

# Collaborative Model for Integrated Waste Management

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## Collaborative Model for Integrated Waste Management in Gresik Regency, East Jawa

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### ABSTRACT

The issue of solid waste is increasingly urgent to be handled by the Gresik district government. Population growth and socio-economic activities in this area have a positive correlation with the increase in the amount and type of waste. This condition will certainly threaten the regional ecosystem, so collaboration between the government, the community and the private sector is needed in integrated waste management. The research objectives are to identify the existing condition of integrated waste management in Gresik Regency, to map the driving and inhibiting factors in integrated waste management and to formulate a model format for an integrated waste management paradigm change. The research method uses a qualitative descriptive approach to obtain a complete description of the collaboration model in integrated waste management. Sources of data obtained from secondary data, literature studies, interviews and observations. Informants consist of the Head of the Department of Cleanliness and the Environment and his staff, the public and the private sector. Methods of data collection is done by using interviews, focused group and discussion. Data analysis was carried out using qualitative analysis from Miles and Huberman consisting of four components, namely: data collection (data collection), data condensation (data condensation), data presentation (data display) and conclusion drawing or verification (conclusion and verifying drawing). The results of the study indicate that waste management in Gresik Regency which is carried out in an integrated manner with the collaborative involvement of stakeholders has not been able to be carried out optimally and completely until it reaches the Final Disposal Site. The potential of resources owned by the Gresik Regency Government structurally has not been able to optimally solve problems in waste management. There are encouraging and inhibiting factors originating from the systemic conditions of the Gresik Regency Government which do not run proportionally in overcoming the problem of waste management. The existence of an alternative model of changing the paradigm of integrated waste management is possible to overcome the problems of waste management in Gresik Regency.

**Keywords:** collaboration model, local government, waste management

## INTRODUCTION

The collaboration between local government and the private sector is a combination of interdependence and influence between public officials with an emphasis on financial, policy and political issues. Collaboration on the institutional aspects, namely the good intentions and political intentions of each region, updating various financial interests and the benefits of cooperation as a fundamental basis for the formation of a Cooperation institution[1]. Collaboration is regulated in Government Regulation Number 28 of 2018 concerning Regional Cooperation Article 1 Paragraph 2[2] covering, among others, markets, clean water management, and others, including waste services.

Along with the increase in the amount of waste, it must be balanced with environmentally friendly management so as not to cause damage and environmental pollution. Every day waste continues to be generated, the TPA land does not increase, as a result the waste is piling up and rising, especially the type of organic waste that often carries some seeds of plant, animal and human diseases and is favored by animals such as insects that can disturb the environment [3]. Thus, good waste management efforts need to be carried out.

The waste problem in East Java Province continues to increase, and it is difficult to find land to be used as a TPA (Final Processing Site). By the end of 2020, 47 landfills will be full of waste production that averages 18,500 tons/day[4]. Meanwhile, Gresik Regency's waste pile is 187 tons/day and has 1 unit of Final Processing Site (TPA) in Ngipik, Kebomas District with an area of 6 hectares (Ha)[5].

The legal umbrella in formulating TPA regionalization policies in the regions is regulated in Law Number 18 of 2018 concerning Waste Management[6], including facilitating collaboration between local governments and the private sector or partnerships and networks in waste management, organizing, coordinating, fostering and monitoring performance regencies in waste management, system development and regional waste management, as well as facilitating the resolution of waste management disputes between districts/cities within 1 (one) province. Integrated waste management involves three elements, namely: Local government through TPA managers and owners; Competent private and industrial waste managers who have implemented the co-processing concept. The combination of these three parties when synergized will become a superior system strength because each has advantages and comparative influence on the continuity of the collaboration process [7]

Integrated waste management is very important to overcome the waste problem. The discourse of cooperation between local governments and the private sector in the form of waste management has been initiated since 2015 by the Gresik Regency Government, in order to tackle waste problems in the regional context. Integrated waste management, which is coordinated and facilitated by the local government, is expected to be mutually beneficial for all regions related to the concept of regional waste problem solutions. But in reality, some examples of collaboration between the local government and the private sector are often not optimal, one thing or another because the paradigm of good governance has not changed and the administrative ego is still strong. For this reason, transparent and mutually beneficial collaboration formats and formulas are needed [8].

Based on the above background, this research formulates the following problems: how to identify the existing condition of integrated waste management in Gresik Regency, mapping the driving and inhibiting factors in integrated waste management and formulating a model format for an integrated waste management paradigm change. The objectives of this research are to identify the existing condition of integrated waste management in Gresik Regency, to map the potential resources of the Gresik Regency Environmental Service, to map the driving and inhibiting factors in integrated waste management and to formulate a model format for an integrated waste management paradigm change.

### LITERATURE REVIEW

Governance is a decision-making process involving state and non-state actors. Governance guides the processes that influence decisions and procedures in the private, public and civil sectors covering three domains, namely the state, private sector, and society, which interact with each other and carry out their respective functions. The three actors collaborate with each other in the process of governance [9]. Collaboration in the public sector can be done as an effort to produce public goods and services in order to fulfill the rights and needs of the public, where the parties involved have the same goals. Mainly, the purpose of public sector collaboration is aimed at improving services for the community. In general, collaborative governance is a process in which stakeholders are involved and bound to place the interests of each agency to achieve common goals [10].

The most basic thing in the collaboration process is structured negotiation in decision making, and consensus which is the result of a joint decision-making process [11]. Thus, the formation of consensus is the result of a democratic process, structured participation, and requires time and patience. Furthermore, Innes and Booher (2000), dialogue carried out to reach consensus must be an Authentic Dialogue, not rhetorical or ritual. Each speaker has legitimacy, speaks earnestly, makes statements that can be understood by others, and conveys accurate statements. Such dialogue will result in reciprocity, relationships, learning, and creativity [12].

By elaborating the concepts of Collaborative Governance and Collaborative Planning, it can be seen that the collaboration process is the main aspect of collaborative planning. The collaboration process is a process of processing opinions from various parties whose end result is a mutually agreed opinion, namely a consensus. The process consists of various stages, namely efforts to build commitment to the process, mutual understanding, provisional results, authentic dialogue, and trust. These stages are a cycle so that there is a learning process in it [13].

Collaborative Governance model with a core collaboration process, influenced by initial conditions (participation), institutional design, and leadership. The conclusion of his research shows that trust and interdependence are core contingency factors and there is an interactive impact between the two [14]. Kraft and Johnston (2003) and Innes and Booher (2000) support interdependence between actors in the collaborative process [15]. Johnston (2011) follows up on Anshell and Gash's research, that the process of involvement in the collaborative governance structure can be a force in creating a strengthening cycle of trust, commitment, understanding, communication [16]. Although it looks ideal, there are still people who doubt the effectiveness of the collaborative process, both in terms of the process



and its ideological basis. It is not an easy job to bring together several different opinions and come to an agreement. The collaboration process is difficult to implement because it has a lot of demands and takes a lot of time and gives results with low certainty and lack of commitment from stakeholders which causes disputes within the group [17]. In addition, free, unhindered public involvement in solving common problems is a conceptual impossibility [18]. Regarding collaborative planning, Palermo and Ponzini (2010) argue that collaborative planning carries the risk of ideological simplification and erroneous thinking [19].

The concept of collaborative governance is a model of the balance of power and resources between governments and other public institutions with a commitment to empowerment for stakeholders outside the government so that they depend on each other in overcoming public problems through collective decision making and consensus-oriented implementation [20]. Collaborative governance is a new paradigm in understanding the existence of multiple actors in public affairs. There are three approaches to Collaborative Governance, namely: a) collaborative governance in descriptive and explanatory approaches, aiming to describe, explain and predict social facts. Collaborative governance theory tries to explain what actually happens in collaboration and the supporting factors for the success of collaborative governance, b) collaborative governance in an instrumental approach is the key to public administration. The instrumental approach should be considered as important as any other approach. This approach focuses on the question of how methods, tools and strategies to achieve public goals [21], c) collaborative governance in a normative approach, is a way to facilitate deliberative democracy, enable citizens to get information to make policy decisions, solve chronic social problems, build mutual trust between stakeholders, provide opportunities for social learning and develop creative solutions [22].

Several collaborative governance models are as follows: a) Buttler-Colleman model, proposes a collaboration model based on interaction level variables and group size variables that produce five styles, namely: library, solicitation, team, community and process support [23]. Ansell and Gash Model: This model has four variables, namely initial conditions, institutional design, facilitative leadership and collaboration process. The collaboration process variable is the core of this model, while the initial condition variables, institutional design, and facilitative leadership are presented as supporting variables that contribute significantly to the collaboration process. In the collaboration process as follows: a) trust building, namely how to build trust between collaboration participants, b) commitment to process, namely how to build commitment in the collaboration process, c) share understanding, namely sharing understanding of the mission, problems faced, and identifying common values in collaboration, d) intermediate outcomes, namely temporary results by looking at how to achieve initial success, carrying out strategic planning, as well as finding joint facts to achieve a higher level or final goal and face to face dialogue in this case doing negotiations in good faith through dialogue or face-to-face communication between stakeholders [14].

The indicators of success in the collaborative governance process are as follows: networked structure: in collaborative governance, the network element should not form a power hierarchy from one party, there is no domination or monopoly. So, all parties involved have equal rights and obligations, authority, responsibility, as well as accessibility in achieving the Common goal; commitment to a common purpose: commitment to a goal refers to the reason

why a network should exist, because of the commitment and concern for achieving positive goals; Trust among the Participants: trust among actors based on profession or social relationships that are linked in a network. There is a belief that the actors entrust information or the efforts of other stakeholders in a network to achieve common goals [24].

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According to Law Number 18 of 2018 concerning Waste Management (UUPLS), what is meant by waste is the remnants of human daily activities and/or natural processes in solid form. Garbage which is the rest of human activities must be managed so as not to cause environmental pollution and health problems.

### METHODOLOGY

This research is expected to be able to realize the formulation of a collaborative model of local government in integrated waste management so that it is expected to produce the following findings: 1) identification of the existing condition of integrated waste management in Gresik Regency with sub-foci which include: a) volume and composition of waste, b) community participation in waste management solid waste, c) Waste infrastructure and d) Stakeholders in waste management; 2) mapping of driving and inhibiting factors in integrated waste management with sub-focus covering: driving factors: a) the effectiveness of formal figures (Bupati), b) the role of the mass media and c) firm action from law enforcement agencies. Inhibiting factors include: a) funding sources, b) monitoring from the local government or related agencies and c) opening of new TPAs; the formulation of a model format for an integrated waste management paradigm change which includes: a) network structure b) commitment to goals, c) trust among actors, and d) clarity in governance.

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The research location is in Gresik Regency. The research analysis unit is the head of the environment and sanitation department, the head of the Gresik Regency Cooperation Division, the private sector and the community. The data collection method that will be carried out in this study is In Depth Interview, to analyze the needs of researchers in formulating concepts and theories of government collaboration model formats in integrated waste management. Focus Group Discussion: a method to collect data from various experts: the Regent, the Head of the Sanitation and Environment Service and his staff, the community and relevant private institutions. The data from the FGD are comparative data (cross check) with the results of in-depth interviews.

Data obtained in qualitative descriptive research from various sources by using a data collection technique with triangulation, and applied continuously until the data is saturated. Data analysis in qualitative research is carried out before entering the field, while in the field and after finishing in the field. Activities in qualitative data analysis are carried out interactively and take place continuously until complete, so that the data is saturated. The steps of data analysis are data reduction, data display, and conclusion drawing/verification [25].

The data analysis model from Miles and Huberman consists of 4 (four) main things, namely data collection, data condensation or data simplification, data presentation and conclusion drawing or verification. The analysis is as follows: a) Data collection, carried out before and until the time the research takes place. The data collected is in the form of words that are not a series of words and has been collected by researchers through data collection techniques, namely

interviews, observation, documentation, and collection of supporting documents related to research [b] Data condensation is a process of selecting, simplifying, abstracting, and or transform the data as a whole as part of written field notes, interview transcripts, documents and other empirical data; c) Presentation of data, can be done in the form of brief descriptions, charts, relationships between categories, flowcharts and the like. The most frequently used to present data in qualitative research is narrative text. Furthermore, it is recommended that in displaying data, in addition to narrative text, it can also be in the form of graphs, matrices, networks and charts; d) Conclusions in qualitative research are new findings that have never existed before. Findings can be in the form of a description of an object that was previously dim or dark so that after research it becomes clear, it can be a causal or interactive relationship, hypothesis or theory [26].

### RESEARCH FINDINGS AND INSPIRATIONS

To find out the informants assessment of the Collaborative Model in Integrated Waste Management in Gresik Regency, East Java, researchers conducted in-depth interviews consisting of 3 focuses, namely: 1) Identification of the existing condition of Gresik Regency government's waste management, 2) Mapping of driving and inhibiting factors in waste management. in an integrated manner and 3) Compilation of a model format for an integrated waste management paradigm shift by conducting interviews involving several informants who are considered to know and understand the problems studied. The informants involved in this study consisted of: the head of the environmental and hygiene department, the head of the Gresik Regency Cooperation Section, the private sector and the community.

The results of the study focused on identifying the existing conditions of integrated waste management in Gresik Regency, showing that the collaborative model of integrated waste management between the government and the private sector has been carried out well but is not optimal, both in terms of the volume and composition of the increasing amount of waste. The Gresik Regency Environmental Service noted that the waste generation of the entire Gresik Regency was 3,000 m<sup>3</sup> or around 900 tons/day. This is not comparable to the carrying capacity of 416 m<sup>3</sup> or about 125 tons/day. Thus, only 15-30% of waste per day is served. One of the regional assets of Gresik Regency in the environmental sector is the Ngipik Final Disposal Site (TPA) which has been operating since March 2003. The Ngipik TPA is currently in the operational and maintenance phase. The land area of the Ngipik TPA is 6 hectares with a planned service life of 10 years. After 7 years of operation, the land area used is about 80% with the embankment height of 4 m. Waste reduction and handling efforts require full participation from the community, both from waste banks, 3R TPS managed by villages and housing, industrial and commercial areas, which strongly support the waste management program in the Gresik Regency area. There are still many things that need to be addressed, especially facilities and infrastructure for waste management which are crucial so that everything can be processed properly, for example Temporary Shelters (TPS), Final Processing Sites (TPA), Integrated Waste Management Sites (TPST), waste banks, trucks garbage collector, cart. The synergy between the government, the community, Non-Governmental Organizations (KSM) and the private sector is good and has a symbiotic mutualism but is not optimal in waste management. The Gresik Environmental Service (DLH) immediately acted quickly to prevent plastic and microplastic waste in several river areas in Gresik. This was done by collaborating with Ecoton to make waste management at the village level, namely Wringinanom

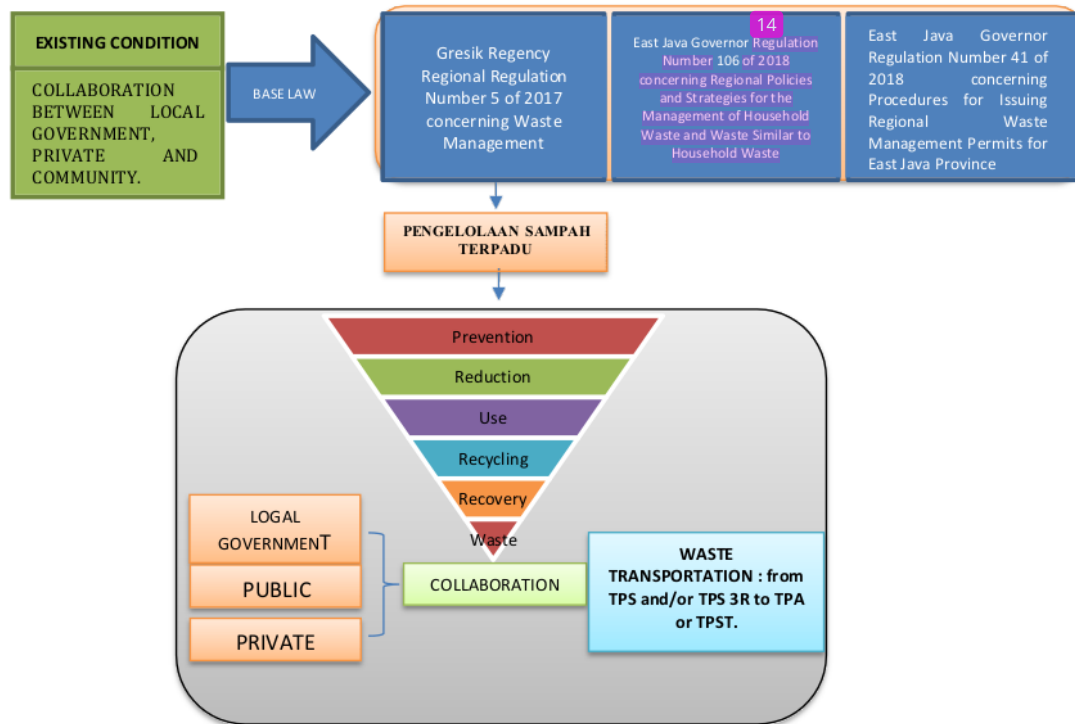


Village. To tackle plastic waste and the use of plastic in the community, currently the Gresik Regency DPRD has drafted a regional regulation plan (RANPERDA) on reducing plastic bags.

Furthermore, the results of research on the focus of Mapping the driving and inhibiting factors in integrated waste management show that the mapping of the driving factors in integrated waste management from the effectiveness of the institution, in this case the Environmental Agency in collaboration with institutional and private elements, has played a good role by always socializing related various forms of environmental-scale waste management such as: independent waste management, waste bank, waste alms, 3R TPS. To date, various strategies have been adopted by the government and other stakeholders. The process of public awareness with the 3R campaign has been going on for years in the Gresik district. Regarding firm action from the legal apparatus there is a fine but at the implementation level it has not been implemented. Mapping of the driving and inhibiting factors in integrated waste management is still not sufficient for the sustainability of the 3R TPS, the monitoring from the local government or the related agency has not been optimal by conducting regular unannounced inspections of the presence of illegal waste, as well as regarding the opening of new landfills, there are still refusals from society.

The results of further research related to the collaborative model format for integrated waste management show that the network structure, commitment to goals, trust between actors and clarity in governance have been going well, but so far it has become a habit to handle urban waste using the KAB (Kumpul Angkut Buang) method. ), this makes it easier for us, on the one hand our house and environment are clean but other people whose places are sacrificed and used as landfills of course suffer losses and damage. To illustrate the model format for the paradigm shift in integrated waste management, it can be visualized as follows:





**Figure 1 Model of paradigm shift in integrated waste management**  
**Source: Researcher Process, 2021**

Based on Figure 1, it can be described that the collaboration between local governments, non-governmental organizations, the private sector in waste management includes: prevention, reduction, use, recycling, recovery and disposal which is expected to be free from waste. In the collaboration process in integrated waste management, there is a division of task authority, cooperation and responsibility between local governments, participation of non-governmental organizations, and the private sector in collecting waste from Temporary Disposal Sites (TPS), Reduce, Reuse, Recycle Waste Management Sites (TPS3R), Final Processing Site (TPA) and Integrated Waste Processing Site (TPST).

### CONCLUSION

Based on the presentation of the findings in the field regarding the collaboration of the Gresik Regency Government in integrated waste management, it can be concluded that the research results are as follows: Waste management in Gresik Regency which is carried out in an integrated manner with the collaborative involvement of stakeholders has not been able to be implemented optimally and completely until it reaches Landfills. The potential of resources owned by the Gresik Regency Government structurally has not been able to optimally solve problems in waste management. There are encouraging and inhibiting factors originating from the systemic conditions of the Gresik Regency Government which do not run proportionally in overcoming the problem of waste management. The existence of an alternative model of changing the paradigm of integrated waste management is possible to overcome the problems of waste management in Gresik Regency.

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