

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

# Developing Integrated Solid Waste Management Plans to Advance Circular Economies

### Case in Brief

Most of the estimated 11 million metric tons of plastic that flow into the ocean each year comes from land-based sources. Around the world, local governments are responsible for managing their waste streams, including developing and implementing solid waste management plans that meet the needs and goals of the communities they serve in line with national and local regulations. However, many local governments do not have robust, sustainable plans in place to guide the implementation and monitoring of their solid waste system—limiting effectiveness and their ability to secure private sector financing.

**Clean Cities, Blue Ocean, USAID’s flagship program under the Save our Seas Initiative, is working with ten partner countries in over 25 rapidly urbanizing cities in Asia, the Pacific Islands, Latin America, and the Caribbean to develop and implement strategies to prevent plastic waste from becoming ocean plastic pollution. The program supports local governments to develop Integrated Solid Waste Management Plans that guide strategic, long-term visions of how they should effectively collect, process, and recycle or dispose of their waste. Through technical assistance and various supporting tools, USAID helps governments plan solid waste management and 3R (reduce, reuse, recycle) programs that move cities away from traditional “take, make, waste” models and toward a local circular economy, where waste is used as a resource.**

### At a Glance

**Every year across the globe more than two billion tons of municipal solid waste is generated<sup>1</sup>—roughly 60 tons every second.**

**Over 30% of the world’s population does not have access to waste collection.<sup>2</sup>**

**Plastic makes up 80% of the waste found in our oceans,<sup>3</sup> from surface waters to deep-sea sediments, threatening environmental, economic, and public health.**

Cover Photo: In Sri Lanka, USAID’s Clean Cities, Blue Ocean program worked with local governments to strengthen local waste management plans, which included optimizing waste collection routes, vehicles, and staff safety equipment. Photo: Giulia Sorial/USAID Clean Cities, Blue Ocean

<sup>1</sup> United Nations Environment Programme (2024). Global Waste Management Outlook 2024: Beyond an age of waste – Turning rubbish into a resource. Nairobi. <https://wedocs.unep.org/20.500.111822/44939>

<sup>2</sup> Ibid.

<sup>3</sup> The International Union for Conservation of Nature (IUCN) (2021). Issues Brief, <https://www.iucn.org/resources/issues-brief/marine-plastic-pollution>

## Background

**In providing the essential service of waste management to their communities, local governments confront considerable challenges: competing priority issues (i.e., education and health); limited financial resources; growing populations and waste that are outpacing existing infrastructure; and a lack of long-term, data-driven, and goal-oriented approaches to strategically guide their waste management systems.**

A comprehensive Integrated Solid Waste Management Plan outlines both short and long-term strategies to meet the waste management needs and goals of a community and is key to advancing a local circular economy. Through an integrated planning process, all aspects of the current waste system are considered—institutional, social, financial, technical, and environmental factors—to sustainably manage existing waste volumes, while planning for future projected growth. In addition to protecting the environment and public health, these plans help cities attract and utilize financing to strengthen the local waste system, particularly as countries introduce Extended Producer Responsibility (EPR) policies to bring sustained funding to 3R systems.

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**An Integrated Solid Waste Management Plan** prevents plastic pollution by developing strategies to manage all types of waste efficiently and in an environmentally sound manner.

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### Local and Global Impacts of Plastic Waste

Plastic and waste generation rates are increasing in line with rising populations and consumer demand, creating a myriad of downstream effects.

## Our Approach

USAID, through its Clean Cities, Blue Ocean program, provides local governments with technical assistance and supporting tools to develop effective and robust waste management plans using a five-step approach.

### 1. Identify Stakeholders and Conduct Baseline Analyses

The first step to develop an Integrated Solid Waste Management Plan is the **creation of a Waste Management Advisory Committee** to oversee and implement the planning process. This includes identifying and **engaging key stakeholders** that have an interest in or responsibility for key aspects of solid waste management and soliciting their inputs throughout the planning process. **Baseline assessments should also be conducted** to develop an in-depth, data-backed understanding of the current solid waste management system—including the amount and type of waste currently being generated and projections for future waste volumes and which aspects of the current solid waste system (planning, legal and policy framework, financial management, service delivery, human resources or community engagement) need improvement.

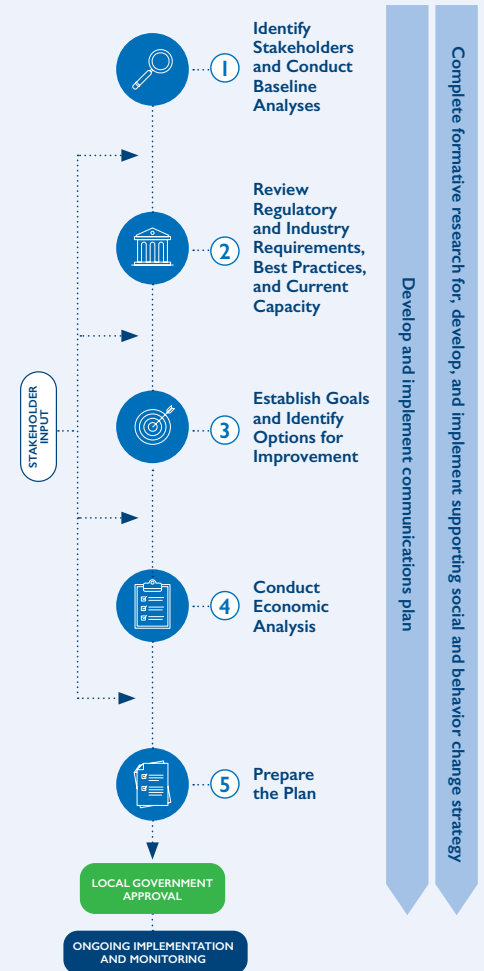
### 2. Review Regulatory and Industry Requirements, Best Practices, and Current Capacity

Solid Waste Management Plans should reflect applicable laws and regulations, local markets (formal and informal), and industry best practices to understand compliance requirements and how often plans should be updated. Planners should **complete a Solid Waste Compliance Gap Analysis, describe the current solid waste and recycling system using a tool such as USAID's Rapid Appraisal Facility Tool, and assess the existing recyclable market**—including an analysis of potential market opportunities to understand whether enhanced collection or more recycling and/or disposal infrastructure is needed.

### 3. Establish Goals and Identify Options for Improvement

Through a **public stakeholder consultation process and research that involves all segments of the community**, planners must **establish future system goals** and priorities for the planning area that meet the specific needs of its community and develop potential options (i.e., programs, policies, and improved or new infrastructure) to meet those planning goals. Planners may refer to their [Solid Waste Capacity Index for Local Governments](#) recommendations, as well as USAID's full [Planning Guidelines](#) for tools to help prioritize multiple goals and solutions. Most plans have short-term and long-term goals with established periods for plan updates. Goals should address a variety of topics, including solid waste collection and disposal; planning for the projected closure date of the area's open dumpsite; and developing programs for waste reduction, reuse, and recycling (segregation).

## Solid Waste Management Planning Process



This model can also be adapted by other entities, such as private sector companies, that are working to better understand and manage their waste streams.

For more detailed information and related USAID-developed tools to facilitate the planning process, refer to Clean Cities, Blue Ocean's [Guidelines for Developing Integrated Solid Waste Management Plans](#).

## 4. Conduct Economic Analysis

A vital part of the planning process is a financial or [cost-of-service analysis](#) that determines a solid waste system's current cost, as well as the future cost of the planned system—and identifies options to fund these costs. Building an effective solid waste management system requires that planners understand the cost of services currently being provided and—once established—estimate the projected cost of the desired system, as it develops. Planners can identify [funding options](#) to cover any revenue gaps, lower general-fund subsidies, and cover the cost of the desired solid waste management system, to be presented to key stakeholders.

## 5. Prepare the Plan

To prepare the final plan, planners must **develop an implementation schedule** that includes recommended programs and facility improvements—including time to site, design, and obtain regulatory approvals for these improvements; any recommended policy measures; as well as timelines to plan, budget, and track the progress of the plan's goals and targets. To monitor and measure the success of the plan, planners must **establish key performance indicators** such as the waste generation rate, material reduction targets, cost of service, rate of recycling/diversion. Once the plan is drafted, it should be presented to key stakeholders and decision makers to collect final feedback and move toward submission for local government approval.



Photo: Giulia Sorial/Clean Cities, Blue Ocean

In Makassar, Indonesia, the solid waste management planning process identified improving the city's final disposal site, Tamangapa, and creating a sanitary landfill as priorities.

“Only 30% of our waste is collected; the lack of infrastructure is one of the issues [we face]. We must strengthen the collaboration of all the actors, not only the local government and community, but also stakeholders including the private sector that want to help”

**-Ibu Nur Aisyah Nasution,**  
*Coordinator for Water, Sanitation, Solid Waste, and Health sector, Ministry of National Development Planning of the Republic of Indonesia*



**Left Photo:** Tamangapa open dumpsite—before remediation (2018)  
**Right Photo:** During remediation progress (2024)  
*Photos: Clean Cities, Blue Ocean*

## Impacts

The process to develop an Integrated Solid Waste Management Plan is a tangible way of identifying local waste management needs, opportunities, and solutions. With USAID support, partner countries are building robust local planning frameworks—reducing ocean plastic pollution and advancing circular economies.

USAID Clean Cities, Blue Ocean’s technical assistance and related tools have strengthened local governments’ capacity to develop and implement solid waste management plans that meet the needs of their communities; identify capacity gaps with respect to national and local laws and regulations; and budget appropriately to prioritize waste management solutions.

These efforts have resulted in numerous related benefits:

- **Strengthened the capacity of local governments and organizations**

Developing and implementing Integrated Solid Waste Management Plans has also facilitated relationships within and among government agencies, their communities, and local organizations such as universities, bringing together various stakeholders to convene around respective waste management challenges. For example, in the Philippines, local governments initiated barangay (the smallest administrative division in the Philippines) planning in partnership with the Philippine League Of Local Environment and Natural Resources Officers, a local organization that is now supporting other city plans given their gained experience.

- **Increased local understanding of current waste management challenges**

The program advocates that the foundation of any solid waste management plan is an assessment of baseline conditions—planners must understand

The Tamangapa open dumpsite (above) posed serious environmental and human health concerns due to its proximity to housing and waterways. In its over twenty years of use, the site had collected immense amounts of mixed waste that were not being sustainably managed.

The process of remediation involved properly grading, organizing, treating, and disposing of waste to reduce leakage, methane emissions, and to avoid landslides. The before and after comparison of the site (above) illustrates the significant impacts that can result from the solid waste management planning process.

current conditions in order to plan for future scenarios. For example, the cities of Pisco and Máncora, Peru, conducted waste characterization studies at artisanal fishing landings to improve solid waste management at the ports, with the findings integrated in the broader municipal solid waste management plan.

- **Enabled local governments to identify and prioritize local waste management solutions**

Through Clean Cities, Blue Ocean’s support to local governments to self-assess their strengths and weaknesses with respect to waste management, partners have been able to identify areas requiring the most attention—and incorporate those findings into local planning frameworks. For example, the city of Santa Bárbara de Samaná, Dominican Republic, formally adopted its SCIL recommendations as a municipal resolution that will chart a path forward for the municipality to make improvements and most effectively use its resources. Since August 2023, SCIL assessments have been conducted in 20 cities in all ten Clean Cities, Blue Ocean countries—with local governments taking the lead in assessing their capacity gaps and prioritizing actions based on available resources.



Photo: Rocio Perez/Clean Cities, Blue Ocean

In Peru, Clean Cities, Blue Ocean partnered with three municipalities—Paita, Pisco, and Máncora—to support recycling programs as part of the cities’ strengthened solid waste management plans.

- **Improved alignment with national and local solid waste management laws and regulations**

Engagement and close coordination with national and local government (and their relevant ministries) during the planning process ensured alignment with national and local government priorities, including national action plans and strategies. Further, by conducting Compliance Gap Analyses to evaluate each city’s level of compliance with national and sub-national laws, policies, and plans, and develop recommendations for improved compliance—cities were able to tailor their plans to comply with national standards. In Phu Quoc Island City, Vietnam, with the support of Clean Cities, Blue Ocean, the city developed a two-phase segregation plan in order to meet specific goals established by the national government. The first phase established pilot projects so that 35 percent of urban households and 25 percent of rural households would begin segregating their waste by January 2025. The plan then designed an expansion of those collection and processing systems so that by 2030, 60 percent of urban households and 50 percent of rural households would begin segregating their waste.

- **Improved local governments' ability to budget and identify new funding streams for solid waste management solutions**

Through USAID support, local governments improved their budgeting processes by better understanding current costs—and identifying existing and new funding options to finance appropriate and relevant waste management solutions. In Sri Lanka, Clean Cities, Blue Ocean provided technical support to the Jaffna municipal leaders to conduct a Cost of Service Analysis, which calculated the full cost of the city's solid waste system for the first time and identified five recommendations on how to change future budgets to improve the system. In Indonesia and the Philippines, the program convened Funding Options workshops where government staff from multiple agencies identified options to increase revenues to improve their waste systems. This resulted in Iloilo City, Philippines, passing a local resolution to increase waste service fees—which had not changed for sixteen years—by 100 percent. Through these changes, Iloilo City anticipates cutting in half the local government's subsidies to the waste system's operations, while making system improvements to attract private sector investment—a key component of the country's new EPR legislation.

## Key Recommendations

USAID's Clean Cities, Blue Ocean supports local government planning efforts so that they are making informed, strategic, data-driven decisions; meeting the needs of the communities they serve; and preventing waste from entering into the environment—and ultimately the ocean. Key takeaways from USAID and its partners' work revolve around the importance of local government leadership, collaboration, and communication as well as considerations made during the planning process that are inclusive and tailored to local community needs.

- **Ensure local government leadership and collaboration:**

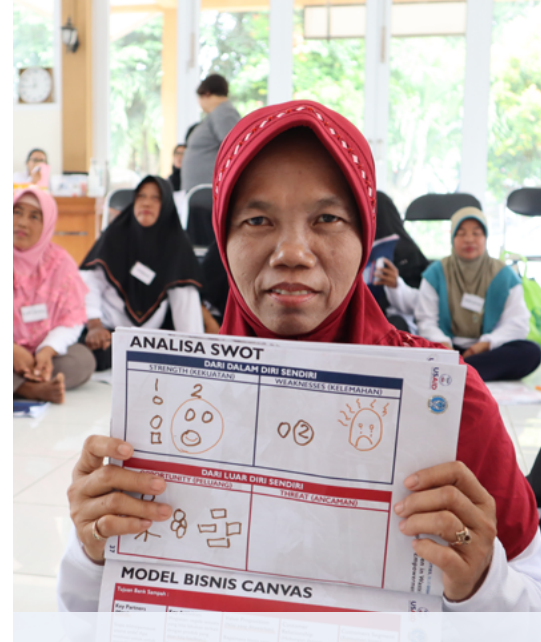
Local governments must be committed to the planning process and improving their solid waste management systems. USAID's SCIL Assessment tool can be used to foster ongoing collaboration and iterative discussions across all agencies involved in waste management, which is critical in order to develop an integrated plan and ultimately a well-functioning waste system.

- **Tailor plans based on local needs and capacity gaps:**

Local governments share common challenges in managing their growing waste streams but each municipality will require localized solutions that are specific to its context—including the state and extent of existing infrastructure, capacity of technical staff, and local cultural norms.

An integrated planning process helps identify and prioritize each municipality's capacity gaps but also determines what is financially and technically feasible to address.

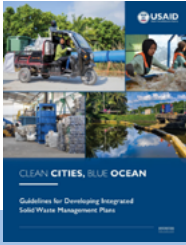
- **Engage community members to ensure a participatory solid waste management planning process and effective, supporting social and behavior change programs:** To develop a plan that will be supported, implementable, and ultimately effective, planners must engage the community to listen to what their specific needs are and share goals and elements of the plan as they develop. Gathering data and insights from the community on what actions they are willing to take to support the 3Rs (reduce, reuse, recycle) and safe management of waste will inform the plan, including the social and behavior change (SBC) strategy that will be part of and support the plan's implementation.
- **Conduct social and behavior change research:** Brief qualitative research should be conducted to understand current behaviors to learn what people can and are willing to do to change behavior and how the waste system needs to change to meet the population's needs. Subsequently, an SBC strategy can be developed, vetted by stakeholders, and rolled out through collaborative work with the community and local government. It is critical that the waste management system be able to support any new behaviors. Successful plans and supporting SBC programs will be backed by brief but crucial qualitative research with the community, which is ideally followed by asking community members to try out new or revised behaviors. This is a key part of successful design so that plans do not include behaviors that some members of the population (e.g., the very poor) cannot implement.
- **Ensure plans aim to advance gender equality and social inclusion:** Members of the informal waste sector, particularly women, play vital roles in the solid waste management sector; yet planners tend to overlook the contributions that they make, and thus miss opportunities for their advancement. Addressing gender equality in a city's Solid Waste Management Plan strengthens the plan as women play a vital role in the SWM value chain. Similarly, cities will benefit from including activities in plans to support the informal sector by building their technical skills and providing opportunities, making essential basic tools and resources accessible, and providing sufficient end markets for recyclables to ensure fair and sustainable prices for the materials they collect.



In Semarang, Indonesia, USAID empowered women and recycling entrepreneurs participating in its Women in Waste's Economic Empowerment Activity, to bolster local government waste services through new and expanded businesses. Photo: YKKS/Clean Cities, Blue Ocean



## Related Resources and Tools



### [Guidelines for Developing Integrated Solid Waste Management Plans](#)



### [Virtual Training - Solid Waste Planning to Advance Circular Economies](#)

## Supporting Resources

### [How to Conduct a Waste Analysis and Characterization Study \(video\)](#)

[Marine and Street Litter Audit Guidebooks](#) - Provide a standardized methodology to measure the volume of and identify hotspots for litter on beaches and streets to inform strengthened waste management plans and deploy appropriate solutions

[Solid Waste Capacity Index for Local Governments \(SCIL\) Toolkit](#) - Enables local governments to assess their capacity to create and sustain an economically and environmentally sound solid waste management system

[Compliance Gap Analysis](#) (coming soon) - Identifies how successfully local governments are applying existing national and provincial waste management policies to identify areas (or gaps) that exist so that changes can be made to become compliant

[Rapid Appraisal Facility Tool \(RAFT\)](#) - Enables local governments to gather data and assess current waste facilities' capacity and performance using simple surveys

[Solid Waste Cost-of-Service Analysis \(COSA\) - Guidelines for Local Governments and Companion Tool](#) - Helps local governments determine the cost of operating their current and future solid waste management systems and estimates the additional funds that will be needed to implement the future improvements to the system described in the Integrated Solid Waste Management Plan

[Funding Options for Solid Waste Systems in Low- to Middle-Income Countries](#) - Identifies potential funding options for system costs identified through the COSA that may pay for or help offset both capital and operating costs

“Local governments need to be strong, empowered, and capable to implement solid waste management regulations, plans, and operate effective and efficient local systems. That is why Clean Cities, Blue Ocean centers its approach on supporting cities and other local governments—strengthening their staff and systems using a series of tools.”

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

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