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Comparative Analysis of Local Policies for Circular Economy Management of Urban Plastic Waste

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Abstract

Urban plastic waste governance increasingly invokes circular economy principles, although local regulatory instruments frequently concentrate on shopping bag consumption rather than comprehensive material circulation. This study compares the documentary design of plastic bag policies in Banjarmasin, Jakarta, and Surabaya, Indonesia, and assesses their alignment with circular economy functions. A qualitative comparative policy analysis examined Banjarmasin Mayor Regulation No. 18/2016, Jakarta Governor Regulation No. 142/2019, Surabaya Mayor Regulation No. 16/2022, and the national producer waste reduction roadmap under Regulation P.75/2019. Regulatory provisions were compared across commercial coverage, institutional obligations, implementation mechanisms, monitoring, source prevention, reuse, collection, recycling, and social inclusion. The analysis identified shared emphasis on consumer facing bag restrictions, alongside differences in administrative authority, regulated commercial settings, planning provisions, and enforcement arrangements. Banjarmasin includes inventory and planning functions, Jakarta specifies environmentally friendly bag obligations in designated markets, and Surabaya combines broader enumerated commercial coverage with supervision and sanctions. The selected instruments provide limited comparable documentary evidence of actual reuse, downstream recovery, compliance, or pollution reduction. The study contributes a provision level comparative matrix that distinguishes regulatory design from demonstrated environmental performance and identifies monitoring and coordination priorities for local circular economy governance without attributing unmeasured outcomes to particular municipal governments.

Keywords: *Circular Economy, Local Policy, Plastic Waste, Producer Responsibility, Urban Governance.*



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INTRODUCTION

Urban plastic waste management has become a contested policy problem because municipal authorities must govern consumption, collection, recovery, and disposal across systems with different institutional mandates. In Indonesian cities, pressures from expanding plastic use are compounded by variations in waste-service capacity and the practical reach of local interventions (Zahrah et al., 2024). Strategies centred on restricting selected products may yield visible regulatory action while leaving wider material flows and post-consumer recovery only partially addressed. Scenario-based assessment of plastic waste mitigation in Indonesia provides a basis for evaluating interacting policy choices rather than treating interventions as isolated measures (Apriadi et al., 2024). A circular-economy approach requires attention to the persistence of material value through prevention, reuse, collection, and recovery, as well as to the institutions coordinating these functions (Litaudon & Chen, 2023). Local governments face a design challenge that is simultaneously environmental, administrative, and distributive. The challenge warrants comparative examination because plastic restrictions cannot be presumed equivalent to a coherent circular-economy framework (Ratnawati et al., 2026).

Recent scholarship approaches urban plastic waste through several complementary analytical strands rather than a single measure of recycling performance. Comparative urban research has developed tools for assessing circularity and preventing plastic pollution across city systems, directing attention to the comparability of governance indicators (Maddalene et al., 2023). Research on plastic-focused circular ecosystems, by contrast, foregrounds the relationships that enable recovery activities and organizational arrangements to operate beyond individual facilities (Litaudon & Chen, 2023). Studies of waste governance in Indonesia place stronger emphasis on partnerships and public value creation, including the coordination of community and corporate actors in municipal settings (Ma'ruf et al., 2025). Participation-focused research similarly examines how citizens become involved in

plastic-waste management, a dimension that cannot be inferred from formal regulatory texts alone (Pambudi et al., 2025). Taken together, these perspectives suggest that local circularity policies should be assessed through an integrated view of regulatory coverage, actor responsibilities, implementation mechanisms, and material-loop objectives.

These contributions illuminate important components of circular waste governance but differ in their units of analysis and evidentiary scope. A city-oriented comparative tool can clarify what should be compared without, by itself, establishing whether specific municipal legal provisions impose enforceable obligations (Maddalene et al., 2023). Analyses of partnerships identify coordination as a central governance concern, yet partnership arrangements are analytically distinct from the allocation of duties in binding local instruments (Prabawati et al., 2023). Investigations of local government strategies extend the policy discussion to contextual conditions but do not eliminate the need for instrument-level coding across jurisdictions (Ruysschaert et al., 2026). Studies focused on single-use plastic limitations connect intervention design with segregation and socio-economic dimensions, while their emphasis differs from a comparison of municipal regulatory architectures (Sari et al., 2026). Within the selected literature, a provision-by-provision comparison of local plastic-bag policies in Banjarmasin, Jakarta, and Surabaya is not the principal stated focus of these studies. The gap addressed here is therefore the limited cross-jurisdictional comparability of regulatory design, not an assertion that municipal plastic-policy implementation has received no scholarly attention.

The distinction between regulatory ambition and implementation readiness matters because policies can target an easily identifiable transaction without specifying the operational conditions of longer material loops. A national circular-economy framework for plastic waste highlights the importance of connecting policy design with the availability and recovery of recyclable materials (Ratnawati et al., 2026). The administrative feasibility of municipal measures also depends on how stakeholder tasks are distributed and supported, a challenge addressed in research on partnership-based plastic waste governance (Prabawati et al., 2023). Citizen participation introduces a separate implementation dimension because formal compliance requirements do not automatically generate household sorting, sustained reuse, or engagement in recovery systems (Pambudi et al., 2025). Where local rules are assessed only by the existence of restrictions, provisions concerning responsibility, supervision, equitable access, and accountability can remain analytically invisible. A comparative policy analysis must distinguish commitments expressed in legal texts from observed implementation and measured environmental outcomes, which require different forms of evidence.

This study positions municipal regulatory design as its primary object and examines Banjarmasin, Jakarta, and Surabaya as three distinct local policy settings. Its point of departure is the need for a common analytical structure that enables comparison of unlike regulatory instruments without equating textual requirements with demonstrated environmental effectiveness. The urban plastic-waste perspective developed for Indonesian cities provides a basis for assessing the scope of local responses, but the present analysis narrows attention to provisions through which those responses are formally organized (Zahrah et al., 2024). Comparative research on urban circularity supplies an organizing logic, which this study adapts to the specific coding of municipal obligations rather than city-level performance scores (Maddalene et al., 2023). Contextual analysis of local governmental strategies informs interpretation of institutional variation without substituting evidence about one jurisdiction for another (Ruysschaert et al., 2026). The proposed framework also treats producer responsibility and the continuity of recyclable materials as alignment questions instead of presuming that any restriction is inherently circular (Ratnawati et al., 2026). Its intended novelty lies in a cross-jurisdictional, provision-level matrix that distinguishes prevention, reuse, collection, recycling, enforcement, monitoring, and social inclusion within the limits of documentary evidence.

The study aims to compare how local policies in Banjarmasin, Jakarta, and Surabaya structure plastic-waste reduction and relate their provisions to circular-economy management. It identifies the actors and activities regulated, the scope of restrictions, and the implementation and oversight responsibilities assigned by each instrument. It then codes the presence and specificity of provisions concerning source reduction, reuse, collection, recycling, enforcement, monitoring, and social inclusion. The comparison also examines whether municipal provisions connect to broader producer-responsibility functions or leave such connections unspecified. A cross-jurisdictional policy matrix is used to identify shared patterns, regulatory omissions, and institutional differences visible in the documents. The study's conceptual contribution is a replicable basis for distinguishing policy breadth

from policy coherence across jurisdictions. Its practical contribution is a bounded set of considerations for local policy revision, without asserting reductions in plastic leakage, improvements in compliance, or other environmental effects not measured by the research.

RESEARCH METHODS

This study employed a qualitative comparative policy analysis based on publicly accessible government regulations and supporting scholarly literature to examine local policy instruments for circular economy management of urban plastic waste. The principal documentary corpus comprised Banjarmasin Mayor Regulation No. 18/2016, Jakarta Governor Regulation No. 142/2019, Surabaya Mayor Regulation No. 16/2022, and Indonesia's producer waste-reduction roadmap under Regulation P.75/2019. The Jakarta regulation was included as a provincial policy instrument addressing environmentally friendly shopping bags within designated commercial establishments (Jakarta Provincial Government, 2019). The Surabaya regulation represented the most recently enacted municipal instrument within the selected comparative framework (Surabaya City Government, 2022). The three local regulations were selected based on their publicly identifiable provisions concerning plastic shopping-bag reduction, their distinct administrative jurisdictions, and their different enactment years of 2016, 2019, and 2022. The unit of analysis consisted of individual regulatory provisions addressing targeted plastic products, regulated commercial activities, institutional responsibilities, implementation procedures, monitoring arrangements, and explicit connections to circular material management.

Documentary analysis was structured around a common comparative coding framework encompassing source reduction, reuse, waste collection, recycling, regulatory enforcement, institutional monitoring, and social inclusion. Each regulatory provision was examined according to its stated function, with explicit legal obligations distinguished from general policy objectives and the absence of specific provisions recorded without assuming implementation failure. The analytical interpretation considered the relationships between formal regulatory responsibilities, material recovery processes, and institutional coordination within Indonesia's plastic value chain (Iacovidou et al., 2025). Regulatory provisions were also examined in relation to circular economy principles and the broader policy orientation toward recyclable-material recovery and producer responsibility (Ratnawati et al., 2026). The comparative findings were organized into a cross-jurisdictional policy matrix to identify similarities, differences, regulatory omissions, and institutional alignment while maintaining consistency between documented provisions and analytical interpretations. The analysis was restricted to the identified documentary sources and did not involve field interviews, direct observations, numerical effectiveness rankings, causal inference, or estimates of actual waste diversion and regulatory compliance.

RESULTS AND DISCUSSION

Comparative Regulatory Architecture and Policy Coverage

The regulatory architecture governing urban plastic-bag consumption in Indonesia reflects differentiated policy instruments established across distinct administrative jurisdictions and legislative periods. Banjarmasin introduced Mayor Regulation No. 18/2016 to address plastic-bag reduction through local governmental responsibilities, designated reduction areas, and supporting planning provisions (Banjarmasin City Government, 2016). Jakarta subsequently adopted Governor Regulation No. 142/2019, which established obligations concerning environmentally friendly shopping bags within specified commercial establishments (Jakarta Provincial Government, 2019). Surabaya enacted Mayor Regulation No. 16/2022, combining restrictions on plastic-bag use with requirements for environmentally friendly alternatives and provisions for administrative oversight (Surabaya City Government, 2022). These instruments illustrate variations in legal authority, regulatory formulation, commercial coverage, and supporting administrative mechanisms. Their chronological differences provide an institutional basis for examining changes in regulatory design without establishing a corresponding progression in environmental effectiveness. The comparative significance lies in identifying how local governments translate plastic-waste reduction objectives into enforceable commercial obligations rather than treating the adoption of regulations as evidence of successful circular economy implementation.

Differences in governmental authority constitute an important analytical dimension because municipal and provincial instruments operate through distinct territorial and administrative arrangements. Jakarta's governor regulation applies within a provincial administrative framework, whereas the Banjarmasin and Surabaya instruments derive from municipal regulatory authority. These differences influence the formal organization of governmental responsibilities but do not independently establish differences in enforcement capacity or regulatory effectiveness. Contextual research on local circular economy strategies indicates that governmental approaches must be interpreted in relation to their institutional conditions and policy environments (Ruysschaert et al., 2026). The comparative framework consequently distinguishes jurisdictional authority from the substantive obligations imposed upon commercial operators and consumers. This distinction prevents the legal status of an instrument from being interpreted as a direct indicator of its environmental contribution.

The regulated product category provides a common analytical foundation despite differences in the formulation of local policies. Each instrument addresses plastic shopping bags associated with commercial transactions, creating a comparable regulatory focus across the three jurisdictions. This product-specific orientation differs from comprehensive plastic-waste management approaches that encompass packaging production, consumption, collection, sorting, and recovery. Research on urban plastic-waste management in Indonesia demonstrates the relevance of examining interconnected waste-management processes rather than isolated interventions (Zahrah et al., 2024). A restriction targeting shopping bags may influence one point of material consumption without directly establishing requirements for downstream plastic recovery. The distinction between product-specific restrictions and broader waste-management systems is essential for assessing the substantive reach of local regulatory commitments. Regulatory coverage should therefore be interpreted according to the activities explicitly governed rather than the wider environmental outcomes that policymakers intend to achieve.

Commercial coverage reveals further differences in how local authorities identify intervention points within urban consumption systems. Banjarmasin's regulatory provisions address designated reduction areas and identify shopping centres, modern retail establishments, and minimarkets in determining areas of intervention (Banjarmasin City Government, 2016). Jakarta explicitly identifies shopping centres, supermarkets, and traditional markets as locations subject to environmentally friendly shopping-bag obligations (Jakarta Provincial Government, 2019). Surabaya specifies shopping centres, traditional markets, supermarkets, and restaurants within the scope of plastic-bag restrictions and substitution requirements (Surabaya City Government, 2022). The inclusion of restaurants gives Surabaya a broader enumerated commercial setting than Jakarta under the selected instruments, although the implications for actual plastic consumption remain unmeasured. These distinctions are consolidated in Table 1 to demonstrate how regulatory authority, commercial coverage, and principal policy mechanisms differ across jurisdictions. The matrix records explicit documentary characteristics without assigning effectiveness scores or implying that broader legal coverage necessarily produces greater waste reduction.

Table 1. Comparative Matrix of Local Plastic-Bag Regulatory Instruments

Comparative Dimension	Banjarmasin	Jakarta	Surabaya
Legal instrument	Mayor Regulation No. 18/2016	Governor Regulation No. 142/2019	Mayor Regulation No. 16/2022
Regulatory authority	Municipal government	Provincial government	Municipal government
Principal regulatory objective	Reduction of plastic-bag use	Mandatory use of environmentally friendly shopping bags	Reduction of plastic-bag use
Commercial coverage	Designated reduction areas, including shopping centres, modern retail	Shopping centres, supermarkets, and traditional markets	Shopping centres, traditional markets, supermarkets, and restaurants

	establishments, and minimarkets		
Principal intervention	Plastic-bag reduction and designation of priority areas	Restriction of single-use plastic shopping bags and provision of environmentally friendly alternatives	Prohibition of plastic shopping bags and mandatory use of environmentally friendly alternatives
Supporting regulatory mechanisms	Inventory of plastic-bag use, area designation, and local action planning	Retailer obligations, communication, and supervision	Business obligations, public participation, supervision, guidance, and administrative sanctions
Documentary boundary	Inventory and planning provisions do not establish actual reduction outcomes	Substitution obligations do not quantify repeated use or material recovery	Wider commercial coverage does not demonstrate actual compliance or recycling performance

The comparison presented in Table 1 identifies distinct regulatory emphases despite the shared objective of reducing plastic-bag consumption. Banjarmasin's instrument incorporates an inventory function covering plastic-bag use among commercial operators, alongside provisions for identifying designated reduction areas and preparing local action plans (Banjarmasin City Government, 2016). These provisions establish a documentary basis for examining how information collection and spatial targeting are incorporated into local regulatory design. Previous research concerning the implementation of Banjarmasin's plastic-bag policy provides relevant context for distinguishing regulatory formulation from the administrative conditions affecting implementation (Inas, 2020). Inventory requirements are analytically significant because baseline information can support subsequent measurement of product use and distribution patterns. Their inclusion nevertheless cannot establish that comparable inventories were repeatedly conducted or that the resulting information was used to evaluate environmental outcomes. The Banjarmasin framework illustrates an approach in which planning and information generation form identifiable components of the regulatory architecture, although their operational effectiveness remains outside the available documentary evidence.

Jakarta's regulatory approach places particular emphasis on changing the shopping-bag options provided within designated commercial environments. Governor Regulation No. 142/2019 requires environmentally friendly shopping bags and establishes restrictions on single-use plastic shopping bags through obligations assigned to commercial operators and establishment managers (Jakarta Provincial Government, 2019). This arrangement makes the point of sale a principal regulatory interface between business responsibilities and consumer behavior. Research on circular packaging consumption indicates the relevance of behavioral considerations when evaluating the adoption of alternative packaging arrangements (Ramadhanti et al., 2024). The environmental implications of substitution nevertheless depend on material characteristics, repeated use, and end-of-life management rather than the regulatory designation of an alternative alone. Life-cycle assessment research reinforces the need to distinguish the selection of waste-management or material alternatives from conclusions about their environmental performance (Goh et al., 2025).

Surabaya's regulatory instrument combines commercial restrictions with additional provisions concerning implementation and administrative responsibility. Mayor Regulation No. 16/2022 prohibits plastic shopping bags and requires environmentally friendly shopping alternatives within the specified commercial settings, including restaurants (Surabaya City Government, 2022). The regulation also addresses public participation, supervision, guidance, and administrative sanctions, establishing multiple regulatory functions beyond the prohibition itself. Research examining the decision-making process underlying Surabaya's plastic-bag reduction policy provides an additional basis for considering how municipal policy choices are formulated (Nugroho, 2024). The inclusion of implementation-related provisions strengthens the formal specification of administrative responsibilities but does not independently demonstrate consistent enforcement. Research on policy decision-making in Surabaya further indicates the relevance of evaluating administrative processes when interpreting local plastic-

reduction initiatives (Agustina & Safitri, 2024). Surabaya's regulatory design can consequently be distinguished by the combination of its enumerated commercial coverage and supporting administrative mechanisms, while conclusions about actual retailer compliance require additional evidence.

The regulatory comparison also reveals a structural distinction between municipal restrictions on shopping-bag consumption and the broader material-management functions associated with a circular economy. Indonesia's producer waste-reduction roadmap establishes a national policy reference encompassing producer-oriented reduction, reuse, and recycling responsibilities that extend beyond individual retail transactions (Ministry of Environment and Forestry, 2019). Research on Indonesia's circular economy policy framework highlights the significance of coordinating plastic-waste regulation with recyclable-material recovery and wider supply-chain responsibilities (Ratnawati et al., 2026). The selected local instruments principally regulate consumer-facing activities, whereas a comprehensive circular system requires attention to multiple stages of material circulation. Comparative research on urban circularity provides a conceptual basis for distinguishing preventive measures from the institutional and material processes needed to support wider pollution reduction (Maddalene et al., 2023). The principal finding is therefore a difference in the scope and organization of documented obligations rather than evidence that one jurisdiction has achieved superior circular economy performance. This distinction establishes the analytical basis for examining implementation accountability and identifying regulatory functions that require stronger integration with national producer-responsibility arrangements.

Implementation Mechanisms, Stakeholder Responsibilities, and Accountability

Implementation mechanisms constitute a fundamental component of local plastic-waste policies because regulatory obligations require identifiable administrative responsibilities, institutional coordination, and operational procedures. The three jurisdictions establish different arrangements through which governmental institutions and commercial actors are expected to support restrictions on plastic shopping bags. Surabaya's regulatory framework combines obligations imposed on commercial operators with provisions concerning administrative supervision, guidance, and sanctions (Surabaya City Government, 2022). Jakarta's policy assigns responsibilities to managers of designated commercial establishments regarding the provision of environmentally friendly shopping bags (Jakarta Provincial Government, 2019). Banjarmasin's earlier regulatory instrument incorporates inventory requirements and local planning arrangements intended to support the administration of plastic-bag reduction measures (Banjarmasin City Government, 2016). These differences demonstrate that regulatory implementation encompasses several administrative functions extending beyond the establishment of formal restrictions. The comparative analysis identifies variations in documented institutional responsibilities without assuming that more extensive regulatory provisions necessarily produce stronger enforcement or superior environmental performance.

Public communication represents a distinct implementation requirement because restrictions on disposable shopping bags depend partly on the understanding and responses of commercial operators and consumers. Research examining plastic-bag reduction policies in Surabaya identifies policy decision-making and communication as relevant aspects of municipal regulatory development (Agustina & Safitri, 2024). Earlier evaluation of plastic-bag restrictions through a social-marketing approach also highlights the importance of behavioural considerations in translating regulatory expectations into commercial practices (Bensa, 2019). Formal regulatory obligations may establish requirements for businesses while leaving uncertainty concerning the frequency, accessibility, and effectiveness of supporting communication activities. Evaluating communication effectiveness therefore requires a distinction between the existence of outreach arrangements and verified evidence of public understanding or behavioural adaptation. The available documentary materials do not establish comparable communication outcomes across Banjarmasin, Jakarta, and Surabaya, preventing defensible conclusions about their relative success in influencing consumer behaviour.

Administrative supervision and enforcement constitute mechanisms through which local governments can monitor compliance and respond to violations of established plastic-bag restrictions. Surabaya's regulation contains provisions concerning supervision and administrative sanctions, providing a formal basis for governmental responses to noncompliance (Surabaya City Government, 2022). Jakarta's regulatory instrument also establishes oversight arrangements associated with the obligations of commercial establishments to provide environmentally friendly shopping bags (Jakarta

Provincial Government, 2019). The existence of such provisions indicates the formal availability of regulatory controls but does not independently establish their consistency, intensity, or effectiveness during implementation. Research evaluating plastic-bag reduction policies in Surabaya reinforces the analytical importance of distinguishing regulatory provisions from the practical conditions surrounding their application (Zahra et al., 2026). The documentary corpus does not contain comparable inspection records, verified compliance rates, or standardized information on administrative sanctions across the three jurisdictions. A defensible evaluation of enforcement performance would require additional evidence concerning inspection coverage, recorded violations, corrective actions, and subsequent compliance among regulated establishments.

Information management provides another basis for evaluating regulatory accountability because the assessment of plastic-waste reduction requires consistent and traceable administrative records. Banjarmasin's policy includes inventory-related provisions concerning plastic-bag use and designated reduction areas, creating a formal reference for collecting information on regulated activities (Banjarmasin City Government, 2016). Research evaluating the implementation of plastic-bag reduction policies in Banjarmasin illustrates the relevance of examining administrative arrangements alongside regulatory objectives (Martono et al., 2023). The inclusion of an inventory requirement cannot establish whether records were collected consistently, updated periodically, or used to evaluate changes in plastic consumption. Regulatory assessment must distinguish obligations to produce information from evidence that administrative records are available and sufficiently comparable for evaluation. Table 2 summarizes the documented implementation mechanisms, institutional accountability dimensions, and evidentiary limitations associated with the selected jurisdictions.

Table 2. Comparative Analysis of Implementation Mechanisms and Regulatory Accountability

Jurisdiction	Documented Implementation Mechanisms	Institutional Accountability	Limitations of Available Evidence
Banjarmasin	Plastic-bag reduction, inventory requirements, designation of reduction areas, and local action planning	Municipal authorities and commercial operators within regulated areas	No comparable longitudinal inventory or verified reduction outcomes established
Jakarta	Environmentally friendly shopping-bag obligations, communication, and regulatory supervision	Provincial authorities and managers of designated commercial establishments	No harmonized inspection data or verified consumer reuse outcomes established
Surabaya	Plastic-bag restrictions, environmentally friendly alternatives, supervision, guidance, and administrative sanctions	Municipal authorities and commercial operators within regulated establishments	No comparable enforcement rates or measured environmental effects established

The comparative findings presented in Table 2 indicate differences in the organization of implementation responsibilities despite the shared regulatory objective of reducing plastic shopping-bag consumption. Banjarmasin's approach provides an identifiable role for inventory and administrative planning, while Jakarta's instrument emphasizes obligations imposed within designated commercial establishments. Surabaya's provisions concerning supervision, guidance, and sanctions establish additional formal mechanisms for directing compliance and responding to regulatory violations. Research on public participation in Indonesian plastic-waste management suggests that citizen engagement represents an important dimension of governance beyond obligations established through formal commercial regulation (Pambudi et al., 2025). Studies of collaborative governance in Surabaya also emphasize the institutional relevance of relationships among governmental agencies, businesses, and community stakeholders in managing urban waste systems (Ma'ruf et al., 2025). These perspectives demonstrate that regulatory implementation cannot be assessed solely through the presence of legal obligations or administrative procedures. A comprehensive accountability framework must differentiate institutional responsibilities, documented implementation activities, stakeholder participation, and independently measurable environmental outcomes.

Producer responsibility introduces another dimension of accountability because municipal plastic-bag restrictions operate primarily within commercial transactions, whereas circular material management involves broader production and post-consumption processes. Indonesia's producer waste-reduction roadmap establishes a national regulatory framework addressing waste prevention, reuse, and recycling responsibilities across specified business activities (Ministry of Environment and Forestry, 2019). The selected local instruments predominantly concern the obligations of commercial establishments and the reduction of plastic shopping-bag consumption. Research on stakeholder partnerships in plastic-waste management demonstrates the importance of coordination between institutions and economic actors in supporting circular economy arrangements (Prabawati et al., 2023). The relationship between municipal restrictions and producer-oriented responsibilities therefore requires attention to the distribution of duties across different stages of the plastic value chain. The available documents do not establish whether integrated reporting systems, coordinated collection arrangements, or operational producer take-back mechanisms connect the three local policies with national waste-reduction responsibilities.

Stakeholder accountability also requires consideration of actors operating outside the formal commercial establishments directly targeted by local plastic-bag regulations. Research examining Indonesia's plastic value chain identifies complex relationships among formal and informal stakeholders involved in material collection, recovery, and circulation (Iacovidou et al., 2025). A systematic review of informal recycling further demonstrates the relevance of informal waste-recovery activities to plastic pollution mitigation and resource management (Cook et al., 2024). Regulatory instruments concentrating on retail establishments may leave downstream recovery actors outside their principal operational provisions, even when those actors remain important to the wider waste-management system. This distinction raises questions about the extent to which policy implementation frameworks recognize the institutional position and potential vulnerability of informal recycling participants. Research incorporating socio-economic dimensions into single-use plastic policy analysis provides additional grounds for considering distributional implications alongside administrative implementation requirements (Sari et al., 2026). The documentary comparison does not establish whether informal recovery workers experienced changes in income, employment opportunities, or institutional participation following adoption of the selected regulations. Accountability assessment should consequently distinguish formal regulatory coverage from the wider social and economic relationships through which plastic materials are collected and recovered.

The implementation comparison reveals an evidentiary distinction between the existence of administrative mechanisms and their demonstrated effectiveness in reducing plastic-waste generation or environmental leakage. Regulatory accountability requires consistent indicators covering the number of regulated establishments, inspection activities, recorded violations, corrective measures, and subsequent compliance outcomes. Research employing system dynamics to examine plastic-waste mitigation in Indonesia supports the importance of assessing relationships among interventions and waste-management processes rather than interpreting individual administrative measures in isolation (Apriadi et al., 2024). Research concerning microplastic contamination and environmental regulation likewise reinforces the need to distinguish administrative interventions from independently measured environmental conditions (Isfarin et al., 2024). The present documentary corpus does not provide harmonized monitoring records sufficient to estimate causal relationships between municipal restrictions and changes in plastic pollution. The principal analytical contribution lies in separating documented regulatory responsibilities, implementation mechanisms, stakeholder accountability, and environmental performance as distinct dimensions of policy evaluation. These distinctions establish a basis for identifying institutional coordination requirements and assessing the integration of local regulatory instruments with wider circular economy objectives.

Circular Economy Integration, Regulatory Gaps, and Policy Implications

The integration of circular economy principles into local plastic-waste policies requires examination of regulatory functions extending beyond restrictions on disposable shopping bags. The selected instruments in Banjarmasin, Jakarta, and Surabaya primarily establish consumption-oriented obligations through product restrictions, commercial responsibilities, and requirements concerning alternative shopping bags. These measures address identifiable sources of plastic consumption but do not independently establish comprehensive systems for material collection, reuse, recycling, and

secondary-resource utilization. Research on circular economy ecosystems emphasizes the institutional relationships and material connections required to transform localized interventions into integrated circular arrangements (Litaudon & Chen, 2023). A systematic review of plastic-waste management in developing economies similarly situates circularity within interconnected technological, institutional, and resource-management challenges (Ramli et al., 2024). The comparison consequently distinguishes regulatory commitments aimed at preventing plastic use from provisions governing the subsequent circulation and recovery of materials. This distinction identifies a substantive boundary in the selected policy instruments without implying that the jurisdictions lack other waste-management programs outside the examined documentary corpus.

Source prevention represents the most directly identifiable circular economy function within the three local regulatory instruments. Restrictions on plastic shopping bags operate at the point of commercial distribution, where governmental requirements can influence the provision of disposable products before they enter municipal waste streams. Research examining plastic-use restrictions and recycling challenges in Indonesian destinations demonstrates the relevance of distinguishing regulatory interventions from the operational conditions of subsequent waste management (Suryawan et al., 2024). The quantity of shopping bags avoided represents a different environmental indicator from the quantity of plastic waste collected, recycled, or prevented from entering natural environments. Life-cycle assessment research reinforces this distinction because alternative material-management pathways cannot be evaluated adequately through product restrictions or disposal classifications alone (Goh et al., 2025). A comparative evaluation of prevention-oriented policies therefore requires consistent information on shopping-bag distribution, regulated transactions, and changes in consumption patterns rather than relying exclusively on the existence of regulatory prohibitions.

Reuse constitutes a separate analytical dimension because replacing disposable plastic bags with alternative products does not automatically establish repeated material utilization. Jakarta and Surabaya incorporate obligations concerning environmentally friendly shopping bags, making product substitution an identifiable component of their regulatory approaches (Jakarta Provincial Government, 2019). The environmental contribution of alternative bags depends partly on material composition, durability, consumer practices, and the number of occasions on which products are reused. Research on green purchasing behaviour associated with circular packaging indicates that consumer decisions constitute a relevant consideration in the adoption of alternative packaging arrangements (Ramadhanti et al., 2024). Life-cycle assessment findings further demonstrate the importance of examining the environmental consequences of different material and end-of-life scenarios rather than assuming that a product label establishes environmental superiority (Goh et al., 2025). The selected regulatory documents do not provide comparable measurements of actual reuse frequency or verified life-cycle performance across the three jurisdictions. Reuse should consequently be assessed through independently documented consumer practices and product characteristics, while the regulatory comparison remains limited to obligations explicitly established by the selected instruments.

Material collection and recycling introduce additional circular economy requirements that extend beyond the immediate commercial transactions governed by shopping-bag restrictions. Research examining material flows and economic conditions at an Indonesian recycling centre illustrates the relevance of connecting resource recovery with the organizational and economic characteristics of recycling operations (Satori et al., 2024). The national producer waste-reduction roadmap provides a broader regulatory reference for reduction, reuse, and recycling responsibilities involving designated business activities (Ministry of Environment and Forestry, 2019). Research on Indonesia's plastic value chain also identifies the importance of relationships among stakeholders participating in material collection, processing, and circulation (Iacovidou et al., 2025). The selected municipal instruments do not independently establish comparable evidence of recovered plastic quantities, recycling quality, or the final utilization of secondary materials. Table 3 consolidates these documentary boundaries into a circular economy assessment framework and identifies proposed indicators for evaluating functions that cannot be measured through regulatory texts alone.

Table 3. Circular Economy Policy Gaps and Recommended Monitoring Indicators

Circularity Dimension	Regulatory Emphasis In The Selected Instruments	Documentary Evidence Gap	Recommended Monitoring Indicator
Source prevention	Restrictions on plastic shopping-bag provision and use	Comparable changes in plastic-bag distribution are not established	Shopping bags distributed per regulated transaction
Product reuse	Requirements concerning environmentally friendly shopping-bag alternatives	Actual reuse frequency and product durability are not measured	Verified reuse cycles and product lifespan
Collection and segregation	Not the principal focus of the selected shopping-bag instruments	Comparable collection and segregation outcomes are not established	Separately collected plastic mass and segregation rates
Material recycling	Considered through the broader circular economy and producer-responsibility framework	Verified recycling quantities and recovery quality are unavailable	Recovered and reprocessed plastic mass
Producer responsibility	National reduction, reuse, and recycling responsibilities provide policy alignment criteria	Operational integration between selected local instruments and producer systems is not established	Documented producer collection and recovery performance
Social inclusion	Commercial operators constitute the principal directly regulated actors	Participation and distributional outcomes for informal recovery workers are not established	Documented participation and livelihood indicators
Monitoring and evaluation	Planning, supervision, and accountability provisions vary across jurisdictions	Harmonized implementation and environmental outcome records are unavailable	Inspection coverage, compliance rates, and measured plastic-waste reduction

The framework presented in Table 3 demonstrates that circular economy integration cannot be evaluated adequately through a single indicator of regulatory adoption or plastic-bag restriction. Source prevention, product reuse, collection, recycling, producer responsibility, social inclusion, and monitoring represent distinct functions requiring different evidence and institutional arrangements. Comparative research on plastic circularity in cities supports the analytical separation of policy functions when examining the prevention of plastic pollution across urban systems (Maddalene et al., 2023). The proposed indicators distinguish directly observable commercial activities from downstream material flows that require additional measurement procedures. Research integrating socio-economic considerations into single-use plastic policy assessment further supports attention to dimensions that extend beyond formal environmental restrictions (Sari et al., 2026). The absence of comparable measurements in the documentary corpus should not be interpreted as evidence that the relevant activities are absent or ineffective in the three jurisdictions. The framework instead identifies the information needed to evaluate whether local regulatory commitments are connected to measurable circular economy processes.

Vertical policy coordination represents another requirement for integrating municipal plastic restrictions with wider systems of resource management. Indonesia's producer waste-reduction roadmap establishes responsibilities that operate across production, commercial distribution, and material recovery, whereas the selected local instruments concentrate primarily on consumption-facing restrictions (Ministry of Environment and Forestry, 2019). The national sustainable-development planning framework provides an additional policy reference for examining the relationship between local environmental interventions and broader development objectives (Ministry of National Development Planning/National Development Planning Agency [Bappenas], 2023). Research examining Indonesia's circular economy framework emphasizes the importance of policy arrangements supporting recyclable-material recovery and resource utilization (Ratnawati et al., 2026). Coordination

requirements concern the distribution of institutional duties, compatibility of reporting systems, and potential connections between municipal restrictions and producer-oriented recovery arrangements. The documentary evidence does not establish the operational effectiveness of such coordination across Banjarmasin, Jakarta, and Surabaya, making institutional alignment a policy consideration rather than a verified implementation outcome.

Social inclusion constitutes an additional consideration because plastic recovery systems involve actors whose activities are not necessarily covered by consumption-oriented municipal regulations. Research on informal recycling demonstrates the contribution of informal waste workers to plastic pollution mitigation and the recovery of recyclable materials (Cook et al., 2024). Studies examining Indonesia's plastic value chain similarly identify institutional and economic relationships connecting formal businesses with informal recovery activities (Iacovidou et al., 2025). Restrictions directed primarily at commercial establishments may influence plastic distribution without specifying how downstream recovery actors participate in the resulting governance arrangements. Research on public participation in Indonesian plastic-waste management supports the need to consider community involvement when developing sustainable circular economy systems (Pambudi et al., 2025). Collaborative governance research in Surabaya also emphasizes the significance of relationships among governmental institutions, corporate actors, and communities in urban waste management (Ma'ruf et al., 2025). These considerations suggest that future regulatory development should evaluate participation opportunities, institutional representation, and potential livelihood implications associated with changes in material circulation. The present documentary analysis cannot establish actual employment changes, income effects, or patterns of stakeholder exclusion following implementation of the selected regulations.

The comparative analysis identifies a structural distinction between the formal scope of local plastic-bag regulations and the broader institutional arrangements required for comprehensive circular economy management. Banjarmasin, Jakarta, and Surabaya establish different regulatory approaches to plastic-bag consumption, but the available evidence does not support ranking their environmental effectiveness or attributing measured pollution reductions to individual instruments. Research on plastic-waste mitigation through system dynamics illustrates the relevance of examining interconnected policy mechanisms when evaluating potential waste-management outcomes (Apriadi et al., 2024). Research concerning microplastic pollution and environmental regulation further indicates that waste-management evaluation requires attention to environmental consequences extending beyond the initial restriction of selected products (Isfarin et al., 2024). The principal policy implication is the need to connect consumption restrictions with measurable reuse, collection, recycling, producer responsibility, social inclusion, and transparent monitoring arrangements. Future comparative evaluation would require harmonized administrative records, independently verified material-flow information, and documented stakeholder participation to determine whether differences in regulatory design correspond to measurable circular economy outcomes.

CONCLUSION

The comparison of Banjarmasin, Jakarta, and Surabaya establishes that the three regulatory regimes share a focus on reducing plastic shopping bags but differ in their jurisdictional authority, commercial coverage, and administrative provisions. Banjarmasin emphasizes inventory and planning functions, Jakarta specifies obligations for environmentally friendly shopping bags in designated commercial settings, and Surabaya combines restrictions with supervision, guidance, and administrative sanctions. These variations demonstrate differences in regulatory architecture rather than a verified hierarchy of policy effectiveness. Consumer-facing restrictions address an identifiable point in plastic consumption but do not independently constitute comprehensive circular economy governance. The national producer waste-reduction roadmap introduces additional responsibilities associated with reuse and recycling that require coordination beyond local retail regulation. The comparative matrix clarifies how prevention, reuse, collection, recycling, enforcement, monitoring, and social inclusion can be examined as distinct policy dimensions. The study contributes an instrument-level analytical framework while acknowledging that the available documents cannot demonstrate actual changes in plastic-waste volumes or environmental pollution.

Local governments can strengthen policy coherence by linking commercial restrictions with clearly assigned responsibilities for monitoring, producer coordination, and downstream material

recovery. Comparable administrative reporting should document shopping-bag distribution, the number of regulated establishments, inspection coverage, recorded violations, and corrective actions. Evaluation of circularity also requires evidence on repeated use of alternatives, separately collected plastic, verified recycling outputs, and participation by formal and informal recovery actors. These indicators should be interpreted according to their measurement units and reporting periods rather than combined into an unsupported effectiveness score. Intergovernmental coordination could improve consistency between municipal obligations and national producer responsibilities, provided that institutional roles and data-sharing requirements are specified. Future research should integrate longitudinal administrative data, direct observations, material-flow measurements, and institutional interviews to examine implementation and outcomes. Until such evidence is available, policy recommendations remain grounded in documentary design and cannot substantiate causal claims about reduced plastic leakage, increased recycling, or improved compliance.

REFERENCES

Agustina, D., & Safitri, A. (2024). Analisis pengambilan keputusan dalam kebijakan pengurangan penggunaan kantong plastik di Kota Surabaya. *Jurnal Media Akademik (JMA), 2*(5). https://doi.org/10.62281/v2i5.289

Apriadi, B. F., Setiawan, R. P., & Firmansyah, I. (2024). Policy scenario of plastic waste mitigation in Indonesia using system dynamics. *Waste Management & Research, 42*(11), 1008–1018. https://doi.org/10.1177/0734242X241231396

Banjarmasin City Government. (2016). *Peraturan Wali Kota Banjarmasin Nomor 18 Tahun 2016 tentang Pengurangan Penggunaan Kantong Plastik*. JDIH Kota Banjarmasin. https://jdih.banjarmasinkota.go.id/produkHukum/detail-produk-hukum/57

Bensa, C. P. (2019). Public policy evaluation on limitation of the use of plastics bags based on social marketing perspective. *Ultimacomm: Jurnal Ilmu Komunikasi, 11*(2), 190–207. https://doi.org/10.31937/ultimacomm.v11i2.1257

Cook, E., Silva de Souza Lima Cano, N., & Velis, C. A. (2024). Informal recycling sector contribution to plastic pollution mitigation: A systematic scoping review and quantitative analysis of prevalence and productivity. *Resources, Conservation and Recycling, 206*, Article 107588. https://doi.org/10.1016/j.resconrec.2024.107588

Goh, S. L., Yap, K. S., Neo, E. R. K., Koo, C. W., Madhavan, U., Suwandi, N. A., Lew, J., Khoo, H. H., & Tan, D. Z. L. (2025). Life cycle assessment of plastic waste end-of-life scenarios in South and South East Asia. *Waste Management, 200*, Article 114760. https://doi.org/10.1016/j.wasman.2025.114760

Goh, S. L., Yap, K. S., Neo, E. R. K., Koo, C. W., Madhavan, U., Suwandi, N. A., Lew, J., Khoo, H. H., & Tan, D. Z. L. (2025). Life cycle assessment of plastic waste end-of-life scenarios in South and South East Asia. *Waste Management, 200*, Article 114760. https://doi.org/10.1016/j.wasman.2025.114760

Iacovidou, E., Gerassimidou, S., Wilson, D. C., Richter, J., Jobling, S., & Soedjono, E. (2025). System-wide assessment of Indonesia's plastic value chain: Mapping flows and stakeholders dynamics. *Journal of Cleaner Production, 520*, Article 146082. https://doi.org/10.1016/j.jclepro.2025.146082

Iacovidou, E., Gerassimidou, S., Wilson, D. C., Richter, J., Jobling, S., & Soedjono, E. (2025). System-wide assessment of Indonesia's plastic value chain: Mapping flows and stakeholders dynamics. *Journal of Cleaner Production, 520*, Article 146082. https://doi.org/10.1016/j.jclepro.2025.146082

Inas, J. (2020). Implementasi Peraturan Walikota Banjarmasin Nomor 18 Tahun 2016 tentang pengurangan penggunaan kantong plastik di Kota Banjarmasin tahun 2019. *As-Siyasah: Jurnal Ilmu Sosial dan Ilmu Politik, 5*(1), 14–22. https://doi.org/10.31602/as.v5i1.2937

Isfarin, N. N., Fara, M. E., Krisna, H. N., Machdani, S., & Munir, M. (2024). Microplastics in Indonesian land and aquatic environment: From research activities to regulation policies. *Marine Pollution Bulletin, 206*, Article 116813. https://doi.org/10.1016/j.marpolbul.2024.116813

Jakarta Provincial Government. (2019). *Peraturan Gubernur Nomor 142 Tahun 2019 tentang Kewajiban Penggunaan Kantong Belanja Ramah Lingkungan pada Pusat Perbelanjaan, Toko Swalayan dan Pasar Rakyat*. JDIH Provinsi DKI Jakarta.

https://jdih.jakarta.go.id/dokumen/detail/3851/peraturan-gubernur-nomor-142-tahun-2019-tentang-kewajiban-penggunaan-kantong-belanja-ramah-lingkungan-pada-pusat-perbelanjaan-toko-swalayan-dan-pasar-rakyat

Litaudon, V., & Chen, Y. (2023). Transforming existing local ecosystems to circular economy ecosystems for plastics: The case of the PlastiCity ecosystem. *Journal of Industrial Ecology, 27*(5), 1406–1419. https://doi.org/10.1111/jiec.13433

Ma'ruf, M. F., Muzaqi, A. H., & Ramadhani, G. T. (2025). Polycentric collaborative governance and circular economy in urban waste systems: Public value co-creation through CSR–community partnerships in Surabaya, Indonesia. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning, 9*(3), 408–421. https://doi.org/10.36574/jpp.v9i3.781

Maddalene, T., Youngblood, K., Abas, A., Browder, K., Cecchini, E., Finder, S., Gaidhani, S., Handayani, W., Hoang, N. X., Jaiswal, K., Martin, E., Menon, S., O'Brien, Q., Roy, P., Septiarani, B., Trung, N. H., Voltmer, C., Werner, M., Wong, R., & Jambeck, J. R. (2023). Circularity in cities: A comparative tool to inform prevention of plastic pollution. *Resources, Conservation and Recycling, 198*, Article 107156. https://doi.org/10.1016/j.resconrec.2023.107156

Martono, D. N., Agustina, H., & Hakim, M. F. (2023). Policy evaluation on the policy of reducing the use of single-use plastic bags (City of Banjarmasin). *The International Journal of Science & Technoledge, 11*(6). https://doi.org/10.24940/theijst/2023/v11/i6/ST2306-013

Ministry of Environment and Forestry. (2019). *Regulation of the Minister of Environment and Forestry No. P.75/2019 on the roadmap for waste reduction by producers*. Government of Indonesia. https://leap.unep.org/en/countries/id/national-legislation/moef-decree-no-p752019-roadmap-waste-reduction-producers

Ministry of National Development Planning/National Development Planning Agency (Bappenas). (2023). *Roadmap of SDGs Indonesia*. https://sdgs.bappenas.go.id/website/wp-content/uploads/2023/11/Final-Roadmap-Eng.pdf

Nugroho, D. D. (2024). Decision making analysis of plastic bag use reduction policy in Surabaya City. *JPASDEV: Journal of Public Administration and Sociology of Development, 5*(2), 749–759. https://doi.org/10.26418/jpasdev.v5i2.78963

Pambudi, N. F., Simatupang, T. M., Samarakoon, S. M. K., Mulyono, N. B., Ratnayake, R. M. C., & Okdinawati, L. (2025). Enhancing public participation in plastic waste management for a sustainable circular economy: Insights from Indonesia. *Journal of Material Cycles and Waste Management, 27*(5), 3366–3389. https://doi.org/10.1007/s10163-025-02294-5

Prabawati, A., Frimawaty, E., & Haryanto, J. T. (2023). Strengthening stakeholder partnership in plastics waste management based on circular economy paradigm. *Sustainability, 15*(5), Article 4278. https://doi.org/10.3390/su15054278

Ramadhanti, F., Suryandaru, R., & Amelia, N. (2024). Green purchase behavior in circular packaging: The case of young consumers in Indonesia. *Cleaner and Responsible Consumption, 14*, Article 100208. https://doi.org/10.1016/j.clrc.2024.100208

Ramli, A. H. M., Manaf, L. A., Zulkeflee, Z., & Andriyono, S. (2024). Advancing circular economy approaches in plastic waste management: A systematic literature review in developing economies. *Sustainable Production and Consumption, 51*, 420–431. https://doi.org/10.1016/j.spc.2024.08.018

Ratnawati, R. V., Wijoyo, S., Purwono, R., Rahmah, M., & Permanasari, T. (2026). Indonesia's circular economy framework for plastic waste: Policy design to attain self-sufficiency in recyclable materials. *Journal of Law, Environmental and Justice, 4*(1), 245–277. https://doi.org/10.62264/jlej.v4i1.270

Ratnawati, R. V., Wijoyo, S., Purwono, R., Rahmah, M., & Permanasari, T. (2026). Indonesia's circular economy framework for plastic waste: Policy design to attain self-sufficiency in recyclable materials. *Journal of Law, Environmental and Justice, 4*(1), 245–277. https://doi.org/10.62264/jlej.v4i1.270

Ruysschaert, B., Kuppens, T., & Crutzen, N. (2026). A contextual analysis of local governments' strategies for circular economy policies. *International Review of Administrative Sciences, 92*(2), 251–271. https://doi.org/10.1177/00208523251371613

Sari, M. M., Ulhasanah, N., Suryawan, I. W. K., Rahman, A., Suhardono, S., & Lee, C.-H. (2026). Socio-economic embeddedness of importance-performance analysis of single-use plastic

limitation policies: Policy perspectives in plastic segregation for the circular economy. *Waste Management Bulletin, 4*(3), Article 100315. https://doi.org/10.1016/j.wmb.2026.100315

Satori, M., Hindersah, H., Burhanudin, H., Januarita, R., Purnamasari, P., Hernawati, R., Patricia, V. M., & Miftahadi, M. F. (2024). Material flow and economic analysis of Wantilan Recycling Center promoting circular economy principles. *Jurnal Presipitasi: Media Komunikasi dan Pengembangan Teknik Lingkungan, 21*(3), 722–733. https://doi.org/10.14710/presipitasi.v21i3.722-733

Surabaya City Government. (2022). *Peraturan Wali Kota Surabaya Nomor 16 Tahun 2022 tentang Pengurangan Penggunaan Kantong Plastik di Kota Surabaya*. JDIH Kota Surabaya. https://jdih.surabaya.go.id/peraturan/4103

Suryawan, I. W. K., Suhardono, S., Sari, M. M., & Septiariva, I. Y. (2024). Waste recycling processing in Indonesian tourist attractions: Problems and challenges of implementing legal policies restricting plastic use. *Jurnal Ilmu Lingkungan, 22*(4), 1067–1077. https://doi.org/10.14710/jil.22.4.1067-1077

Zahra, C. A., Billa, Z. S., Puspita, L. A., Nabilah, S. A., Tauran, & Sumarsyah, W. (2026). Antara regulasi dan realitas: Evaluasi kebijakan pengurangan kantong plastik di Kota Surabaya. *Al-Zayn: Jurnal Ilmu Sosial & Hukum, 4*(3), 7349–7357. https://doi.org/10.61104/alz.v4i3.6348

Zahrah, Y., Yu, J., & Liu, X. (2024). How Indonesia's cities are grappling with plastic waste: An integrated approach towards sustainable plastic waste management. *Sustainability, 16*(10), Article 3921. https://doi.org/10.3390/su16103921