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Organizational Culture in Waste Collection Fleet Management: Implications for Operational Efficiency and Urban Environmental Impact

Ardiyanti, Achmad Husen, Dian Alfia Purwandari, Arradina Zessa Devy, Nurcitra Rehulina Br Ginting
Universitas Negeri Jakarta, Indonesia
Email: ardiyanti@mhs.unj.ac.id, ahusen@unj.ac.id, dian-alfia@unj.ac.id, arradina.zessa@mhs.unj.ac.id, nurcitra.rehulina@mhs.unj.ac.id

*Correspondence: ardiyanti@mhs.unj.ac.id

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ABSTRACT

Waste collection fleets play a vital role in municipal solid waste management and urban environmental quality. Nevertheless, operational inefficiencies, such as vehicle overloading, suboptimal route planning, and inadequate maintenance, have contributed to significant environmental and infrastructural impacts, including road degradation and diminished urban hygiene. This research adopts a qualitative approach grounded in a comprehensive review of relevant literature to examine how organizational culture affects the performance of waste collection fleets and their broader urban impact. The findings suggest that weak institutional culture, fragmented coordination among agencies, and inconsistent adherence to operational standards are critical drivers of inefficiency. Moreover, limited inter-agency integration, the absence of effective oversight mechanisms, as well as limited technological innovation further compound these challenges. Addressing these systemic issues requires targeted cultural and governance reforms. Key recommendations include strengthening human resource capacity, integrating environmentally sound technologies, and fostering institutional accountability and environmental responsibility. These interventions are essential to enhance operational efficiency. They also play a key role in reducing the ecological footprint of urban waste transportation systems.

INTRODUCTION

In urban areas across Indonesia, the escalating population and increasing consumption have led to a significant rise in daily waste volumes, placing pressure on waste transportation infrastructure (Nurhidayat & Kamarudin, 2024; UN-Habitat, 2010). Garbage truck fleets serve as the pivotal link between collection points and final disposal sites; however, excessive loading—often exceeding legal axle weight limits—has been

identified as a primary factor in accelerated pavement deterioration (Jihanny, Subagio, & Hariyadi, 2018; Hadiwardoyo, Sumabrata, & Berawi, 2012). Systematic weigh-in-motion (WIM) surveys along Indonesian roads have shown that over 60% of trucks operate above permissible weights, greatly increasing cumulative equivalent standard axle loads and shortening the service life of flexible pavement (Jihanny et al., 2018; Hadiwardoyo et al., 2012). A systematic review in Batu City also confirms that frequent heavy axle loads expedite pavement degradation and reduce structural lifespan (Nurhidayat & Kamarudin, 2024). Furthermore, operational studies highlight that overloaded and over-dimensional vehicles cause potholes, surface cracking, and deformation in urban roads (Budiharjo et al., 2021; Jihanny et al., 2018).

One of the most significant cases reflecting waste fleet management problems occurs on the transportation corridor from DKI Jakarta to the Bantargebang Integrated Waste Management Site in Bekasi City, with Jalan Raya Narogong serving as the main access road traversed daily by hundreds of garbage trucks carrying large waste volumes, resulting in cumulative stress on pavement durability (Sosiawan et al., 2024). The impacts are evident in the form of cracked asphalt, potholes, and reduced comfort and safety for other road users due to continuous heavy vehicle pressure (Pratama Tamba et al., 2025). This situation is further exacerbated by leachate spills and scattered waste along the transportation route, posing environmental pollution and public health risks (Pujiindiyati & Sidauruk, 2015). The problem extends beyond technical challenges, as institutional coordination failures between Jakarta and Bekasi regional governments complicate the management process (Wardhana Dhany, 2025). The imbalance of responsibility distribution between waste-producing and waste-receiving areas also creates conflicts of interest, illustrating the administrative fragmentation of urban waste management systems (Yudistira, 2015). Weak multi-sectoral governance structures further underline the systemic complexity and operational inefficiency of waste management in large cities like Jakarta (Patricia & Buitenzorgy, 2024). Internally, poor organizational leadership, weak discipline, rigid bureaucratic processes, and low human resource capacity are critical organizational behavior issues hindering fleet management effectiveness (Antara News, 2023). Consequently, comprehensive organizational analysis is required to identify underlying factors and formulate adaptive, sustainable waste transport management improvements (Antara News, 2025).

Waste management in urban areas is a strategic issue that demands systematic and sustainable handling, especially in big cities in Indonesia (Fatimah et al., 2020). The increase in population and public consumption activities is directly proportional to the volume of waste produced every day. In this context, a fleet of garbage trucks plays a vital role as a link between the collection point and the final processing site. However, the operational activities of this fleet are often a source of new problems, including road infrastructure damage and environmental degradation. Previous research has highlighted the correlation between garbage truck operations and road deterioration (Widodo & Hadid, 2023), as well as the environmental impacts of inefficient waste transportation systems (Dethier, 2017). Despite these findings, gaps remain in understanding how

organizational behavior and culture contribute to these inefficiencies, which this study aims to address.

The novelty of this research lies in its focus on the intersection of organizational culture and waste fleet management—a perspective rarely explored in existing literature. While studies like Chaerul et al. (2022) have optimized waste transport routes, and Febriana et al. (2019) have applied genetic algorithms for fleet distribution, few have examined the institutional and behavioral factors underlying operational inefficiencies. This research fills that gap by analyzing how weak leadership, fragmented coordination, and poor adherence to standards exacerbate environmental and infrastructural challenges.

This research aims to: (1) examine organizational behavior in the management of garbage truck fleets in urban areas; (2) assess its impact on road conditions and environmental cleanliness; and (3) offer recommendations based on good governance and innovative environmental approaches to reduce negative impacts in a sustainable manner. The benefits of this research are multifaceted. First, it provides actionable insights for policymakers to reform waste fleet management systems, aligning them with sustainability goals. Second, it offers a framework for integrating technology and governance to enhance operational efficiency, as suggested by Neirotti et al. (2014). Third, by addressing organizational behavior, the study contributes to long-term solutions for reducing urban environmental impacts, such as road damage and pollution, thereby improving public health and quality of life. Ultimately, this research supports the development of cleaner, more sustainable cities through evidence-based recommendations.

METHOD

This research was carried out using a descriptive qualitative approach that aims to obtain a comprehensive understanding of organizational behavior in the garbage truck fleet management system, as well as its impact on road infrastructure conditions and environmental cleanliness in urban areas. This approach is considered suitable for researching complex social and managerial phenomena, as it is able to reveal the internal dynamics of the organization and its interaction with the external environment in depth. In its implementation, this research combines two main methods, namely literature studies and case studies. A literature review was conducted to identify relevant theories, previous findings, and best practices in the areas of fleet management, organizational behavior, and urban environmental management. The sources of information studied include scientific literature, official regulations, policy documents, and institutional reports, both national and international. Meanwhile, the case research approach was used to examine the real implementation of garbage truck fleet management, by highlighting the distribution route from *DKI Jakarta* to the *Bantargebang TPST* through *Jalan Raya Narogong*. The focus of the analysis is directed at the identification of structural obstacles, leadership patterns, work culture, and the effectiveness of inter-agency coordination that contributes to environmental and technical problems in the field.

With the combination of these two methods, this research is designed to produce a context-rich and in-depth analysis, as well as formulate strategic recommendations that can be applied in the development of sustainable waste fleet management policies that are responsive to urban challenges.

Types and Data Sources

This research utilizes secondary data as the primary basis of analysis, which is obtained through various written references and official documents. Data sources include scientific publications in the form of accredited journals, policy reports from government agencies, regulatory documents and management strategies from the *Environment Agency*, and publications from international institutions. In addition, additional information is collected from articles and investigative reports published through online media as a complement in understanding the empirical context.

The focus of the case research was obtained from a study of the operational documentation of the fleet of garbage trucks owned by the *DKI Jakarta Provincial Government* that serve the route to the *Bantargebang Integrated Waste Management Site*. This documentation is used to evaluate operational patterns, technical problems, and systemic impacts on road infrastructure and environmental cleanliness in the area passed.

Data Collection Techniques

This research uses a systematic literature review technique by focusing the analysis on sources relevant to the issues of waste transportation and environmental management. The literature reviewed includes scientific articles, official regulatory documents from local governments, as well as policies governing the waste sector and environmental mobility. The data selection process is carried out by a purposive sampling approach, which is to selectively choose sources based on the level of relevance of the substance, the actuality of the content, and the authority of the institution that publishes it. The goal of this strategy is to obtain high-quality information and support the validity of the analysis in these descriptive and contextual studies.

Data Analysis Techniques

The data analysis in this research was carried out by applying content analysis combined with thematic analysis. This method is used to analyze and structure data based on emerging patterns related to organizational behavior, fleet management mechanisms, and their impact on environmental conditions and road infrastructure. The analysis process is carried out through the grouping of data into main themes, which are focused on institutional, operational, and regulatory aspects. This approach allows for an in-depth interpretation of organizational dynamics and policy interventions relevant to the context of urban waste management.

RESULTS AND DISCUSSION

Incompatibility between Organizational Structure and Sustainability Goals

One of the fundamental challenges in managing a fleet of garbage trucks is the design of organizational structures that tend to be bureaucratic, hierarchical, and less adaptive. In the context of public organizations or institutions that handle environmental

services, overly storied structures often result in lengthy, convoluted, and cumbersome administrative procedures in decision-making. This has a direct impact on the organization's ability to respond to rapidly changing external dynamics, such as advances in information technology, digitalization of transportation systems, and increasing demands for transparency and accountability from society. This inflexible organizational structure systemically hinders the implementation of managerial innovations, including the use of Internet of Things (IoT) technology for real-time fleet monitoring, the use of geographic information systems (GIS) in transportation routes, and the integration of operational data with public complaint systems. The organization's unpreparedness in carrying out digital transformation shows that there is a mismatch between internal structures and external goals in the form of operational efficiency and environmental sustainability.

According to the literature in modern organizational design theory (Mintzberg, 1979), overly mechanistic organizational structures tend to be suitable for a stable and predictable environment. However, in the context of highly dynamic urban waste management, a more organic structure is needed, with characteristics such as delegation of authority, cross-functional collaboration, and rapid data-driven decision-making. These non-conformities also have serious consequences for operational sustainability. For example, delays in responding to fleet damage or route congestion can lead to garbage accumulation, public health disturbances, and a decrease in the level of public trust in government services. In other words, an organizational structure that is not aligned with sustainability principles will weaken the overall performance of the system, especially in the face of external pressures such as population growth, increased waste volume, and environmental degradation due to heavy transportation operations. Therefore, structural reforms are needed that not only touch institutional aspects, but also involve managerial approaches, human resource training, and cross-unit communication patterns. The goal is to create organizations that are more responsive, agile, and able to absorb technology and sustainability values into their daily work processes.

Weaknesses in Human Resource Management

One of the important aspects that affect the operational success of the garbage transport fleet is the quality and capability of human resources (HR), especially in technical positions such as drivers and field technicians. However, based on the results of observations and case studies, it appears that human resource capacity development has not become a priority in operational management. This is reflected in the lack of investment in training and the improvement of technical and non-technical competencies. Work safety training programs, fleet maintenance, the use of supporting technologies such as Global Positioning System (GPS), digital logbooks, and the introduction of public service standards have not been carried out regularly and in a structured manner. The absence of this training causes human resources in the field to not have an adequate understanding of standard operating procedures (SOPs), risk management, and service ethics in the context of environment-based public services.

Another weakness is the non-implementation of a performance evaluation system based on incentives and disincentives, or known as the concept of reward and punishment. When no awards are given to outstanding workers and there are no clear consequences for violators of the rules, a permissive work pattern will be formed. In this context, drivers who exceed the limit of carrying capacity, dispose of waste not at the specified final location, or neglect vehicle maintenance obligations are not subject to strict corrective action. As a result, work discipline becomes weak and the ethos of public service declines. This situation reinforces the findings in the HR management literature that work motivation is strongly influenced by the clarity of the reward and sanction system, as well as the existence of sustained support for skills development. Without this approach, organizations tend to produce unproductive, individualistic work cultures, and ignore the principle of collective responsibility for service quality and environmental sustainability. Thus, systemic strengthening of human resource capacity through competency-based training, regular performance evaluation, and the implementation of fair and transparent reward and punishment policies are the main requirements for creating effective and accountable fleet management.

Organizational Culture That Is Not Yet Pro-Environmental

In the context of managing the garbage truck fleet, especially in agencies involved in transporting waste from the DKI Jakarta area to the Bantargebang TPST, it is clear that the organizational cultural dimension does not fully reflect the commitment to sustainability values and environmental responsibility. This can be seen from a number of operational practices that explicitly reflect a disregard for the principles of environmental sustainability and responsible public services. Some of the obvious indications of a weak pro-environmental culture include:

a. The habit of transporting garbage exceeds the capacity of trucks, which not only violates technical standards, but also contributes to road damage, accident risk and environmental pollution.
b. Absence of a scheduled and consistent fleet maintenance system, which risks leading to operational failures, residual leaks, and disruption of service schedules.
c. Ignoring public complaints, especially related to bad odors, leachate spills, and traffic jams due to truck breakdowns or careless parking on the main road.

These practices are a reflection of the absence of integrating environmental values into the basic assumptions of the organization, so that sustainability is not used as a moral or operational guideline. Sustainability values have not been included in the shared beliefs or mental models embraced by leaders and technical implementers. In other words, while environmental aspects may be listed in strategic planning documents, they are not reflected in the day-to-day work culture.

The implications of this non-pro-environmental organizational culture are significant. In addition to lowering the quality of services and community satisfaction, this condition also has the potential to worsen the ecological impact and create public resistance to the government's waste management policies. For this reason, the

transformation of organizational culture is an aspect that cannot be ignored in the reform of this sector. The transformation includes:

a. Internalization of sustainability values through training and socialization of organizational values
b. Strengthening leadership that exemplifies green practices
c. Implementation of an organizational behavior evaluation system that assesses compliance with environmental and social principles

Inefficiencies in Operational Systems and Lack of Oversight

The process of transporting waste from DKI Jakarta to the Bantargebang Integrated Waste Management Site involves mobilizing hundreds of truck units every day through major routes, including Jalan Raya Narogong, which is a heavy traffic lane with high vehicle density and road infrastructure that is prone to damage. However, the operational systems used to manage and monitor the fleet have not fully adopted an information technology-based approach. The reporting and monitoring process is still carried out manually and fragmented, making it difficult to coordinate and evaluate in real-time.

Irregularities in fleet rotation, including shipment scheduling, workload sharing, and Site monitoring, create significant logistical inefficiencies. The absence of a GPS-based tracking system or digital fleet monitoring dashboard means that operators cannot quickly identify trucks that are late, break down, or experience overload. In many cases, the lack of up-to-date information on truck movements also increases the likelihood of traffic build-up and excessive travel time. The ineffectiveness of this system has a direct impact on various problems in the field, including:

a. Road damage due to truck loads that exceed the carrying capacity of the infrastructure, which accelerates the physical degradation of the highway and increases road maintenance costs.
b. Traffic jams, especially when trucks stop suddenly, break down in the middle of the road, or park carelessly while waiting in line at transport or disposal points.
c. The risk of traffic accidents, especially in densely populated residential areas or near public facilities, due to large vehicle maneuvers that are not properly controlled.

The impact of this inefficiency is not only technical, but also undermines public perception of the quality of government services in waste management and environmental impact control. People who are directly affected, such as road access disruptions, air pollution due to congestion, or increased risk of accidents, will feel the injustice of public services which ultimately reduces the legitimacy of the management institution. In the context of modern management, failures in building data-driven operational systems and digital surveillance are considered strategic weaknesses. Organizations engaged in the public service sector, especially environmental management, should implement a smart logistics approach and integrated monitoring systems to ensure efficiency, timeliness, and minimization of external impacts on society and the environment.

To overcome these problems, a series of strategic steps are needed in the form of:

a. Digitization of fleet management systems, including the installation of GPS trackers, transportation information system integration, and the automation of trip reports.
b. Periodic evaluation of truck routes and capacity to adjust operational load to road conditions.
c. Improve cross-agency coordination so that fleet scheduling, road maintenance, and response to traffic disturbances can be carried out synergistically and responsively.

Lack of Cross-Organizational Collaboration

The dimension of organizational behavior is not only reflected in the internal process of decision-making or human resource management, but is also greatly influenced by the quality of relationships between organizations involved in a public service system. In the context of managing the garbage transport fleet, there are various stakeholders who have an important role, including the Environment Agency, the Transportation Agency, the Integrated Waste Management Unit (UPST), and local government officials. However, the results of the research show that the pattern of inter-agency relations is still dominated by a silo-based sectoral approach, without a strong and sustainable coordination mechanism. The lack of inter-agency integration has a direct impact on the effectiveness of fleet management. For example, data on public complaints related to disturbances caused by garbage trucks, fleet rotation schedules, and technical information about road conditions are not managed in an integrated manner in one common information system. This disharmony causes policy-making in the field to often be reactive, short-term, and does not touch the root of structural problems. This also hinders efforts to thoroughly evaluate the environmental and social impacts of fleet operational activities.

The absence of collaborative mechanisms such as cross-agency coordination, interagency communication forums, or data sharing systems (interoperability) worsens the response capacity of relevant agencies in handling technical issues and public complaints. In an ideal situation, institutional integration is needed to align visions, unify databases, and establish a responsive, evidence-based decision-making system. However, in practice, sectoral egos, overlapping authority, and weak collaborative initiatives are the main obstacles. Therefore, there is a need to strengthen collaborative governance through the establishment of cross-sectoral work units, integration of fleet information systems and public complaints, and community involvement in the supervision process. This effort is important to realize waste fleet management that is not only operationally efficient, but also socially accountable and environmentally sustainable.

Operational Impact of Garbage Trucks on Road Damage

The operation of large-capacity garbage trucks routinely passing through major routes in urban areas puts significant pressure on the resilience of road infrastructure. In the DKI Jakarta and Bekasi City areas, especially along the Narogong Highway which is the main corridor to the Bantargebang TPST, there has been a progressive degradation of

road quality. Observational data and various field reports show that the intensity of daily trajectories by garbage trucks, combined with loads that exceed the capacity of the road design, is the main factor causing the damage to the infrastructure. Common types of damage include:

a. Longitudinal cracks that occur due to repeated axis pressures,
b. Surface deformation (rutting) caused by the accumulation of heavy pressure in the same wheel path, and
c. Potholes that arise due to surface material fatigue and water infiltration from leaks.

In addition to mechanical stress, environmental factors such as leachate leaks from trucks that are not tightly covered also contribute to the acceleration of asphalt weathering. These liquids are corrosive and can chemically damage road structures, while also creating slippery surface hazards that increase the risk of accidents for other road users, especially motorcycles.

These impacts are not only physical, but they also create broader systemic consequences. Road damage causes traffic obstacles that extend travel time, increase vehicle fuel consumption, and cause faster vehicle wear. On the other hand, people have to bear additional costs in the form of longer travel times, potential accidents, and disruption of daily activities. In the framework of negative externality theory, this phenomenon reflects social costs that are not disproportionately calculated in the planning and decision-making process related to waste fleet management. In other words, the environmental and economic impacts caused by truck operations have not been fully internalized by management institutions and policy regulators. This shows the need to recalculate external costs, as well as the establishment of compensation or cross-subsidization policies to support sustainable infrastructure improvements. As a form of mitigation, strategies that can be carried out include:

a. Route adjustment and vehicle load limitation according to the carrying capacity of the road,
b. The use of road-friendly vehicles with a more even axle configuration,
c. Road maintenance based on fleet track frequency data, as well as
d. Internalization of damage costs through a levy scheme or environmental social responsibility (CSR) from fleet operators.

The Operational Impact of Garbage Trucks on the Cleanliness of the Urban Environment

In addition to physical damage to road infrastructure, garbage transportation activities by truck fleets also make a significant negative contribution to the cleanliness and quality of the city's environment. One of the main issues that often occurs is the spillage of solid waste and leachate leakage during the distribution process from the source to the final processing site. This leachate liquid contains organic and inorganic compounds that are corrosive, have a strong odor, and have the potential to cause chemical pollution along operational routes, especially when crossing dense residential areas, markets, or urban commercial areas. The direct impact of this phenomenon includes

a decrease in local air quality, visual pollution, and disturbances in comfort for the surrounding community. The unpleasant odor produced by leachate and exposed garbage creates an unhealthy environment, lowers the aesthetic value of the area, and creates a negative stigma towards the environment that the truck fleet passes through. In many cases, the scattered garbage is not cleaned up immediately due to limited cleaning personnel or weak rapid response systems in the field, so the condition can last for hours to days. In addition, garbage residues and leachate that enter urban drainage systems cause blockages of waterways, increasing the risk of inundation and local flooding, especially in the rainy season. Components of organic waste that contain high nutrients can also be a breeding medium for disease vectors such as flies, mosquitoes, and rodents. This increases the potential for transmission of environment-based diseases such as diarrhea, dengue fever, and leptospirosis, which have a direct impact on the health of urban communities.

This problem organizationally reflects a failure in the implementation of standard operating procedures (SOPs) that regulate cleanliness during transportation activities. The lack of fleet quality inspections, especially on the physical condition of the tailgate, cover system, and drains, shows weak internal oversight and unpreparedness to face the risk of contamination. Furthermore, the low capacity and awareness of drivers in maintaining cleanliness aspects during operations also worsened conditions in the field. Within the framework of the principles of good governance, public service providers are obliged to ensure that their operational activities do not harm the community's right to a clean, healthy, and livable environment. In this context, the management of the waste fleet cannot be judged solely by the quantity of rations or the volume of waste transported, but also by the quality of the process and the ecological and social impacts caused along the distribution route.

Organizational Transformation Strategy Towards a Sustainable Fleet Management System

Facing the complexity of challenges in managing the garbage transport fleet, a comprehensive and integrated organizational transformation strategy is needed. These changes should be designed as a systemic process that not only touches on the technical aspects of operations, but also includes institutional dimensions, work culture, technological capabilities, and cross-sectoral collaborative governance. This holistic approach allows for the realization of a fleet management system that is not only efficient and responsive, but also socially accountable and ecologically sustainable.

The main goal of this transformation is to build a fleet management model that is adaptive to urban dynamics, able to respond to community demands, and consistent with the principles of sustainable development. By integrating structural reforms, digitalization, strengthening public participation, and internalizing sustainability values, managing organizations are expected to play a role as agents of change in creating a waste transportation system that is fair, transparent, and resilient to long-term environmental risks.

1. Organizational Restructuring: Decentralization Approach, Cross-Sector Integration, and Increased Operational Responsiveness

Rigid, hierarchical, and bureaucratic organizational structures are often major obstacles to rapid decision-making, effective cross-unit coordination, and adaptability to external dynamics. In the context of managing the garbage transport fleet, institutional restructuring is needed that is oriented towards flexibility, efficiency, and responsiveness. This structural reform can be directed through the following key strategies:

a. Decentralize technical and administrative authority to field implementation units, such as distribution zones, Technical Implementation Units (UPTs), or sub-depots. This decentralization aims to ensure that operational decisions can be made quickly, precisely, and contextually based on real conditions in the field, without having to wait for authorization from a higher central level.
b. Integration of operational functions and cross-agency supervision, including related agencies such as the Environment Agency (DLH), the Transportation Service (Dishub), the Integrated Waste Management Unit (UPST), and administrative area apparatus. This integration model can be facilitated through the establishment of cross-sectoral work units that have a collective mandate in formulating and implementing fleet management policies in a synergistic manner.
c. The application of a matrix-based or hybrid organizational structure, which combines a functional hierarchical system with a coordination mechanism based on operational area and service time span. This structure allows for more adaptive multidimensional collaboration and promotes efficient communication between work units.
d. Capacity building operational leadership at the field level, through managerial training aimed at zone coordinators, technical supervisors, and operational supervisors on the road. The training covers aspects of transformational leadership, rapid decision-making, and communication and conflict management skills.

Organizational restructuring with a decentralized approach and cross-sectoral integration is an important step to build a fleet management system that is dynamic, collaborative, and responsive to the needs of society as well as the challenges of complex urban environments.

2. Work Culture Reform: Internalizing Sustainability Values and Service Ethics

Organizational culture transformation is a crucial element in strengthening a sustainability-oriented fleet management system. This reform aims to eliminate permissive work practices, be unresponsive to public complaints, and ignore environmental principles. Cultural change cannot be incidental, but must be strategic, consistent, and comprehensively designed across the organization's lines. Some of the recommended reform initiatives include:

a. Implementation of continuous training and socialization programs that focus on strengthening sustainability values, environmental ethics, and social responsibility.

This activity must involve all employees, from leaders to operator partners in the field, as part of the process of internalizing the new norm in daily work behavior.

b. The development of internal organizational campaigns based on narrative and visual approaches, such as environmentally-themed mural installations, motivational slogans, short videos depicting best practices, and documentation of real stories from the field. These media are designed to build collective awareness and strengthen the identity of ecologically minded organizations.
c. Implementation of a value-based evaluation system, which balances quantitative indicators—such as the number of citations and the volume of waste—with qualitative indicators, such as the level of compliance with SOPs, the implementation of safety and hygiene protocols, and the level of public satisfaction. This evaluation should be part of an overarching performance management system.
d. The implementation of reward and punishment mechanisms based on the achievement of sustainability indicators. Awards are given to individuals or teams who demonstrate a high commitment to the organization's values, while progressive sanctions are applied to repeated violations, to strengthen accountability and a culture of responsible work.

By systematically embedding sustainability values into organizational structures, processes, and behaviors, this cultural reform is expected to be able to shape a work ecosystem that is not only efficient and professional, but also ethical, reflective, and adaptive to long-term environmental challenges.

3. Digitalization of Fleet Management Systems: Towards Automation, Real-Time Reporting, and Operational Transparency

Digital transformation is a strategic component in the modernization of the waste transport fleet management system. The use of digital technology not only improves operational efficiency and logistics reliability, but also strengthens the public reporting, supervision, and accountability system. A structured implementation of digitalization can encourage adaptive, transparent, and data-driven fleet governance. Technological innovations that can be adopted include:

a. The application of a GPS-based fleet tracking system and geofencing technology, which allows real-time monitoring of vehicle position, operational speed, duration of stops, and detection of route deviations from predetermined paths. The system also supports dynamic scheduling and rapid response to field conditions.
b. Development of an integrated operational management dashboard, which can be accessed by fleet managers, field supervisors, and environmental regulators. This dashboard presents quantitative data on truck ridership, transport volume, fuel consumption, and schedule compliance, thus facilitating an evaluation process based on performance indicators.
c. Integration of a public reporting system (citizen report) through a mobile application, which allows the public to submit complaints or reports directly, which are automatically connected with related fleet information (truck number, route,

time of incident). This mechanism strengthens the social supervision and responsiveness of the management agency.

d. The use of Internet of Things (IoT) technology in continuous monitoring of the technical condition of vehicles, including critical parameters such as engine temperature, tire pressure, and possible leaks in the transport body. This data can be used for preventive treatment and reduction of the risk of sudden damage.
e. The construction of an early warning system to detect potential operational disturbances such as engine damage, overload, and possible environmental pollution due to waste leaks. This system allows for proactive mitigating actions before a larger disruption occurs.

Digitizing fleet management is not only technological, but also a strategic step towards more open, responsive, and sustainable governance. By integrating digital components in the entire operational cycle, managing agencies can build an efficient, accountable, and better public service-oriented waste transportation system.

4. Strengthening Community Participation and Local Stakeholders in Fleet Governance

Public participation in the fleet management system cannot be seen as a mere administrative formality, but rather as a fundamental element for the creation of democratic, accountable, and responsive governance to the needs of the community. The active involvement of residents and local stakeholders is a prerequisite to ensure that policies and operational implementation run in an inclusive and transparent manner. Some of the mechanisms for strengthening participation that can be implemented include:

a. Development of a web-based digital complaint platform and mobile application that is easily accessible to the general public. The system should be equipped with fast processing features and follow-up notifications, to ensure responsiveness to citizen reports.
b. Holding regular public discussion forums and citizen dialogues, especially in areas crossed by the main routes of the transport fleet. This forum serves as a means to convey aspirations, formulate policy inputs, and evaluate social and environmental impacts in a participatory manner.
c. Establishment of strategic partnerships with civil society organizations (CSOs) and local communities, which act as partners in joint monitoring and social audits of fleet service performance. This collaboration can strengthen community-based oversight.
d. Increasing public information disclosure, through providing access to fleet management data, including operational route maps, service performance indicators, and recapitulation of reports and complaints. This transparency is important to support accountability and data-driven decision-making.
e. Implementation of community incentive programs, such as awards to the smallest environmental unit (RT/RW) or community groups that demonstrate active

contributions in reporting, monitoring, and controlling the environmental impacts of fleet operations.

By integrating public participation in the entire policy cycle—from planning, implementation, to evaluation—waste fleet management can be directed toward a more inclusive, equitable, and sustainable system. Citizen involvement not only strengthens policy legitimacy, but also creates a social ecosystem that is adaptive to change and oriented towards collective interests.

5. Revision and Enforcement of Standard Operating Procedures (SOPs) Based on Environmental Sustainability Principles

The Standard Operating Procedures (SOPs) that are currently applicable in the management of garbage truck fleets show weaknesses in integrating the principles of environmental prudence and social accountability. Therefore, a comprehensive intervention through a systemic approach is needed to ensure that the SOPs implemented are in line with sustainability goals. Recommended strategic measures include:

a. Comprehensive reformulation of technical SOPs, by including detailed provisions related to maximum vehicle load limits, odor control mechanisms and potential waste spills, and protocols for handling emergency situations in distribution lines.
b. The formulation of integrated emergency response procedures includes handling incidents such as vehicle damage, traffic accidents, and escalation of complaints from the surrounding community, which can disrupt operations and create socio-environmental risks.
c. The implementation of regular SOP compliance audits, which not only involves internal auditors, but also independent monitoring from external parties. Transparency of evaluation results to the public is an important aspect to build trust and accountability.
d. Increasing the capacity of personnel through routine training and field simulations, as an effort to ensure that all operational officers have adequate understanding and practical skills in implementing SOPs in real conditions.

Institutional transformation in fleet management cannot be done partially or symbolically. Change must be designed as a form of holistic intervention that covers all levels of the organization, from the level of policy makers to technical implementers in the field. The success of this transformation is highly dependent on internal policy consistency, strong political support, adequate technical capacity, and active participation of the community. The involvement of all stakeholders will strengthen the legitimacy and effectiveness of a fair, adaptive and sustainable fleet management system.

CONCLUSION

The results of this research underline that the organizational behavior dimension has a strategic role in determining the level of effectiveness and ecological impact of the garbage truck fleet management system, especially in metropolitan areas. A case research focusing on the waste distribution route between *DKI Jakarta* and *TPST*

Bantargebang revealed that weaknesses in institutional structure, internal work culture, and low compliance with technical and environmental regulations directly contribute to the deterioration of road infrastructure and the decline in the quality of urban cleanliness. Physical damage to roads is generally caused by transport loads that exceed technical capacity, high frequency of fleet trips, and a lack of regular operational monitoring and maintenance systems. On the other hand, environmental pollution due to sewage spills and leachate fluid leaks reflects the lack of optimal implementation of standard operating procedures, as well as low organizational awareness of social and environmental responsibility. These findings reinforce the urgency of implementing a systemic managerial approach, based on organizational behavior theory and the principles of good environmental governance. In this context, institutional reforms—which include improving organizational structures, digitizing oversight systems, and actively involving the community in the operational monitoring process—are critical to supporting the achievement of long-term sustainability. Theoretically, this research contributes to expanding the understanding of the intersection between the discipline of organizational behavior and urban environmental management, which has been rarely explicitly integrated in academic studies. To strengthen the validity and generalization of findings, advanced research based on primary data with a quantitative approach is recommended, in order to measure the impact of policy implementation more accurately and based on empirical evidence.

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