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Research article

Waste Management Policy Through Community Collaboration in Sukahaji Babakan Ciparay Bandung

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Abstract

Fundamentally, trash refers to a phenomenological manifestation of the dynamics of social life. Through the interplay between the two as a reflection of perceptions, habits, and the consciousness of individuals and groups, they interact through trash in their everyday reality. Meanwhile, even though it is present in the midst of modern society, waste in essence often triggers deep-rooted crises than can pose multidimensional threats to human survival. The presence of the Low Earth Orbit, of space debris occurs in low Earth orbit, where debris exerts force on the Earth's surface (orbiting the Earth and seeking equilibrium through mass) due to human activities, settlement activities, and natural procesess that do occur spontaneously. The existence of waste often gives rise to a social engineering vacuum in waste management, a situation that is not merely the absence of facilities and logistics in the process of transporting and collecting waste to disposal or treatment facilities. However, the haphazard disposal or processing of waste clearly reflects the failure resulting from low collective awareness, thus requiring a social engineering approach to transform current societal habits where waste has become a Frightening Spectre and/or Terrifying Ghost into a massive spatial problem. This study aims to evaluate an in-depth understanding to help indentify the root causes of the long-standing tendency to fail to resolve waste problems effectively and sustainably. One community in Sukahaji, Babakan Ciparay, Bandung, faces problems that are exacerbating the domestic waste management crisis. The study employs a descriptive qualitative approach. The results of this study revealed that policies regarding the mobility of the Sukahaji community in Babakan Ciparay, Bandung, are crucial for accelerating the implementation of a self-managed waste management system by integrating waste sorting as can be applied by each household. The theoretical framework draws upon the work of John W. Creswell (2018).

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1. Introduction

Municipal solid waste management has become a persistent public policy challenge in rapidly urbanizing cities, particularly where waste generation exceeds the capacity of existing collection, transportation, and treatment systems. Inadequate waste management can contribute to environmental pollution, public health risks, and the deterioration of urban living conditions. Addressing this challenge requires more than expanding waste collection infrastructure; it also requires effective policy implementation, institutional coordination, and sustained public participation in waste reduction and sorting practices. From a public administration perspective, waste management is therefore not merely a technical environmental service but also a governance issue involving the distribution of responsibilities, the mobilization of collective resources, and the coordination of public and non-state actors.

In Indonesia, Law No. 18 of 2008 on Waste Management established a policy orientation that emphasizes waste reduction and handling rather than relying exclusively on the conventional collect-transport-dispose approach. This framework is further supported by Government Regulation No. 81 of 2012 on the Management of Household Waste and Waste Similar to Household Waste and Presidential Regulation No. 97 of 2017 on National Policies and Strategies for Household Waste Management. At the municipal level, Bandung City Regional Regulation No. 9 of 2018 on Waste Management provides a regulatory basis for local waste management initiatives. Nevertheless, the existence of a regulatory framework does not automatically ensure effective implementation. The translation of policy objectives into consistent household practices and coordinated community action remains an important governance challenge.

This study examines waste management policy through community collaboration in Sukahaji, Babakan Ciparay, Bandung. The research focuses on the relationship between local policy implementation, community participation, and coordination among neighborhood leaders, community organizations, residents, and waste management groups. These actors occupy important positions in translating municipal waste management objectives into everyday practices, including household waste sorting, waste reduction, and the utilization of recyclable and organic materials.

The Kang PisMan movement, which promotes reducing, separating, and utilizing waste, provides a relevant policy context for examining these relationships. Previous research on the movement in Bandung has identified community awareness, knowledge, and collective responsibility as important factors influencing participation in waste management (Sekarningrum et al., 2024; Sitompul & Laksmono, 2024). The Sukahaji case offers an opportunity to investigate how collaboration operates within a specific community setting and how institutional arrangements and local participation may support or constrain the implementation of waste management policy.

Previous studies have examined community participation and collaborative governance as important dimensions of sustainable waste management. Research on the Kang PisMan movement in Bandung has explored the social meanings of waste management initiatives and demonstrated that community participation is influenced by residents' perceptions of collective responsibility and the benefits of waste management practices (Sekarningrum et al., 2024). This finding highlights the importance of social awareness in encouraging behavioral change, although awareness alone does not necessarily establish whether communities have adequate institutional support or operational capacity to sustain their participation.

Other research has examined strategies for increasing community participation in the Kang PisMan program through collaborative governance, community development, circular economy approaches, and digital governance (Sitompul & Laksmono, 2024). Research on household waste management in Sukamiskin has also identified limitations in public awareness, waste sorting facilities, and coordination among neighborhood units as challenges to effective program implementation (Fatrianingsih et al., 2022). These findings suggest that the effectiveness of community-based waste management depends on the interaction between behavioral, institutional, and infrastructural factors.

More recent research on Bandung's waste management initiatives has continued to examine the implementation of community-based policies and the effectiveness of local waste management programs (Fidowaty & Nurnovianti, 2025; Susanti et al., 2026). Collectively, this literature demonstrates the relevance of community participation and local institutional arrangements to waste management policy. Nevertheless, the analytical focus varies across studies, including public awareness, participation strategies, program implementation, and collaborative governance. Further examination is needed to connect these dimensions and explain how collaboration among local actors translates policy objectives into coordinated and sustainable community practices.

Despite the growing literature on community participation and collaborative waste management in Bandung, an important analytical issue remains: how do local institutional arrangements, stakeholder coordination, and community participation interact to support or constrain the implementation of waste management policy within a specific community? Studies of the Kang PisMan program provide useful insights into participation and implementation challenges, but these findings do not automatically explain the dynamics of collaboration in Sukahaji, Babakan Ciparay.

This study addresses this issue by examining community collaboration as a governance process rather than treating public participation solely as an individual behavioral outcome. The analysis considers the roles of local stakeholders, the coordination of responsibilities, the barriers to collective action, and the relationship between policy objectives and household-level waste management practices. The research therefore seeks to provide a context-specific understanding of the institutional and social conditions that shape community-based waste

management.

This study contributes to public administration and policy studies by connecting policy implementation with collaborative governance at the community level. Its contribution lies in examining how the participation of residents and local stakeholders interacts with coordination mechanisms and institutional capacity in the implementation of waste management policy. Rather than assuming that community participation automatically produces effective outcomes, the study investigates the conditions under which collaboration can support consistent waste sorting, waste reduction, and the utilization of household waste.

Empirically, the study provides a case-based examination of waste management collaboration in Sukahaji, Babakan Ciparay, Bandung. Practically, the findings are intended to inform policy recommendations concerning stakeholder coordination, community engagement, institutional support, and the sustainability of community-based waste management initiatives. The study also offers insights that may be useful for adapting local waste management strategies to other urban communities, subject to differences in their institutional and social contexts.

This study aims to analyze the implementation of waste management policy through community collaboration in Sukahaji, Babakan Ciparay, Bandung. Specifically, it seeks to: (1) examine the roles and forms of participation of local stakeholders in community-based waste management; (2) identify institutional, social, and operational factors that facilitate or constrain collaboration; and (3) formulate policy recommendations to strengthen stakeholder coordination and sustainable household waste management practices. Through these objectives, the study seeks to clarify how community collaboration can contribute to the implementation of local waste management policy.

2. Method

The research method employed is a descriptive qualitative study, in which the researcher critically examines cause/effect relationships among variables by maintaining strict control over the experimental conditions. Theoretically, this study also incorporates participatory observation to examine work culture within nonprofit organisation. In the same context, the descriptive approach aims to depict the phenomenology of a densely populated, urban in Sukahaji Villages, Babakan Ciparay Subdistrict, Bandung City, through the implementation of domestic waste management policies. Meanwhile, the research methodology, as explained by experts (Hidayat & Sedarmayanti, 2022), refers to a discussion of the theoretical concepts of various methods, their strengths, weaknesses, which in scientific work is followed by the selection of the methods to be used. The definition of methodology is an examination of the steps involved in using a method. Meanwhile, the definition of research method is a technical description of the methods used in the research.

Therefore, this study employs a qualitative method with a design based on a framework to explore in-depth the implementation of community-based collaborative waste management policies in Sukahaji Villages, Babakan Ciparay Subdistrict, Bandung City. Based on this conceptualisation, the researcher acted as a key instrument, collecting data directly in the field through semi-structured in-depth interviews with urban villages officials, Waste Bank administrators, local resident, supplemented by environmental observations analysis of local regulatory documents. Informats where selected using purposive sampling to ensure that the data obtained was rich in context and representative of the various stakeholders involved in the dynamics of waste management in this densely populated area. Therefore, the data analysis procedure was conducted systematically interactively, following the stages of qualitative analysis-beginning with the organisation of interview transcripts, a thorough review of the data, coding-to identify the main themes related to collaboration, operational barriers, the effectiveness of the Kang Pisman policy. Thus, to ensure the validity-reliability of the data, this study applied source-method triangulation by comparing information from various informants field observation results, reinforced these findings through cross-checking. Consequently, this approach enables the researcher to present a rich, thick description to formulate comprehensive, evidence-based, sustainable waste management policy recommendations for the Sukahaji, neighbourhood.

Comprehensively, researchers in this research method implement describe specific situations or phenomena as follows:

1. Visualising the problem description (*context and importance of the problem*), which refers to the current waste management system facing three main challenges, namely:

    a. Landfill capacity crisis it is estimated that the majority of landfills in the Sukahaji, Babakan Ciparay, Bandung City, their surrounding regions have exceeded their *overcapacity* which could lead to environmental disasters, waste landslides and groudwater contamination;

    b. Low waste sorting rates the crucial sorting of waste the primary source (households-commercial establishments) remains below the 20% standard, resulting in organic, inorganic waste being mixed together (merged and inseparable), thereby reducing the economic value of materials that are typically recycled;

    c. Burden on the Regional Budget: Operational costs for waste transportation are significantly high, yet these costs are not offset by adequate user fees/an incentive structure for the waste processing industry.

In conceptualising *policy recommendations* to achieve sustainable waste management, we specifically recommend the following three pillars of policy intervention:

1. Upstream Intervention, as a framework for mandatory restriction sorting policies. Through *Extended Producer Responsibility* Regulations, which require manufacturers to take back or be responsible for the recycling of their products' plastic packaging. This involves participatory approaches to fee-based incentives, disincentives by implementing a *Pay-As-You-Throw* system. Households that do not sort their waste should face higher fees than those that.

2. Midstream Interventions, referring to the optimization of circular economy infrastructure, technology, through revitalisation of TPS3R, Waste Banks by transforming Waste Processing Sites into digital sorting centers integrated with the *recycling* industry. Furthermore, through the use of *Refuse-Derived-Fuel* technology, this involves processing dry waste into altrenative fuel for the cement industry or coal-fired power plants to reduce volume Waste that enters the landfill immediately.

3. Downstream Interventions Funding through Strategic Partnerships, via the Public-Private Partnerships scheme, by inviting private investment for the construction of modern waste management facilities (*waste-to-energy*) to reduce the burden on the Regional Revenue and Expenditure Budget.

3. Results and Discussion

2.1. Waste Accumulation and the Limitations of Conventional Waste Management

The findings indicate that waste accumulation has become a significant environmental and public service challenge in Sukahaji, Babakan Ciparay, Bandung. Based on field observations documented in 2026, the waste accumulation problem is associated with the limited capacity of temporary waste collection facilities, restrictions on waste transportation to the Sarimukti disposal facility, and the continued dependence on conventional waste collection and transportation services. The accumulation of waste reportedly extends onto adjacent roads, disrupting traffic movement and creating slippery surfaces during rainfall. Waste collection carts also experience difficulties unloading their contents when collection facilities reach their capacity limits. These conditions illustrate the relationship between waste generation, transportation capacity, and the operational limitations of local waste management services.

Another issue identified in the field documentation is the occurrence of indiscriminate waste disposal, including the reported disposal of waste by individuals from outside the neighborhood during periods of limited supervision. This situation indicates that waste management challenges extend beyond the availability of collection infrastructure. Compliance with waste disposal arrangements, the effectiveness of supervision, and the coordination of responsibilities among residents and public authorities also influence the performance of local waste management.

These findings suggest that the conventional collect-transport-dispose approach has limited capacity to address waste accumulation when the volume of waste generated exceeds the capacity of collection and disposal systems. The problem is not simply the insufficient availability of transportation services but also the limited integration of waste reduction and processing at the source into the overall management system.

From a public administration perspective, this condition reflects an implementation challenge involving the relationship between policy objectives, administrative capacity, and public service delivery. The existence of formal waste management regulations does not necessarily guarantee that waste reduction and sorting practices are consistently implemented at the household level. Effective implementation requires coordination between local government institutions, neighborhood administrators, waste management groups, and residents.

The findings are consistent with the policy orientation established by Law No. 18 of 2008 on Waste Management and Government Regulation No. 81 of 2012, which emphasize waste reduction, appropriate waste handling, and community participation. The local case illustrates the practical difficulty of translating these policy objectives into an integrated operational system when transportation capacity, source separation, and community-level processing are not sufficiently coordinated.

2.2. Community Participation and Waste Management Practices

The research documentation identifies community participation as a central component of waste management policy implementation in Sukahaji. Residents are the primary generators of household waste and consequently occupy a critical position in efforts to reduce the volume of waste requiring collection and disposal. Household waste sorting, organic waste processing, and the separation of recyclable materials are among the practices identified as relevant to the implementation of community-based waste management.

The findings also indicate that community participation needs to be supported by accessible facilities, consistent collection arrangements, and coordination among neighborhood institutions. Without these supporting conditions, household sorting practices may not produce the expected results, particularly when separated waste is subsequently mixed during collection or transportation. This issue demonstrates that participation cannot be evaluated solely through residents' willingness to engage in waste management activities. The availability of institutional and operational support also determines whether individual practices can contribute to broader policy objectives.

The Kang PisMan movement, which promotes reducing, separating, and utilizing waste, provides a relevant policy context for understanding these challenges. Its orientation is consistent with the need to shift waste management away from disposal-oriented practices toward waste reduction and utilization at the source. Nevertheless, the implementation of this

approach requires more than public awareness campaigns. Residents need practical opportunities to sort waste, reliable arrangements for collecting separated materials, and accessible channels for processing organic and recyclable waste.

The research documentation identifies neighborhood administrators, Family Welfare Empowerment (PKK) groups, community leaders, waste bank managers, and residents as relevant actors in community-based waste management. These actors can perform complementary functions, including public education, coordination of collection schedules, household waste sorting, and the management of recyclable materials. Their involvement provides a potential institutional foundation for strengthening community participation.

This finding extends the discussion of community participation by highlighting the relationship between behavioral change and institutional support. Public awareness may encourage residents to participate, but sustained participation also depends on whether the waste management system enables residents to translate awareness into consistent practices. Community-based waste management therefore requires the integration of social engagement, operational arrangements, and administrative coordination.

2.3. Stakeholder Coordination and Collaborative Governance

The research documentation identifies several stakeholder groups involved in, or relevant to, waste management in Sukahaji. These include local government institutions, neighborhood administrators, residents, community organizations, waste bank managers, private-sector recycling partners, academic institutions, and media organizations. The documented coordination activities and stakeholder mapping provide a basis for examining waste management as a collaborative governance issue. The division of responsibilities identified in the research is summarized in Table 1.

Table 1. Stakeholder Roles in Community-Based Waste Management

Stakeholder	Main role	Potential contribution to policy implementation
Local government	Regulator and facilitator	Establishing policy direction, coordinating services, and supporting infrastructure
Neighborhood administrators (RT/RW)	Local coordinators	Organizing residents, communicating collection schedules, and supporting monitoring
Residents	Waste generators and primary participants	Sorting waste at the source and participating in community waste management
PKK groups and community organizations	Community mobilizers	Supporting environmental education and household waste management practices
Waste bank managers	Collectors and managers of recyclable materials	Organizing recyclable waste collection and connecting materials to recycling markets
Private-sector recycling partners	Recycling and utilization partners	Providing potential markets for recyclable materials and supporting waste recovery
Academic institutions and civil society organizations	Knowledge and technical support	Providing research, education, facilitation, and technical assistance
Media organizations	Information and communication actors	Disseminating information and supporting public awareness

Source: Compiled from the research documentation and stakeholder mapping, 2026.

The stakeholder mapping indicates that effective waste management depends on the distribution of complementary responsibilities rather than the exclusive involvement of a single institution. Local government institutions provide the regulatory and administrative framework, while neighborhood administrators facilitate coordination at the community level. Residents undertake waste sorting, and waste bank managers and recycling partners may support the recovery of economically valuable materials.

The significance of these relationships lies in the interdependence among stakeholders. Household waste sorting, for example, cannot achieve its intended purpose if collection arrangements do not preserve the separation of materials. Similarly, recycling activities require connections between waste collection groups and organizations capable of processing or purchasing recyclable materials. These relationships demonstrate that community participation must be connected to the operational capacity of the broader waste management system.

The findings can be interpreted through the perspective of collaborative governance, which emphasizes the coordination of public and non-public actors in addressing complex public problems. In the Sukahaji case, waste management involves environmental services, neighborhood institutions, household practices, and potential economic activities associated with recyclable materials. No single actor can independently address all these dimensions.

The research also proposes a Pentahelix approach involving government, academia, communities, the private sector, and media organizations. This framework offers a way to organize stakeholder responsibilities and identify opportunities for cooperation. Nevertheless, the presence of multiple stakeholder groups should not automatically be interpreted as evidence of effective collaboration. Effective collaboration requires clearly defined responsibilities, regular communication, shared objectives, accountability mechanisms, and evidence that joint activities produce measurable outcomes.

Consequently, the policy challenge is to move beyond stakeholder identification toward institutionalized cooperation. Coordination mechanisms need to clarify who is responsible for waste sorting, collection, processing, monitoring, and the transportation of residual waste. Without such arrangements, collaboration may remain dependent on individual initiatives rather than becoming a sustainable component of local governance.

2.4. Institutional and Operational Barriers to Policy Implementation

The research documentation identifies several challenges affecting the implementation of community-based waste management in Sukahaji. These challenges include limited public awareness, inadequate waste sorting facilities, inconsistent institutional coordination, financial sustainability, and the limited optimization of organic waste processing. The documented challenges and corresponding policy directions are presented in Table 2.

Table 2. Waste Management Challenges and Proposed Policy Responses

Identified challenge	Implication for policy implementation	Proposed policy response
Limited community awareness and inconsistent participation	Household sorting and waste reduction may not become sustained practices	Continuous environmental education and community engagement
Limited waste sorting and processing facilities	Residents may lack practical opportunities to separate and process waste	Provision of accessible sorting facilities and community-scale processing equipment
Inconsistent coordination among local actors	Waste may be mixed again during collection, and responsibilities may remain unclear	Clear division of responsibilities and coordinated collection schedules
Dependence on external waste transportation	Accumulation may increase when transportation or disposal quotas are restricted	Strengthening waste reduction and processing at the source
Financial sustainability	Community waste management activities may struggle to maintain operational continuity	Transparent financing arrangements and partnerships with recycling businesses
Limited optimization of organic waste processing	Organic waste continues to contribute to the volume requiring transportation and disposal	Household composting and other appropriate organic waste processing methods

Source: Research documentation and researcher analysis, 2026.

The challenges presented in Table 2 indicate that the waste management problem is multidimensional. Behavioral, infrastructural, institutional, and financial factors interact to influence implementation outcomes. Addressing only one dimension is unlikely to produce a sustainable solution.

First, community awareness must be translated into practical participation. Education can help residents understand the importance of waste sorting, but its effectiveness depends on access to appropriate containers, reliable collection services, and clear information about how different waste categories are managed. This relationship highlights the importance of integrating communication strategies with operational improvements.

Second, institutional coordination requires attention to the continuity of waste management activities. The research documentation identifies the possibility that community enthusiasm may decline after initial engagement. This concern suggests that community mobilization needs to be supported by routine activities, designated responsibilities, monitoring arrangements, and feedback mechanisms. Participation should become part of regular community governance rather than remain limited to temporary campaigns.

Third, financial sustainability is important for maintaining community-level waste processing. Waste banks and recycling partnerships may create opportunities to recover economic value from recyclable materials, but their effectiveness depends on the availability of reliable buyers, reasonable transportation costs, and transparent financial management. Economic incentives should complement environmental objectives rather than replace the public responsibility to provide adequate waste management services.

Fourth, physical constraints associated with densely populated settlements require context-

sensitive interventions. Household composting, biopore systems, and the Takakura method are identified in the research documentation as possible approaches for processing organic waste where available space is limited. The suitability of these methods, however, depends on household conditions, technical knowledge, maintenance requirements, and the characteristics of the waste generated.

Taken together, these findings indicate that waste management policy needs to integrate behavioral interventions, infrastructure provision, institutional coordination, and financial arrangements. The effectiveness of collaboration depends on the extent to which these components operate as a connected system.

2.5. Policy Implications and Community-Based Waste Management Strategies

The findings highlight the need to shift waste management in Sukahaji Village, Babakan Ciparay Subdistrict, Bandung City, from a predominantly collection-and-disposal approach toward an integrated system that prioritises waste reduction, source separation, and community participation. Waste accumulation and limitations in waste transportation capacity indicate that downstream measures alone are insufficient to address the challenges identified in the study. Effective policy implementation requires coordination between local government institutions, neighbourhood administrators (RT/RW), community groups, waste management organisations, and residents.

At the household level, waste separation should be strengthened through accessible facilities, clear collection schedules, and continuous public education. Residents need practical guidance on separating organic waste, recyclable materials, and residual waste. Neighbourhood administrators can support implementation by coordinating residents, communicating collection arrangements, and monitoring compliance. Environmental cadres, youth groups, and community leaders may also contribute to education and collective action, provided that their roles are clearly defined and supported by local institutions.

Community-based waste management can be further supported through waste banks and communal organic waste processing facilities. Waste banks may facilitate the collection and recovery of recyclable materials, while composting can reduce the amount of organic waste sent to temporary collection sites and final disposal facilities. Other approaches, including maggot cultivation, household composting, and appropriate recycling technologies, may be considered according to local needs, technical feasibility, available resources, and community capacity. These interventions should be accompanied by sustainable financing, transparent management, and clear allocation of responsibilities to ensure their continuity.

The policy implications can be understood through a comparison between conventional waste management and a circular economy approach, as presented in Table 6. The conventional approach tends to emphasise the collection and disposal of waste, whereas the circular

economy approach prioritises waste prevention, source separation, material recovery, and the productive use of discarded materials. This comparison provides a conceptual basis for identifying policy priorities; it should not be interpreted as evidence that all proposed circular economy interventions have already been implemented or evaluated in Sukahaji.

Table 3. Comparison of Conventional Waste Management and the Proposed Circular Economy Approach

Aspect	Conventional Waste Management Approach	Proposed Circular Economy Approach
Main focus	Waste collection, transportation, and final disposal	Waste reduction at the source, reuse, and recycling
Role of the community	Primarily involved in waste disposal and service use	Actively involved in household sorting and material recovery
Perceived value of waste	Primarily treated as a management cost	Recognised as a potential resource with economic value
Management technology	Landfill-based disposal, including sanitary or controlled landfills	Recycling, composting, and appropriate waste recovery technologies, including refuse-derived fuel (RDF) where feasible

Source: Developed by the authors based on the study's conceptual analysis and field observations, 2026.

The comparison suggests that policy improvement should combine upstream prevention and separation with downstream treatment and safe disposal. Advanced technologies, such as refuse-derived fuel and large-scale composting, should be considered only after assessing waste composition, infrastructure requirements, operational capacity, environmental safeguards, and financial feasibility. Technology adoption should complement, rather than replace, household sorting and community participation.

Local government institutions can support this transition by establishing clear operational guidelines, strengthening coordination across administrative levels, and providing adequate waste separation and collection facilities. Community-based monitoring mechanisms may help identify irregular collection, inappropriate disposal, and recurring infrastructure problems. Incentive schemes for neighbourhoods that demonstrate sustained improvements in waste separation and management may also be considered, provided that performance indicators are transparent, measurable, and fair.

Overall, community collaboration offers a practical governance mechanism for connecting household-level practices with local waste management services. Its effectiveness, however, depends on the consistency of community participation, institutional coordination, infrastructure availability, and sustainable financing. Future implementation should therefore be accompanied by measurable indicators, such as household participation in source separation, the volume of recyclable and organic waste recovered, and the amount of residual waste transported to final disposal facilities. These indicators would enable local stakeholders to assess progress and determine whether the proposed interventions produce meaningful

improvements in waste management.

2.6. Theoretical Implications

The Sukahaji case contributes to the discussion of collaborative governance by illustrating the interdependence between community participation and the institutional arrangements that support waste management. The findings suggest that the effectiveness of community-based waste management cannot be understood solely through individual environmental awareness or the existence of formal policy instruments. It also depends on the coordination of responsibilities, the availability of operational resources, and the capacity of local actors to sustain collective action.

The case also highlights the importance of examining policy implementation as a process connecting formal policy objectives with everyday practices. National and local regulations provide the legal basis for waste reduction and community participation, but implementation requires institutional mechanisms that translate these objectives into operational activities. This distinction is important because the existence of regulations, community organizations, and waste management programs does not by itself demonstrate successful policy implementation.

The proposed integration of collaborative governance and community-based waste management offers a useful analytical perspective for examining these relationships. Collaborative governance helps explain the importance of coordination among public and non-public actors, while the community-based perspective highlights the role of residents in managing waste at the source. Integrating these perspectives directs attention to the institutional and operational conditions required to connect household practices with the wider waste management system.

Nevertheless, the research documentation does not yet provide sufficient evidence to establish the comparative effectiveness of the Pentahelix model or to demonstrate that collaboration has produced measurable reductions in waste accumulation. The theoretical contribution should therefore be understood as a context-specific interpretation of governance challenges and potential coordination mechanisms rather than a definitive validation of a particular collaborative governance model.

4. Conclusion

This study examines waste management policy through community collaboration in Sukahaji Village, Babakan Ciparay Subdistrict, Bandung City. The findings highlight the limitations of a conventional waste management approach that relies primarily on waste collection, transportation, and final disposal. Waste accumulation, limited waste transportation capacity, and illegal dumping indicate the need to strengthen waste management at the source. The study underscores the importance of collaboration among local government institutions,

neighbourhood administrators (RT/RW), community groups, waste banks, and residents in supporting more integrated and participatory waste management. Accordingly, the research objective is addressed by identifying community collaboration as an important governance mechanism for improving waste management implementation at the neighbourhood level.

Theoretically, this study contributes to public administration and policy studies by highlighting the role of collaborative governance in connecting local institutions, community participation, and environmental policy implementation. Community collaboration provides a framework for distributing responsibilities, coordinating local actions, and strengthening collective accountability. In practical terms, local authorities and community stakeholders should strengthen household waste sorting, improve access to waste management facilities, and provide regular environmental education. Establishing or strengthening waste banks, communal composting facilities, and community-based monitoring mechanisms may also support waste reduction and the recovery of economically valuable materials. These measures require clear institutional responsibilities, adequate infrastructure, sustainable financing, and consistent public engagement.

This study is limited by its focus on a single urban neighbourhood and the available evidence on waste management practices and stakeholder collaboration. The findings do not establish the quantitative extent to which collaborative practices have reduced waste generation, improved household sorting behaviour, or decreased the volume of waste transported to final disposal facilities. Future research should examine these outcomes using measurable indicators, longitudinal observations, and perspectives from a wider range of stakeholders. Comparative studies across neighbourhoods could further explain how institutional capacity, community participation, and infrastructure availability influence the implementation and sustainability of collaborative waste management policies.

5. Ethics Approval

This study was conducted in accordance with applicable research ethics principles. Data collection involving interviews and field observations was carried out with due consideration for participants' voluntary participation, confidentiality, and the responsible use of research data. Any necessary ethical approval and permissions were obtained in accordance with the applicable institutional requirements.

6. Author Contributions

Rizqia Ananda Mulya Permata contributed to the conceptualisation, methodology, data collection, formal analysis, and preparation of the original manuscript. Fatmawati contributed to supervision, validation, critical review, and editing of the manuscript. Both authors reviewed and approved the final version of the manuscript.

7. Declaration on the Use of AI and AI-Assisted Technologies in Writing

The authors used AI-assisted technology to support language editing, grammar correction, and improvement of manuscript clarity. The authors reviewed and revised the AI-assisted outputs and take full responsibility for the accuracy, originality, and integrity of the final manuscript. AI tools were not credited as authors.

8. Declaration of Competing Interest

The author declares that there are no known financial interests or personal relationships that could have influenced the research and writing of this article.

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11. Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to applicable confidentiality and ethical considerations.

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