



Collaborative Governance for Waste Management in Maintaining Public Order in Kudus Regency Central Java Province

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ABSTRAK

Pengelolaan sampah menjadi isu krusial di Kabupaten Kudus, Jawa Tengah, terutama akibat kelebihan kapasitas di TPA Tanjungrejo yang berdampak pada ketertiban umum dan kualitas lingkungan. Penelitian ini bertujuan menganalisis implementasi collaborative governance dalam tata kelola sampah di Kabupaten Kudus. Analisis menggunakan *Teori Collaborative Governance* dari Ansell dan Gash yang mencakup kondisinal, desain konstitusional, kepemimpinan fasilitatif, serta proses kolaboratif. Metode Deskriptif Kualitatif Studi Kasus Tata Kelola Pemerintahan dalam pengelolaan sampah di Kabupaten Kudus. Hasil penelitian menunjukkan adanya kolaborasi antara Pemerintah Kabupaten Kudus, sektor swasta (PT. Djarum) dan masyarakat dalam bentuk program bank sampah dan edukasi public. Penulis juga menggunakan *Teori Penta Helix* sebagai kerangka tambahan yang didalamnya terdapat lima aktor utama yaitu pemerintah, akademisi, pelaku usaha, komunitas dan media. Penulis kemudian melakukan analisis terhadap kedua teori tersebut dengan cara mengidentifikasi kesesuaian antara elemen teoritis dengan kondisi empiris dilapangan melalui teknik triangulasi. Hasil penelitian menunjukkan bahwa penerapan collaborative governance dalam tata kelola sampah oleh pemerintah Kabupaten Kudus belum berjalan secara efektif. Hal ini terlihat dari masih terjadinya aksi unjuk rasa oleh warga serta maraknya pembuangan sampah secara illegal. kondisi tersebut mencerminkan adanya kelemahan dalam koordinasi antar pemangku kepentingan serta rendahnya kesadaran masyarakat terhadap pentingnya pengelolaan dan pemilihan sampah yang baik dan berkelanjutan.

Kata kunci: collaborative governance, penta helix, tata kelola sampah, ketertiban umum.

ABSTRACT

Waste management has become a critical issue in Kudus Regency, Central Java, particularly due to the overcapacity at the Tanjungrejo Final Disposal Site (TPA), which negatively impacts public order and environmental quality. This study aims to analyze the implementation of collaborative governance in waste management in Kudus Regency. The analysis is based on the Collaborative Governance Theory by Ansell and Gash, which includes key elements such as starting conditions, institutional design, facilitative leadership, and the collaborative process. Qualitative Descriptive Method Case Study of Governance in Waste Management in Kudus Regency, the private sector (PT. Djarum), and the community through initiatives such as waste banks and public seduction programs. Additionally, the Penta Helix Theory is employed as a complementary framework, involving five key actors:

government, academia, business, community, and media. The author conducted an analysis of both theories by identifying the alignment between theoretical elements and empirical conditions in the field using triangulation techniques. The results show that the implementation of collaborative governance in waste management has not yet been fully effective. This is evidenced by ongoing public protests and widespread illegal dumping. These issues reflect weakness in stakeholder coordination and a low level of public awareness regarding the importance of proper waste sorting and sustainable waste management.

Keywords: collaborative governance, penta helix, waste management, public orders.

INTRODUCTION

Kudus Regency has ten waste disposal sites (TPS) located across various villages and one final disposal site (TPA), Tanjungrejo, covering 5.25 hectares, which has not been expanded since its establishment in 1983. (Source: Jateng.antarnews.com, November 27, 2025). The landfill receives approximately 130 tons of waste daily from all areas of Kudus, exceeding its designed capacity (Source : Betanews.id, Desember 3, 2025). Tanjungrejo Landfill has begun to struggle with waste intake, further aggravated by limited truck access, resulting in mounting piles of garbage, foul odors, and swarms of flies. Although the percentage of managed waste increased in 2020–2021 due to functioning facilities and adequate labor, 2023 saw a decline in management efficiency due to operational challenges. The overcapacity also affects the surrounding environment, particularly during heavy rainfall, when leachate overflows into nearby farmland, damaging crops such as hundreds of teak trees and rendering agricultural products like sugarcane and cassava unfit for sale due to blackened flesh, causing significant losses for farmers.

Addressing such challenges requires strong multi-stakeholder engagement, as collaboration is a continuous process of interaction between individuals, in an organizational context, not only enhances productivity but also strengthens team engagement and fosters better decision-making through diverse perspectives. In the context of waste management, the government plays a crucial role in creating regulations and facilities, while the private sector contributes technology and financial resources. Waste management is one of Kudus Regency's most pressing issues, driven by population growth and increased economic activity, which have led to escalating waste volumes. Without proper management, these problems can cause severe environmental and social impacts, including disruptions to public order. A collaborative governance approach provides a relevant and sustainable solution to address the complexity of waste management through participatory processes (Ansell & Gash, 2008). This approach involves decision-making and public policy implementation by government, private, and community actors in an equal and interdependent collective forum.

The Tanjungrejo Landfill (TPA), located in Jekulo District, has been in operation since the 1990s and was designed to accommodate waste from across Kudus Regency. However, with the growth in population and economic activity, the volume of waste entering the landfill has continued to rise, causing overcapacity. Tanjungrejo Landfill was originally designed to hold around 100 tons of waste per day, but it currently receives up to 200 tons per day, resulting in massive waste accumulation. (Source: Jateng.antarnews.com, November 27, 2025). The overcapacity of Tanjungrejo Landfill has had serious environmental and public health impacts. One of the major consequences is air pollution caused by the decomposition of organic waste, which produces methane gas that can cause respiratory problems and is a potent greenhouse gas contributing to global climate change. In addition, unmanaged waste overflow can contaminate soil and water sources, damaging ecosystems and directly impacting local communities.

The problem of excess capacity at the Tanjungrejo landfill is caused by the increasing volume of waste and the planned expansion of the landfill is hampered by the budget. The increase in the volume of waste at the Tanjungrejo landfill every day ranges from 125 to 175 tons per day and causes serious impacts including environmental pollution (soil, water, air), public health threats in the form of respiratory disorders, infectious diseases and disaster risks such as landslides. The expansion of the landfill is hampered by the budget, so that the condition of the Tanjungrejo final processing site (TPA) in Kudus Regency is increasingly worrying and its condition is already overloaded. (Source: Detikjateng, March 15, 2025).

This condition has led to a decline in waste management service quality, which in turn affects environmental cleanliness and public order. Furthermore, the lack of waste segregation at its source has also contributed to the overload. The impact of Tanjungrejo Landfill's overcapacity has been strongly felt by the surrounding community. In January 2025, hundreds of residents from Tanjungrejo Village staged a protest by sealing the landfill, voicing their dissatisfaction with waste management practices deemed substandard and harmful due to air pollution and environmental contamination.

Addressing this problem requires a more coordinated approach involving multiple stakeholders from the government, private sector, and community. The Kudus Regency Government, through the Department of Housing, Settlement Areas, and Environment, is responsible for technical planning of waste and wastewater management, while the Civil Service Police Unit (Satpol PP) enforces regulations. The private sector, represented by PT Djarum, plays a significant role through corporate social responsibility (CSR). One of its contributions includes providing waste segregation facilities and supporting public education

on the importance of sustainable waste management. The community, represented by the Tunjungseto Youth Organization (Karang Taruna), actively conducts awareness campaigns on household-level waste segregation and mobilizes community initiatives supporting environmental cleanliness.

Collaboration between the government, private sector, and community is key to tackling the overcapacity problem at Tanjungrejo Landfill in Kudus Regency. The primary goal of this collaboration is to reduce the volume of waste entering the landfill, optimize waste management through source segregation, and improve environmental quality and public order in Kudus Regency. It also aims to strengthen the implementation of Regional Regulation No. 3 of 2017 on waste management, which mandates waste segregation at its source and prohibits littering.

Collaboration among the government, private sector, and community is expected to create mutually supportive synergy for building a more efficient waste management system. The author adopts a collaborative governance approach in this study because the complexity of waste management issues cannot be solved by a single actor alone. Instead, it involves multiple interests, actors, and interconnected social processes, requiring cross-sector cooperation

LITERATURE REVIEW

Waste management has become one of the most pressing environmental challenges faced by many regions in Indonesia. Rapid population growth, urbanization, and changes in consumption patterns have significantly increased the volume and complexity of waste, requiring more sustainable and integrated solutions. In response, many local governments have adopted *collaborative governance* approaches, which emphasize cooperation among government agencies, private sectors, and communities to address waste-related issues. This model encourages shared responsibility, resource optimization, and mutual accountability, aiming to produce both environmental and socio-economic benefits. The following literature review examines several previous studies on collaborative governance in waste management from different regions in Indonesia, identifying common strategies, challenges, and lessons learned that may inform the present research.

Research by Raharjo et al. (2017) examined waste management in Surabaya City through a collaborative governance approach. The study found that the city government worked closely with community groups, private companies, and non-governmental organizations (NGOs) to implement a waste bank program, composting initiatives, and public awareness campaigns. This collaboration resulted in significant waste reduction and

improved public participation. However, the study also highlighted challenges in maintaining long-term community engagement and ensuring consistent policy support.

Similarly, Putri and Hidayat (2019) investigated collaborative waste management efforts in Bandung City, where local government partnered with educational institutions and private waste processing companies. The collaboration focused on improving recycling facilities and promoting waste segregation at the source. The study concluded that while infrastructure improvements were evident, behavioral change among residents remained a critical obstacle, requiring continuous education and incentives to sustain participation.

Another study by Pratama (2020) explored waste management collaboration in Malang City, which emphasized the integration of informal waste pickers into the formal waste management system. By involving informal actors, the program increased recycling rates and provided livelihood opportunities for marginalized groups. Nevertheless, the research noted that differences in interests between stakeholders sometimes hindered decision-making, underscoring the need for stronger facilitation and conflict resolution mechanisms.

In Jakarta, a study by Wulandari (2021) highlighted a public–private partnership (PPP) model in waste management, particularly in the development of waste-to-energy facilities. The research found that such partnerships brought in necessary technological expertise and investment, but also faced bureaucratic delays and regulatory uncertainties. This case demonstrated that while PPPs can be effective in advancing waste infrastructure, their success depends heavily on clear legal frameworks and transparent governance.

Furthermore, Nugroho and Setiawan (2022) analyzed collaborative governance in waste management in Yogyakarta City, emphasizing the role of local wisdom and cultural values in shaping community-based initiatives. Their findings indicated that community traditions, such as communal clean-up events (*kerja bakti*), strengthened social cohesion and encouraged sustainable waste practices. However, the authors also stressed the importance of integrating such cultural approaches with modern waste management systems to enhance efficiency.

Finally, research by Sari et al. (2023) on waste management in Denpasar City illustrated a hybrid model of collaboration, combining government-led regulations with grassroots initiatives supported by NGOs. The program successfully reduced plastic waste through a ban on single-use plastics and community-driven alternatives, yet challenges remained in monitoring enforcement and ensuring compliance among businesses. The study

concluded that a balanced combination of regulatory measures and participatory approaches is crucial for sustainable waste management outcomes.

METHODOLOGY

1. Research Design

This study uses a qualitative approach with a descriptive research type. This approach was chosen to describe and analyze an in-depth understanding of collective governance for waste management in maintaining public order in Kudus Regency, Central Java Province. The descriptive research design is used to systematically and thoroughly describe and analyze collective governance in waste management. This study aims to identify various aspects of collective governance in waste management.

2. Research Location and Subjects

This research was conducted in Kudus Regency, Central Java Province. The location selection is based on collective governance for waste management and maintaining public order. The subjects of this study are the Kudus Regional Government, business actors, and the local community.

3. Data Collection Techniques

Data in this study were collected through Documentation Studies. Documentation studies are collecting and analyzing relevant documents concerning collective governance in waste management in Kudus Regency. 4. Data Analysis The data analysis in this study was conducted qualitatively using thematic analysis techniques (Braun & Clarke, 2021). The data analysis is as follows: a. Transcription and Categorization: interviews were conducted with the Kudus Regency Government, business actors, and the community regarding collective governance in waste management. b. Thematic organization: the data is grouped, described, and analyzed regarding collective governance in waste management. c. Interpretation and Conclusion: based on the results of thematic analysis, the researcher will draw conclusions about collective governance for waste management in Kudus Regency.

RESULTS AND DISCUSSION

Results of Collaboration Between Local Government, Business Actors, and the Community

The Kudus Regency Government, including the Regent of Kudus, conducted a review of the progress of facility development at the Tanjungrejo Landfill. This collaborative project

between the Kudus Regency Government and PT Semen Gresik has reached 85 percent completion and is targeted to begin operations in early January 2026 with a processing capacity of 3.5 tons. The Kudus Regency Government, through the Regent, expressed its appreciation for PT Djarum's contribution in processing organic waste into fertilizer, as well as the role of PT Baru Pura Barutama in building the RDF (Refuse-Derived Fuel) waste processing facility. The Kudus Regency Government continues to encourage the community to separate waste and is committed to strengthening budget support to encourage more effective and sustainable waste management. (Source: Kudus Regency Government, 2025).

The Kudus Regency Government, in this case the Regent of Kudus, carried out a review of the progress of the Tanjungrejo Landfill Facility development as shown in the following picture:



(Source: Kudus Regency Government, Thursday, November 27, 2025)

Based on the image above, the researcher analyzes that this is a form of commitment from the local government of Kudus Regency to implement collaborative governance in waste management.

The Kudus Regency Government has budgeted IDR 4.2 billion for the construction of a Refuse-Derived Fuel (RDF) waste processing facility, or alternative fuel, as a strategic step to address the problem of non-organic waste, particularly plastic. The Kudus Regency Government, through the Kudus Regent, believes that the key to successful waste management is sorting from the household level. Organic and inorganic waste must be separated before further processing. Inorganic waste will be dried, processed, and sold as RDF, which will be utilized by the cement industry. The Kudus Regency Government is collaborating with PT Semen Indonesia Gresik. The Kudus Regent hopes that through RDF

technology, there will be a gradual reduction in waste and an increase in the economic value of waste. (Source: Jateng. antarnews. com, Thursday, November 27, 2025).

The collective governance implemented by the Kudus Regency Government is shown in the following image:



(Source: Jateng. antarnews. com, Thursday, November 27, 2025).

Based on the image above, the researcher analyzes that the local government of Kudus Regency is serious about collective governance in gradually handling waste and increasing the economic value of waste.

Analysis of Collaboration in waste management governance in Kudus Regency using the Collaborative Governance theory developed by Ansell and Gash.

This collaborative governance model consists of four main dimensions: initial conditions, institutional design, facilitative leadership, and collaborative processes.

A. Initial Conditions

The author analyzes the collaborative waste governance process in Kudus Regency using the initial conditions dimension. The conditions at the Tanjungrejo Landfill reflect the initial conditions that shape the dynamics of relationships between actors before effective collaboration begins. This dimension consists of three main indicators:

a) Resource Inequality

The author analyzes that local governments and the private sector generally have advantages in terms of institutional capacity, technical expertise, and access to information and funding. Conversely, community groups, especially at the household level, face limited technical knowledge and managerial capabilities to independently sort and process waste. This imbalance in the quality and quantity of resources directly impacts community participation in collaborative programs.

b) Collaboration Incentives

The author analyzes that incentives in this context are not limited to economic aspects, but also include social, political, and environmental incentives. The private sector tends to be driven by environmental incentive opportunities that align with PT. Djarum's Djarum Environmental Bhakti Foundation program, such as converting organic waste into compost. On the other hand, communities often lack tangible incentives, either in the form of immediate or long-term benefits.

c) History of Conflict

The author analyzes that past failures in collaboration have influenced the current cooperative climate. Concerns about potential future conflicts can hinder the formation of trust-based partnerships. Kudus Regency faces several obstacles in waste management, such as overlapping authority, lack of coordination between institutions, and an inadequate participatory approach to the community. Therefore, rebuilding trust through open dialogue, active involvement of all stakeholders from the planning stage, and the creation of fair conflict resolution mechanisms are crucial to strengthening the foundation of collaboration.

The volume of waste at the Tanjungrejo final disposal site (TPA) in the Kudus Regency Local Government is very piled up and exceeds capacity, as shown in the following image:



(Source: Kompas.Com/Puthut Dwi Putranto Nugroho, Friday, January 10, 2024)



(Source: Kompas.Com/Puthut Dwi Putranto Nugroho, Friday, January 10, 2024)

B. Institutional Design Dimension

The author analyzes that formal efforts to establish waste governance in Kudus Regency have been outlined in Regional Regulation Number 4 of 2017 concerning Waste Management. This regulation serves as a crucial institutional foundation for fostering collaboration between actors. However, the mere existence of regulations does not guarantee effective implementation on the ground. In practice, several challenges remain, particularly related to consistent policy enforcement and optimal cross-sector engagement.

a) Cross-Sector Participation

Each sector in waste management in Kudus Regency has its own function; however, success can only be achieved if there are interrelated roles and interdependence between parties. Strengthening cross-sectoral forums—whether in enforcing regulations, implementing waste management programs, or sorting waste at source—is crucial to ensuring that waste issues at the village level are addressed effectively. This is not solely the responsibility of the government, but rather a collective movement whose benefits are directly felt by the community.

b) Binding Regulations

Existing regional regulations not only provide the legal basis for program implementation but also serve as a reference for addressing violations that hinder the collaborative process. However, challenges remain in enforcing the law consistently and fairly, especially when community involvement is not accompanied by a clear understanding of rights and obligations within the system. The absence of clear implementing regulations also weakens the effectiveness of collaborative arrangements, leading to low compliance and poor cross-sectoral coordination.

c) Transparency

Although regulations have been issued, their dissemination and distribution of information to the community remain uneven. As a result, community understanding of their rights, obligations, and collaborative mechanisms remains limited. Therefore, each village needs to conduct regular outreach and monitoring to evaluate the implementation of waste sorting at the household level. This ensures effective community participation in the future.

C. Dimension of Facilitative Leadership

The author analyzes that the role of facilitative leadership is primarily reflected in the Department of Housing, Settlement Areas, and the Environment, which plays a key role in implementing the collaborative waste management program in Kudus Regency. This department not only facilitates coordination between stakeholders but also initiates negotiations and discussions aimed at uniting diverse interests within a synergistic collaborative framework. However, optimal performance from local law enforcement officials remains lacking. Strong and adaptive leadership is crucial for integrating various parties and maintaining a collaborative spirit in realizing sustainable waste management.

D. Dimensions of Collaborative Processes

The author analyzes that collaborative processes are a crucial aspect of successful waste management, involving various stakeholders. The implementation of collaborative governance in waste management at the Tanjungrejo Landfill has demonstrated positive initiatives through inter-stakeholder dialogue. However, field findings indicate that this collaboration has not fully succeeded in building deep trust and commitment between parties.

a) Face-to-Face Dialogue

The author analyzes that in the context of waste management at the Tanjungrejo Landfill, a face-to-face forum between stakeholders—such as the Head of the Environmental Agency (PKPLH), the Head of the Waste Management Unit (UPS), and waste management staff—has been established as an initial form of collaboration. However, its implementation has not shown sufficient effectiveness in addressing the main problem, namely the landfill's overcapacity, which impacts the surrounding environment. Continuous direct communication between parties remains a crucial element in creating productive interactions in the joint decision-making process. Meanwhile, collaboration has also begun to develop between the government, the private sector (PT Djarum), and community groups, particularly the Tunjungseto

Youth Organization (Karang Taruna). The face-to-face dialogue that has been established between these three parties reflects a more progressive collaborative approach. Support from the private sector, in the form of mentoring for communities and the public, has proven to have a positive impact on waste reduction efforts. However, the success of this initiative depends heavily on active community participation in following systematically designed directions and programs. Karang Taruna Tunjungseto itself has transformed into a pioneer in community-based waste management through the establishment of a Waste Bank and TPS3R (Reduce, Reuse, and Recycle Waste Processing Site). These initiatives not only contribute to waste reduction but also create sustainable economic benefits for the local community.

b) Building Trust

Without mutual trust, collaborative efforts tend to be transactional and focused only on short-term results. Past mistakes in prioritizing have led to a decline in public trust in local government. Field findings indicate that relationships between actors at the local level are still influenced by sectoral interests, thus preventing the development of complete trust. This condition results in low participation.

Community involvement in waste management programs, such as: Public lack of trust in the commitment and seriousness of local governments. Furthermore, many public complaints regarding waste that disrupts comfort and environmental quality have not been addressed firmly. The lack of concrete responses from authorities reinforces negative perceptions of the effectiveness of existing policies, thus hindering sustainable collaboration in waste management.

c) Commitment to Collaboration

Commitment to collaborative waste management is not merely declarative but is also reflected in consistent actions and tangible contributions. The lack of collective commitment is evident in the absence of structured joint planning and the weak integration of waste management policies with overall regional development programs. Although local governments have committed to addressing landfill overcapacity, the response from some stakeholders remains lax. Private sector interventions, such as composting, will be ineffective if waste separation at the household level is not carried out properly. The same applies to market vendors, where the waste collected daily by the PKPLH Agency is still mixed without being separated. This situation hinders the recycling process and reduces the overall effectiveness of waste management.

d) Shared Understanding

An effective collaborative process must yield a strong shared understanding of the core issues, vision, and shared goals. In the context of waste management, a shared agreement on the urgency of reducing accumulated waste and the importance of active participation from all elements of society is crucial. However, research findings indicate that alignment of values and perceptions between the government, community, and private sector has not been achieved. This lack of alignment in understanding the root causes of the problem results in partial solutions that fail to fully address landfill overcapacity. Therefore, alignment and synergy between the government, including the Environmental Protection and Management Agency (PKPLH) and the Public Order Agency (Satpol PP), the private sector, such as PT Djarum, and community groups, particularly the Tunjungseto Youth Organization (Karang Taruna Tunjungseto), are essential. A unified vision, coordinated strategic steps, and integrated actions will enhance the effectiveness of collaboration and generate a significant impact in addressing waste management issues at the Tanjungrejo Landfill.

e) Interim Results

The author describes the interim results achieved as part of the short-term goals of waste management, which are the shared aspirations of all stakeholders. Currently, collaboration between actors is increasingly evident through the pioneering implementation of the Waste Bank program, assistance from the private sector in composting, and the utilization of organic waste for maggot cultivation. However, regulatory aspects, law enforcement, and an effective management system to address landfill overcapacity still require more serious attention. Addressing overcapacity at landfills needs to be done in a gradual and structured manner, as not all solutions can be implemented simultaneously. Therefore, encouraging the public to refrain from increasing the waste burden is an important initial step to prevent the situation from worsening. Overcapacity at landfills not only disrupts public order but also has a broad impact on various sectors and the entire Kudus City area. As a result, Temporary Disposal Sites (TPS) are also experiencing waste accumulation, and illegal waste dumping practices in various locations, such as Balai Jagong, are becoming increasingly common. Therefore, continuous evaluation and the development of a more effective waste management system are urgently needed to comprehensively address this problem.

The Relevance of the Penta Helix Theory in Collaborative Governance of Waste Management in Maintaining Public Order in Kudus Regency, Central Java Province

The application of collaborative governance in waste management in Kudus Regency can also be analyzed through the Penta Helix theory, which emphasizes the importance of involving five key actors: government, academia, business, community/society, and media. The synergy among these five elements is crucial in building inclusive and sustainable waste management, which directly contributes to the creation of public order.

First, the local government, through the PKPLH Office and Satpol PP, plays the role of the main driver of regulations, policy facilitator, and environmental order enforcer. However, the effectiveness of this role depends on the extent to which the government can build trust and actively integrate the roles of other sectors. Field findings reveal that weaknesses in local regulations on waste management and the lack of clarity in normative substance have become serious obstacles to effective waste management in Kudus Regency. The ambiguity of sanction clauses in the Regional Regulation has reduced deterrent effects among violators, particularly in cases of increasingly rampant illegal dumping. Therefore, a review of the existing regulations is necessary, with an emphasis on law enforcement and the addition of repressive yet proportional provisions, in order to increase public compliance. Beyond regulatory aspects, internal supervision also plays a vital role. Regional leadership has a strategic role in ensuring the optimal performance of technical agencies, especially in supervision and enforcement of violations in the field. Strengthening regulations supported by a strict supervisory system is expected to create a simultaneous effect in curbing illegal dumping practices and building sustainable public order.

Second, academia contributes by providing knowledge bases, research, and technological innovations in waste management, such as maggot utilization, composting, and the TPS3R (Reduce, Reuse, Recycle Processing Facility) system. Academic participation serves as a bridge between theory and practice, which can strengthen evidence-based policy directions. The implementation of multi-stakeholder collaboration in waste management in Kudus Regency has begun to show concrete results, one of which is through the active role of the private sector. PT Djarum, through the Bhakti Lingkungan Djarum Foundation (BLDF) program, has contributed to strengthening the composting system by providing facilities such as compost bacteria, technical equipment, and other supporting systems. In this scheme, the government's role is more focused on being a facilitator, particularly in educating communities about the importance of waste segregation at the source. This collaboration

demonstrates productive synergy between state and non-state actors in supporting sustainable waste management.

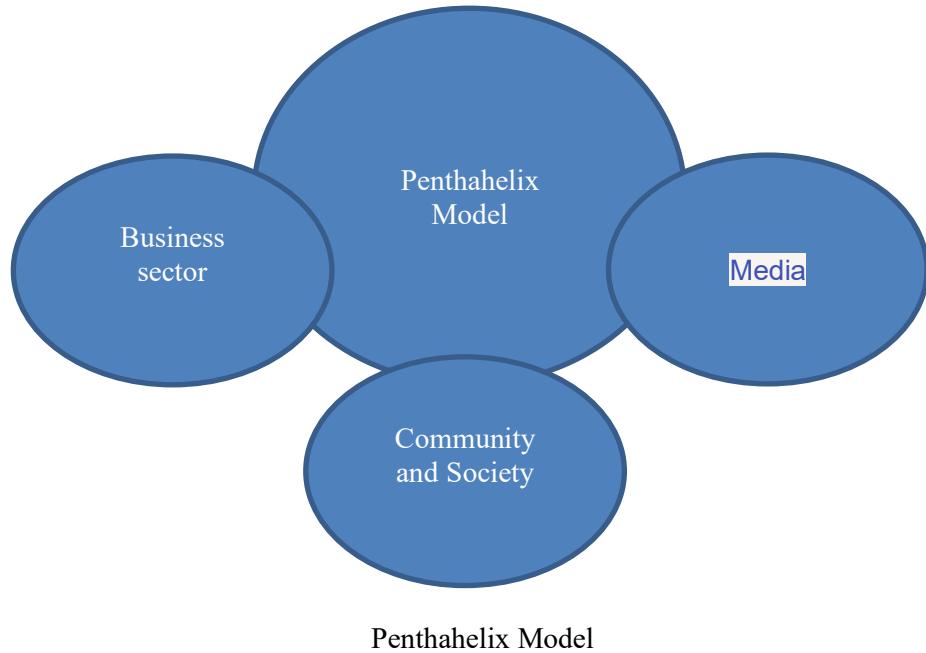
Furthermore, the Tunjungseto Waste Processing Site (TPS), initiated by members of the Karang Taruna Tunjungseto youth group, has now developed into a model of good practice in community-based waste management. This TPS has not only successfully implemented waste management programs but has also developed various innovations, such as maggot cultivation, catfish farming using organic waste, TPS3R, and a Waste Bank. This success reflects the importance of the community's role in strengthening the implementation of collaborative governance, where local initiatives can drive change in participatory and sustainable environmental governance.

Third, the business sector, such as PT Djarum, contributes through corporate social responsibility (CSR) programs, especially in providing composting facilities and training in organic waste management. The involvement of businesses not only adds resources but also promotes efficiency and sustainability of programs.

Fourth, communities and the public, represented by Karang Taruna Tunjungseto and residents around the Tanjungrejo landfill, play a central role in implementation on the ground. Public awareness, active participation, and willingness to sort and manage waste at the source are key factors in maintaining sustainable environmental order.

Fifth, media—both conventional and digital—plays a role in shaping public opinion, disseminating information, and acting as a tool of social control over the implementation of waste management policies. Media can strengthen transparency while encouraging accountability among all actors involved. The integration of these five elements within the Penta Helix framework strengthens the concept of collaborative governance, where decision-making is conducted participatively, based on shared values and collective goals. In the context of Kudus Regency, this cross-sector collaboration is a fundamental strategy for addressing landfill overcapacity, reducing illegal dumping practices, and creating an orderly, clean, and healthy urban space. Thus, the application of Penta Helix-based collaborative governance is not merely an administrative approach, but also a cultural transformation toward inclusive and sustainable environmental governance.

The Relevance of the Penta Helix Theory in Collaborative Governance of Waste Management in Maintaining Public Order in Kudus Regency, Central Java Province as follows



Based on the model above, the researcher explains that the local government, through the PKPLH Office and the Public Order Agency (Satpol PP), plays a role as the main driver of regulations, policy facilitator, and enforcer of environmental order. The academic world contributes by providing a knowledge base, research, and technological innovation in waste management. The business sector, such as PT Djarum, contributes through corporate social responsibility (CSR) programs, especially in providing composting facilities and training in organic waste management. The community and society, represented by Karang Taruna Tunjungseto and residents around the Tanjungrejo landfill, play a central role in implementation in the field and the media—both conventional and digital—play a role in shaping public opinion, disseminating information.

CONCLUSION

1. Results of Collaboration between Local Government, Business Actors, and the Community

The Kudus Regency Government is progressing in developing facilities at the Tanjungrejo Landfill. This includes the Kudus Regency Government's collaboration with PT Semen Gresik, PT Djarum's contribution in processing organic waste into fertilizer, and PT Baru Pura Barutama's role in building the RDF (Refuse Derived Fuel) waste processing facility. The Kudus Regency Government continues to encourage community waste sorting and is committed to strengthening budget support to encourage more effective and sustainable waste

management.

2. Analysis of Collaboration in waste management in Kudus Regency using the Collaborative Governance theory developed by Ansell and Gash.

The analysis of collaborative governance consists of four main dimensions: initial conditions, institutional design, facilitative leadership, and collaborative processes.

A. Initial Conditions

The collaborative waste management process in Kudus Regency, with the initial conditions dimension. The conditions of the Tanjungrejo Landfill reflect the initial conditions that shape the dynamics of relationships between actors before effective collaboration begins. This dimension consists of three main indicators: Resource Inequality, Collaborative Incentives, and History of Conflict.

B. Institutional Design Dimension

Formal efforts to establish waste governance in Kudus Regency have been outlined in Regional Regulation Number 4 of 2017 concerning Waste Management. This regulation serves as an important institutional foundation to encourage collaboration between actors. However, the existence of regulations alone does not necessarily guarantee effective implementation on the ground. In practice, several challenges remain, particularly related to consistent policy enforcement and optimal cross-sectoral engagement.

C. Facilitative Leadership Dimension

The role of facilitative leadership is primarily reflected in the Department of Housing, Settlement Areas, and the Environment, which plays a key role in implementing collaborative waste management programs in Kudus Regency. This department not only facilitates coordination between stakeholders but also initiates negotiations and discussions aimed at uniting diverse interests within a synergistic collaborative framework. However, optimal performance from regional regulation enforcement officials remains lacking. Strong and adaptive leadership is crucial for integrating various parties and maintaining a collaborative spirit in realizing sustainable waste management.

D. Collaborative Process Dimension

Collaborative processes are a crucial aspect of successful waste management, involving various stakeholders. The implementation of collaborative governance in waste management at the Tanjungrejo Landfill has demonstrated positive initiatives through inter-stakeholder dialogue. However, field findings indicate that this collaboration has

not fully succeeded in building deep trust and commitment between the parties.

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(Source: Jateng. antarnews. com, Thursday, November 27, 2025).

(Source: Kompas.Com/Puthut Dwi Putranto Nugroho, Friday, January 10, 2024