



## THE BUILDING BLOCKS OF A CIRCULAR ECONOMY: USAID'S LOCAL SYSTEMS APPROACH TO REDUCING OCEAN PLASTIC POLLUTION

Ocean plastic pollution has reached crisis level: every minute, more than an entire garbage truck of plastic makes its way into the world's oceans—roughly 11 million metric tons annually. While plastic waste presents an immediate threat to marine wildlife and ecosystems, this global challenge also has implications for major industries such as fishing and tourism, impacting the livelihoods of millions of people. The drivers and impacts of ocean plastic pollution also contribute to global challenges in food security, human health, and climate change.

USAID's commitment to addressing plastic pollution and improving waste management supports key U.S. Government policies and initiatives, including the 2020 Save our Seas 2.0 Act, USAID's Climate Strategy, and the Global Methane pledge.

Most ocean plastic pollution comes from rapidly growing cities and towns along rivers and coastal areas where reliance on single-use plastics and flexible plastic packaging produces high volumes of waste that are not easily recycled, or even recovered. The most effective way to immediately address ocean plastic pollution is to stop it at the source: on land. We must reduce the proliferation of single-use plastic packaging and improve local solid waste management (SWM) systems to capture and recycle waste and prevent it from entering our oceans.

USAID's Ocean Plastics team has developed five building blocks to guide Agency programming to address plastic pollution. They are based on the Agency's global expertise in local government capacity strengthening and natural resource governance and lessons learned from USAID's first programs dedicated to addressing plastic pollution:

- [Municipal Waste Recycling Program](#) (2016 - 2021), which worked primarily through locally-led grants to reduce land-based sources of ocean plastic pollution in Indonesia, Philippines, Sri Lanka, and Vietnam.
- [Clean Cities, Blue Ocean](#) (2019 - 2024), USAID's global flagship program, which works in Peru, Dominican Republic, Sri Lanka, Maldives, Indonesia, Philippines, and Vietnam.
- [Circulate Capital Partnership](#) (2019 - present), a blended-finance partnership with impact investor [Circulate Capital](#) to catalyze investment in the recycling and waste management value-chain in South and Southeast Asia.

Together, these building blocks create the foundation for preventing additional plastic pollution. This brief describes each building block, outlines custom performance indicators, and provides examples to address key constraints to develop programs that use a systems approach and consider context-specific mechanisms and tools.

### WHAT IS A SYSTEMS APPROACH FOR THE CIRCULAR ECONOMY AND 3Rs?

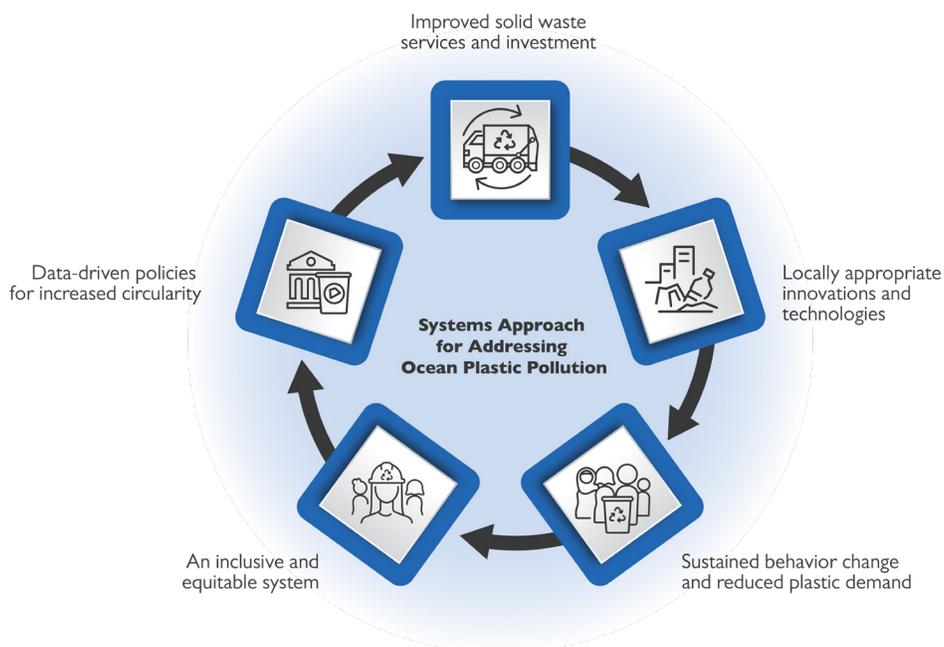
The “3Rs” (reduce, reuse, recycle) are fundamental for addressing plastic pollution: reduce single-use plastic in circulation, reuse plastic products or durable materials in lieu of plastic, and recycle plastic packaging effectively.

At its core, a **circular economy** describes a system in which these 3Rs are incorporated into the life cycle impacts of plastic products, retaining plastics in the economy for as long as possible. This requires rethinking product manufacturing and design, reducing single-use plastic packaging, designing alternative and reusable packaging, strengthening SWM systems, ensuring adequate recycling infrastructure, and improving markets for recycled, reusable, and repurposed plastic.

A **systems approach** to enable a circular economy considers how the entire socio-economic environmental-political system impacts the plastics value chain. Important systems-thinking questions include whether municipal SWM regulations allow for safety and empowerment of informal waste workers, or whether national policies influence market development for local innovations in recycling. As waste management is typically the responsibility of municipal governments, USAID uses a **local systems approach**, bringing together stakeholders from government, the private sector, the informal sector (waste collectors), and civil society.

## PROGRAMMING WITH THE BUILDING BLOCKS

The five building blocks illustrate essential and interconnected conditions for an effective circular economy to combat plastic pollution.



### LOCAL SYSTEMS APPROACH TO REDUCE SINGLE-USE PLASTICS

A comprehensive systems approach is important for developing the most effective solutions. For example, **collecting data** on the quantity and types of plastic waste generated in that locality can help determine **options for the most effective regulations**, e.g. restricting certain types of single-use plastic packaging or instituting bag fees. Regulations must be considered through the lens of **equity**, however, as they may place an unfair burden on local vendors who are unable to comply. Baseline data on current consumer and business practices can also inform **locally appropriate and inclusive behavior change programs**. For example, an awareness campaign focusing on the most harmful single-use plastic packaging in that city, followed by phasing-in of fees/penalties may be the most effective way to induce behavior change. **Businesses and local markets** will also need to be incentivized to develop **innovations** in single-use plastic alternatives, e.g. through zero-waste stores, providing refillable containers and reusable bags. In forming integrated SWM plans, city governments should incorporate programs that help households and businesses reduce waste while finding practical ways to enforce single-use plastic regulations. Additional investment and training may also be required to adapt SWM systems (e.g. to collect compostable foodware), and ensure that private service providers and **informal waste collectors** are fully integrated into solutions.

The building blocks serve as guidance for Missions and programs to structure ocean plastic pollution activities and are not a prescriptive template. Missions may incorporate one or multiple building blocks, depending on local needs and priorities in their countries. Pages 3 – 7 feature a description of each building block, potential barriers that Missions may face, examples of ongoing activities to overcome these barriers, and illustrative indicators to measure progress and impact.

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## DATA -DRIVEN POLICY AND INSTITUTIONAL ENVIRONMENTS THAT ENABLE A CIRCULAR ECONOMY

### DESCRIPTION

Progress towards a more circular economy requires evidence-based national policies and regulations, an integrated and coherent policy framework across national and local levels, and stakeholder input in the policy formulation process. Examples of policies to support a more circular economy include strengthening waste collection, creating recycling and labeling standards, introducing recycled content mandates, regulating and/or phasing out single-use plastics, or introducing Extended Producer Responsibility (EPR), in which producers help fund and manage the collection and recycling of their plastic products.

### KEY CONSTRAINTS

- **Lack of evidence-based policies and regulations.** There is limited disaggregated data available on the scale of plastic packaging entering the market, the amount and type of plastic waste generated, recycling rates, and where and how remaining plastic waste is disposed. Lack of such data prevents countries and city governments from developing and evaluating effective policies.
- **Lack of integrated policy frameworks across national, state and local levels.** National government entities may struggle to monitor local implementation of policies, and because they often do not have consulting mechanisms to obtain local government input, policies may not be feasible, relevant, or enforceable at the local level.
- **Inadequate stakeholder input in the policy process.** Policies are not well-informed or actionable without the participation of all stakeholders from the public, private (including brand companies, trade associations, recycling companies, and small businesses), and informal sector.

### APPROACH IN ACTION

- **Philippines:** The Circularity Informatics Lab and Save Philippine Seas (SPS) used the Circularity Assessment Protocol (CAP) in Metro Manila to gather community-level data on plastics usage and management to inform municipal policy priorities. Such primary data collection efforts are vital to understand the scope of the challenge and design locally appropriate solutions.
- **Indonesia:** The Plastic Bag Free City/Regency Forum project works in Jakarta Province, West Java, and South Borneo to support the enactment and implementation of single-use plastic reduction policies through baseline data collection, tailor-made campaign strategies, and development of a local forum for knowledge-sharing.
- **Sri Lanka:** The Ceylon Chamber of Commerce and Biodiversity Sri Lanka successfully mobilized public and private-sector stakeholders to develop an Extended Producer Responsibility (EPR) Roadmap for plastics waste management in Sri Lanka, which includes the drafting of a plastic waste collection framework that will commit private sector companies to work with the government for waste collection. The road map process involved research on the local plastic value chain and analysis of relevant global EPR practices. Findings informed a national EPR Steering Committee made up of key national stakeholders, who developed the roadmap.

### ILLUSTRATIVE INDICATORS

- Number of public policies developed that advance a circular economy and 3R/SWM.
- Number of established and functional public-private dialogues / platforms for strengthening policies.
- Number of institutions that have adopted and/or implemented new policies, procedures, and/or practices.



## INCREASED INFRASTRUCTURE INVESTMENT AND IMPROVED SOLID WASTE SERVICES

### DESCRIPTION

Efficient systems for collecting, aggregating, and sorting solid waste are a prerequisite for maximizing investment in recycling facilities and sanitary landfills. A local government that has a comprehensive, data-based SWM plan, good quality financial management, local regulations that are enforced, well-trained staff, and strong connections to the community has the basis for increasing coverage and improving SWM service delivery as well as attracting external investment. The local government should commit to increasing its own revenues (e.g., through taxes or fees) to support the system's operations and maintenance and look for synergies to decrease expenditures, including through collaboration with neighboring jurisdictions.

### KEY CONSTRAINTS

- **Underfunded SWM systems and inadequate infrastructure.** Cities may lack legislative authority, political will, or administrative capacity to introduce or increase fees or taxes to pay for SWM. The lack of well-prepared capital investment projects with clear funding streams makes it difficult to tap into financing by the private sector or multilateral development banks.
- **Poor local government capacity for effectively managing solid waste systems.** City governments may not have the technical skills, data, equipment and appropriate vehicles to optimize and expand collection systems.
- **Lack of engagement between local government's SWM departments and community.** Those designing and managing waste systems may not understand the behavioral or infrastructure constraints faced by local businesses and residents in reducing and recycling waste and complying with regulations.

### APPROACH IN ACTION

- **Dominican Republic:** To increase sanitary disposal options, USAID is providing technical guidance to remediate and close two open dumps in Las Terrenas and Santa Bárbara de Samaná, while also advising on the design and development of a new regional sanitary landfill.
- **Peru:** In Pisco and Mancora, the Solid Waste Capacity Index for Local Governments (SCIL) has enabled municipal governments to self-assess their SWM capability for planning, community engagement, human resources, service delivery, financial management, and policy and legal considerations. USAID is also developing a Routing Manual with the Ministry of Environment to strengthen efficiency of municipal waste collection.
- **Maldives:** Soneva Namoonaa is working with the Baa Atoll Council to pilot a small-island SWM model, commissioning a recyclable waste collection boat to regularly collect segregated, compacted, and baled waste from seven islands to send to recycling companies in the capital, Malé. Key components of this model include improving the reliability and consistency of plastic waste collection; training women's development committees in household collection and 3Rs; and providing new reuse/recycling resources such as compacting stations and reusable glass bottle stations for guest houses and cafés.

### ILLUSTRATIVE INDICATORS

- Investment mobilized (in USD) for 3R/SWM infrastructure and operations.
- Number of entities with increased capacity to assess or address 3R/SWM.
- Proportion of population in assisted urban areas with access to solid waste collection and/or recycling programs.



### DESCRIPTION

Robust, local markets for recycled materials support and strengthen SWM systems in developing countries. Growing markets require both clean, consistent feedstocks and secondary processors and manufacturers that are able to purchase and use these feedstocks. Hard-to-recycle materials like multi-layer and flexible plastic packaging need solutions that can be scaled appropriately on a local level, whether through alternative products or new processing technologies. Low labor costs can present opportunities to accelerate workforce and market development, especially for innovative and low-tech solutions, but must empower the most vulnerable segments of the population to be truly sustainable.

### KEY CONSTRAINTS

- **Uncertainty of consistent feedstocks and ability to process them.** Recycling facilities need a consistent mix of materials to establish contracts with purchasers and meet contractual obligations. Inconsistent plastic feedstocks are often a result of insufficient material recovery, processing, and cleaning facilities, as well as secondary processors.
- **Modest local markets for recycled materials.** Plastic materials that are collected for recycling are often stockpiled or landfilled in cities that do not have purchasers and viable markets for recycled materials. The lack of recycled content mandates, green procurement, and other policies and incentives contribute to underdeveloped recycling markets.
- **Insufficient investment in locally-developed, scalable innovations and technologies.** The private sector may not consider SWM and recycling as lucrative businesses; those interested in the sector may not have the technological or human resource capacity to operate and maintain plants efficiently. This disconnect may prevent market development and catalyzing of investment for effective innovations.

### APPROACH IN ACTION

- **Philippines:** CCBO provides two examples from Metro Manila. Their design of a new sorting line in the Parañaque city materials recovery facility (MRF) will expand mechanical sorting capacity to 500 tons/month and provide 80 new living wage jobs. With CCBO support, the Plastic Credit Exchange (PCX) has established the [Aling Tindera](#) model to enable local, women-owned convenience stores to become waste-to-cash community collection centers.
- **Indonesia:** The Bintari Foundation worked with 54 community waste banks in Semarang City to develop a business model that produced greater financial returns, offered member services such as gold savings schemes and microfinance, negotiated prices with recycling intermediaries, reduced single-use plastic consumption, and promoted alternative products.
- **Vietnam:** In Nam Dinh, the Centre for Marinelifelife Conservation and Community Development (MCD) designed, installed, and tested affordable waste traps on the Red River to capture waste flows. With support from local technical experts and community participation, the traps collected 12 MT of waste over a 16-month period.

### ILLUSTRATIVE INDICATORS

- Number of innovations developed or supported.
- Metric tons of waste and recyclables aggregated.
- Number of microenterprises supported.



## WIDESPREAD AND SUSTAINED BEHAVIOR CHANGE BY INCREASING RECYCLING AND REDUCING DEMAND FOR SINGLE-USE PLASTICS

### DESCRIPTION

Sustained social and behavior change (SBC) is at the core of increasing the quality and volume of materials collected for recycling and reducing the demand for single-use plastics. The effectiveness of awareness raising, education and outreach activities is dependent on a deep understanding of people's attitudes, priorities, and current behavior toward SWM and the 3Rs and what they are willing to do to change this behavior, not just one time, but on a regular basis. Any strategies for SBC must also take into account the capacity of the current SWM system, including appropriate infrastructure such as bins, collection trucks for different streams of waste, and policy regulations and incentives that reinforce the desired behavior. Youth trained in social/environmental activism can be powerful agents of change in catalyzing SBC and, especially in countries with a youth bulge, they will make or break grassroots movements and legislation efficacy.

### KEY CONSTRAINTS

- **Poor understanding of residents' behaviors, attitudes, and constraints regarding single-use plastic demand and recycling habits.** Standard awareness-raising activities on recycling, reducing littering, and reducing single-use plastics are often described as behavior change programs. However, these are unlikely to lead to long-term behavior change without first collecting data on people's habits and perspectives, designing targeted programs, and evaluating their effectiveness.
- **The SWM system is unable to support behavior change.** Residents cannot practice changed habits if the waste collection and segregation system is not designed or adapted to handle these changes, i.e. sufficient availability of segregated bins, trucks that can keep waste segregated, material recovery facilities that can handle an increase in waste and recyclables, etc.
- **Alternatives to single-use plastic are not easily available.** Asking consumers to reduce their use of single-use plastic first requires changes in various components of the supply chain, from providing readily available alternatives (e.g. paper straws or cloth bags) to new business innovations (e.g. zero-waste/refill stores).

### APPROACH IN ACTION

- **Dominican Republic:** In Samaná province, CEBSE conducted Trials of Improved Practices (TIPs), a rapid action research approach to test various changes in SWM behaviors. After gathering baseline data through interviews and focus groups, TIPs works with a small sample of households to select and try out different behaviors for 1-2 weeks, such as separating recyclables, composting, and stopping the burning of household waste. Lessons learned can inform evidence-based behavior change activities for waste segregation.
- **Maldives:** The Small Island Geographic Society (SIGS)'s "Helping our Marine Environment" (HOME) project is an innovative behavioral experiment that follows 12 households in Hulhumale on a 6-8 month journey without plastics, while capturing it as a reality show for public engagement. The project includes an interactive website and social media engagement that connects the public to businesses to reduce single-use plastics.
- **Vietnam:** In Da Nang, a participatory, household-based approach of "clean house, clean street, clean city" worked closely with women heads of household to promote behavior change at the household level, followed by a city-wide scale-up. This community-based SWM model demonstrates the importance of mobilizing a broad base of stakeholders (households, community leaders, the Women's Union, IWCs, local recyclers/buyers, solid waste managers, city staff, and political officials) who are committed to identifying workable solutions.

### ILLUSTRATIVE INDICATORS

- Number of households/establishments participating in 3R/SWM programs.
- Number of individuals trained in 3R/SWM practices.
- % of participants in programs designed to increase access to productive economic resources who are youth (15-29).



## AN INCLUSIVE AND EQUITABLE SYSTEM THAT INTEGRATES ALL MEMBERS ALONG THE SOLID WASTE MANAGEMENT VALUE CHAIN

### DESCRIPTION

Informal sector workers are the foundation of the waste management pyramid, dominating the waste collection, sorting and recycling stages of the SWM value chain. A city's ability to create a more circular economy around SWM is a function of increased resource efficiency and material recovery, and inclusive integration of informal waste collectors (IWC), including minority groups and women. Examples of approaches to increase recovery and recycling rates with equity and empowerment include improving the welfare of IWCs by supporting safe working conditions, improving livelihoods through livable wages, and supporting women-owned recycling businesses.

### KEY CONSTRAINTS

- **Unsafe working conditions for IWCs.** Workers in the SWM informal sector are vital players in the system, yet are the most vulnerable stakeholders, with little access to legal, economic, and occupational health protections or health insurance.
- **Women face structural barriers, preventing their full economic participation in the SWM value chain.** Women have fewer opportunities for jobs in the formal sector or higher up in the SWM value chain. In both the formal and informal sector, women lack access to finance, professional training, market information and ability to move into leadership positions. As a result, they collect lower value plastics, earn lower wages than their male colleagues and are subject to sexual harassment and violence, which further decreases their full participation in the sector.
- **Insufficient representation of IWCs in decision making.** IWCs typically lack legal entities or other forms of formal organization, which makes it difficult for them to be represented in decision making and have their needs addressed in SWM policies.

### APPROACH IN ACTION

- **Vietnam:** Environnement et Développement du Tiers-Monde (ENDA) has been supporting IWC cooperatives in Ho Chi Minh City to help IWCs gain access to health care, accident insurance, occupational health gear, and higher salaries. Much of this work has been done by formalizing linkages in the plastic value chain between IWCs, local and national level buyers, and local governments.
- **Philippines and Indonesia:** The [Women in Waste's Economic Empowerment](#) activity helps build women's capacity to participate and lead in SWM through business, leadership, and skills trainings, business plan coaching, funding support, mentorship, and links to public and private sector market opportunities.
- **Sri Lanka:** In Negombo, Janathakshan has connected youth groups, other volunteer organizations, the municipal council, local recyclers, boat users and other stakeholders to reduce SUP and improve recycling. Youth groups have helped collect data, conduct awareness sessions, and mobilize their communities, including through developing waste management plans.

### ILLUSTRATIVE INDICATORS

- Number of individuals completing workforce development programs.
- % of female participants in USG-assisted programs designed to increase access to productive economic resources (assets, credit, income or employment).
- Number of legal instruments drafted, proposed or adopted to promote gender equality or non-discrimination against women or girls at the national or sub-national level.
- Number of individuals trained with USG assistance to advance outcomes consistent with gender equality or female empowerment outcomes through their roles in public or private sector institutions or organizations.