing coordination capacity, administrative centrality, brokerage functions, and the implications of this arrangement for decentralized implementation.

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The framework directly informs the research questions. The identification of the intergovernmental service delivery arrangement addresses RQ1. The analysis of coordination mechanisms and implementation processes addresses RQ2. The assessment of the arrangement's advantages and limitations for decentralized waste management service delivery addresses RQ3. This alignment ensures coherence between theory, method, and interpretation.

3.6 Research Ethics and Trustworthiness

Several measures were adopted to enhance research credibility and trustworthiness. Data triangulation was applied across interviews and documentary sources to strengthen analytical validity. Informant anonymity was maintained to encourage candid responses and reduce social desirability bias. Interview data were analyzed using a shared coding framework to ensure consistency and transparency in interpretation. These procedures enhance the reliability of the qualitative findings without compromising contextual sensitivity.

3.7 Study Limitations

This study focuses on a single provincial case, which may limit generalizability across different governance contexts. However, the case provides analytical insights into intergovernmental coordination in decentralized governance systems. The qualitative design emphasizes depth of understanding rather than statistical generalization, allowing the study to identify governance mechanisms and coordination patterns within complex intergovernmental networks.

4. FINDINGS

This section presents the empirical findings in relation to the three research questions, focusing on the type of intergovernmental service delivery arrangement that characterizes waste management in Riau Province, how this arrangement operates in practice, and what advantages and limitations it creates for decentralized implementation.

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4.1 The Intergovernmental Arrangement of Waste Management Service Delivery (RQ1)

The findings show that waste management in Riau Province is organized through a centralized intergovernmental service delivery arrangement. Network visualization reveals that coordination is concentrated around a limited number of institutional actors, while most municipal and community-level actors are connected through fewer and more indirect links. This indicates that service delivery is not organized through broadly distributed local interaction, but through a structured arrangement in which intermediary actors play a central coordinating role. To clarify the institutional composition of this arrangement, Table 1 summarizes the key actors and their service delivery roles.

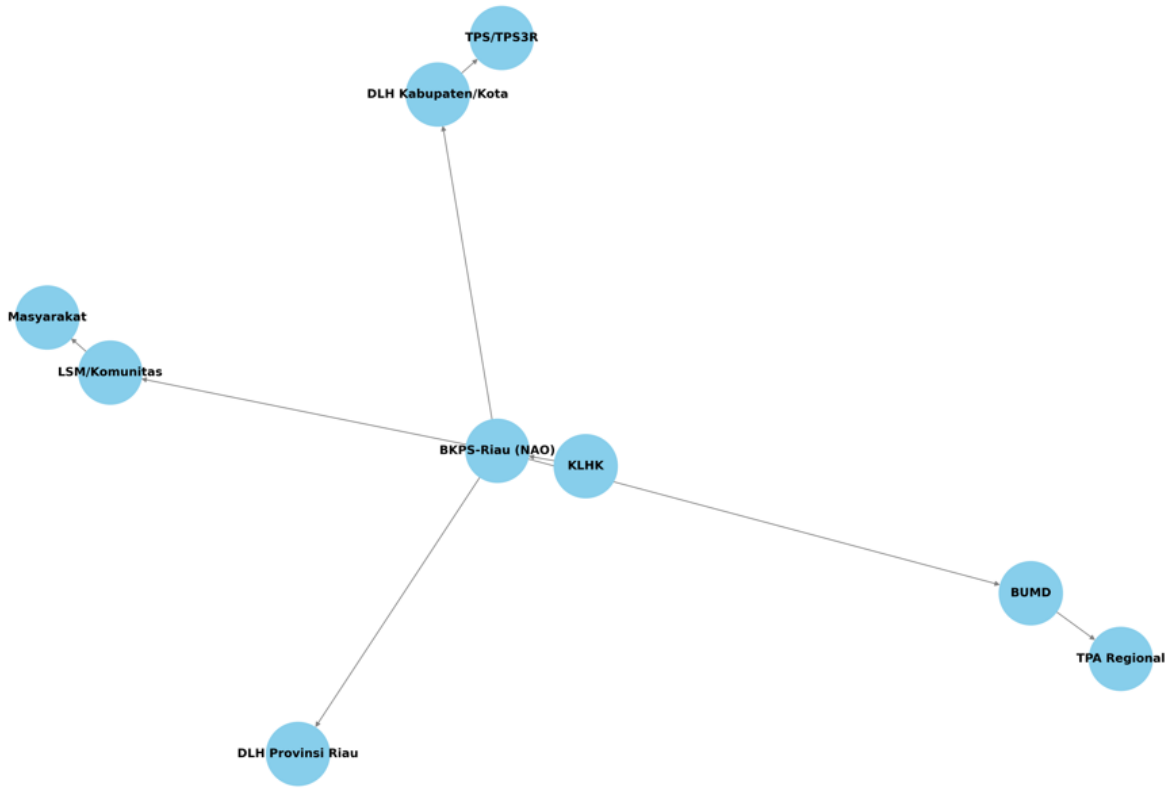
Table 1: Key Actors in the Intergovernmental Waste Management Network

Actor Category	Examples of Institutions	Service Delivery Role
National Government	Ministry of Environment and Forestry (KLHK)	National policy framework and regulatory oversight
Provincial Coordination	BKPS-Riau	Network administrative coordination
Provincial Government	Provincial Environmental Agency (DLH)	Provincial policy coordination
Municipal Governments	Municipal Environmental Agencies (DLH)	Municipal waste management service delivery
Public Enterprises	Regional Waste Management BUMD	Waste infrastructure and facility management
Community Actors	Waste banks, NGOs, community groups	Community participation and waste reduction initiatives

Municipal governments tend to interact primarily through vertical channels rather than through direct horizontal connections with other municipalities. Horizontal interaction among local governments appears sparse, suggesting that coordination across jurisdictions occurs infrequently or is mediated through higher-level administrative actors. Interaction patterns emphasize reporting, procedural alignment, and compliance-oriented communication rather than sustained joint engagement. Figure 3 illustrates the structure of the intergovernmental waste management network identified through the analysis.

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Figure 3: Intergovernmental Waste Management Network in Riau Province



Source: *Author's network visualization generated using Gephi based on interview and document analysis. Nodes represent institutional actors, and edges represent coordination relationships within the intergovernmental network.*

The network visualization illustrates the structural configuration of intergovernmental waste governance in Riau Province (Figure 3). The network demonstrates a centralized governance structure in which BKPS-Riau functions as the Network Administrative Organization (NAO) connecting multiple actors across governance levels. Provincial and national institutions, including the Provincial Environmental Agency and the Ministry of Environment and Forestry, are connected through this central node, indicating that coordination flows primarily through an intermediary administrative actor.

Municipal environmental agencies and waste management facilities such as TPS/TP3R (community waste processing facilities) appear connected through vertical coordination channels rather than through horizontal ties with other municipalities. Similarly, non-governmental actors, including community groups and local NGOs, occupy peripheral positions within the network and interact mainly through institutional intermediaries. This structural pattern indicates a governance configuration characterized by high centralization

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and limited horizontal connectivity, which corresponds with the coordination dynamics identified in the interview data.

Community-based actors and non-governmental organizations occupy peripheral positions within the network. Their engagement is channelled through specific institutional nodes rather than embedded across multiple coordination pathways. This positioning limits the density of network connections and constrains opportunities for broader interaction.

Overall, the findings indicate that waste management in Riau is delivered through a centralized intergovernmental arrangement characterized by strong vertical coordination and limited horizontal connectivity. Coordination capacity is concentrated within a narrow set of institutional relationships, while most actors operate within constrained interaction pathways. This arrangement defines the organizational basis of waste management service delivery in Riau and addresses RQ1 by identifying the dominant mode through which service delivery is structured.

4.2 How the Service Delivery Arrangement Operates in Practice (RQ2)

The centralized intergovernmental arrangement identified in RQ1 shapes how waste management service delivery operates in practice. Coordination among actors relies predominantly on vertical interaction mediated by provincial-level institutions, while municipalities rarely coordinate directly with one another. In operational terms, this means that service delivery depends less on horizontal collaboration across local governments and more on vertically structured coordination through intermediary actors.

Interview data further illustrate how coordination occurs in practice. A provincial environmental agency official explained that most coordination activities are structured around reporting mechanisms rather than collaborative planning:

> *"Most coordination meetings are mainly reporting sessions where municipalities present their waste management data and progress. There is limited discussion about joint operational strategies between municipalities."* (Provincial Environmental Agency Official, Interview, 2024)

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Similarly, a municipal official emphasized that coordination between municipalities rarely occurs directly and is usually mediated by the provincial government:

> *"If we need to coordinate with other municipalities, it usually happens through the provincial government. Direct coordination among municipalities is relatively rare."* (Municipal Waste Management Officer, Interview, 2024)

Another informant from a community waste management initiative noted that non-governmental actors often interact only with specific institutional nodes rather than with the broader governance network:

> *"Community waste programs often communicate with the municipal environmental agency, but we rarely interact with actors from other municipalities."* (Community Waste Management Organizer, Interview, 2024)

These interview findings reinforce the network visualization results, indicating that coordination remains highly centralized and mediated by provincial institutions.

Coordination intensity varies across actors. Municipalities with stronger vertical connections exhibit higher levels of interaction within the network, while others remain weakly connected. This uneven distribution of coordination ties results in differentiated access to information and administrative support.

These findings indicate that the current arrangement operates primarily through selective and centralized interaction pathways. In practice, service delivery coordination depends on a limited number of intermediary actors that channel information, reporting, and alignment across governmental levels. This pattern addresses RQ2 by showing how the intergovernmental service delivery arrangement structures coordination and implementation in everyday administrative practice.

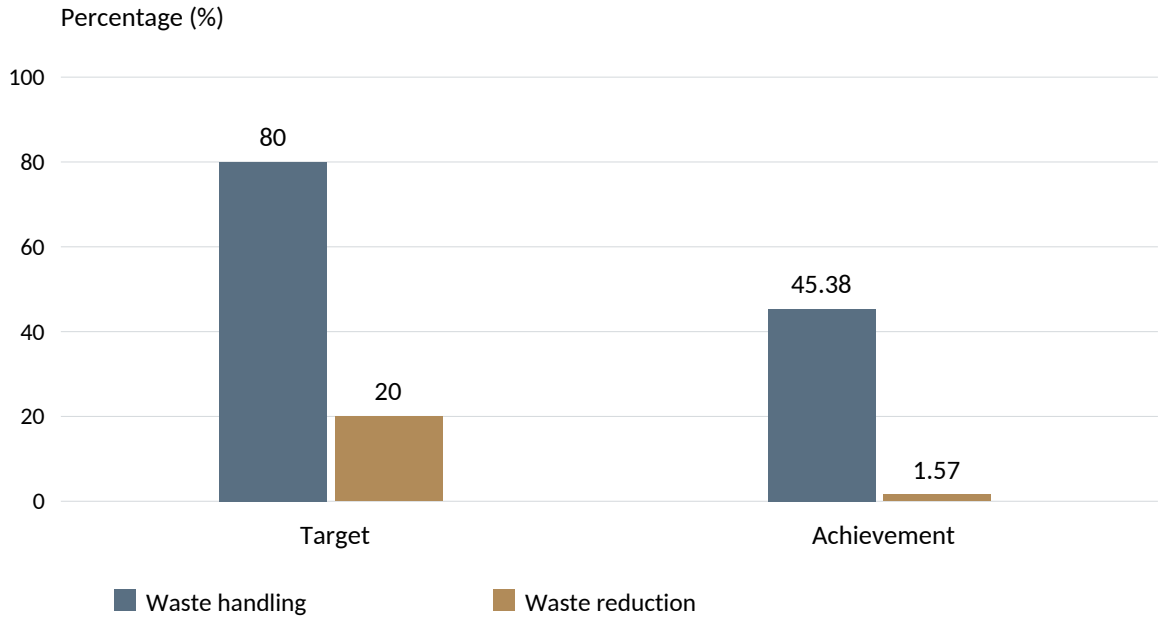
4.3 Advantages, Constraints, and Uneven Outcomes of the Arrangement (RQ3)

The findings further show that the current intergovernmental service delivery arrangement generates both enabling and constraining effects for decentralized waste management. On the one hand, the arrangement supports basic administrative alignment between national targets, provincial coordination, and municipal implementation. On the other hand, it is associated with persistent implementation gaps, continued reliance on landfill disposal, and

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uneven service delivery outcomes across jurisdictions. These patterns reveal the trade-offs embedded in the current arrangement and provide the basis for evaluating its advantages and limitations.

Figure 4: National Waste Management Targets and Achievement, 2020–2024



Source: *Ministry of Environment and Forestry (KLHK), 2025.*

Waste handling outcomes consistently lagged behind policy expectations, while waste reduction performance remained particularly limited. The magnitude of this gap indicates that policy instruments designed to encourage waste reduction have not produced measurable outcomes at scale. Instead, waste management efforts continue to rely heavily on downstream handling mechanisms. These findings suggest that national targets function primarily as formal benchmarks rather than as operational drivers of implementation across subnational governments.

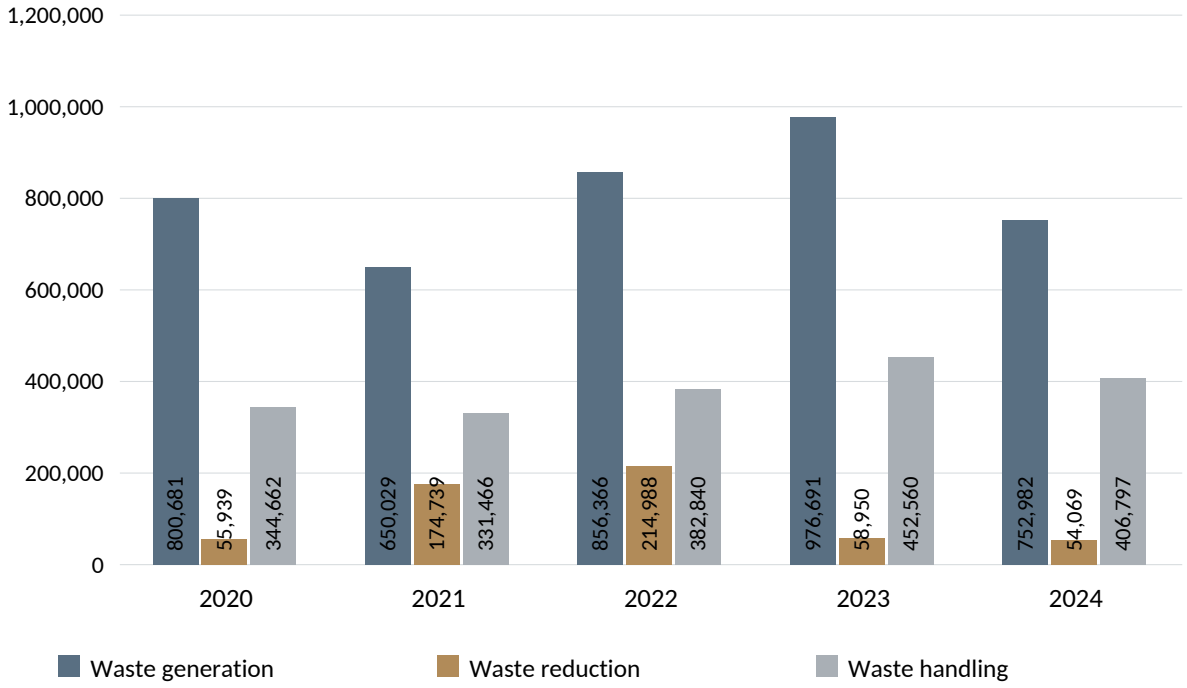
The persistence of this gap provides an important empirical context for interpreting provincial and municipal performance. Provincial governments, including Riau, operate within a national framework that sets ambitious targets but exhibits limited enforcement and coordination capacity. This national–subnational disconnect forms the backdrop against which provincial waste management outcomes must be understood.

At the provincial level, waste generation in Riau increased steadily, while waste reduction and handling outcomes expanded at a slower rate. As a result, a substantial volume

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of waste remained unmanaged each year. Waste reduction outcomes remained consistently limited, while waste handling activities focused primarily on collection and disposal rather than treatment or diversion.

Figure 5: Waste Generation, Reduction, and Handling in Riau Province, 2020–2024



Source: *National Waste Management Information System (SIPSN), KLHK, 2025.*

The persistence of unmanaged waste reflects structural constraints rather than short-term fluctuations. Waste reduction outcomes remained consistently low across years, indicating limited penetration of source-separation, recycling, or community-based reduction initiatives. Waste handling activities expanded modestly but focused primarily on collection and disposal rather than processing or diversion. This imbalance resulted in the accumulation of residual waste that exceeded existing management capacity.

These patterns indicate that provincial waste management operates in a reactive mode, responding to increasing waste volumes without achieving proportional improvements in reduction or treatment. The data suggest that provincial coordination mechanisms have not effectively synchronized municipal actions with provincial planning objectives, leading to recurring gaps in service coverage.

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Municipal-level data show marked variation in waste management performance across jurisdictions. Urban municipalities exhibit relatively higher handling capacity but still limited reduction outcomes, while several districts display constrained operational reach and high proportions of unmanaged waste. The absence of convergence in municipal performance over time indicates limited inter-municipal learning and coordination.

Field observations further illustrate the downstream implications of these patterns. Landfill sites function as the primary endpoint of the waste management system, receiving waste from multiple municipalities. Disposal practices rely heavily on open dumping, reflecting cumulative coordination constraints across municipal and provincial levels.

Figure 6: Waste Accumulation at Regional Landfill Reflecting Coordination Constraints



Source: *Field Observation, Muara Tanjung Landfill, 2024*

The accumulation of waste observed at the Muara Tanjung landfill illustrates the downstream consequences of coordination constraints within the intergovernmental waste management network. Field observations indicate that waste management practices remain dominated by landfill disposal rather than integrated reduction strategies. This condition reflects limited coordination among municipalities and insufficient implementation of provincial waste management policies.

Taken together, these findings indicate that the current arrangement supports administrative steering and baseline coordination, but does not ensure evenly distributed implementation capacity across municipalities. Its centralized and vertically mediated structure helps explain why service delivery remains uneven and why waste management

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continues to rely heavily on downstream handling mechanisms. These findings do not suggest that network structure is the sole determinant of implementation outcomes; rather, they show that the current intergovernmental arrangement conditions how coordination capacity is distributed and shapes both the strengths and limitations of decentralized waste management service delivery. This directly addresses RQ3 by identifying the practical advantages and constraints of the arrangement.

5. DISCUSSION

5.1 Centralized Intergovernmental Coordination as a Mode of Waste Management Service Delivery (RQ1)

The findings show that waste management in Riau Province is organized through a centralized intergovernmental service delivery arrangement in which coordination capacity is concentrated in intermediary provincial actors, while horizontal interaction among municipalities remains weak. While decentralization is often expected to produce more horizontally distributed coordination, the Riau case shows that under uneven administrative capacity, coordination capacity may remain concentrated in practice.

This finding contributes to public service delivery debates by showing that decentralized governance does not necessarily produce decentralized delivery arrangements in practice. As Wright (1988) argues, decentralization redistributes authority but also intensifies coordination demands across levels of government. Peters and Pierre (2016) similarly note that decentralized systems often generate fragmented authority and uneven institutional capacity. The Riau case supports these insights by demonstrating that when local capacity is uneven, service delivery may become organized through centralized intergovernmental coordination rather than through broadly distributed local interaction. In this sense, centralized coordination emerges not simply as a governance preference, but as a practical arrangement for stabilizing service delivery under conditions of institutional asymmetry.

This interpretation is also consistent with network governance scholarship. Provan and Kenis (2008) argue that centralized network forms can enhance coordination under conditions of complexity, while Klijn and Koppenjan (2016) show that governance outcomes

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depend on how interaction is structured across actors. The Riau findings extend this literature by showing that a centralized network form may also function as a mode of service delivery, not merely as a governance structure. What matters, therefore, is not only how actors are connected, but how service delivery responsibilities are organized through those connections.

5.2 Advantages of the Arrangement for Decentralized Service Delivery (RQ3)

The findings indicate that the current arrangement has several practical advantages for decentralized waste management service delivery.

First, compared to more decentralized and horizontally coordinated service delivery models, centralized intergovernmental coordination in the Riau case provides stronger administrative alignment across levels of government. Provincial actors link national policy targets with municipal implementation, maintaining a minimum level of coherence that more dispersed coordination arrangements may struggle to achieve under conditions of uneven administrative capacity. This aligns with Agranoff and McGuire's (2003, 2017) argument that intergovernmental coordination increasingly depends on networked management capacities that connect different governmental levels. In the Riau case, provincial coordination appears to reduce the risk of total fragmentation by providing a channel through which information, reporting, and procedural alignment can be maintained.

Second, the arrangement may be especially useful in regions where institutional infrastructures for horizontal collaboration remain weak. In such contexts, a centralized arrangement may serve as a pragmatic solution for maintaining minimally organized waste management service delivery. This does not mean that centralization is inherently superior, but it does suggest that under limited local coordination capacity, centralized intergovernmental delivery may offer short-term administrative advantages.

Compared with alternative service delivery modes, the centralized intergovernmental arrangement observed in Riau represents a specific configuration rather than a universally superior solution. A fully decentralized model may provide greater local autonomy and responsiveness, but it risks fragmentation where municipal capacity is uneven. A more horizontally networked model may support collaborative learning and joint problem-solving, but it requires stronger institutional trust, stable interaction, and sufficient administrative

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capacity across municipalities. By contrast, the NAO-like arrangement in Riau prioritizes vertical coordination and administrative alignment, offering short-term coherence while limiting horizontal learning and adaptive capacity. The selected arrangement is therefore best understood as a context-dependent solution that addresses coordination deficits while reproducing constraints in collaborative implementation.

5.3 Limitations of the Arrangement: Weak Horizontal Learning and Uneven Outcomes (RQ3)

At the same time, the findings show that the current arrangement imposes important limitations on decentralized waste management service delivery. The most significant limitation is its dependence on vertical coordination at the expense of horizontal learning and collaborative problem-solving. Because interaction is routed primarily through provincial actors, municipalities have limited opportunities to exchange operational practices, coordinate directly with one another, or develop shared responses to cross-jurisdictional service delivery problems. As a result, the arrangement supports administrative routing more effectively than collective adaptation.

This limitation has important implications for implementation. The findings indicate that service delivery outcomes remain uneven across municipalities, with stronger performance in some jurisdictions and weaker integration in others. This pattern suggests that coordination capacity is not distributed evenly across the system. Instead, municipalities with stronger vertical ties may be better positioned to access information and support, while weaker municipalities remain relatively peripheral. In this respect, the Riau case supports the argument by Agranoff (2007) and McGuire (2006) that collaborative capacity depends not only on formal structures, but also on the distribution of managerial and relational resources across actors.

A second limitation is that the arrangement appears to encourage a reactive service delivery model focused on downstream waste handling rather than more integrated and preventive strategies. Continued reliance on landfill disposal and persistent implementation gaps suggest that the arrangement does not effectively support innovation in waste reduction, treatment, or inter-municipal problem-solving. This reflects a broader trade-off in centralized arrangements: they may improve administrative order, but they can also narrow the scope for local adaptation and experimentation. In the Riau case, the consequence is a

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service delivery model that stabilizes coordination procedurally while remaining constrained substantively.

These findings therefore show that the current arrangement is not the “best solution” in any universal sense. Rather, it is a context-dependent arrangement that solves some coordination problems while reproducing others. Its advantage lies in maintaining a basic level of intergovernmental coherence; its limitation lies in failing to generate the horizontal capacities needed for more adaptive and evenly distributed service delivery.

5.4 International Value Added: Lessons for Decentralized Regions Beyond Indonesia

The Riau case offers international value by showing that decentralized regions with uneven administrative capacity may produce centralized service delivery arrangements in practice. This finding is relevant beyond Indonesia because many decentralized systems face similar tensions between local autonomy, vertical coordination, and uneven implementation capacity.

The study also contributes to comparative debates on public service delivery by showing that centralized intergovernmental coordination may function as a pragmatic but limited delivery arrangement. It may be effective in providing baseline steering, policy alignment, and procedural coherence in fragmented institutional environments. At the same time, it may constrain the horizontal collaboration, mutual learning, and adaptive problem-solving needed for more integrated service delivery. This trade-off is not unique to waste management. It is likely to be relevant for other policy sectors in which implementation depends on sustained interaction across subnational governments, including environmental management, local infrastructure, and other territorially fragmented public services.

From a theoretical perspective, the study extends network governance and intergovernmental relations scholarship by linking them more directly to debates on service delivery modes. Existing research has often treated coordination structures as governance variables in their own right. The Riau case shows that these structures can also be understood as delivery arrangements with distinct strengths and weaknesses. This shift in emphasis is important because it allows scholars and practitioners to evaluate centralized coordination

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not only in terms of governance form, but also in terms of what it enables and constrains in public service delivery practice.

5.5 Implications for Policy and Institutional Design

From a policy perspective, the findings suggest that improving decentralized waste management service delivery requires more than strengthening reporting systems or assigning additional responsibilities to local governments. Reform efforts need to address the structure of service delivery itself. In the Riau case, this means that provincial actors should not only continue to provide coordination, but also help create the conditions for stronger horizontal interaction among municipalities. Formal inter-municipal coordination platforms, shared planning mechanisms, and routine channels for operational exchange could reduce overdependence on vertical mediation alone.

This also implies that centralized coordination should be treated as a partial solution, not a final institutional endpoint. In regions where local capacity is uneven, a centralized arrangement may be necessary to maintain baseline service delivery. However, if such an arrangement is not complemented by mechanisms that strengthen horizontal learning and collective problem-solving, implementation is likely to remain uneven. The policy challenge, therefore, is to move from centralized coordination as an administrative necessity toward a more balanced arrangement that combines vertical steering with stronger inter-municipal collaboration.

In this sense, the Riau case does not suggest that decentralization has failed, nor that centralization should replace local governance. Instead, it shows that decentralized waste management service delivery depends on how coordination capacity is organized across levels of government. The practical lesson is that policymakers should pay closer attention not only to who is formally responsible for service delivery, but also to what kind of intergovernmental arrangement is actually capable of delivering services effectively and equitably under real institutional conditions.

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6. CONCLUSION

This study has examined centralized intergovernmental coordination as a mode of waste management service delivery in Riau Province, Indonesia. The findings show that waste management in Riau is delivered through a centralized intergovernmental arrangement in which coordination capacity is concentrated in intermediary provincial actors, while horizontal interaction among municipalities remains limited. This arrangement enables basic administrative alignment between national policy direction and municipal implementation, but it does not produce evenly distributed coordination capacity across jurisdictions. As a result, service delivery remains vertically mediated, inter-municipal learning is constrained, and implementation outcomes remain uneven.

These findings revise the common assumption in public policy and public administration that decentralization leads to more horizontally distributed and locally autonomous service delivery, showing instead that under conditions of uneven administrative capacity, coordination capacity may remain concentrated within intermediary actors. The Riau case therefore demonstrates both the advantages and the limitations of this arrangement. Its main advantage lies in sustaining baseline coordination and policy alignment in a fragmented institutional environment. Its main limitation lies in its weak support for horizontal collaboration, adaptive problem-solving, and more balanced implementation capacity across municipalities. In this sense, centralized intergovernmental coordination should be understood as a context-dependent service delivery solution, not as a universally optimal model.

The international value of the case lies in showing that service delivery outcomes depend not only on formal authority allocation, but also on the intergovernmental arrangement through which services are coordinated. For policymakers, the findings suggest that decentralized waste management requires combining vertical steering with stronger horizontal coordination.

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