



Stuck in the system: A root cause analysis of policy inertia and behavioral stagnation in urban waste management

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ABSTRACT

Background: The waste crisis in developing countries such as Indonesia persists despite comprehensive regulations, reflecting systemic mismanagement and policy inertia. While previous studies identify policy gaps and the attitude–behavior divide in household recycling, limited research explains how institutional failures structurally constrain citizen participation. This study frames the condition as being “Stuck in the System,” emphasizing governance-rooted behavioral stagnation. **Methods:** A purposive semi-systematic review of 54 academic and grey literature sources (2015–2025) was conducted. Thematic synthesis was guided by an integrated framework combining Institutional Path Dependency, Service Quality models, Social Marketing, and the Theory of Planned Behavior (TPB) to examine how institutional structures influence behavioral capacity and motivation. **Findings:** Results show a self-reinforcing feedback loop rooted in Institutional Path Dependency. Fragmented governance and fiscal fragility generate chronic service quality deficits, making municipal waste services unreliable. This institutional failure creates a high non-monetary “psychological cost” for citizens. Perceived Behavioral Control (PBC) reflects high effort and limited infrastructure, while Subjective Norms (SN) emerge as the strongest predictor of participation. Behavioral stagnation is thus a rational response to a high-friction, low-trust system rather than a knowledge deficit. **Conclusion:** Policy inertia and public disengagement represent a single dysfunctional equilibrium where institutional incapacity drives rational citizen withdrawal. Effective reform must address governance structures and service reliability alongside behavioral interventions. **Novelty/Originality of this article:** This study advances a novel integrated marketing–policy framework that models the feedback loop between institutional failure and citizen behavior. By bridging institutional theory and behavioral economics, it reframes governance dysfunction as a tangible service failure that directly undermines public participation in waste management systems.

KEYWORDS: institutional path dependency; municipal solid waste management; policy inertia; service quality; Theory of Planned Behavior (TPB).

1. Introduction

The global crisis of waste management has emerged as one of the most pressing sustainability challenges of the twenty-first century, with direct consequences for environmental integrity, ecosystem stability, and public health (Rahmat et al., 2025). Worldwide solid waste generation is expected to increase sharply from 2.1 billion tons in 2023 to 3.8 billion tons by 2050 if current trajectories remain unchanged (Rahmat et al., 2025). This projection underscores the urgent need for systemic transformation in how waste is managed and governed. Yet, focusing solely on global aggregates risks obscuring the underlying complexity of the problem, particularly in developing regions such as

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Southeast Asia. Unlike industrialized regions with centralized waste systems, Southeast Asia's rapid urbanization and informal sector dynamics produce hybrid waste streams that blur boundaries between municipal and private responsibilities. Seasonal flooding and coastal proximity further magnify leakage risks, making governance failures visible in both terrestrial and marine pollution. Although high-income countries represent only 16% of the world's population, they produce approximately 34% of global waste, leaving low- and middle-income countries (LMICs) to bear a disproportionate share of the environmental and social consequences (Rahmat et al., 2025).

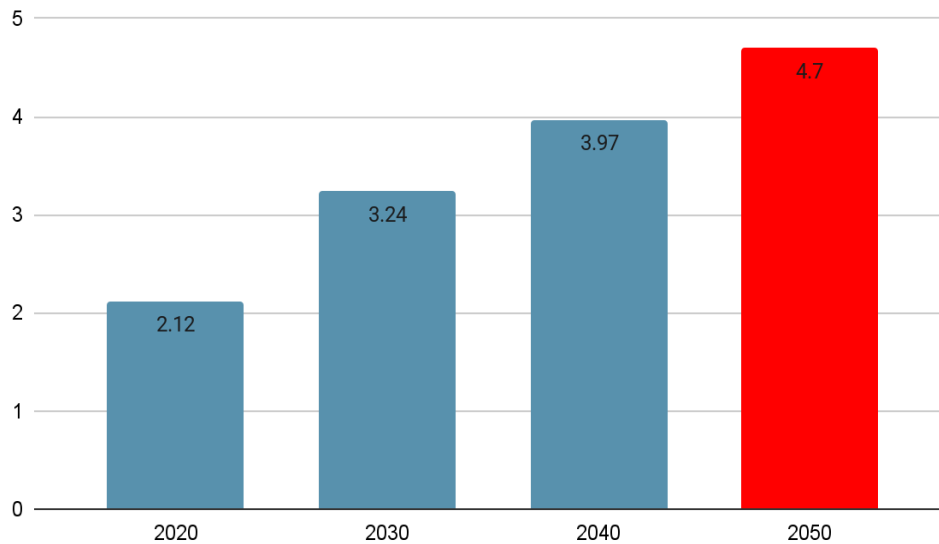


Fig. 1. Global Waste Projection
(United Nations Environment Programme, 2024)

In many developing regions, the volume of municipal solid waste (MSW) consistently exceeds the capacity of existing collection and treatment infrastructure by 200–400% (Woime, 2025), resulting in widespread operational breakdowns. In low-income countries, more than 90% of waste is either disposed of in uncontrolled dumpsites or openly burned (Woime, 2025). In Indonesia, this systemic inadequacy is reflected in the 2020 report indicating that 40.85% of waste was mismanaged (Sembiring et al., 2024). The widening gap between waste generation and effective management capacity is not merely a technical or infrastructural issue, it signifies a deeper failure in governance, resource allocation, and behavioral adoption. Collectively, these factors trap the system in a cycle of perpetual yet ineffective management, a condition conceptualized in this study as being “Stuck in the System.” Understanding this “stuckness” requires reframing waste not merely as a technical residue but as a mirror of institutional behavior. The inefficiencies that persist across decades indicate a misalignment between administrative logic and citizen participation, revealing how governance systems often unconsciously reproduce the very inefficiencies they are designed to solve.

A cornerstone of environmental governance literature posits that effective waste management requires an Integrated Sustainable Waste Management (ISWM) approach that coordinates policies across national, regional, and local levels (Magrib et al., 2025; Woime, 2025). In response to this imperative, Indonesia has established a comprehensive regulatory foundation, most notably through Law No. 18 of 2008 on solid waste management, which mandates waste separation and prioritizes handling at the source (Sembiring et al., 2024; Yuwono & Hanani, 2025). However, analysis through the lens of Multi-Level Governance (MLG) reveals persistent implementation failures that point to deep-seated policy inertia (Yuwono & Hanani, 2025).

MLG diagnostics indicate that, despite the absence of overt legal conflict, challenges in vertical harmonization, coordination, and institutionalization remain pervasive (Yuwono &

Hanani, 2025). Local implementation frequently fails to align with provincial or national objectives, for example, the Yogyakarta provincial target to reduce household waste by 30% by 2025 is seldom reflected or adequately budgeted in city-level policies (Yuwono & Hanani, 2025). This fragmentation reflects political and institutional realities: waste systems often depend on the motivation of individual leaders, leaving programs fragile and vulnerable to political turnover (SYSTEMIQ, 2021). Moreover, local authorities, reluctant to enforce penalties or adjust collection fees for fear of political backlash, perpetuate the status quo (SYSTEMIQ, 2021).

The complexity of waste management, frequently described as a “wicked problem” for its interdependent social, economic, and environmental dimensions (Brinton et al., 2023), further complicates reform. Without robust institutional mechanisms and sustained political will, policy remains stagnant and enforcement weak (Iacovidou et al., 2025). This enduring gap between policy design and policy performance exposes a central paradox in Indonesia’s urban waste governance: comprehensive frameworks exist on paper, yet practical outcomes remain persistently ineffective.

This persistent policy inertia is closely intertwined with financial stagnation, underscoring the decisive role of resource economics in sustainability transitions. Transformative environmental governance requires continuous and sufficient financial investment, yet in Indonesia fiscal capacity remains critically constrained (SYSTEMIQ, 2021). The operational costs of municipal waste management consistently exceed available local funding, while budgetary fragmentation remains pervasive, with allocations for waste services often accounting for less than 1% of regional budgets, averaging only 0.8% in several municipalities—far below what is required to achieve national mandates (SYSTEMIQ, 2021; Maskun et al., 2025).

These fiscal constraints immediately undermine top-down policy directives. Inadequate funding prevents local governments from upgrading infrastructure, adopting Waste-to-Energy (WtE) technologies, or transitioning away from the environmentally damaging “collect–transport–dispose” model (Maskun et al., 2025; Nahwan et al., 2025). The economic structure further perpetuates this problem through a self-reinforcing loop, in which high disposal costs at compliant facilities incentivize continued reliance on cheaper, often illegal, dumping and burning (Brinton et al., 2023). Consequently, short-term cost considerations dominate municipal decision-making, crowding out the capital investments required for sustainable waste conversion and recycling systems (Rahmat et al., 2025; Aprilia, 2021; Maskun et al., 2025).

Although (Aprilia, 2021) highlights those evolving regulations and emerging technologies could generate new green economic opportunities, the absence of stable and adequate financing mechanisms continues to act as a structural lock-in. This chronic underinvestment traps local governments within low-cost, low-sustainability pathways, reinforcing the economic foundations of Indonesia’s waste management inertia. Over time, limited fiscal autonomy discourages innovation, locking municipalities into reactive budgeting cycles. Instead of strategic investment, local agencies prioritize short-term operational survival, which erodes institutional learning and reinforces public perception that waste reform is unattainable. Such path dependency creates an economic culture of maintenance rather than transformation

Beyond institutional and financial barriers, Indonesia’s persistent low compliance rates reflect a deeper behavioral stagnation at the household level. From a marketing management perspective aligned with Sustainable Development Goal 12 on responsible consumption and production, transformation requires shifting household mindsets from “Not in My Backyard” (NIMBY) to “Now I Must Be Involved” (NIMBI), emphasizing the 3R principles of Reduce, Reuse, and Recycle (Pumas et al., 2025). Sustainable waste practices depend not merely on awareness campaigns but on internalized behavioral change supported by system design (Aprilia, 2021).

Behavioral science provides a diagnostic lens for this problem. The Theory of Planned Behavior (TPB) and Nudge Theory clarify how intention, subjective norms, and perceived behavioral control shape household sorting behaviors (Pumas et al., 2025; Rousta et al.,

2020). Empirical evidence from Indonesian cities shows a strong cognitive foundation, with more than 70% of respondents recognizing the importance of proper waste management (Amir et al., 2025; Magrib et al., 2025). However, only around 39% of these aware households actually separate waste at the source, revealing a significant gap between awareness and practice (Magrib et al., 2025). This persistent attitude-behavior gap illustrates how environmental concern often fails to translate into sustained action (Amir et al., 2025; Pumas et al., 2025).

The TPB framework is particularly instructive in Indonesia's communal context, where decision-making is rarely individualistic. Behavioral intention is strongly mediated by familial approval, neighborhood norms, and perceived religious obligations toward cleanliness. The preceding analysis, guided by a marketing management lens, suggests that the "subjective norm" component extends beyond peer pressure to encompass moral and cultural identity. Within such collectivist settings, social validation often outweighs personal conviction, meaning sustainable behavior thrives only when it is visibly endorsed by one's immediate community. When institutional credibility weakens, these collective norms lose reinforcement, leading to dissonance between belief and action. This phenomenon explains why information campaigns alone are insufficient: without tangible cues of collective participation (such as neighborhood recycling stations, visible enforcement, or public role models), individuals lack the social affirmation needed to sustain behavioral change. Over time, this erodes perceived behavioral control, as citizens internalize the view that their contribution has little systemic effect. Consequently, the cycle of passive awareness persists, reinforcing both cognitive inertia and the broader governance stagnation that defines Indonesia's waste management system.

The causes of this stagnation are multifaceted and influenced by a combination of structural and behavioral factors. Inconvenience and inadequate infrastructure are identified as the primary deterrents, while limited procedural knowledge about sorting methods also contributes significantly (Amir et al., 2025; Maskun et al., 2025). Deeply embedded cultural norms also play a role, as many households continue to perceive waste management as the government's sole responsibility, absolving individuals of civic participation (Yudarta et al., 2025). Despite repeated calls to integrate behavioral insights into national policy, implementation remains weak (Pumas et al., 2025). Anti-dumping laws are poorly enforced, labeled bins and collection points remain scarce, and community initiatives such as waste banks often lack sustained support (Brinton et al., 2023; Maskun et al., 2025; Nahwan et al., 2025; Rahmat et al., 2025). Collectively, these findings reveal that Indonesia's waste governance crisis extends beyond technical inefficiencies to a failure in behavioral system design. The inability to align policy mandates, institutional capacity, and individual motivation perpetuates a cycle where progress remains stalled, unresponsive to both scientific evidence and legal obligation (Brinton et al., 2023).

The preceding analysis, guided by a marketing management lens that integrates policy and behavioral science, demonstrates that the critical issue in Indonesian urban waste management is not a lack of scientific knowledge or formal regulation, but rather the profound failure to translate this knowledge into effective action, representing a deeply entrenched systemic delay mechanism (O'Brien, 2013; Karlsson & Gilek, 2020). This stagnation represents a complex, path-dependent phenomenon (Pierson, 2000), in which policy implementation deficits, specifically institutional coordination gaps, inadequate financial resources, and local capacity deficiencies, act as structural barriers that inhibit the infrastructural and behavioral foundations of sustainable compliance (Yuwono & Hanani, 2025). The persistence of this disconnect calls for a focused investigation that moves beyond diagnosis toward mapping explicit qualitative causal pathways and understanding subjective dimensions such as assumptions, beliefs, values, and emotions that shape perception and action.

The interlinkage among governance inertia, fiscal rigidity, and behavioral disengagement underscores that waste management failure cannot be disaggregated into separate domains. Each dimension reinforces the others in a feedback structure that sustains inefficiency. Recognizing this interplay situates the present study within a systems-

thinking paradigm, bridging the analytical divide between institutional theory and behavioral economics. Within this paradigm, waste management is conceptualized as a living system in which policy, finance, and behavior interact dynamically over time. Small disruptions in one domain can propagate across others, creating compounded resistance to change. For instance, weak fiscal support diminishes public trust, which in turn erodes compliance and lowers revenue potential, perpetuating a self-reinforcing cycle of stagnation. By interpreting these feedback loops holistically, the study aims to reveal how systemic inertia operates not merely through administrative inefficiency but through the accumulation of everyday decisions that, collectively, maintain the unsustainable status quo.

Therefore, the primary objective of this interpretive study, “Stuck in the system: A root cause analysis of policy inertia and behavioral stagnation in urban waste management,” is to empirically analyze the narratives and stakeholder dynamics that perpetuate structural lock-in using qualitative research procedures to produce descriptive and interpretive insights (Titisia et al., 2023; Yudartha et al., 2025). This system-wide approach complements analyses of formal legal structures by uncovering the informal power dynamics and local governance deficiencies that manifest in practice (Brinton et al., 2023; Iacovidou et al., 2025; Yuwono & Hanani, 2025). The study applies key constructs from the Theory of Planned Behavior (TPB), specifically Perceived Behavioral Control (PBC) and Subjective Norms (SN), as interpretive lenses to explain how macro-level failures structurally limit micro-level adherence (Pumas et al., 2025; Roustia et al., 2020). The research ultimately seeks to answer the core unresolved question: How do demonstrable policy implementation deficits structurally limit the behavioral capacity and motivational frameworks of urban citizens to participate in sustainable waste management?

In response to this research question, the following guiding propositions are established as the logical outcome of the layered arguments presented in this introduction. First, policy inertia, particularly inconsistent infrastructure provision (such as the lack of waste separation tools), significantly reduces households perceived behavioral control (PBC). Furthermore, deficiencies in government capacity and policy inconsistency erode institutional trust, thereby diminishing the motivational influence of subjective norms (SN) on sustainable waste practices. Finally, structural barriers created by policy and funding constraints perpetuate a “low-value” perception among citizens by elevating the non-monetary costs of sorting behavior (time, effort, and perceived risk) relative to perceived service quality, thereby reinforcing behavioral stagnation.

2. Methods

2.1 Research design

This study employs a purposive semi-systematic review to conduct a root-cause analysis of “policy inertia” and “behavioral stagnation” in Indonesia’s urban waste management. This design aligns with the study’s ontological stance that waste governance is a socially constructed, multi-level system in which institutional norms, economic incentives, and community behaviors are co-produced (Miles & Huberman, 1994). Rather than measuring isolated variables, the review integrates fragmented evidence across disciplines to uncover structural and behavioral linkages. A fully systematic review would have been too restrictive, excluding theoretical and qualitative insights crucial for understanding institutional dynamics (Snyder, 2019). Conversely, a narrative review would lack transparency and replicability. The purposive semi-systematic approach therefore serves as a middle ground, systematic enough to ensure procedural clarity yet flexible enough to engage interpretive and theoretical insights (Snyder, 2019; Thomas & Harden, 2008). This method allows literature to be selected for analytical relevance rather than rigid study design, facilitating a synthesis that moves beyond summarization to generate causal explanations of Indonesia’s waste governance stagnation.

2.2 Research scope

The study focuses on Indonesia's urban waste management as a critical case representing the broader governance challenges of developing nations. Indonesia's rapid urbanization and decentralized administrative structure provide a vivid, contextually bounded setting for examining systemic lock-in and behavioral inertia. While the empirical focus is national, the theoretical reach is global. Comparative studies from other countries were included when they contributed relevant frameworks, enabling analytical generalization rather than statistical inference.

The temporal scope covers works published from 2015–2025, ensuring that analysis reflects post-Waste Management Law (No. 18/2008) developments. Exceptions were made for foundational theories, including Path Dependency, Social Marketing, Service Quality, and the Theory of Planned Behavior (TPB), whose timeless conceptual relevance supports theory building. The entire review process, including search and screening, was conducted between August and October 2025.

2.3 Data sources, search, and selection strategy

Data were gathered from academic and policy sources to ensure both theoretical depth and policy relevance. Following Snyder (2019), the search integrated scholarship with practical evidence, combining academic databases (Google Scholar, ScienceDirect, Scopus) and grey literature such as Indonesia's National Waste Management Information System / *Sistem Informasi Pengelolaan Sampah Nasional* (SIPSN), ministerial and municipal reports, and publications from the OECD, World Bank, and leading environmental NGOs. Academic studies offered conceptual and empirical grounding, while grey literature contributed quantitative data and institutional evaluations, together enabling a holistic understanding of waste governance.

Search queries were built on a three-pillar keyword framework using Boolean operators (AND/OR). First, the problem context included terms such as "policy inertia," "implementation gap," "behavioral stagnation," "community participation," "service quality," and "social marketing." In addition, the topic focus comprised keywords including "urban waste management," "municipal solid waste," "waste governance," "3R," "waste bank," and "TPS3R." Finally, the geographical scope covered locations such as "Indonesia," "Jakarta," "Surabaya," "Bandung," "Bali," and "Makassar."

Typical queries combined one term from each pillar (e.g., "implementation gap" AND "municipal solid waste" AND "Indonesia"), ensuring capture of both theoretical and context-specific literature. To reduce keyword bias and include seminal works overlooked by database algorithms, citation mining was performed by reviewing reference lists of key studies. An initial pool of 105 documents was reduced to 54 sources through a two-stage screening process balancing systematic precision and interpretive coherence (Snyder, 2019; Thomas & Harden, 2008).

Stage 1—Broad Filtering involved screening titles and abstracts using explicit inclusion and exclusion criteria. Studies were included if they addressed the causes, barriers, or drivers of governance or behavioral issues in Indonesia's urban waste sector, while purely technical or engineering analyses (e.g., landfill design or waste chemistry) without an institutional or behavioral focus were excluded. Stage 2—Purposive Functional Screening consisted of a full-text review in which each document was categorized based on its analytical function rather than study design. Specifically, sources were classified as foundational theory sources (canonical works underpinning Path Dependency, Social Marketing, Service Quality, and TPB), indispensable data sources (government or institutional reports such as SIPSN, OECD, and World Bank providing empirical policy evidence), perfect argument sources (peer-reviewed studies offering causal or theoretical insights central to argument development), and illustrative case studies (empirical or journalistic accounts demonstrating key governance failures, such as mixed waste during collection). Each inclusion served a distinct analytical purpose, ensuring a deliberate and

nonredundant corpus. This integrated process upheld transparency while maintaining interpretive flexibility, capturing the multidimensional causes of stagnation in Indonesia's waste system.

2.4 Data analysis and synthesis

The analysis employed thematic synthesis (Thomas & Harden, 2008), integrating diverse studies through three iterative phases, data condensation, display, and conclusion drawing as conceptualized (Miles & Huberman, 1994). Data Condensation: Each source was coded in an extraction matrix capturing author, year, category, and causal factors (Snyder, 2019). Coding distilled descriptive information into analytic units, enabling the identification of recurring structural and behavioral determinants. Data Display: Codes were grouped into higher-order themes revealing shared mechanisms. For instance, "unreliable collection" and "poor bin conditions" clustered under Service Quality Deficit, while "fragmented responsibilities" reflected Institutional Path Dependency. Four core categories emerged: Institutional Path Dependency, Service Quality Deficit, Ineffective Social Marketing, and Trust Deficit.

Conclusion drawing and theoretical integration were conducted by interpreting the synthesized themes through the study's theoretical lenses. Specifically, Path Dependency explains how legacy institutions perpetuate inefficiency, Social Marketing clarifies failures in communication and behavioral interventions, and the Theory of Planned Behavior (TPB) elucidates how attitudes, perceived behavioral control, and subjective norms shape participation. Mapping these theories onto empirical findings produced an integrated conceptual model explaining why Indonesia's urban waste management remains resistant to change. The clear progression from descriptive coding to theory-driven synthesis ensures analytical coherence and contributes to theoretical advancement in sustainable waste governance.

3. Results and Discussion

This section analyzes the root causes, mechanisms, and consequences of policy inertia and behavioral stagnation in Indonesian urban waste management, tracing a causal chain from institutional failure to a rational public withdrawal of participation and trust. It further examines how gaps in policy implementation and weak institutional coordination reinforce negative feedback loops that hinder effective waste governance. In addition, this section highlights the implications of these dynamics for long-term sustainability, particularly in relation to declining public engagement and the erosion of collective environmental responsibility.

3.1 The root cause: Institutional path dependency

The evidence overwhelmingly confirms that the system is locked into inefficient practices through historical institutional arrangements, particularly following the process of political and administrative decentralization initiated in the early 2000s (Yuwono & Hanani, 2025). This history matters intensely, leading to the confirmation of "institutional lock-in" as a primary driver of policy inertia (Pierson, 2000). Vertical Harmonization Deficits and Fragmentation: Decentralization has resulted in fragmented regulatory systems where multiple levels of government operate under overlapping responsibilities, varying goals, and deficient coordination (Magrib et al., 2025; Maskun et al., 2025; Yuwono & Hanani, 2025). This lack of effective multi-level governance (MLG) means vertical coherence is severely compromised. For instance, despite the existence of a national legal framework (Law No. 18/2008), its operational translation into subnational policies is inconsistent, creating ambiguity in execution and low program responsibility (Iacovidou et al., 2025; Maskun et al., 2025; Yuwono & Hanani, 2025).

The vertical disparity is starkly illustrated by the misalignment between national mandates and local execution. While the national and provincial levels may set unambiguous targets like the Yogyakarta's Governor's rule aiming for 0% waste reduction and 70% management by 2025, city-level regulations often fail to immediately reflect these specific goals, creating a lack of shared direction and strategy (Yuwono & Hanani, 2025). This fragmentation leads directly to policy incoherence, duplication of programs, and waste of resources, strengthening the structural barriers to policy change (Iacovidou et al., 2025; Yuwono & Hanani, 2025).

Political and Fiscal Instability Lock-ins: Policy execution is severely hindered by institutional asymmetry, leadership dependency, and acute fiscal constraints (Maskun et al., 2025). The current governance structure makes the waste system fragile and dependent on the individual motivation and technical competency of political leaders (Iacovidou et al., 2025; SYSTEMIQ, 2021). Hard-won waste systems can be easily destabilized by political elections or frequent rotation of officials, resulting in a damaging lack of continuity and resistance to change (Iacovidou et al., 2025; SYSTEMIQ, 2021).

Furthermore, financial barriers are critical according to Maskun et al. (2025), waste management budget allocations often average less than 1% of regional budgets (APBD), which is grossly insufficient to fund necessary infrastructure or implement national mandates as revealed by other studies (Iacovidou et al., 2025; SYSTEMIQ, 2021). This insufficient funding restricts cities to short-term solutions and fosters continued reliance on unsustainable practices like open dumping, as municipalities lack the capital expenditure (CAPEX) for new infrastructure and the operational expenditure (OPEX) for running existing facilities sustainably (Iacovidou et al., 2025; Maskun et al., 2025; SYSTEMIQ, 2021).

3.2 The measurable effect: A critical service quality deficit

Institutional lock-in does not remain an abstract governance problem; it manifests as a tangible breakdown in service quality, impacting every citizen who interacts with the waste management system. This article frames this as a critical failure in both the Technical Quality (the outcome achieved) and the Functional Quality (the process of delivery) of the municipal waste service. This dual failure ultimately undermines public trust and reduces citizens' willingness to participate in waste management initiatives.

Technical Quality Failure is evident as the system consistently fails to meet agreed-upon performance metrics. Waste volumes consistently exceed infrastructure capacity by 200–400%, indicating a significant mismatch between generation and processing capability (Zakianis et al., 2017). In 2025, a staggering 66.91% of waste was mismanaged nationally, while the recycling rate remains structurally low at around 15% (SIPSN, 2025). Moreover, 40% to 45% of material recovery facilities (TPS3R/TPSTs) are either inactive or their status is unknown (SYSTEMIQ, 2021). This inadequacy often forces sanitary and controlled landfills to backslide into uncontrolled dumpsites due to insufficient funding, creating serious environmental and public health hazards (Aprilia, 2021; Dornier Group & Synergy Consulting, 2023; SYSTEMIQ, 2021).

Functional quality failure occurs when institutional shortcomings directly result in poor service experiences, which can be identified through the core dimensions of the SERVQUAL framework. First, reliability is compromised as the consistency and dependability of services are not ensured. Service access is not universal, with over 160 million Indonesians lacking access to waste collection, including 40% of urban residents. Even in areas where services exist, they are often non-uniform due to inadequate route planning and suboptimal coordination between collection and transfer logistics. As a result, the failure to deliver reliable services pushes citizens toward improper disposal methods such as open burning or littering (Dornier Group & Synergy Consulting, 2023; Iacovidou et al., 2025; Magrib et al., 2025).

Furthermore, tangible aspects of the system are often inadequate or entirely absent. There is a lack of sufficient infrastructure, processing facilities, and proper road access (Iacovidou et al., 2025; Maskun et al., 2025; Rahmat et al., 2025). At the household level,

visible shortcomings include the absence of standardized containers, such as labeled or color-coded bins, which hinders effective waste segregation (Rahmat et al., 2025; Sinaga et al., 2024). In addition, bureaucratic complexity in permitting processes discourages the development of new waste management initiatives at the municipal level, further limiting infrastructure growth (Brinton et al., 2023).

Finally, the system demonstrates low responsiveness to public needs and persistent environmental non-compliance. Regulatory enforcement against illegal dumping and burning remains weak, allowing such harmful practices to become normalized (Iacovidou et al., 2025; Maskun et al., 2025; SYSTEMIQ, 2021). This issue is further exacerbated by limited enforcement capacity, insufficient professional training for officials, and weak political will. Moreover, the absence of an effective accountability system means that the public often lacks proper channels to report inadequate services, resulting in governments rarely being held responsible for service failures (Iacovidou et al., 2025; SYSTEMIQ, 2021).

The compounding effect of this institutional path dependency and resultant Service Quality Deficit creates a vicious reinforcing loop, stabilizing failure. When systems are unstable and unreliable, the non-monetary price imposed on the citizen (the effort and time required for proper sorting) becomes prohibitively high (Amir et al., 2025; Sinaga et al., 2024). This systemic failure undermines national goals, exacerbates health burdens, and deepens socio-economic inequalities, especially among the 15 million informal waste workers excluded from formal protection (Woime, 2025). The inability to enforce existing anti-dumping laws is directly tied to the service's inadequacy; enforcement cannot be effective if citizens lack access to an adequate service, and many households choose the free alternative of dumping or burning over paying for collection (Iacovidou et al., 2025; SYSTEMIQ, 2021).

The chronic inertia observed in Indonesian waste management supports Pierson's (2000) argument regarding the intensity of path dependence in politics, particularly in institutional development. He notes that once a country starts down a track, the costs of reversal become very high due to increasing returns. In this context, the decentralized, fragmented institutional matrix represents the dominant path. This institutional lock-in is further reinforced by the absence of efficiency-enhancing mechanisms typically found in competitive markets (Pierson, 2000).

Implementation delays are inevitable because political actors operate with short time horizons, prioritizing immediate political survival over long-term, complex policy reforms (such as developing WtE plants, which require high up-front costs and strict regulation) (Kala et al., 2022; Pierson, 2000). Furthermore, the status quo bias built into political institutions makes reversing entrenched arrangements extremely difficult (Pierson, 2000). The low allocation of funds, the constant rotation of personnel, and the reliance on individualized political leadership are all structural features that maintain this dysfunctional equilibrium (SYSTEMIQ, 2021; Waste4Change, 2022).

Building on the preceding discussion, institutional lock-in (the governance problem) is the fundamental root cause of the chronic Service Quality Deficit (the marketing problem). The specific failures observed in the SERVQUAL dimensions (Reliability, Tangibles, Responsiveness) are the direct, measurable symptoms of the system's inability to deliver a functioning service product due to deep structural constraints. The failure in the element of *Place* (infrastructure, logistics, accessibility) is critical, as the locations where waste should be managed (TPS3R, collection routes, household bins) are chronically dysfunctional or non-existent due to weak coordination, limited funding, and political volatility (Dornier Group & Synergy Consulting, 2023; Iacovidou et al., 2025; Magrib et al., 2025; SYSTEMIQ, 2022). This broken *Place* renders the *Product* (the act of citizen sorting and participation) effectively unusable for the citizen-consumer (Amir et al., 2025). Citizens who exert effort to segregate waste (paying the non-monetary "price") expect a reliable and responsive municipal system in return. When individuals observe poor reliability and tangibles, such as sorted waste being remixed or facilities left inoperative, their trust deteriorates, leading them to default to zero-effort disposal behavior (Rousta et al., 2020). This causal chain demonstrates how policy inertia translates into pervasive behavioral stagnation.

3.3 *The rational consequence: Behavioral stagnation*

The analysis now shifts from the provider's institutional failures (Pillar 1) to the customer's behavioral response (Pillar 2). The core finding is that behavioral stagnation, defined as the widespread failure to translate environmentally conscious attitudes into consistent waste-sorting practices, represents a rational and predictable response to a service system that imposes prohibitively high compliance costs while simultaneously eroding public trust. This perspective emphasizes that low participation is not merely a matter of individual awareness, but a systemic outcome shaped by structural inefficiencies and institutional constraints.

3.3.1 *The knowledge-action gap and the dominance of context*

This article identifies a classic knowledge–action gap, indicating an endemic failure in social marketing strategies. More than 90% of urban Indonesian households demonstrate high environmental literacy and frequent exposure to sustainability concepts such as the 3R principle (Amir et al., 2025). However, active participation in sustainable waste practices remains critically low (Amir et al., 2025; Marbun et al., 2025; Zakianis et al., 2017). High levels of environmental knowledge alone are insufficient to stimulate behavioral change. Knowledge, when not reinforced by enabling systems and motivational drivers, remains largely inert. This finding underscores that informational campaigns, often the default low-cost Promotion strategy, quickly reach diminishing returns in the absence of corresponding improvements in service accessibility and perceived behavioral control. The evidence suggests that knowledge becomes transformative only when embedded within supportive emotional, cultural, and practical contexts (Amir et al., 2025).

This behavioral paralysis is supported by empirical analyses using the Theory of Planned Behavior (TPB), which clarifies the primary drivers of waste-sorting intention. Two psychological constructs emerge as the most critical levers, both intrinsically shaped by the surrounding socio-institutional environment. First, perceived behavioral control (PBC) captures individuals' perceptions of difficulty and resource availability when performing waste-sorting behavior (Ajzen, 2002; Rakhmawati et al., 2023). PBC consistently appears as the strongest predictor of household waste management behavior ($\beta = 0.37$, $p \leq 0.001$), indicating that intention is largely determined by perceived capacity and support (Amir et al., 2025). Furthermore, subjective norms (SN) reflect perceived social expectations from influential referents such as family and community members (Rakhmawati et al., 2023). SN closely follows as the second most influential predictor ($\beta = 0.36$, $p \leq 0.001$) and, in studies focused on urban millennial workers, even surpasses PBC as the dominant determinant of intention ($\beta = 0.44$) (Marbun et al., 2025). Collectively, these findings indicate that waste-sorting intention in urban Indonesia is shaped primarily by perceived control and social context rather than by individual attitudes or technical knowledge, thereby providing a critical foundation for subsequent marketing analysis of structural and systemic failures.

3.3.2 *The trust deficit and systemic unaccountability*

The pervasive trust deficit reflects a rational public response to an unresponsive and unaccountable service system, linking the governance failures discussed in Pillar 1 to the behavioral stagnation examined in Pillar 2. Trust, in this context, refers to the belief that an institution will act consistently with expectations of fairness, competence, and integrity (Jin, 2013; OECD, 2024). As Peters (2016) observes, low levels of public trust critically weaken a government's capacity to deliver core functions and to advance reforms that depend on civic cooperation and collective sacrifice.

This erosion of trust is not abstract; it is observable through measurable failures in public service performance, particularly within the Responsiveness and Assurance dimensions of the SERVQUAL framework. First, responsiveness failure is evident as public

services are widely perceived as unresponsive to citizen feedback and resistant to adaptation. According to OECD (2024), fewer than four in ten respondents believe that public agencies would improve service quality after receiving complaints or adopt innovative practices in response to citizen input. Such inertia signals a persistent absence of listening and corrective mechanisms, particularly in policy areas that require interagency coordination and adaptive management.

Furthermore, assurance or integrity failure emerges when accountability and transparency appear weak. OECD (2024) notes that citizens express limited confidence in the government's ability to act with integrity or to rely on credible evidence in decision-making. This perceived lack of openness undermines confidence in institutions and, as Jin (2013) emphasizes, weakens citizens' willingness to comply with laws and support public initiatives. These interrelated failures create what Peters (2016) terms a spiral of disaffection, in which citizens rationally disengage from participation. When the government and its infrastructure are viewed as unreliable or politically unstable, individuals perceive behavioral change as futile. The erosion of trust, driven by chronic service underperformance, perpetuates the broader policy inertia rooted in institutional path dependency, further constraining the prospects for systemic reform.

3.3.3 Perceived Behavioral Control (PBC) as quantifiable psychological price and broken process

The finding that Perceived Behavioral Control (PBC) is the strongest predictor of waste-sorting behavior (Amir et al., 2025) provides empirical confirmation that the intention-behavior gap reflects a rational rejection of a high-cost and impractical service. In marketing terms, citizens act as consumers who evaluate the Product (waste sorting) against its perceived Price (sacrifice) (Sweeney, 1999). This price extends beyond monetary expenditure to include non-monetary costs such as time, effort, information search, and psychological strain (Galan-Ladero & Alves, 2023; Zeithaml, 1988).

The statistical dominance of perceived behavioral control (PBC) serves as a direct, quantifiable indicator of a prohibitively high psychological price imposed on citizens. Supporting evidence is substantial: around 70% of respondents in one study described waste separation as "tiring" or "difficult" (Amir et al., 2025). Such perceptions indicate that the non-monetary effort required for compliance is widely viewed as excessive. This elevated psychological price originates from the Functional Quality failures identified in Pillar 1, particularly those associated with low reliability and deficient tangibles (Place).

First, low reliability and broken processes play a critical role, as PBC is strongly shaped by resource availability and opportunity (Ajzen, 2002; Rakhmawati et al., 2023). When municipal collection schedules are erratic and separated waste is later mixed during transport, the time and effort households invest are perceived as wasted. These experiences heighten the perceived behavioral cost and reinforce the default tendency toward inaction or status-quo bias (Amir et al., 2025).

Furthermore, deficient tangibles (Place) exacerbate the issue through the absence of accessible and adequate facility support, including standardized bins, clear sorting guidelines, and functioning TPS3R or TPST centers, which undermines citizens perceived control (Rakhmawati et al., 2023; Rousta et al., 2020). These structural barriers translate abstract service failures into daily experiences of friction and difficulty, a condition that can be understood as sludge (Thaler & Sunstein, 2021). Consequently, the lack of infrastructure and operational clarity reinforces the perception that effective waste management lies beyond individual control (Amir et al., 2025; Rakhmawati et al., 2023; Rousta et al., 2020).

To make the waste-management Product, namely the sorting service, function effectively, the perceived cost represented by PBC must be reduced. This requires moving beyond motivational campaigns toward institutionalized behavioral enablers, open infrastructure, and coherent policy design (Amir et al., 2025). PBC therefore represents not merely a psychological construct but a policy-relevant measure of systemic readiness for sustainable behavior (Amir et al., 2025).

3.3.4 Subjective Norms (SN) as the necessary promotion/people strategy

The significant influence of Subjective Norms (SN) (Amir et al., 2025; Marbun et al., 2025) provides a strong critique of traditional, top-down Promotion strategies and signals the need for a social-first approach that leverages the People element of the marketing mix. Conventional promotional campaigns tend to rely on cognitive change models that focus on information delivery to close the knowledge gap (Amir et al., 2025). However, the robust SN findings demonstrate that behavioral intentions are deeply shaped by social environments, particularly within Indonesia's collectivist culture (Marbun et al., 2025). Family members, in particular, are consistently identified as the most influential actors in shaping household waste behavior (Amir et al., 2025).

These results reveal why many current promotion strategies fail: they inform, but do not engage the primary social levers that actually drive compliance and participation. First, policy and regulation support appear to be largely inert, as several studies indicate that government policies and regulations do not significantly influence the intention to sort waste (Rakhmawati et al., 2023). This reflects a critical weakness in translating formal mandates into internalized social expectations or enforceable accountability mechanisms.

Furthermore, the power of people and context becomes evident through the influence of subjective norms (SN), suggesting that the most effective marketing lever lies in mobilizing people—such as local leaders, family units, and community networks—to establish visible, aspirational, and morally binding behaviors (Amir et al., 2025; Rakhmawati et al., 2023; Roustia et al., 2020). Therefore, social marketing interventions must move beyond generalized education campaigns and instead embed behavior within existing social structures by leveraging peer networks, recognition systems, and community-led practices (Pumas et al., 2025).

Future strategies should emphasize self-efficacy and social reinforcement by developing practical sorting skills, highlighting community role models, and introducing incentives that make positive behaviors more salient and rewarding (Amir et al., 2025; Galan-Ladero & Alves, 2023; Rakhmawati et al., 2023). In essence, while PBC reveals that the physical Process (infrastructure and ease of use) remains inadequate, SN shows that the psychological Promotion strategy has missed its target. Systemic support, therefore, must be redefined not only as technical capacity but also as a social ecosystem built on mental readiness, collective approval, and economic feasibility. The persistence of high PBC and strong SN, compounded by the existing trust deficit, forms a self-reinforcing stagnation loop in which good intentions continually collapse under the weight of high costs and low institutional credibility.

3.4 Systemic synthesis: The feedback loop of inertia and stagnation

The preceding analysis has examined how behavioral outcomes are shaped by both psychological constructs and systemic barriers. Building on these insights, the following synthesis integrates the two analytical pillars to explain how institutional and behavioral failures interact to sustain a persistent equilibrium of inertia. The evidence demonstrated throughout this section shows that Indonesia's chronic urban waste crisis is fundamentally a public service delivery failure sustained by a self-reinforcing feedback loop. Policy inertia (Pillar 1) and behavioral stagnation (Pillar 2) do not represent separate issues but sequential components of a single dysfunctional equilibrium. The institutional framework shapes the design and delivery of public services, which in turn determines the behavioral response of citizens as service users.

The link between these two pillars is empirically established through the dominant role of Perceived Behavioral Control (PBC), which quantifies the perceived non-monetary price citizens pay for compliance. PBC captures the burden of time, effort, and psychological strain imposed by an unreliable and poorly supported system (Amir et al., 2025). Its strong statistical significance ($\beta = 0.367$) indicates that behavioral failure reflects a rational rejection of a service perceived as costly and impractical. This elevated psychological price

results directly from Functional Quality deficits, specifically low Reliability and weak Tangibles (Place). When municipal collection schedules are inconsistent and basic infrastructure such as standardized bins or functioning TPS3R facilities is absent, the household's effort is rendered futile. This structural friction creates an experience of "sludge," increasing the appeal of the default option: continued disposal or open burning. In marketing terms, a failure in Place renders the Product unusable, reinforcing behavioral stagnation.

At the structural level, these service failures are rooted in the deeper institutional constraints of Path Dependency (Pillar 1), which also fuel a pervasive Trust Deficit (Pillar 2). Fragmented regulatory authority, ambiguous mandates following decentralization, and political volatility create an institutional lock-in consistent with Pierson's model of increasing returns. The high cost of reform perpetuates low fiscal allocations for both capital (CAPEX) and operational (OPEX) expenditures, producing a system unable to sustain reliable performance. Public trust erodes as a rational market response to these deficiencies. When citizens witness weak government capacity, absent accountability, and persistent unresponsiveness, confidence declines. Those who already bear the non-monetary price of sorting and still observe system failure, such as seeing their separated waste mixed during collection, naturally defect to the zero-cost alternatives of dumping or burning.

In summary, institutional incapacity to design and deliver a reliable service imposes a psychological and operational cost so high that citizens rationally withdraw both participation and trust. This erosion of public willingness to cooperate, in turn, heightens the political cost of reform, locking the system into a self-perpetuating cycle of inertia and stagnation. Behavioral stagnation, therefore, emerges as the predictable outcome of a misaligned relationship between systemic capacity and the citizen's psychological and social requirements for compliance.

4. Conclusions

This study demonstrates Indonesia's urban waste management is trapped in a self-reinforcing cycle of policy inertia and behavioral stagnation, confirming the central thesis of a systemic "Service Quality Gap." The root cause is institutional path dependency, where fragmented governance creates persistent inefficiencies and fiscal fragility. These structural constraints generate chronic Service Design and Delivery Deficits, producing unreliable, under-resourced services that undermine citizen compliance. This institutional lock-in, amplified by political turnover, perpetuates a system where operational failure is the norm.

This institutional failure manifests as a measurable effect: a chronic Service Quality Deficit with both technical and functional dimensions. Municipalities fail to deliver a reliable, tangible, and responsive system: collection is inconsistent, facilities are often inactive, and enforcement is weak. Citizens thus face high non-monetary costs (time, effort, and frustration) to comply. These systemic deficiencies transform waste segregation into a burdensome task, increasing perceived behavioral costs and eroding trust in public institutions. The rational consequence of this service failure is widespread behavioral stagnation. The findings indicate that Perceived Behavioral Control (PBC) and Subjective Norms (SN) are the principal factors influencing participation, whereas knowledge plays a lesser role. PBC reflects the high "psychological price" of a dysfunctional system, while SN highlights the missing social leverage. Citizens' rational disengagement is, therefore, a predictable outcome of a system failing to provide a reliable service.

The findings demand integrated reforms addressing all three dimensions of this feedback loop. Policy must reduce the institutional lock-in via coordinated governance and stable financing. Service improvements must lower the high "psychological price" by dramatically improving service quality and reliability. Finally, social marketing must leverage the social context of community networks (SN) to embed participation in daily practice. By addressing structure, service, and social context simultaneously, Indonesia can break the cycle of inertia and transform urban waste management into a participatory and sustainable circular economy.

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Author Contribution

The author solely contributed to the conceptualization, literature review, data analysis, and writing of this manuscript.

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Not available. This study is based on a review of existing academic and grey literature and does not involve human participants or primary data collection.

Informed Consent Statement

Not available.

Data Availability Statement

The data supporting the findings of this study are derived from publicly available academic and institutional sources, as cited in the reference list.

Conflicts of Interest

The author declares no conflict of interest.

Declaration of Generative AI Use

The author declares that generative AI tools were used in a limited capacity to assist in language refinement and editing of the manuscript. All conceptual development, analysis, and interpretation were conducted independently by the author.

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