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## ADDRESSING CLIMATE CHANGE THROUGH CIRCULARITY AND IMPROVED SOLID WASTE MANAGEMENT

### THE CHALLENGE

Worldwide, increasing production, use and disposal of plastic—combined with inadequate management of plastic waste—is driving ocean plastic pollution and exacerbating the climate crisis.

**Plastic (and other mismanaged waste) contributes to greenhouse gas (GHG) emissions throughout its life cycle** – In recent decades, global plastic use has rapidly increased. Because of rising urban populations in low- and middle-income countries and increasing consumer demand, plastic packaging use alone is expected to quadruple by 2050, and emissions from plastic could account for 10-13 percent of the entire remaining carbon budget set to avoid overshooting the 1.5°C target. Over 90 percent of emissions come from production, transportation, refining, and conversion of fossil fuels into plastic products. The remaining emissions come from end-of-life processes, primarily incineration, open burning, and leakage into the environment. Up to 90 percent of solid waste in low-income countries is openly burned or dumped—and the majority of dumps and landfills lack the proper environmental controls that leave discarded materials, particularly organics, to decompose and emit methane into the environment. Open burning not only emits methane, but also releases black carbon and particulate matter pollution. The waste sector accounts for 18 percent of global methane emissions, one of the most powerful GHGs with 25-34 times the Global Warming Potential of CO<sub>2</sub>.

**Plastic pollution and climate change are interconnected stressors on our environment** – Gaps in current local waste systems are not only a primary source of ocean plastic pollution, but fuel other real and serious impacts, including rising GHG emissions and countries’ increased vulnerability to climate change. Without concerted action, increasing plastic waste will only exacerbate ocean plastic pollution and climate change.

**Rapidly developing coastal areas are among those most vulnerable to plastic pollution and climate change impacts** – Communities around the world are already experiencing the impacts of these crises and are under pressure to implement climate mitigation and adaptation solutions. In Indonesia, by 2050, the total costs of climate change are estimated to be 1.4 percent of today’s Indonesian GDP. In the Philippines, climate change related sea-level rise is expected to destroy 85 percent of coastal mangroves. In the Maldives, 80+ percent of the country’s land area is less than one meter above mean sea level.

### AT A GLANCE

Nearly **99 percent** of plastic comes from fossil fuels—namely oil, gas, and coal.

By 2030, an estimated **53 million tons** of plastic will leak into the environment annually due to product manufacturing, distribution, and (mis)management of the resulting waste.

If the plastics life cycle were a country, it would be the **fourth largest GHG** emitter—behind only China, the United States, and India.

A fully circular business model for plastics could help reduce CO<sub>2</sub> emissions by **62 million tons** per year.

## OUR APPROACH

There has never been a more important time to address global waste challenges. Anticipated growth in plastic production and waste far outpaces efforts and commitments to mitigate plastic pollution. Reducing plastic production and waste and optimizing solid waste management can help restore our oceans and reduce GHG emissions.

**USAID's Clean Cities, Blue Ocean** (CCBO) program works across the planet to implement local solutions to address these global challenges as part of USAID's Save our Seas Initiative. Through local, national, and international technical expertise paired with a global grants program, CCBO tests, scales, and shares locally-led, innovative, and proven solutions with governments, communities, and businesses. As USAID's flagship program for addressing ocean plastic, CCBO contributes to both USAID's 2022-2030 Climate Strategy and the Global Methane Pledge. CCBO tackles plastic pollution at the source in more than ten countries and 25 cities to support communities to adapt and increase their resilience to climate variability and risk through locally-led responses. Solutions include:



**Creating long-term solid waste management plans that support climate mitigation and adaptation.** Through customized tools such as the Solid Waste Capacity Index for Local Governments (SCIL), CCBO provides technical assistance to national and local governments to develop actionable waste management plans that integrate waste reduction efforts and improve the adaptation and resilience of current and future urban infrastructure so that cities can withstand and mitigate damage from extreme weather events.



**Improving waste infrastructure and services to advance local solid waste management and reduce emissions.** By providing technical assistance to national and local governments to strengthen local solid waste management infrastructure and services, CCBO helps countries reduce ocean plastics leakage and GHG emissions. Areas of assistance have included remediation and closure of open dumps; siting and design of new sanitary landfills; and introducing environmental controls. The program has reduced GHG emissions by more than **28,123 tons** of CO<sub>2</sub> equivalent GHGs—the approximate equivalent of averting the consumption of more than **3.2 million gallons** of gasoline—just by providing technical assistance for the remediation of two open dump sites in the Dominican Republic.



**Improving cities' ability to adapt to climate change through improved waste services and building informal sector capacity.** Cities are experiencing destructive flooding due to changing weather patterns, increased extreme weather events, and failing urban infrastructure inundated by waste. CCBO has supported the safe management of more than **384,000** tons of waste, including more than **51,000** tons of plastic—the equivalent of nearly **5.5 billion** one-liter plastic bottles. CCBO also builds the capacity of informal waste workers through technical and empowerment skills trainings to expand collection services in underserved areas. Together, these efforts prevent waste from clogging city storm drains and reduce the risk of urban flooding for the most vulnerable.



**Creating circular economies through locally-led solutions.** CCBO supports countries to reduce reliance on virgin plastic production and disposal by promoting the principles of a circular economy. For example, CCBO grantees in the Maldives are working on sustained behavior change approaches to reduce single-use plastics. Another grantee in the Philippines, Green Antz Builders, Inc., is using waste plastics in place of cement building materials to help curb the 2-8 percent of GHG emissions that cement causes globally. Several other CCBO grantees are working on organics separation and community composting programs that increase solid waste system efficiencies, lower costs, and allow for sequestration of carbon in the soil.



**Supporting partners to identify funding sources to finance these improvements.** CCBO works with the private sector to catalyze investments in these solutions, and collaborates with national and local governments to put policies in place that enable and incentivize circular economies. CCBO's Cost of Service tool helps local governments determine the funding needed to implement a robust solid waste management system, and its Funding Options Guide helps partners to identify potential funding sources to finance these improvements, recognizing that funding is often a barrier for low- and middle-income countries. CCBO has leveraged more than **\$8.3 million** from the public and private sectors to support local partners to right-size and implement innovative systems and technologies for managing waste.

### CONTACTS

**Clare Romanik**  
USAID Lead Ocean Plastics and Urban Advisor  
[cromanik@usaid.gov](mailto:cromanik@usaid.gov)

**Jon Angin**  
Chief of Party  
[jon.angin@cleancitiesblueocean.org](mailto:jon.angin@cleancitiesblueocean.org)

For general program inquiries please contact Clean Cities, Blue Ocean at [info@cleancitiesblueocean.org](mailto:info@cleancitiesblueocean.org).