



CASE STUDY — Latin America, Asia, & the Pacific Islands

Funding Options for Sustainable Solid Waste Management Systems

Case in Brief

The world generates over 2 billion metric tons of solid waste annually (more than 100 million full garbage trucks)—with waste generation projected to exceed 3.4 billion metric tons by 2050.¹ Local governments in low to middle-income countries are often challenged with planning for and financing the related improvements and upgrades needed to effectively and sustainably manage their solid waste system. Revenue structures vary from country to country, but additional funds are commonly needed because the general funds that local governments typically rely upon to operate their waste system are insufficient to manage the quantities of waste being generated from their growing populations. New revenue sources are required to enable municipalities to develop long-term, effective solid waste management systems that meet their citizens' needs and prevent plastic waste from leaking into the environment.

The U.S. Agency for International Development's (USAID) Clean Cities, Blue Ocean program—the Agency's global flagship program under the [Save our Seas Initiative](#)—supports local governments in their solid waste management planning process to guide strategic, long-term plans that meet current and future waste management operations. Central to the planning process is the ability of municipalities to evaluate their funding needs and identify revenue-generating options to adequately fund their solid waste and recycling systems.

¹ Kaza, S. et al. 2018. What a Waste 2.0—A Global Snapshot of Solid Waste Management to 2050. The World Bank.
² Bharadwaj B, Rai RK, Nepal M (2020). Sustainable financing for municipal solid waste management in Nepal. PLoS ONE 15(8): e0231933. <https://doi.org/10.1371/journal.pone.0231933>.
³ Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development. Washington, DC: World Bank.

Latin America, Asia, & the Pacific Islands

Dominican Republic, Peru, Sri Lanka, the Maldives, Indonesia, Philippines, Vietnam, Papua New Guinea, Micronesia, & Fiji



At a Glance

For many local governments in developing countries, solid waste management is a high-cost activity, commanding up to **50 percent of the total municipal budget**.²

The World Bank estimates that cities in low-income countries **collect less than half of waste generated**.³

Background

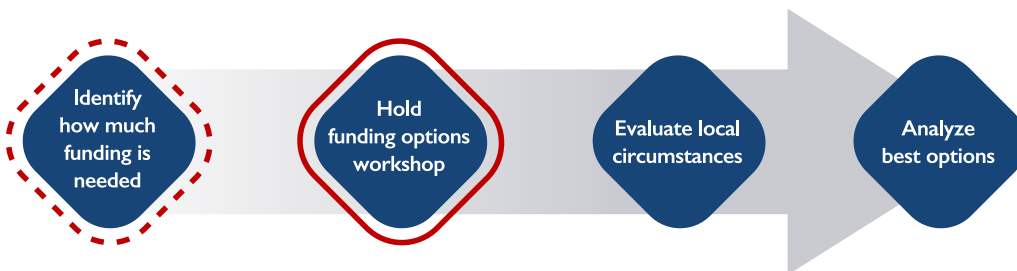
Many national governments allocate insufficient funding for local governments to operate and manage their waste systems, leaving municipalities to operate potentially substandard systems that are unable to sustain circular economies or plan for future growth. **To build efficient, sustainable systems that can grow along with population needs, local governments must know how to identify and access funding options that can provide stable sources of revenue to cover their current daily operations and enable future improvements.**

Our Approach

When existing revenues are not adequate to sustain a local government's solid waste management system or they constrain its ability to improve the existing system, cities can explore other funding options.

USAID's Clean Cities, Blue Ocean program provides tailored guidance to local governments to guide them through an integrated solid waste management planning process, including identifying options to increase revenues to fund their solid waste and recycling systems.

The program's tools and hands-on technical assistance are customized to local circumstances and opportunities to support cities so they can achieve their short- and long-term waste management funding goals.



Identify How Much Funding is Needed

When developing or updating their [Integrated Solid Waste Management Plan](#), a local government first needs to understand what funds are required, including an accurate accounting of their waste system's current operational costs and estimated/projected future expenses. To accomplish that, USAID Clean Cities, Blue Ocean developed a [Solid Waste Cost-of-Service Analysis \(COSA\)](#) Tool to help local governments establish a detailed summary of all the expenses associated with their current and future, planned solid waste management system and to support the long-term planning, budgeting, and financing.



Without adequate funding, local solid waste management systems are unable to keep pace with and prevent waste from leaking into the environment.

Photo: Set Oya/USAID Clean Cities, Blue Ocean

Local governments are facing exponentially rising costs to manage their cities' growing volumes of waste. Globally, waste management costs are projected to reach \$375 billion by 2025 (up from approximately \$205 billion in 2012) and are projected to increase the greatest in poorer countries.⁴

⁴ Hoornweg, Daniel and Perinaz Bhada-Tata. 2012. What a Waste. A Global Review of Solid Waste Management. Urban Development Series Knowledge Papers. Daniel Hoornweg and Perinaz Bhada-Tata. No. 15.

Hold Funding Options Workshop to Explore Various Options

With information on the existing and projected costs, local governments can then consider convening a workshop to discuss the two types of funding options: **self-generated by a local government** and **third-party funding**.

Self-generated Funding Options

With budget shortfalls, local governments are compelled to find new sources of funding they can direct to waste expenses. By generating their own revenues, governments can have more control of the use of the funds and can prioritize system improvements.

There are several ways in which local governments can self-generate the funds they need:

- **Free up funds by improving existing operations and funding systems**

Local governments can explore existing funds and how much can be recovered based on **cost avoidance measures**,⁵ for example by promoting the 3Rs—reducing, reusing, and/or recycling—so that waste does not need to be transported or “tipped” (paid) at a disposal facility. Governments can also reduce costs by **addressing inefficiencies** in the system—including in the areas of waste collection, transferring, and processing. Through more efficient operations, for example optimizing waste collection routes using geospatial technologies or improving waste processing through improved sorting equipment, costs—such as for fuel or labor—can be reduced and reallocated. More streamlined operations can also be achieved by more fully integrating the informal sector into the solid waste system. Furthermore, governments can review the existing **payment collection system** to free up significant resources and ensure that all those who owe fees pay their fair share.

- **Waste system fees and taxes**

Many local governments pay for their solid waste management system from their general funds and not from funds specifically raised to pay for waste expenses. Establishing certain waste system fees and taxes can provide the local government with a much-needed regular income in exchange for services, such as:

- **Waste collection fees** (usually monthly) where users of the system (including households and businesses—from street vendors to corporations) are billed regularly by the local government and the money is used to pay for waste system costs;
- **Facility tipping fees** for any waste facility (i.e., landfills and transfer stations) where people are charged to dispose of waste;
- **Host fees for regional facilities** where the jurisdiction or “host” is paid for accepting waste from outside the jurisdiction;

“For local governments to expand waste collection and create sustainable solid waste systems, they need to have the resources to make that happen. When generally funded budget allocations are insufficient to accomplish this, it is important to identify alternative revenues that are reliably generated on an annual basis that they can manage and control.”

– **Clare Romanik**
USAID’s Lead Ocean Plastics
and Urban Advisor

⁵ Cost avoidance refers to finding ways to reduce the quantity of waste that is delivered to a disposal facility, such as avoiding tipping fees and transportation costs.

- **Tourist entry, hotel occupancy, or resort fees** to cover the expenses of managing large amounts of waste produced by tourists; and
- **Property taxes** which are paid on property owned by an individual or other legal entity, such as a corporation, and represents one of the most efficient revenue collection methods.

- **Sales of products generated from waste**

Funds can be generated at various waste facilities owned and operated by local governments, such as:

- **Recycling facilities** can raise revenue from the sale of processed segregated materials and from products made or “upcycled” from waste, where permitted by law.
- **Compost facilities** may produce soil amendment (compost) from local organic waste to be sold as a revenue source or to be used as cover material at local disposal sites, offsetting the cost of purchasing cover material. While this is not likely to cover all the costs of the operation, it can result in a variety of co-benefits such as prolonging the life of the city’s final disposal site, reducing collection and disposal costs (such as landfill tipping fees), and providing a dedicated source of income for workers and a revenue stream for the community.
- **Landfills** owned by the local government can also generate revenues from the sale of biogas and the production of electricity.⁶ If sufficient waste volumes are available, revenues can be generated by waste-to-energy treatment technologies that either produce products or directly convert waste into electricity, fuel, heat, or other materials. These facilities may, for example, combust waste to produce steam for electricity and/or heat generation in a boiler or steam turbine or recover landfill methane gas that can be used to generate electricity to be sold to the local utility to bring in revenues for the solid waste management system. While such technologies offer opportunity, it is critical that proper technology and economic due diligence be completed to determine if these are viable alternatives.



Top Photo: Segregated recyclable materials for sale in a recycling processing facility owned and operated by the local government of Moratuwa, Sri Lanka.
Photo: Lori Scozzajava/USAID Clean Cities, Blue Ocean

Bottom Photo: The Municipal Council of Jaffna, Sri Lanka, produces and sells compost to generate revenue for the local solid waste management system.
Photo: Shan Rajah/USAID Clean Cities, Blue Ocean

Third Party Funding Options

Though not as consistent or reliable as self-generated funding, local governments can also explore third party funding to support their solid waste system expenses. Third party funding comes from outside the municipality in the form of partnerships or grant arrangements such as through national governments, multilateral development banks, public-private partnerships, or recycling businesses. Third-party funders most often give money (that does not need to be repaid) to local governments for one-time projects such as research, analysis, planning, or the design of large projects. Public-private partnership arrangements offer the greatest prospect of generating profits, and often shifts the financial burden and risk from the local government to the private sector:

⁶ Biogas (landfill gas or LFG) is formed when the biodegradable waste in a landfill degrades without the presence of oxygen. When captured, this LFG can be cleaned and the methane sold on the open market or used in generators to produce electricity. LFG systems that collect and convert methane gas into energy can be sold to the electricity transmission grid/network to generate revenue while also being used to power in-house operations.

⁷ Kaza et al. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development, Washington, DC: World Bank.

Local governments can use organic waste to create compostable materials that can be sold to generate revenue and help supplement the cost of solid waste management systems.

Biodegradable waste can account for more than half the solid waste stream.⁷

Impacts

Identifying reliable funding sources enables local governments to better manage their waste systems—and respond to emerging demands from their growing populations. With USAID support, partner countries are equipped to analyze the costs of their current system and explore other funding options.

USAID's Clean Cities, Blue Ocean program supports local governments with their strategic planning process, including the ability to identify funding options and increase revenues for their solid waste management and recycling systems.

These efforts resulted in numerous related benefits:

- **Enhanced data-driven analysis to support solid waste management planning and budgeting**

The Cost of Service Analysis (COSA), which must be completed before exploring funding options, establishes cost data so that local government staff can consider the financial impacts of current and potential future scenarios and pursue strategic solutions to challenges in managing waste. For example, USAID supported Phu Quoc, Vietnam to plan its future waste system, including by conducting a COSA to establish the current cost of its system and, using that data, to estimate the future costs of its planned system. As a result, the city was able to develop capital and operating budgets to implement their new Solid Waste Management Plan. Clean Cities, Blue Ocean has completed COSAs in thirteen cities across seven focal countries to establish a baseline of current costs to inform future planning and funding needs.

- **Strengthened local government financial capacity and independence**

USAID's work with local governments to diversify their funding options and have more control over self-generated funds has resulted in municipalities increasing their financial independence and decision-making power. For example, in Iloilo City, the Philippines, discussions at its funding options workshop identified significant revenues that could be generated for waste management through the adoption of additional fees (i.e., tourist fees, property tax) and cost avoidance measures, which have resulted in local government subsidies being reduced by 58 percent.

By the Numbers

13+

cities around the world have benefited from Funding Options workshops, with USAID's support.

\$18+

million in mobilized investment by USAID's Clean Cities, Blue Ocean program and its partners for improved solid waste management systems and infrastructure.

- **Using increased efficiencies to expand waste collection to underserved areas**

USAID promotes efficiency analyses, which can identify and free up funds to be used to improve other areas of the existing system. For example, in Pisco, Peru, Clean Cities, Blue Ocean partnered with the local government to conduct a collection efficiency and routing study.

With this data, new routes were developed to maximize city resources by reducing the costs associated with duplicative routes and decreasing the extent of street litter entering the environment. With the new routes, the city's fleet of five garbage trucks' unproductive travel decreased by almost 80 percent, including associated idling time, which represents a saving of 120 gallons of diesel fuel and \$500 per month. With these savings, the city was able to expand service to 20 percent more households using the same staffing and equipment.

- **Third-party funding builds relationships between local governments and external partners**

USAID fosters partnerships with private sector entities and civil society to develop relationships that build trust between local governments and their communities and present new opportunities for funding.

For example, in the City of Ambon, Indonesia, local business and Clean Cities, Blue Ocean grantee, Milion Limbah Ambon signed a Memorandum of Understanding with the local government to develop a recyclable processing facility. The government contributed the land in exchange for Milion Limbah collecting and processing local plastic waste. As a result of the facility's early success, its parent company Milion Limbah Indonesia, received a \$500,000 investment from WWF Norway's Smart Cities Project to establish similar operations in Bekasi, West Java—part of the greater Jakarta metropolitan area. Forging these relationships diversifies the actors responsible for various solid waste services while also relieving some of the local government's financial burden.

“One of the main challenges that we faced was that our garbage collection fee had not changed in 16 years. Immediately after completing our Cost of Service Analysis and Funding Options workshop, we also identified other potential funding options and cost reduction strategies – such as increasing penalty fees for violators of waste management laws and charging a waste management fee to city tourists.”

– Ely Estante Jr.

Councilor for Iloilo City, Philippines

Key Recommendations

As part of the planning process, USAID's Clean Cities, Blue Ocean program supports local governments to increase waste revenues resulting in long-term, effective waste management systems.

Key takeaways related to identifying the best funding options revolve around the need for sufficient analysis to support funding decisions; local governments to understand current system costs and tailor their funding plans appropriately; and political will to overcome constraints and capitalize on opportunities.

- **Conduct sufficient analysis prior to holding a funding options workshop**
Funding option workshops require that the local government first conduct a COSA to collect relevant data and understand current and future costs. This information supports planning decisions but also determines whether additional analysis is needed, particularly to fully understand local nuances and ensure alignment with national regulations.
- **Tailor funding options based on local needs**
Local governments share common challenges in managing their waste, but each municipality will require a localized approach for funding its waste management system. A strong waste management system is one with funding that covers all waste system costs, taking into consideration local economics and the revenue limitations from higher levels of government; is enforceable through administrative or financial penalties; and matches the expectations of citizens regarding service levels (i.e., results in the majority of payers into the system generally agreeing the value received for what they pay is fair).
- **Advocate for and secure political will**
A key component to moving forward with any funding option is to have the political support to levy a new revenue source. Imposing additional fees can be a difficult, but necessary task that requires the commitment of elected officials. It is important to include decision makers in the process from the start so they understand the value and need for the funds that will be raised and can champion the initiative.
- **Understand constraints to leverage opportunities**
Finding the right mix of funding options begins with a critical understanding of constraints and opportunities that are unique to a local government's jurisdiction. Legal authority constraints include the types of revenues a local government is allowed to generate and its ability to regulate those revenues; rates the government can charge; and penalties and financial management tools it can use. Additionally, constraints around administrative capacity may need to be surmounted in order to make use of new revenue sources (e.g., having a billing and payment collection system).



Local government staff in Iloilo City, Philippines gather to review data as part of the Cost of Service Analysis process—a critical step that must be completed before evaluating funding options. Photo: USAID Clean Cities, Blue Ocean



Related Resources and Tools



[Virtual Training - Identifying Funding Options for Sustainable Solid Waste Systems](#)



[Tool - Clean Cities, Blue Ocean Solid Waste Cost-of-Service Analysis Guidelines](#)



[Tool - Funding Options for Solid Waste Systems in Low- to Middle-Income Countries](#)

Clean Cities, Blue Ocean Peru staff and local waste workers survey waste collection routes to increase their efficiency and reduce resources, like fuel, to free up funds.

Photo: Clean Cities, Blue Ocean

Contact

Clare Romanik
Lead Ocean Plastics
and Urban Advisor
USAID
cromanik@usaid.gov

Jon Angin
Chief of Party, CCBO
Tetra Tech
jon.angin@cleancitiesblueocean.org

urban-links.org/ccbo
info@cleancitiesblueocean.org

Cover Photo: In 2024, the government of Makassar City, Indonesia remediated its Tamangapa open dumpsite after exploring and identifying alternative funding streams with USAID's support. *Photo: Giulia Sorial/USAID Clean Cities, Blue Ocean*