

Advancing Organic Waste Management in Quezon City, the Philippines

A Regulatory Barriers Analysis



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About Us



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Key Takeaways

Advancing Organic Waste Management in Quezon City, the Philippines: A Regulatory Barriers Analysis

Improving organic waste diversion can unlock major environmental, public health, and economic benefits. Quezon City is well-positioned to capture these gains, given its high organic waste fraction and long-standing policy frameworks that establish the basis for effective waste management, including the Ecological Solid Waste Management Act of 2000 (RA 9003) and corresponding local ordinances.

Despite these frameworks, regulatory and implementation gaps remain. These gaps have led to a substantial share of organic waste continuing to be landfilled, driving methane emissions and contributing to odor, pests, drain blockages, and flooding.

Many cities encounter similar barriers as they work to improve organic waste treatment. This analysis draws from successful strategies to offer policy recommendations that can support Quezon City in strengthening and expanding its organic waste management systems.

01

Existing policy frameworks lay the foundation for solid waste management, but stronger enforcement standards, performance monitoring, and compliance mechanisms are necessary

02

Coordinating and expanding centralized and decentralized **waste collection and treatment infrastructure** is essential to process the full volume of waste generated

03

Expanded **waste collection coverage** and more **resilient infrastructure** deliver important local benefits beyond waste management, such as reduced susceptibility to flooding

04

Bridging the **technical capacity** gaps at barangays and markets is critical for reliable, safe, and sustainable waste treatment operations

05

Developing **cost-recovery models** and creating **end markets** for waste-derived products are necessary to improve the scale and financial sustainability of waste treatment facilities

Introduction

Quezon City, the most populous city in Metro Manila, generates approximately 3,000 metric tons of municipal solid waste (MSW) daily, nearly half of which is organic.¹ Despite the city's commitments to environmental protection and waste management improvement, including the implementation of the National Ecological Solid Waste Management Act of 2000 (RA 9003), which mandates source segregation of organics and decentralized waste treatment, a significant share of organic waste still ends up at the landfill, where it decomposes anaerobically and produces harmful pollutants including methane, a potent greenhouse gas.²

Uncollected or poorly managed organic waste also contributes to local challenges, including odor, roadside littering, flooding, and pests, which disproportionately affect areas with limited access to waste collection and treatment services. Improved organic waste diversion is therefore critical to achieving national and local climate and waste management goals.

A note on terms

Organic waste and biodegradable waste: In the Philippines, organic waste is more commonly used in food and agriculture, while biodegradable waste is more widely used in waste characterization studies, public information campaigns, and labeling of waste bins. In this publication, organic waste refers to waste that can undergo biological treatment, such as composting and anaerobic digestion, for resource recovery. References to local laws, regulations, and official guidance documents retain the term "biodegradable waste" to reflect local policy language.

Material Recovery Facilities (MRFs): According to Philippines national policy, MRFs shall include drop-off centers, transfer or sorting stations, and facilities for composting and recycling.³ In practice, however, there is substantial variation in the equipment, functions, and level of service provided at barangay and school MRFs. In this publication, this term is used in line with its legal definition, while discussion of infrastructure and operational improvements reflects observed conditions on the ground.

Audience

This report is intended for waste management officials, policymakers, and regulators in Quezon City and other cities in Metro Manila, who are seeking to improve waste management practices and increase waste diversion from dumpsite and landfills.

Scope

This regulatory barriers analysis examines factors that may hinder the effective management of organic waste and provides recommendations to strengthen policy and regulatory frameworks that support waste diversion and resource recovery.

While grounded in the broader waste management hierarchy, which highlights waste prevention as the top priority, this report focuses on managing organic waste after generation, specifically through diversion from final disposal and resource recovery.

Goals

This report identifies key challenges that constrain organic waste diversion in Quezon City and outlines tailored policy recommendations to address them. In doing so, it seeks to support policymakers and regulatory agencies in strengthening the enabling environment for organic waste management, with associated benefits for public health, environmental protection, and local economic opportunities.

01

Overview of Solid Waste Management in Quezon City



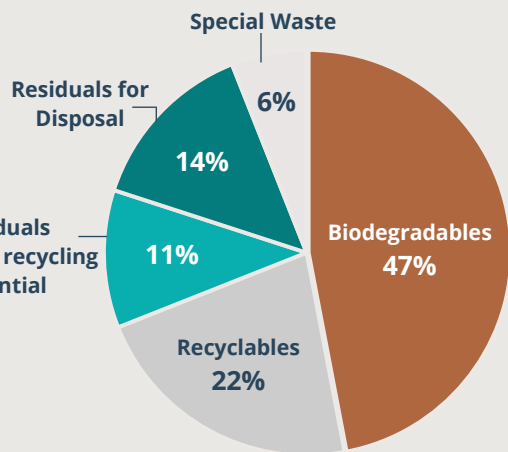
MSW management landscape in Quezon City



Generation

Home to over 3 million residents, Quezon City **generates more than 1 million tons of waste each year**, making it the second-highest per capita waste generator among Metro Manila cities.⁴ **Nearly half of this waste is biodegradable**, highlighting the potential for organic waste treatment.⁵

MSW composition in Quezon City



RMI Graphic. Source: MMDA, Waste Analysis and Characterization Study for Quezon City, 2023



Collection & transport

In Quezon City, about 1,800 metric tons of waste is collected daily.⁶ The schedule and efficiency of waste collection vary by jurisdiction. Although segregated collection is required, mixed waste collection is also common.⁷

Waste collection is a shared responsibility between the city and barangays, with barangays mainly responsible for collecting biodegradable waste for treatment. Many areas outsource solid waste management, including collection, disposal, street sweeping, or even education and enforcement to the private sector through the Package Clean-Up Collection System.⁸

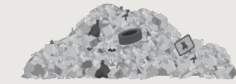


Recovery & treatment

The Department of Sanitation and Cleanup Works of Quezon City (DSQC) reported an average waste diversion rate of 70% in 2025, **covering both biodegradable waste and traditional recyclables**. Notably, this metric captures waste sent to material recovery facilities (MRFs), while data on the proportion of biodegradable waste effectively treated through composting and anaerobic digestion are not available.⁹

The city's primary diversion strategies include recycling, through both formal programs, like the Trash to Cashback program, and the informal sector.¹⁰ Composting is primarily conducted by barangays and the city, along with local businesses that promote home composting. Other technologies deployed include biodigesters and black soldier fly farming.¹¹

Per MMDA, as of 2023, **65 out of the city's 142 barangays operate an MRF**, but in practice, the infrastructure and services provided vary. scale and definition vary.¹² Additionally, a **centralized MRF** at Barangay Payatas **services all barangays**.¹³ Beyond that, the 2022 Zero Waste Initiative supports **rapid composting at public markets**.¹⁴



Disposal

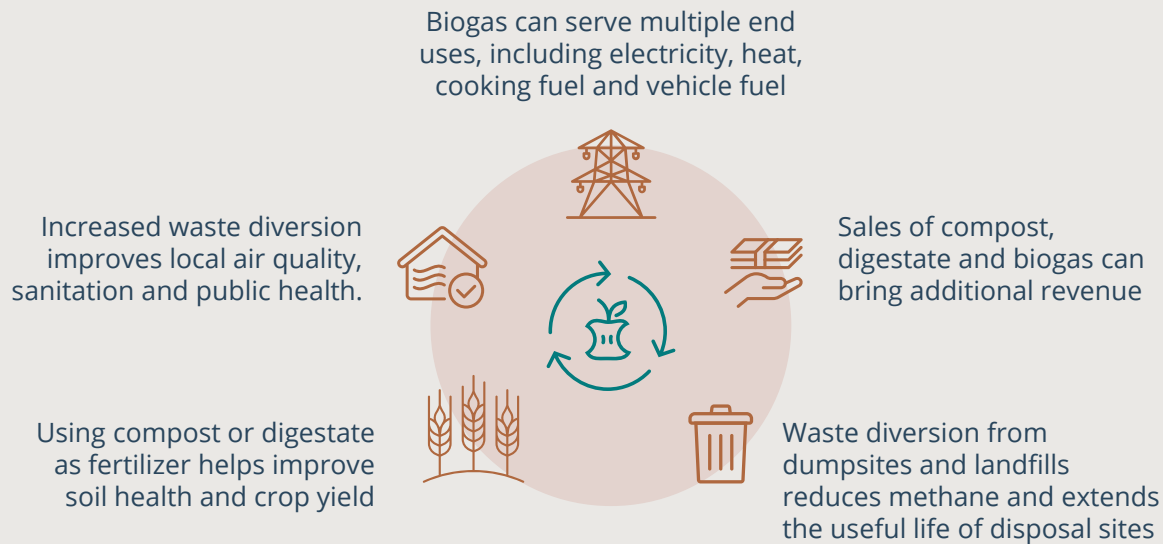
Since the closure of the Payatas Landfill in 2017, the **Rizal Provincial Sanitary Landfill has become the primary disposal facility** of residual waste from Quezon City.¹⁵ Waste is transported to the landfill from transfer stations by private haulers.¹⁶ Despite ongoing waste diversion efforts, **significant amounts of organic and recyclable waste continue to be disposed of at the landfill today**.

Despite being banned by law, open dumping and backyard burning of waste still occur in some areas, which contribute to air pollution and local flooding.¹⁷

Organic waste treatment yields wide-ranging benefits and supports national and subnational targets

Organic waste, such as kitchen scraps and yard trimmings, makes up half of Quezon City's waste stream.¹⁸ When decomposing anaerobically at landfills, it releases methane, a potent greenhouse gas. However, through resource recovery, using composting or anaerobic digestion technologies, this waste can turn into valuable end products like compost and biogas, which brings wide-ranging benefits. With ample organic waste available, a foundational solid waste management policy framework, and growing end markets, Quezon City is primed to continue improving its organic waste management practices to reduce emissions and advance environmental goals at both local and national levels.

Benefits of organic waste treatment



National waste goals: The Philippines

Emissions mitigation: In 2021, the Philippines signed onto the Global Methane Pledge, a commitment to reduce global methane emissions by at least 30% by 2030 relative to 2020 levels. Additionally, its latest Nationally Determined Contribution aims to reduce 75% of cumulative GHG emissions by 2030 from BAU (3% unconditional, 72% conditional). The waste sector is expected to fulfill 7% of this total reduction.¹⁹

Waste diversion: The 2019 National Strategy to Reduce Short-Lived Climate Pollutants from the Municipal Solid Waste Sector in the Philippines sets composting targets of 24.3% by 2030, and 37.1% by 2040, and aims to achieve a 56% biogas to energy utilization by 2040.²⁰

Subnational waste goals: Quezon City

Emissions mitigation: Quezon City aims to reduce its GHG emissions by 30% by 2030, with an overarching goal of carbon neutrality by 2050.²¹

Waste diversion: According to DSQC, the city had a 2025 waste diversion target of 67.5% **across both traditional recyclables and biodegradable waste.**²²

Organic waste treatment technologies deployed in Quezon City: **Composting**

Feedstock: Residential and market waste such as food waste, vegetable scraps, fish waste, charcoal, and sawdust.

Scale: Ranges from household and market-level systems to centralized city operations, often integrated into Material Recovery Facilities.

End product: Compost is an organic soil amendment used on local farms and community gardens in place of chemical fertilizers to improve soil fertility

Offtakers: Organic farms, urban gardens, community gardens, and households, in some cases, also used by barangays for landscaping and greening public spaces



PROJECT EXAMPLE

Kamuning Market's on-site composting system

At Kamuning Market in Quezon City, vendors are required to segregate biodegradable, non-biodegradable, and recyclable waste into color-coded bags, in line with RA 9003. For years, a private waste collector was contracted to pick up the segregated waste and deliver it to a designated collection point, where two garbage trucks would haul it off-site every day.²³

To address the heavy reliance on external hauling and reduce the volume of waste sent to disposal, Quezon City's Market Development and Administration Department introduced on-site composting under its Zero Waste Public Market Project. A composting facility was installed in the market to process mostly vegetable and fish scraps, with some charcoal and sawdust. The equipment runs twice a day and handles 100 kg per cycle, producing compost in about three days, including curing time. The compost produced is collected monthly by the hauler and distributed to urban farms in Quezon City eventually.²⁴

As of 2022, although the processing capacity of the compost facility is insufficient to handle the volume of organic waste generated at the market, the initiative was able to cut the amount of waste transported off-site by roughly half. By bringing waste treatment closer to the point of generation, the project has demonstrated a scalable model for decentralized composting in urban markets.²⁵

Organic waste treatment technologies deployed in Quezon City:

Anaerobic Digestion

Feedstock: Food and kitchen waste from households, public markets and eateries, farm waste like vegetable scraps, and animal waste, although this is less common.²⁶

Scale: Mostly small-scale, processing 20–100 kg/day of waste. Pilots have been implemented in barangays and schools, often through partnerships with NGOs or development programs.²⁷

End product: Biogas is used locally for cooking or heating, such as in barangay kitchens. Digestate is a by-product used occasionally as fertilizer in local gardens or green spaces.²⁸

Offtakers: Local farms, community gardens, and households, in some cases. Also used by barangays for landscaping and greening public spaces.²⁹



PROJECT EXAMPLE

Food waste on wheels

To improve organic waste management, Quezon City partnered with UNDP and the Japan International Cooperation Agency to launch the Food Waste on Wheels initiative in 2023. The program deploys battery-powered electric tricycles to collect segregated food waste from selected barangays, including Kamuning, Batasan Hills, Libis, and Payatas. The collected material is delivered to small-scale biodigesters installed within communities or at the Joy of Urban Farming demonstration site.³⁰

As of 2025, a total of 25 biodigesters have been deployed under the initiative, each able to process 25-50 kilograms of food waste daily.³¹ The systems are intended to manage organic waste at the household or barangay level, targeting both residential and commercial food waste generators. The biogas produced is intended for on-site cooking, although actual usage has not yet been documented. The digestate can be applied as fertilizer in local gardens and urban farms.³²

While the impact of the program is still to be evaluated, the initiative is estimated to help reduce the volume of organic waste transported to landfills and support Quezon City's waste diversion goals.³³ As this program continues its operation, it offers a replicable model for decentralized organic waste management in dense urban areas.

Organic waste management involves various stakeholders across the value chain



Waste generators (households, markets, institutions)

- Comply with source segregation requirements and proper waste storage under national and Quezon City regulations
- Participate in barangay-level waste diversion systems, including household or community composting, where available
- Use waste-derived products such as compost, biogas, and digestate
- Participate in public information and awareness campaigns on waste segregation and organic waste treatment



Government agencies

- Provide regulatory oversight across the value chain to ensure compliance with organic waste management policies
- Develop and implement policies, guidelines, and public awareness programs to support barangay-level organic waste management
- Support composting and anaerobic digestion markets through funding, incentives, and infrastructure deployment, including promoting the use of compost as organic fertilizer in agriculture
- Collaborate with NGOs and the private sector to advance source segregation and organic waste treatment policies and initiatives



Industry and private sector

- Deliver contracted waste collection and hauling services through the Package Clean-Up Collection System
- Provide technology, equipment, or services for composting and anaerobic digestion projects
- Support end-market development for organic waste-derived products by acting as offtakers, service providers, or investors in organic waste management projects



Financial institutions

Provide financing to support capital investments and operational improvements in organic waste management projects



Research institutions and NGOs

- Conduct community outreach and public awareness programs on source segregation and organic waste treatment practices
- Pilot and evaluate organic waste treatment technologies and delivery models, and provide technical assistance for implementation and scaling
- Share organic waste management best practices, including improved infrastructure design and inclusive approaches
- Collaborate with government agencies to support waste diversion programs

Existing policy and regulations set the foundation for organic waste management in Quezon City

DSQC is the lead department responsible for solid waste management in Quezon City, overseeing program implementation and local regulatory compliance. Other national and subnational agencies also support defined functions within the city's waste management system, as summarized below. Note that this is meant to provide an overview of policy and regulations pertaining to organics diversion, and not all waste management related policies.



Cross-cutting policies and regulations

Local planning

- Local government units (LGUs) are required to develop Solid Waste Management Plans that align with national frameworks and focus on implementation

Stakeholder awareness and capacity building

- Educational campaigns are to be conducted to promote resource recovery

Monitoring and enforcement

- Barangays are expected to regularly monitor and report MRF data, such as compost production and operational expenses, to the Barangay Solid Waste Management board/committee and EPWD
- Enforcement mechanisms include penalties, fines, and refusing the collection of non-segregated waste
- Deputized Sanitation Enforcement Agents, authorized members of DSQC, and Department of Public Order and Safety are responsible for issuing Environmental Violation Receipts for violations of the local environmental code.

Finance

- Barangays are required to cover the expenses related to their MRF.
- LGUs are expected to identify markets for waste-derived products.
- The government is directed to provide financial incentives to support waste diversion

Key governing bodies for organic waste management in Quezon City

DSQC is the lead department responsible for solid waste management in Quezon City, overseeing program implementation and local regulatory compliance. Other national and subnational agencies also support defined functions within the city's waste management system, as summarized below.

National governing bodies

Responsible for setting national solid waste management policies and standards, providing technical guidance, approving LGU plans, and providing oversight.

Key governing bodies	Role
National Solid Waste Management Commission (NSWMC)	Sets national solid waste policy; approves LGU solid waste management plans; mandates solid waste segregation and diversion. ³⁴
Department of Environment and Natural Resources Environmental Management Bureau (DENR EMB)	Monitors RA 9003 compliance; issues environmental permits and technical guidance on waste management. ³⁵
Department of Agriculture (DA)	Promotes, regulates, and supports the use of compost. ³⁶
Department of the Interior and Local Government (DILG)	Ensures LGU compliance with waste management mandates; issues policy circulars; provides technical assistance. ³⁷
Department of Agriculture – Regional Field Office (DA-RFO)	Supports barangay composting and monitors market development for organic fertilizers. ³⁸
Department of Science and Technology (DOST)	Supports research and development of waste treatment technologies. ³⁹
National Organic Agriculture Board (NOAB)	Regulates standards and promotes use of organic inputs, including compost, for farming. ⁴⁰
National Congress	Passes enabling laws on waste, circular economy, and climate-related frameworks. ⁴¹

Sub-national governing bodies

Responsible for planning, implementing, and enforcing local solid waste management programs, including budgeting, collection oversight, permitting, and local ordinances.

Key governing bodies	Role
Metropolitan Manila Development Authority (MMDA)	Coordinates disposal operations for Metro Manila, including contracting, overseeing transport to disposal facilities, manages transfer stations. ⁴²
Department of Sanitation and Cleanup Works of Quezon City (DSQC)	Leads day-to-day citywide sanitation and waste management and compliance, including overseeing city contracted waste haulers, issuing sanitation permits, and conducting IEC campaigns. ⁴³
Quezon City Climate Change and Environmental Sustainability Department (CCESD)	Integrates organic waste management into climate plans and tracks methane emissions. ⁴⁴
City Council	Passes local ordinances (e.g., “No Segregation, No Collection”); allocates city budget for waste and climate programs. ⁴⁵
Barangay Solid Waste Management Committees (BESWMC)	Implements household-level segregation and composting; manages MRFs and fees; enforces barangay rules. ⁴⁶



02

**Opportunities to Improve Organic
Waste Management and Increase
Waste Diversion in Quezon City**

While current policies lay the foundation for waste management, implementation gaps remain

In the last two decades, the introduction of national and subnational laws and policies has led to meaningful progress in the segregation, collection, and treatment of organic waste in Quezon City. However, progress has been uneven, with continued challenges related to consistent source segregation and the availability and scale of organic waste treatment facilities.

Past Successes

Enactment of the national legal framework (RA 9003) that mandates segregation and barangay-level treatment⁴⁷



Deployment of anaerobic digestion pilot projects and widespread deployment of composting technology in Quezon City



Improved public awareness on source segregation of organic waste through Communication and Information Campaigns (CIC)⁴⁸



Areas for Progress

Implementation and enforcement of RA 9003 across barangays, including limiting organic waste sent to dumpsites and landfills



Waste treatment capacity and operational efficiency

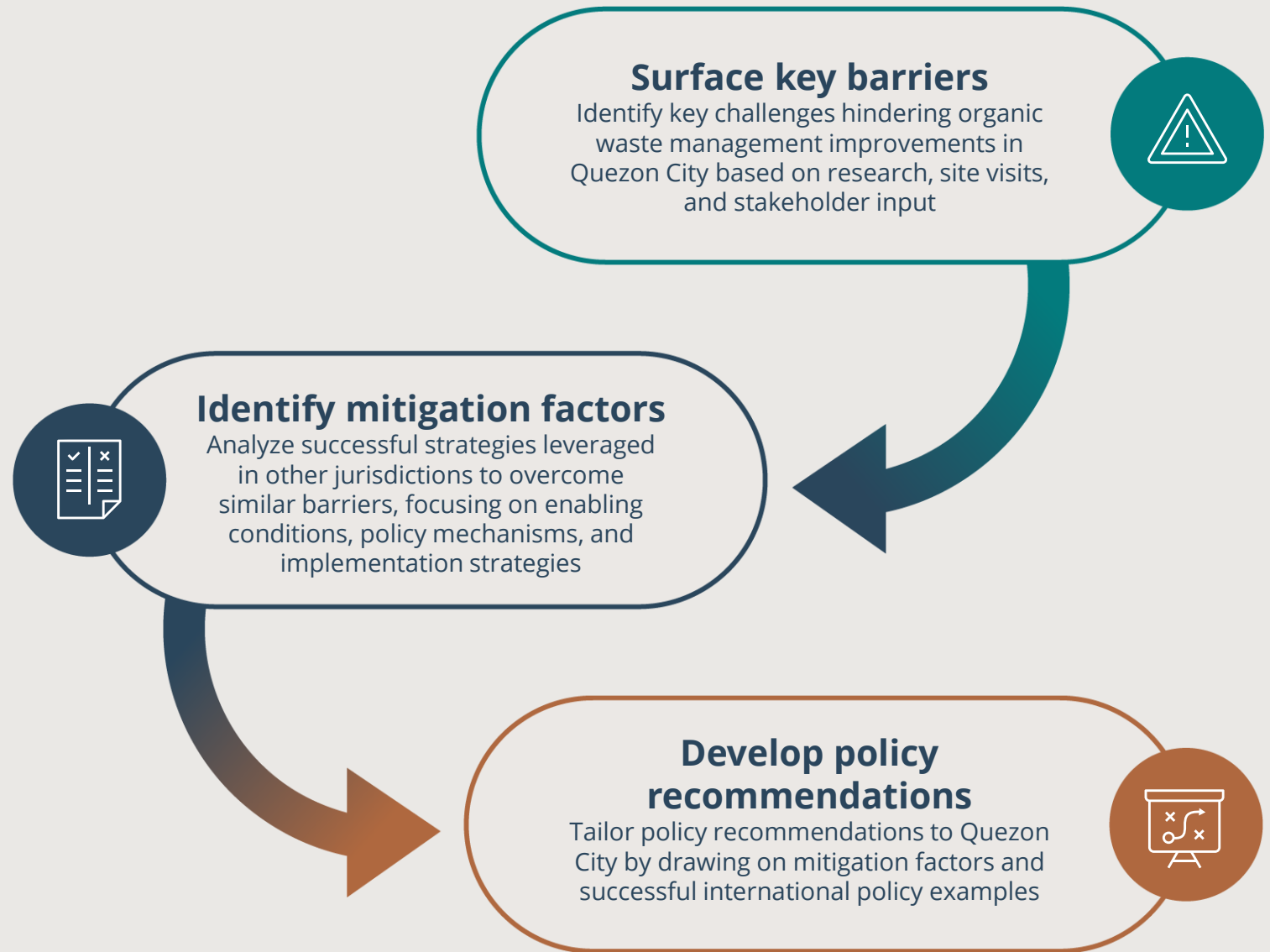


Cost recovery for waste treatment and end market for waste-derived products



From barriers to recommendations: Analytical approach to improving organic waste management in Quezon City

Quezon City has made strides in managing organic waste in line with its climate and environmental goals. However, challenges continue to limit further improvement. To help advance the city's efforts, we examined key barriers and identified mitigation factors that could address them. Drawing on international examples from countries that are further along in tackling similar issues, we highlight how policy measures can be adapted to Quezon City to overcome local constraints and accelerate waste diversion.



Challenges slowing Quezon City's organic waste management progress

Below, we present key challenges that slow Quezon City's progress in organic waste management, along with their corresponding drivers. These insights were informed by stakeholder consultation, site visits and desktop research. Stakeholders consulted include representatives from MMDA, Quezon City government, local NGOs, facility operators, barangays and financial institutions.

Key challenges	Potential driving factors
Limited source segregation of organic waste	<ul style="list-style-type: none">• Weak enforcement: While RA 9003 prohibits the collection of unsegregated waste, insufficient enforcement and public demand for uninterrupted waste collection often lead to waste haulers collecting unsegregated waste to prevent service interruptions. Additionally, there are no mechanisms to penalize non-compliance or refuse the collection of mixed waste.• Perverse incentives to collect mixed waste: Private waste hauler contracts in Quezon City are typically volume-based, which can incentivize mixed waste collection, or even re-mixing segregated waste to increase volume sent to the disposal sites and thereby discourage residents from segregating their waste.• Lack of motivation and awareness for source segregation: Waste generators often don't recognize the importance of source segregation and the benefits of treating organic waste. As household waste collection and disposal are provided at no cost to residents, there are no direct economic incentives to encourage segregation. Additionally, household bins and containers used to segregate organic waste are not typically optimal for preventing pests and odor from decaying food waste, which can discourage waste generators from segregating organic waste at the source.
Insufficient infrastructure capacity for organic waste management	<ul style="list-style-type: none">• Resource constraints: Barangays are primarily responsible for managing their organic waste, but many lack sufficient funding, equipment, and data collection systems to support the segregated collection, transportation, and treatment of the full volume of waste generated. Dense urban development and high land cost further limit storage space for collected organic waste. Once MRFs reach capacity, excess organic waste is often disposed of at the landfill.
Insufficient technical capacity	<ul style="list-style-type: none">• Limited local technical experience: There is a shortage of local technical expertise to operate, maintain, and optimize organic waste treatment facilities like biogas and BSF systems, partially due to limited large-scale local precedents of such projects. These gaps can result in poor system performance, longer downtime, and underutilization of existing facilities, increasing perceived risks for investors and hindering technology scaling.• Weak institutionalization of knowledge: Even when technical training is provided during project implementation, the associated expertise is often not retained within day-to-day operations by local staff. High staff turnover, limited oversight, and reliance on short-term external assistance limit effective knowledge transfer, increasing operational risk once initial support ends.

Challenges slowing Quezon City's organic waste management progress (continued)

Key challenges	Potential driving factors
<p>Poor cost recovery</p>	<ul style="list-style-type: none"> • Weak end markets for organic waste-derived products: Most waste-derived products beyond compost lack clear quality standards and enabling incentives, limiting their commercial viability. For compost, low awareness of its benefits and applications, compared to conventional alternatives, constrains demand, contributing to revenue uncertainty. • Limited Barangay funding: RA 9003 assigns barangays the responsibility for local organic waste treatment, but in many cases, their budget cannot accommodate the full cost of infrastructure, staffing, monitoring, and maintenance needs, further undermining cost recovery.
<p>Flood-related disruption to waste management systems</p>	<ul style="list-style-type: none"> • Siting facilities in flood-prone areas with inadequate design: Organic waste treatment sites are often located in low-lying, flood-prone areas without climate-resilient design, increasing their vulnerability to damage, such as waterlogged soil and contamination, during extreme weather events. • Disruptions to waste collection services: Floods and other storm events can damage waste collection equipment or block roadways, delaying waste collection, causing waste to accumulate on streets and clogged drainage systems as waste is swept away by floodwater.⁴⁹
<p>Limited informal worker inclusion</p>	<ul style="list-style-type: none"> • Limited access to organic waste management roles: While there are work opportunities for waste pickers in plastics recycling, comparable employment opportunities in organic waste management, including secondary sorting and treatment operations, are generally limited. Informal waste workers are rarely included in barangay or LGU-run MRFs, representing a missed opportunity to leverage their local knowledge and undermining the overall efficiency and inclusiveness of the waste management system.⁵⁰ • Institutional and policy exclusion: Informal waste workers play a critical role in recovering organics and recyclables from streets, markets, and neighborhood collection points, but their work occurs largely outside of the formal waste management system. Therefore, their contributions are often undervalued or even perceived as disruptive by local authorities and private waste companies. The absence of formal integration mechanisms, such as cooperatives, contracts, or partnerships, prevents their inclusion in formal organics management programs.⁵¹

Limited source segregation of organic waste

Despite regulatory requirements, source segregation of organic waste in Quezon City remains uneven. Waste collection schedules are not always followed, and mixed waste collection continues in some barangays, resulting in increased contamination of organic feedstock, hindering waste diversion and treatment. Below, we highlight some factors that have improved source segregation in other jurisdictions and share a case study of South Korea to demonstrate how these interventions can be applied.

Mitigation Factors

Incentives and enforcement mechanisms: Pairing economic incentives, like pay-as-you-throw and performance-based funding, with enforcement mechanisms, such as routine inspections, recognitions or awards, and penalties, can strengthen compliance with source segregation laws. Additionally, outcome-based payment, as opposed to volume-based contracts, can provide financial incentives for waste haulers to prioritize collecting source-segregated waste over maximizing total tonnage.⁵²

Accessible and user-friendly source segregation systems: Straightforward and well-designed procedures can lower the barriers to compliance for source segregating organic waste. Color-coded bins or bags, consistent collection schedules, and public drop-off points offer clarity and predictability for waste generators. System design should also account for space constraints and accessibility needs to support inclusive participation.⁵³

Community engagement and outreach: Public engagement through capacity-building workshops and incentive-based recognition, such as cash prizes, can raise awareness, promote compliance, and foster lasting behavioral change. Leveraging local leaders or trusted figures to model desired behavior is critical to securing collective buy-in.⁵⁴

Reliable data collection and analytics: Regular and high quality data collection through surveys, audits, or digital tools can uncover behavioral patterns and drivers of low compliance while enabling real-time monitoring to inform tailored and adaptive approaches for stronger source segregation.⁵⁵

Source Separation at Scale: South Korea's Food Waste Policy

South Korea has been recognized as a leader in organics management, increasing its food waste recycling rate from just 2.6% in 1996 to nearly 100% today.⁵⁶ A major turning point came in 2005, when the government implemented a **nationwide ban on landfilling food waste**, creating regulatory pressure to adopt treatment alternatives.⁵⁷ This policy was complemented by the rollout of a **mandatory source separation system**, requiring households and businesses to separate food waste at the point of generation.⁵⁸

To support this transition, the government introduced the **Volume-Based Waste Fee System**—a pay-as-you-throw scheme that charged residents based on the amount of food waste they dispose of. Residents are required to purchase **designated yellow compostable bags** labeled specifically for food waste.⁵⁹ These bags come in multiple sizes, giving residents options ranging from \$0.07 for 1-liter to \$1.44 for 20-liter bags, providing an **economic incentive** to properly segregate waste and reduce disposal.⁶⁰

The standardized bag color, simple instructions, and regular curbside pick up all ensured ease of participation. In many apartment buildings, **automated bins with radio frequency identification technology** weighed waste and directly linked charges to each household, reinforcing individual accountability.⁶¹ This system also enabled **real-time usage data tracking**.

Importantly, the government paired these measures with **public outreach campaigns**, helping to build a culture of awareness and compliance around food waste recycling. South Korea's experience offers a model for how integrated policy, clear incentives, strong enforcement, and public engagement can improve source segregation of organic waste and reduce waste disposal.

Insufficient infrastructure for organic waste treatment

Organic waste makes up half of Quezon City's waste stream, yet many barangays don't have sufficient collection, storage, and treatment infrastructure to manage all of the organic waste generated. As a result, even source-separated organics often end up in landfills, which hinders the city's ability to reap the diverse benefits of resource recovery. Below we highlight some factors that have enabled infrastructure expansion in other jurisdictions and share a case study of Mexico City to demonstrate how some of these interventions can be applied.

Mitigation Factors

Separate targets for key waste streams and bulk generators: Instead of a single citywide diversion goal, setting specific targets for key waste streams like organics and plastics and for bulk waste generators like households, and markets, helps pinpoint performance gaps and direct financial and technical resources to where they are needed most.⁶²

Treatment infrastructure and capacity planning: Periodically assessing organic waste treatment capacity can support more efficient infrastructure planning and utilization. These assessments involve forecasting organic waste generation, comparing it with current processing capacity, and identifying gaps. Results can inform where to site, optimize, and scale infrastructure, and help connect feedstock with available treatment capacity.⁶³

Standardization and expansion of storage infrastructure: Adequate storage infrastructure at all waste collection points and treatment facilities can prevent overflow and contamination. Standardized, well-sealed containers help preserve feedstock quality and reduce the risk of public aversion, which often occurs due to odors and visible roadside waste.⁶⁴

Strategic partnerships to expand treatment options: Where government-led expansion is limited by technical or budgetary constraints, partnerships with private haulers and technology providers can expand organic waste collection and treatment capacity. These collaborations can promote quicker technology deployment for barangays and bulk waste generators that lack on-site waste infrastructure.⁶⁵

Improving Waste Treatment Infrastructure in Mexico City

Mexico City's waste treatment relies on a small network of facilities, with the Bordo Poniente Composting Complex as the largest, currently processing 10%-20% of the city's organic waste.⁶⁶

To support expanded organics recovery, the city adopted the Comprehensive Waste Management Program 2021–2025. The program **mandates diagnostics of waste flows, regular capacity assessments, and the registration of waste management plans for bulk waste generators** such as markets, hotels, restaurants, and hospitals.⁶⁷ These differentiated obligations ensure that they document how organic waste is managed, creating accountability and **collecting data to identify capacity gaps and inform new infrastructure siting.**

In parallel, Mexico City has committed to **additional public funding and financing through public-private partnerships** to modernize and expand recycling and recovery infrastructure in its Circular Economy Strategy, which includes upgrading Bordo Poniente and developing new treatment facilities, aiming to achieve 50% waste diversion.⁶⁸

Standardization plays an equally important role. The Environmental Standard NADF-024-AMBT-2013 requires all generators to **separate waste** into organics, recyclables, non-recyclables, hazardous, and bulky items, and establishes clear **requirements for containerization, collection, and on-site storage.**⁶⁹ This can help reduce contamination and ensure that facilities receive higher quality feedstock. The uniformity also facilitates collection schedule and route planning.

Together, these policy frameworks position the Bordo Poniente composting facility as the backbone of Mexico City's organics treatment, while enabling progress in expanding waste management infrastructure and reducing reliance on landfills.

Insufficient technical capacity

While Quezon City hosts several organic waste treatment facilities at markets and schools, limited local technical capacity can reduce operational efficiency, increase downtime, and constrain cost recovery. Below, we highlight some factors that have strengthened local technical capacity in other jurisdictions and share a case study of Singapore to demonstrate how some of these interventions can be applied.

Mitigation Factors

Clear operational guidelines and toolkits : Clear and tailored operational guidelines can strengthen day-to-day facility operations. Procedural standards, equipment and testing requirements, and troubleshooting protocols can support consistent O&M, reduce errors, and aid compliance with pollution control standards.⁷⁰

Knowledge sharing networks, and partnership: Where implementation capacity varies, knowledge-sharing platforms can facilitate peer learning and collective problem-solving by enabling the exchange of practical solutions across jurisdictions.⁷¹ Partnerships with businesses, NGOs, and academic institutions can also address skill gaps and support scalable deployment through hands-on training or vocational programs.⁷²

Integrating technical assistance into financing requirements: Local operational experience is often required to secure project finance. Integrating technical assistance into loans, grants, or PPP contracts addresses this by funding expert support for design, operator training, and knowledge transfer.⁷³

CASE STUDY

Singapore's Resource Recovery Act Enables Capacity Building

Singapore has relied on incineration with energy recovery to manage its waste, but food waste posed a persistent challenge. In 2021, the country only recycled 18% of its food waste generated.⁷⁴ Bulk waste generators such as hotels, hospitals, and factories have limited capacity to treat food waste at scale, and new buildings were rarely designed to integrate treatment systems on site.

To address this, Parliament amended the 2019 Resource Sustainability Act (RSA) in 2024, which **requires defined bulk waste generators to segregate and treat food waste** on-site.⁷⁵ Capacity building is central to this approach. The National Environment Agency (NEA) issued toolkits including **procedural standards, recommended technologies, and troubleshooting advice**, helping facilities maintain compliance and reduce operational failures.⁷⁶ NEA also **convened industry consultations and sector-specific workshops** with the Singapore Hotel Association and Retailers Association, creating platforms where businesses could share compliance strategies and discuss best practices from earlier pilots.⁷⁷ A **pilot in collaboration with National University of Singapore** trialed biodigesters at hawker centers, where **operators were trained directly on O&M, and specifically on troubleshooting**.⁷⁸ These pilots not only tested feasibility but also produced staff who could **transfer knowledge** to their team or even other sites.

Finally, the RSA **linked financing with technical assistance**. Through the 3R Fund, the NEA co-financed up to 80% of the systems' capital costs, and the financing package requires grant recipients to attend training sessions, ensuring that **financing directly supported O&M capacity** rather than just equipment procurement, benefitting long-term project sustainability.⁷⁹

Although at its early stages, these practices would allow local facility operators to build the technical know-how to improve food waste management and resource recovery in Singapore.

Poor cost recovery

Funding is a challenge in maintaining or scaling organic waste treatment facilities in Quezon City. Limited economic incentives further constrain the offtake and revenue potential of waste-derived products. While waste treatment is a public service in Quezon City, more stable revenue streams and stronger end markets can boost longer-term project sustainability. Below, we highlight some factors that have enhanced cost recovery in other jurisdictions and share a case study from the United States to demonstrate how some of these interventions can be applied.

Mitigation Factors

Quality standards and product certification: Clear standards, reliable certification, and labeling systems can help ensure the safety, quality, and consistency of waste-derived products, which builds customer trust, strengthens market acceptance and reduces perceived investment risk.⁸⁰

Financial Incentives: Financial incentives such as subsidies, tax credits, feed-in tariffs, and import duty exemptions for equipment can lower production cost and boost revenue. These mechanisms can improve the economic viability of composting and anaerobic digestion projects, lower barriers to market entry, and encourage private sector participation.⁸¹

Diversified revenue models : Developing multiple revenue sources, such as compost sales, service fees, or partnerships with urban agriculture and landscaping markets, can diversify risk and improve long-term cost recovery for organics waste treatment projects.⁸²

Secured offtake contracts : Longer term offtake agreements with municipalities, utilities, or private buyers can provide guaranteed demand for waste derived products. By securing predictable sales volumes and prices, these contracts reduce revenue volatility and strengthen project bankability. Targeted outreach to potential offtakers, such as farmers, landscapers, and fleet operators, can improve product awareness, supporting more durable purchasing agreements.

CASE STUDY

Improving Cost Recovery: California's Enforcement of SB 1383

Enacted in 2016, California's Senate Bill 1383 set **ambitious, binding targets** to reduce organic waste disposal by 50% by 2020 and 75% by 2025 from 2014 levels and **mandated universal organics collection** from all waste generators.⁸³ Unlike earlier policies focused on voluntary or phased-in recycling programs, SB 1383 introduced enforceable requirements tied to infrastructure capacity and compliance timelines.

To guide implementation, jurisdictions were required to conduct **waste characterization and capacity planning**, projecting organic waste generation and assessing available processing capacity and gaps.⁸⁴ Facilities could be in or outside the county, as long as processing capacity was contractually secured. This flexibility spurred **infrastructural investment at different scales based on local needs**. Between 2016 and 2022, the number of permitted organics treatment facilities statewide increased from about 150 to over 200.⁸⁵

The law also requires each jurisdiction to meet an **annual procurement target** for recovered organic products such as compost, mulch, or renewable natural gas, with a **specified quality standard** for each, and a requirement that the compost counted toward this target must be produced **at a certified facility**.⁸⁶ Allowing multiple end products to meet procurement helps **diversify revenue streams** based on local conditions. Alameda County exceeded its target by purchasing compost for landscaping and community giveaways—highlighting how **public procurement** can create reliable demand and support market growth.⁸⁷

As composters report rising demand and jurisdictions source products beyond their borders, California is beginning to see a **more connected and resilient market** for waste-derived products enabled by **well-enforced diversion mandates, a diversified revenue model, and demand-driven procurement**.

Flood-related disruption to waste management systems

In Quezon City, flooding both worsens improper waste management and magnifies its impacts. Uncollected or inadequately contained waste can clog drains or be swept into floodwater, spreading contamination and damaging waste management infrastructure. Protecting facilities from flooding is therefore critical. Below, we highlight some factors that have improved flood resilience of waste management systems in other jurisdictions and share a case study from Indonesia to demonstrate how some of these interventions can be applied.

Mitigation Factors

Adaptive site selection and design : Adaptation measures, like elevating organic waste storage or processing facilities, installing floodwater diversion, and using vegetation buffers, can reduce equipment damage due to flooding. When tailored to local flood risks, these measures can improve facility resiliency and reduce operational downtime after heavy rainfall.⁸⁸

Resilient infrastructure : Sealed collection containers, enclosed collection vehicles, and covered storage facilities can reduce damage and contamination from floodwater. Additional facility-level protections, such as elevated electrical panels, reinforced flooring and walls, and secondary containment barriers, further limit damage during floods, which can minimize service interruptions.⁸⁹

Frequent collection: More frequent waste collection, especially in flood-prone areas with limited road access, reduces the volume of organic waste exposed to floodwater, thereby lowering contamination risks and post-flood cleanup needs.⁹⁰

Timely preparation and maintenance : Routine flooding preparedness measures, such as testing early warning mechanisms and reinforcing weak structures, can help reduce flood damage and service interruptions. Following flood events, rapid inspections and timely repairs to storage areas, treatment units, and vehicles are essential to restoring service quickly and limiting further damage.⁹¹

CASE STUDY

Improving Resiliency of Waste Management Infrastructure in Indonesia

Similar to Quezon City, Indonesian cities experience seasonal flooding that interrupts the waste management systems locally. There has been a consistent effort to make waste infrastructure more resilient, especially those servicing neighborhood-scale composting, referred to as the TPS-3R systems.

In 2013, the Ministry of Public Works issued a Provision on Solid Waste Infrastructure, which legally defines TPS-3R and **requires siting proximity** to the neighborhoods it serves, shortening hauling distance and enabling **easier collection during extreme weather**.⁹² The provision also defines functional zones of the facility, including sorting, composting, storage, and a buffer zone, creating a nationwide baseline for resilient design. The follow-on Technical Guidance includes specifications on roofing, sloped flooring, and drainage channels that keep incoming wet waste protected from storms and manages stormwater runoff.⁹³ The guidance also directs planners to assess local **site suitability** so that infrastructure is less susceptible to extreme weather, preserving the quality of organic feedstock delivered to composting units.

To support implementation, cities translate the regulation into **site-level plans**, including **facility O&M routines, waste collection schedules, and contingency plans for pre-event preparedness and post-event service continuation**.⁹⁴ The combination of a **national infrastructure regulation, a technical guidance, and tailored local plans** helps ensure that flood considerations are comprehensive and baked in.

The result is scale. By 2021, Indonesia had 1,202 registered TPS-3Rs, and in 2023 alone, 260 additional TPS-3R sites were under construction, demonstrating a wider uptake of more resilient organic waste management infrastructure.⁹⁵

Limited informal worker inclusion

Informal workers play an important role in Quezon City's waste management by bridging service gaps and contributing valuable local knowledge. However, limited policy support for worker protection and skills development has restricted their access to opportunities in organic waste management, weakening income potential and slowing the scale-up of organic waste collection and treatment. While DENR's recent initiatives have improved support for informal workers, they primarily target traditional recycling. An expansion into organic waste management can further strengthen system performance and social inclusion. Below, we highlight some factors that have improved informal worker inclusion in other jurisdictions and share a case study from India to demonstrate how some of these interventions can be applied.

Mitigation Factors

Safe and open dialogue with informal workers: Regular dialogue between informal workers, their associations, and local authorities can reduce tensions and build trust, enabling structured engagement to identify "win-win" solutions such as pilot projects and joint needs assessments that improve local waste management and informal worker livelihoods.⁹⁶

Training opportunities: Training opportunities that build on current knowledge can enhance technical and crosscutting skills, including communication, recordkeeping, and collaboration. These programs can also demonstrate inclusive partnership models with waste treatment facilities and prepare informal workers for new and expanded roles.⁹⁷

Inclusive and secure work opportunities: As many informal workers value autonomy and flexibility, inclusive work opportunities for informal workers should feature transparent pricing and targeted benefits, such as safety equipment, better working conditions, easier access to microloans, and educational opportunities.⁹⁸

Policy instruments for inclusion and protection: Policy frameworks that recognize the roles and protect the rights of informal workers are essential for inclusive waste management systems. When co-developed with informal worker associations, these frameworks can help ensure representation, safeguards, and meaningful participation in organic waste management.⁹⁹

CASE STUDY

Policy Measures Enable Informal Waste Worker Inclusion in Pune, India

Similar to Quezon City, informal workers have long played an important role in Pune, India's waste system. Over the past two decades, the city has systematically integrated the waste-pickers' cooperative (SWaCH) into the formal system. Today, SWaCH provides waste collection for about 1 million properties and offers on-site composting services to bulk waste generators.¹⁰⁰

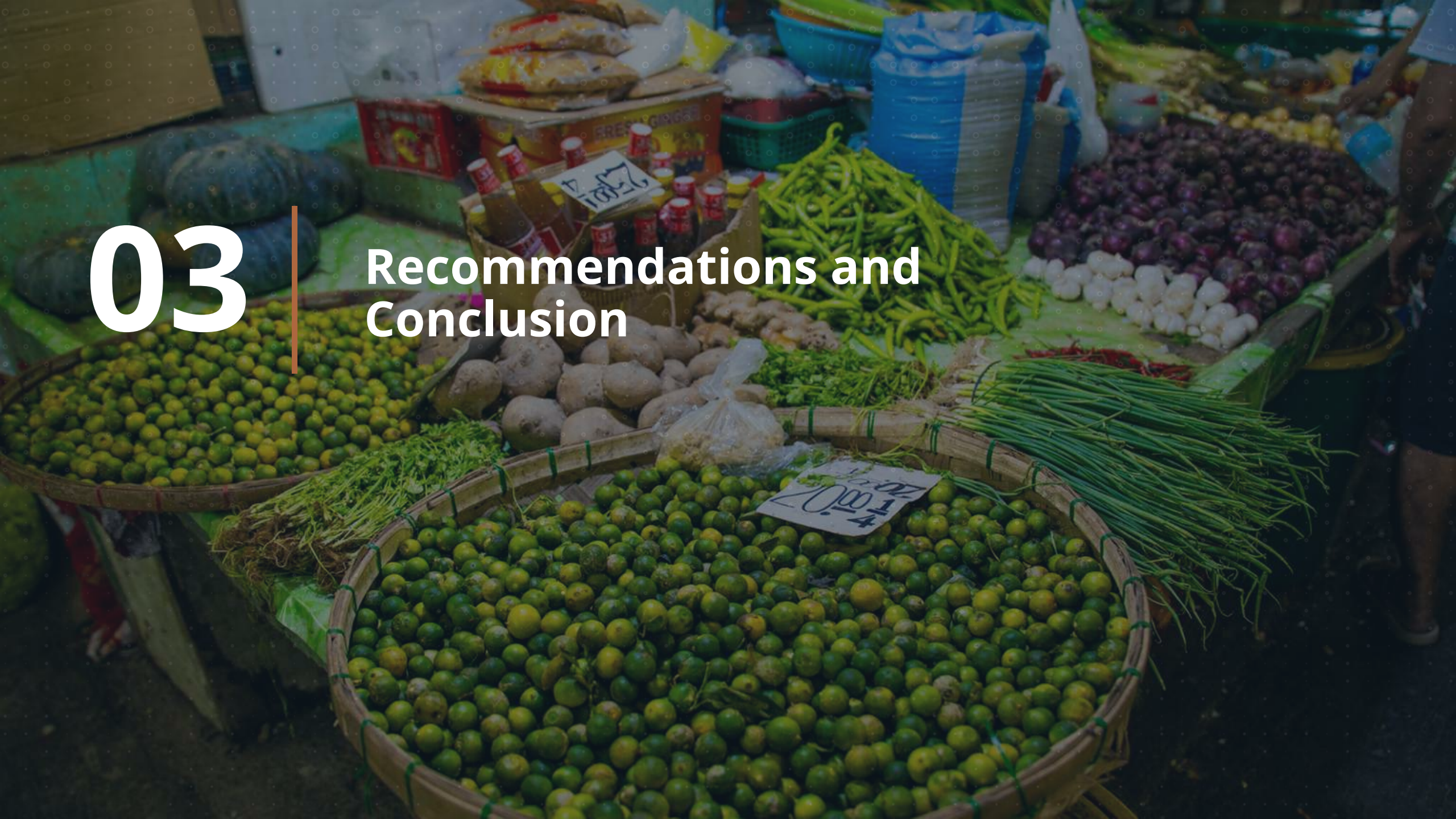
Multiple policies enabled this shift. Following a successful pilot in 2005-2007, the Pune Municipal Corporation (PMC) signed a Memorandum of Understanding (MoU) with SWaCH that assigned responsibility for door-to-door collection of segregated wet and dry waste to the cooperative and authorized it to **collect fees from customers directly**, creating **paid roles**.¹⁰¹ Since then, PMC approved Public Health and Sanitation Bye-laws in 2017 to **strengthen segregation standard enforcement** and in 2024, increased fees for segregated collection, which continued to **ensure steady revenue** for organic waste management services.¹⁰²

SWaCH's board includes PMC and union representatives, providing **coordinated communication channels** for these workers. Following the adoption of India's Solid Waste Management Rules (2016), which limit organics landfilling to rejects from waste treatment facilities, the demand for treatment increased, and SWaCH has been installing and operating in-situ composting pits since then.¹⁰³ They also collect organic waste during festivals and transfer to PMC for centralized composting. The **diverse opportunities for involvement based on local needs** also demonstrates the success of this integration.

To **improve worker capacity**, PMC organizes workshops while SWaCH **trains newer members on the job**.¹⁰⁴ Together, these efforts support reliable segregated collection and decentralized organic waste treatment. Pune's approach demonstrates how informal workers inclusion can improve organics diversion and resident livelihoods.

03

Recommendations and Conclusion



Policy recommendations to improve organic waste management in Quezon City

Strengthen source segregation of organic waste

- Require waste hauling contracts to include key performance standards for the quantity and quality of organic waste collected and disincentivize mixed waste collection
- Establish standards to require standardized and more frequent measurement and reporting of source segregation data from barangays and bulk waste generators
- Establish standards to address non-compliance with source segregation requirements through a combination of penalties and corrective training programs

Expand and improve organic waste management infrastructure

- Develop a city-wide organic waste treatment plan that is based on regular assessments of organic waste treatment capacity and strategies to address identified gaps by leveraging both centralized and decentralized infrastructure across cities and barangays
- Mandate standardized and sealed collection bins for organic waste to support proper source segregation and safe containment during collection and storage
- Facilitate financial and technical assistance for barangays and bulk waste generators to improve organic waste management infrastructure by leveraging the Solid Waste Management Fund under RA 9003 and active international support programs, including the EU-Philippines Green Economy Partnership

Increase local technical capacity for organic waste management

- Issue technical guidelines or standard operating procedures for MRFs
- Establish an organic waste management knowledge-sharing network that connects local practitioners with experts from successful projects, such as LOW-M partners, to provide technical training and ongoing project implementation support
- Provide and support project financing packages that include technical assistance

Policy recommendations to improve organic waste management in Quezon City

Enhance cost recovery

- Establish policy frameworks to support market development for compost and biogas products, including quality standards aligned with DENR and DA guidelines, certification, supply aggregation, and linkage with institutional buyers
- Introduce economic incentives to enhance the competitiveness of organic waste-derived products compared to conventional alternatives
- Issue guidelines to help barangays and organic waste treatment facility operators assess cost recovery potential and strategies

Reduce flood-related disruption to waste management systems

- Require flood-resilient design and upgrades for organic waste management facilities
- Issue guidelines to expand local organic waste collection coverage in hard-to-reach areas
- Develop pre- and post-flood maintenance protocols for organic waste management facilities and equipment

Promote inclusion of informal workers in organic waste management systems

- Implement an informal worker inclusion scheme for organic waste management that is grounded in environmental justice principles and co-developed with informal workers
- Designate accountable agencies to identify potential opportunities to incorporate informal workers in organic waste management systems, including as waste collectors, secondary sorting personnel, or composting facility staff
- Provide incentives to waste collection and processing facilities to employ and train informal workers

Conclusion

In Quezon City, the most populous city in the Philippines, organic waste accounts for nearly half of the city's waste stream. Despite notable progress in waste diversion, including the enactment of RA 9003 and multiple local ordinances, barriers like limited source segregation, poor cost recovery, insufficient infrastructure, and limited technical capacity result in much of the city's organic waste continuing to be disposed of in landfills. Updating and expanding policy and regulatory frameworks to address these barriers is therefore critical to support broader efforts to safeguard public health and reduce near-term climate impacts, particularly methane emissions generated as organic waste decomposes in landfills, as well as associated risks such as heat, pests, and flooding.

Drawing on analyses of national and local policies governing organic waste management in Quezon City, site visits, and insights from government officials, barangay representatives, financial institutions, and civil society actors, this report identifies key regulatory and implementation challenges hindering the city's organic waste management. It then draws on international case studies from jurisdictions that have addressed similar challenges to provide tailored and actionable policy recommendations to strengthen Quezon City's frameworks.

Quezon City's ongoing initiatives demonstrate a clear commitment to enhancing organic waste management. **Continued progress will require stronger standards for monitoring and compliance, expanded and more consistent waste collection, optimized and more resilient infrastructure, enhanced technical capacity, and more diversified cost recovery mechanisms.** We hope this analysis can guide the integration of these strategies into policy frameworks and support Quezon City in developing an effective, inclusive, and scalable waste management system aligned with national and local climate goals.



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