Salvador, Brazil

City Waste Management Profile

URBAN OCEAN

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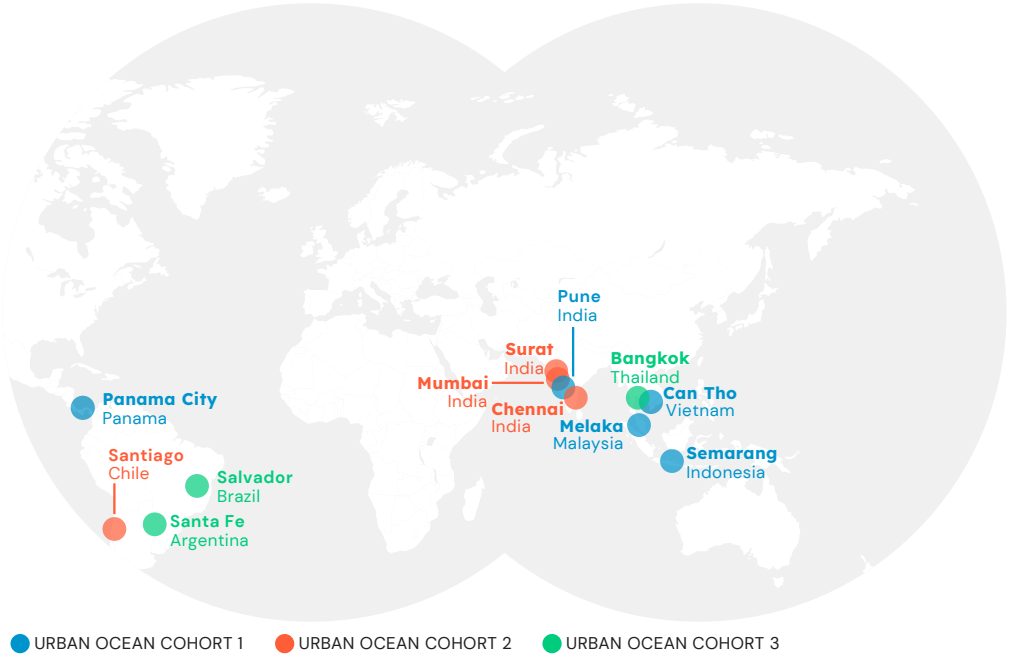
1. Introduction to Urban Ocean

Urban Ocean is a capacity-building and accelerator program for cities that champions circular economy principles, builds awareness of ocean plastic pollution, and assesses waste management systems. The program works with city leaders to bring new ideas, partners, and resources together to solve interrelated resilience challenges associated with waste management, reducing plastic leakage, and protecting water bodies. It demonstrates how actions to improve waste management and recycling can provide resilient and sustainable solutions that reduce ocean plastic pollution while addressing key city priorities such as improving public health, supporting economic development, and reducing greenhouse gas emissions. Furthermore, Urban Ocean provides cities with the opportunity to showcase leadership and share knowledge and experience across the Resilient Cities Network community and beyond.

The program is jointly led by R-Cities, Ocean Conservancy and The Circulate Initiative, in partnership with the Municipal Government of Salvador and Alimente SOLOS.

FIGURE 1
Urban Ocean cities map



Overview of the Urban Ocean Challenge

Cities are home to over half of the global population and account for nearly three quarters of greenhouse gas emissions. Neither climate nor social targets will be met without a deep transformation of urban centers towards a more inclusive, sustainable and, ultimately, resilient path. Approaching urban waste management systems through a resilience lens reveals complex, interrelated ramifications for social, economic and environmental systems. The International Labor Organization estimates that the waste management sector alone has the potential to create 45 million jobs globally by 2030 while reducing greenhouse gas emissions by 15 to 20 percent. Additionally, within the same time frame,

circular economies offer a $4.5 trillion USD economic opportunity by reducing waste, stimulating innovation, and creating employment (World Resources Institute, 2021). Currently, plastic usage continues to grow, remaining a threat to public and environmental health in the ocean and in cities. City governments have a unique opportunity to implement policies and projects that promote a more resilient and circular waste sector in their cities. Now is the time to set out on the path towards a more resilient urban–ocean relationship that highlights the importance of preventing marine plastic debris.

Urban Ocean Cities

Urban Ocean works closely with cities to demonstrate tangible solutions and highlight progress in addressing waste management challenges. The first cohort of Urban Ocean cities, launched in 2020, included Pune (India), Can Tho (Vietnam), Panama City (Panama), Semarang (Indonesia) and Melaka (Malaysia). In 2022, the program expanded to four additional cities in Cohort 2 – Chennai, Surat, and Mumbai (all in India) and Santiago (Chile), and then in 2023 to Cohort 3 – Salvador (Brazil), Bangkok (Thailand), and Santa Fe (Argentina). This expansion aimed to broaden the program's geographic scope, strengthen waste management, circular economy, and resilience ecosystems, increase collaboration with local governments, and establish effective waste-management systems that generate environmental, social and economic co-benefits for cities.

Program Objective

Urban Ocean provides a platform for ocean advocates, city leaders and allies to join forces with other collaborators in developing comprehensive solutions that meet the needs and priorities of cities and their communities, creating meaningful and sustainable impact. The program provides and coordinates baseline assessments to gauge the efficacy, challenges and opportunities of existing waste management systems. Urban Ocean sparks critical conversations that help participating cities identify, develop and implement solutions to improve waste management and reduce plastic pollution through circular and resilient lenses that also promote social inclusion, public health, environmental protection and reductions in greenhouse gas emissions. Once opportunities are identified, Urban Ocean supports cities to attract support to implement solutions.

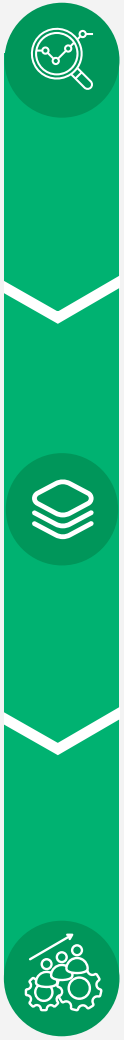
Program Approach

Urban Ocean provides support for cities to develop strategies and projects designed to address the interrelated challenges of ocean plastics and community resilience. The program approach in cities is shown in figure 2.

Methodology

This profile provides a summary of the information collected for the purpose of developing a resilience-oriented analysis of the urban waste management system in Salvador, Brazil. The analysis involved desk research, interviews and collaborative workshops with city stakeholders.

FIGURE 2
Urban Ocean Program Approach



Preparation Forum

- Sessions related to Resilience, Plastic Policy, Science-based solutions, Finance and Circularity Incubators
- Innovation Dialogues with the private sector

Gap Assessment

- Circularity Assessment Protocol (CAP)
- Framing Session
- Participatory Session
- Solutioning Tool
- OPPORTUNITY ASSESSMENT

Project Design

- Project proposal development
- Pilot Implementation

2. About the City Waste Management Profile

As part of Urban Ocean, cities create a City Waste Management Profile, in which a city's waste management systems are presented, including technical and sustainability aspects, and formal and informal actors in the system. The City Waste Management Profile examines major disturbances and stresses that impact the city's waste management system. It brings together existing data and information collected in the initial phases of the program to allow the city to assess the risks and vulnerabilities of the system, as well as support project design

Developing such a profile provides insight for the city to better plan and identify appropriate solutions to increase the resilience of its waste management system, reduce plastic leakage into the environment and improve the city's ability to respond to, adapt to or otherwise address current and future shocks and stresses. It summarizes the baseline assessment conducted in all cities in the Urban Ocean program and highlights the most relevant data and information to address urban resilience, ocean conservation and plastic pollution.

City Waste Management Profiles encourage a more holistic approach to existing challenges and support cities in the development of solutions suited to their specific history, economy, demographics and culture while being aligned with the city's unique institutional, environmental and financial resources. An added benefit of participating in Urban Ocean is that cities can learn from each other by comparing common elements in their respective profiles.

Table 1 presents the stakeholders who were consulted as part of the program.

TABLE 1
Stakeholders consulted during Urban Ocean Program delivery

Government/ Public Sector Agencies

Municipal Government of Salvador
Municipal Department of Sustainability, Resilience and Animal Protection and Wellbeing (SECIS)
State Department of Labor, Employment, Income, and Sports
State Department of Environment
Municipal Legislative Body
Office of the Prosecutor of the State of Bahia
Brazilian Service for Support of Micro and Small Enterprises (SEBRAE)
Municipal Department of Education
Municipal Department of Health (SMS)
Municipal Department of Development and Urban Planning (SEDUR)
Municipal Department of Public Order (SEMOP)
Municipal Department of Culture and Tourism (SECULT)
Municipal Department of Economic Development, Employment, and Income (SEMDEC)
Municipal Department of Policy for Women, Infants and Youth (SMPJ)
Salvador Urban Cleaning Company (LIMPURB)
Municipal Department of Infrastructure and Public Works (SEINFRA)
Municipal Civil Defense Agency

Private Sector

Salvador Shopping
Ambev
IFood
Heineken
Suzano
Pepsico
Braskem
Boticario
BASF
Nestle
TetraPak
FECOMERCIO
IWrc

Cooperatives and non-governmental organizations

Cooperativa de Agentes Ecologicos de Canabrava (CA-EC)

Companhia de Coleta Seletiva Processamento de Plástico e Proteção Am-biental (CA-MAPET)

Cooperativa dos Agentes Ambientais da Nova República (CANORE)

Centro de Arte e Meio Ambiente

Cooperativa dos catadores de reciclagem de Cajazeiras (COOCREJA)

Cooperguary Cooperativa Ecológica Do Paraguary (COOPERGUARY)

Cooperativa de Reciclagem União Nazaré (CRUN)

Fundo da Folia

Waste Service Providers

Ciclik

Compostar/Folia que Vira

So+ma

Torre

Plasticaria

Academia

Universidade Federal da Bahia

Instituto Fed-eral daBahia

UNIFACS

3. Overview of Salvador and its Resilience Journey

Salvador, capital of the state of Bahia, was also Brazil's first national capital. Founded in the mid-16th century, the city ranks as the country's fifth largest, with almost 2.5 million inhabitants. Salvador is celebrated for its rich cultural heritage and has evolved into a thriving economic hub and the country's second-most popular tourist destination, attracting visitors with its unique blend of tradition and natural beauty.

Situated on All Saint's Bay (Baia de Todos os Santos) – the largest bay in the country – Salvador boasts the country's second-longest urban coastline. Along the coast, access to the water is a key asset for communities that depend on the bay and ocean for their livelihoods, leisure and food security.

FIGURE 3
Location of the City of Salvador (City of Salvador, 2023)

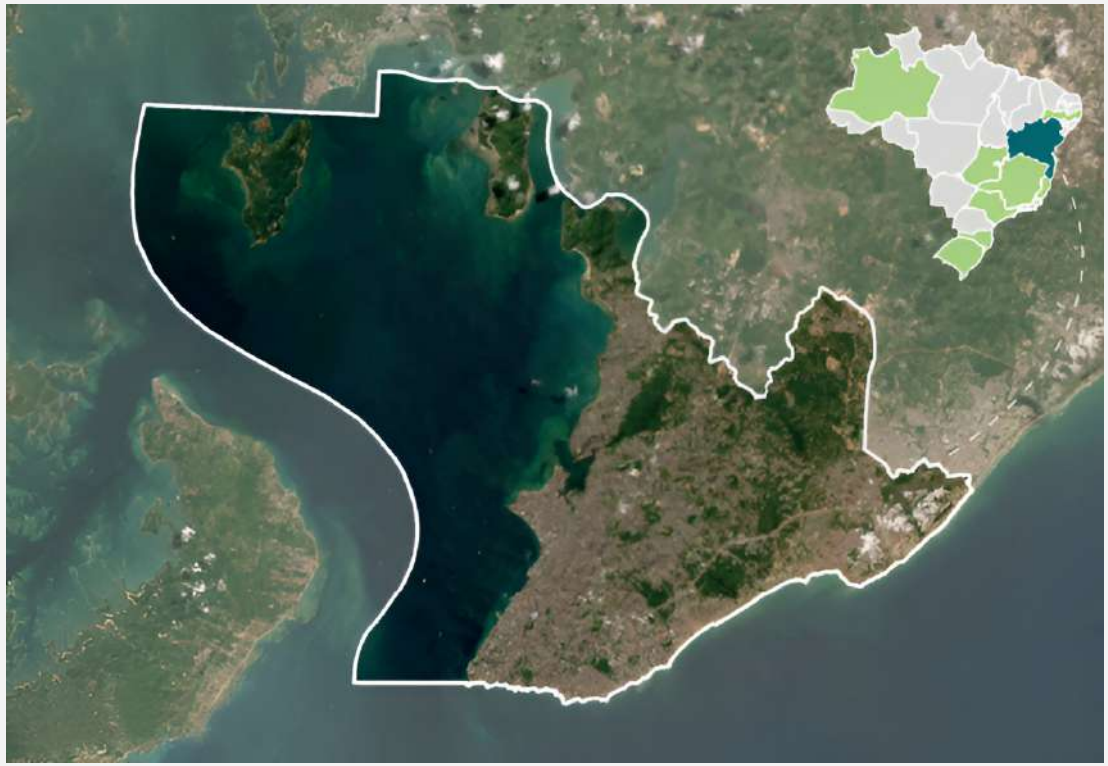


FIGURE 4

District divisions of Salvador (100 Resilient Cities, 2019)

2.4 million
Population (2020)[1]

≈ 41%
households in informal settlements[3]

3,486 per km²
Population density[2]

693.44 km²
Total area[4]

196.26 km²
Urban area[5]

92.8%
Adequate sanitation[6]

30.83 m²
Green area per inhabitant[7]

R$ 21,706.06BRL
GDP per capita[8]

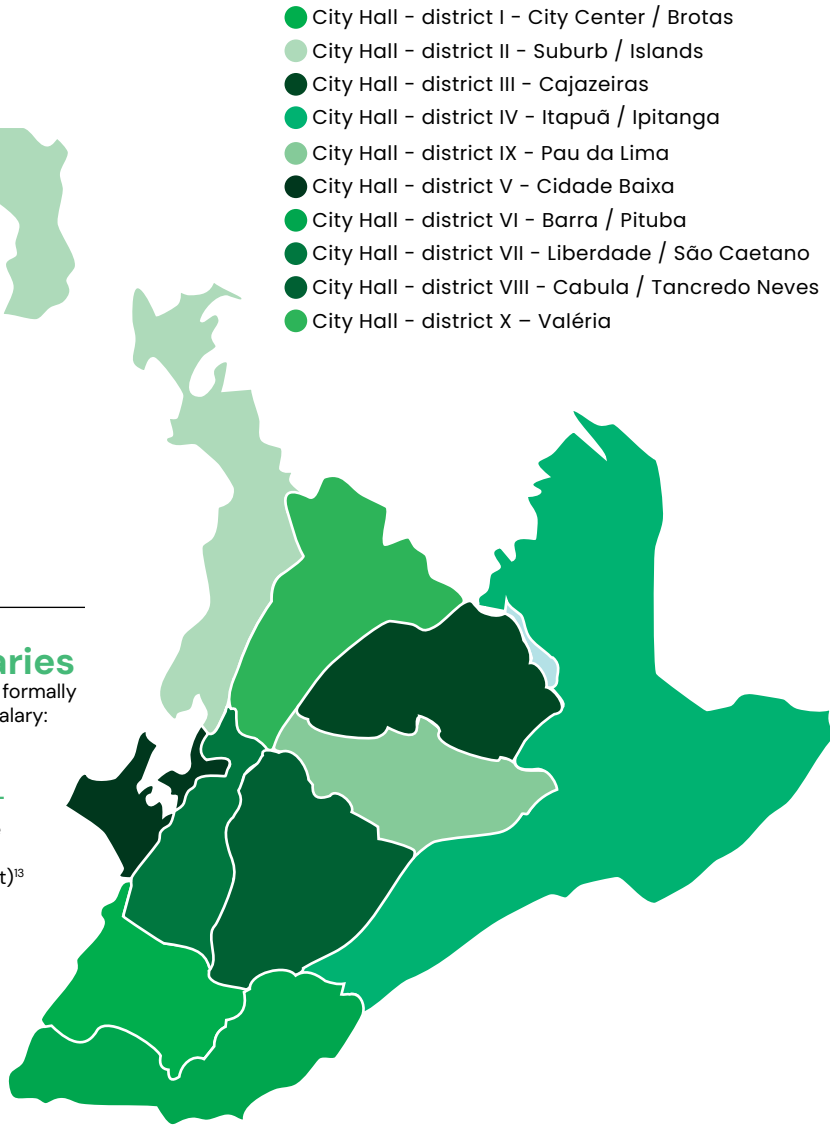
37.79%
Employment rate[10]

3.1 min. salaries
Average salary among formally employed (Minimum salary: R$1,518.00 BRL)[12]

0.759
Municipal Human Development Index[9]

36.8%
Workers making up to 0.5 minimum salaries[11]

R$ 479 MBRL
City budget for waste management (6.44% of total budget)[13]



[1,2,4,5,8,10,12] IBGE, 2022 [3] IBGE, 2019 [13] Casa Civil, 2019 [6,9,11] IBGE, 2010 [7] SEMOB, 2015

PEOPLE AND CULTURE

Salvador is widely recognized for its culture, which supports a thriving tourism sector. Known as the birthplace of several leading Brazilian cultural and musical personalities, the city is also notable for its Afro-Brazilian identity and culture. Indeed, with 83.2 percent of the population self-identifying as Black (IBGE, 2022), Salvador is home to more afrodescendants than any other city outside the African continent. Candomblé and festivals dedicated to Orixás contribute to the city's identity and its prominence in the entertainment and events sector.

In 2024, Salvador's Carnival, the longest in Brazil at six days, attracted more than 15 million revelers from across the country and abroad. This signature event underscores the city's ability to leverage its cultural heritage as an economic driver while capitalizing on opportunities to integrate resilience-oriented strategies to manage the impact of large-scale events. Other important public events include the New Year's Eve celebration and the Iemanjá Festival.

Salvador's strength lies in its people, who have cultivated a unique culture and vibrant heritage over centuries. It has been shaped by diverse identities, from its Indigenous, African, and Portuguese roots to the many cultures that followed. This spirit of exchange has fostered an ongoing capacity for reinvention and innovation.

FIGURE 5
Traditionally dressed Baianas in Salvador (Salvador da Bahia, n.d.)

FIGURE 6

Barra Fort during Carnival in Salvador (Central do Carnaval, 2023)

ECONOMY

Ranked 9th in gross domestic product among Brazilian state capitals (IBGE, 2021), Salvador is a key economic and transportation hub, as well as a primary tourist destination.

However, Salvador faces significant socioeconomic challenges. Despite economic growth, income inequality remains a concern, with high levels of informal employment and low income even in the formal sector. According to the 2022 census (IBGE, 2022), 37.4 percent of the labor force currently operates in the informal sector.

URBANIZATION

Developed on a geological fault that divides the city into its upper and lower areas, Salvador experienced rapid growth at the end of the 20th century. During this time, lower-income communities settled predominantly in lower-lying parts of the city, while the better-off remained on higher ground, a situation that reflects and exacerbates modern social inequalities. Almost 45.5 percent of the population lives in areas at risk of landslides and flooding (IBGE, 2018), a critical concern for localized and place-based policymaking, especially with the worsening climate crisis and increasingly intense flooding.

Salvador's Relationship with its Rivers, Lakes and the Ocean

The history, economy and culture of Salvador and its people are closely linked to its bodies of water. Since the city's founding, they have been essential for the city's development. Salvador was founded at the entrance of the Baia de Todos os Santos to benefit from the strategic, logistical and natural benefits and resources of this location. The many rivers and streams guaranteed fertile soil and freshwater supplies for the settlers. These bodies of water helped Salvador become one of the earliest settlements in the Americas and, later, the first capital of Brazil.

The Baia de Todos os Santos, the largest bay in Brazil, is undoubtedly the most important of the city's water bodies. Since before the arrival of European settlers, the bay has served as a key transportation hub for the surrounding area. Ports on the bay were of huge significance during the triangular trade, with Salvador eventually becoming one of the top destinations of enslaved people across the Americas, while also exporting vast amounts of commodities from as far away as Bolivia. Additionally, subsistence fishing in the bay supports the livelihoods and nutrition of local communities.

There are 12 major rivers and basins in and around the city, the most important of which include Rio Camarajipe, Rio Jaguaribe, Rio Paraguari and Rio do Cobre. Because of surrounding urban development in the city and upstream, the rivers have become heavily degraded, suffering from high levels of pollution, or being rerouted, channeled or covered. Today, only Rio do Cobre supports freshwater fauna.

FIGURE 7

Salvador's Rivers and Hydrographic Basins (Municipal Department of Development and Urban Planning, 2016)

FIGURE 8
Camarajipe River (Samory Santos, 2009)

TRANSPORT AND LOGISTICS

Historically, maritime transport played a key role in the city's development. At the center of this network is the Port of Salvador, supported by the Água de Meninos terminal for ferry and catamaran services, the Bahia Nautical Center (where boats depart to surrounding islands), and the marinas of Contorno and Ribeira. In addition, there are smaller facilities with limited capacity but significant social importance – such as Periperi, Porto da Barra, Rio Vermelho, and Itapuã – that continue to connect local communities and support essential mobility needs.

WATER SUPPLY AND SANITATION

Salvador's water supply system is integrated with those of the neighboring municipalities of Simões Filho, Lauro de Freitas, Madre de Deus, São Francisco do Conde, and Candeias. Some of the most important sources of fresh water include the Paraguaçu, Joanes, Jacuípe, Ipitanga and Cobre rivers, which supply dams and reservoirs. Some of these water sources are now considered historically and culturally significant, underscoring their crucial role in Salvador's history and development.

Risks, Challenges and Recent Developments

Rapid urbanization, driven by rural-to-urban migration, has sharply increased the population density and has led to the proliferation of informal settlements. Driven by the need to expand basic infrastructure for new residents, a series of interventions has effectively "erased" some of Salvador's rivers, burying them under concrete and asphalt or exposing them to high levels of pollution. Coastal cities such as Salvador face an even greater challenge in maintaining healthy rivers, as they must address pollution from upstream cities.

Poor land use and unchecked urban development have created or worsened risks for local communities – ranging from flooding, pollution and waterborne disease to the proliferation of disease vectors, extreme heat and urban blight.

Over the past few years, Salvador has made significant strides towards a more environmentally sound urban development paradigm. In 2022, Salvador received a Blue Flag Beach certification, granted by the Foundation for Environmental Education, in recognition of the city's adherence to high environmental standards in water quality, environmental management, public education and safety. Additionally, the Barra Marine Park was established in 2016 as a conservation area to safeguard the local marine ecosystem. Located within the Baía de Todos os Santos, this park has grown to become a notable tourist attraction, celebrated for its natural beauty and ecological importance.

FIGURE 9
Port of Salvador (Paul R. Burley, Public Domain, 2022)

Key Shocks and Stresses Impacting the City's Waste-Management Systems

Stakeholder's highlighted the city's key shocks and stresses in figure 10 through a participatory process and resilience assessment report as part of the development of its Resilience Strategy

Through baseline analyses, including fieldwork, research and consultations with stakeholders, the Urban Ocean program has revealed the following additional resilience challenges facing Salvador.

→ Water pollution

→ Strained health systems

→ Accelerated population growth and rapid urbanization

POPULATION GROWTH AND ACCELERATED URBAN DEVELOPMENT

Salvador has experienced several periods of accelerated rural–urban migration and population growth. While expansion has slowed over the past few years, census data indicates that Salvador's population grew almost tenfold in the 50 years between 1950 and 2000. This populational explosion led to increasing density, and as the city struggled to cope with its new residents, many settled in informal settlements lacking in adequate infrastructure and services. The effects on the waste-management system are still felt to this day – comprehensive door-to-door waste collection remains elusive, with informal settlements having the lowest rates of collection.

ECONOMY, POVERTY AND EMPLOYMENT

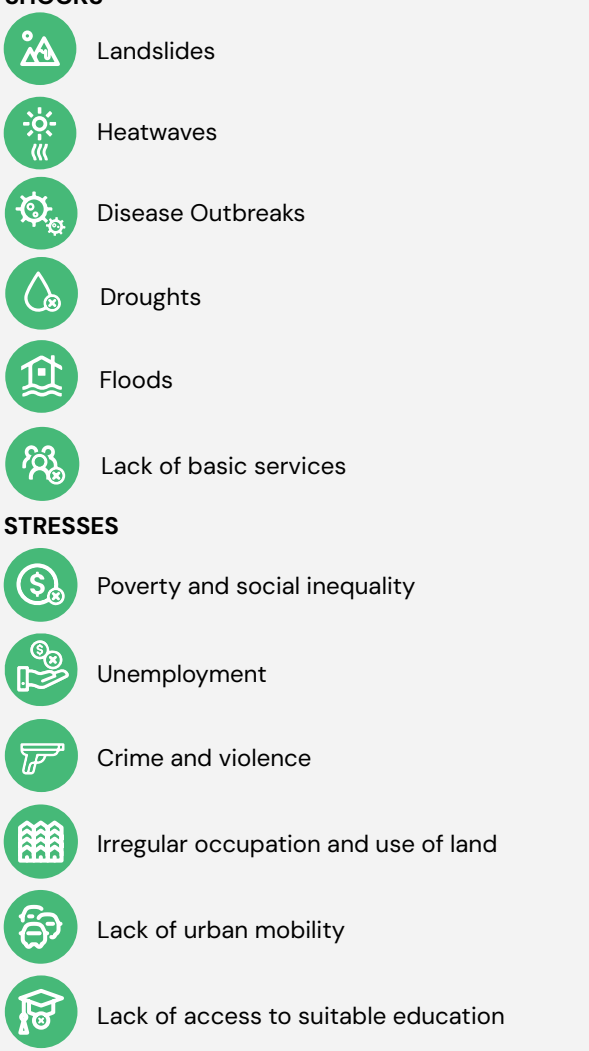
With an unemployment rate of 16.7 percent (Neves and Madeiro, 2024), and a relatively low average income, Salvador faces stark social and economic disparities. A lack of formal labor opportunities drives almost 40 percent (IBGE, 2022) of the population to the informal sector, limiting access to social services and labor rights. Salvador's most vulnerable communities often live in informal housing, which, together with hilly terrain, poses challenges for waste collection and leads to increased health risks and environmental pollution.

A limited formal economy also contributes to a large informal sector within the waste management system. Waste pickers provide a fundamental service to the city, but without formal mechanisms for their employment, their contribution often goes unrecognized, as they labor in unsafe conditions with limited social support.

FINANCIAL AND FISCAL HEALTH

Although the city has made strides in developing waste-management services and infrastructure, financial barriers remain. The city faces challenges to systematically invest in technologies that may improve efficiency or coverage, and has not been able to increase curbside recycling collection at scale. While external resources and increasing tax revenue have helped expand sewage networks and improve solid

FIGURE 10
Key shocks and stresses in the city



waste management services, in 2023 all cities across the southern part of Bahia state – including Salvador – reported that allocations remained insufficient to cope with waste management needs (Santos, Silva and Oliveira, 2023).

RIVERS AND WATER RESOURCES

Salvador's water bodies, particularly its rivers, have long suffered the ill effects of rapid and disorderly urbanization, inefficient drainage and inadequate solid-waste management. Solid-waste pollution contributes to several risks associated with Salvador's rivers. For one, disposal of sewage and toxic waste in rivers presents a severe threat to public health and to health systems, especially in lower-income neighborhoods in low-lying areas of the city. Moreover, pollution in rivers exacerbates flood risks and, consequently, the risk of landslides. Over the past years, landslides have become increasingly frequent, costly and deadly, with over 19,000 landslide-related occurrences reported by the Municipal Civil Defense Agency in the 10 years ending in 2019.

Building Resilience through Waste Management

RESILIENCE STRATEGY

Having joined the 100 Resilient Cities program in 2016, the City of Salvador launched its Resilience Strategy in 2018, after nearly two years of community engagement and development. The Resilience Strategy is focused on holistic, sustainable urban administration intertwined with the concept of resilience dividends and incorporates insights from existing citywide policies and planning instruments, including strategic governance plans, the Urban Development Master Plan, and the City Policy for Environment and Sustainable Development.

The city further demonstrated its commitment to a contemporary agenda of sustainable development and resilience by establishing the Department of Sustainability, Innovation and Resilience – now the Municipal Department of Sustainability, Resilience and Animal Protection and Wellbeing – and created the Municipal Resilience Council through local legislation, ensuring participation from civil society, academia, the private sector and public authorities.

During the development process of the resilience strategy, over 317 initiatives were mapped, of which a total of 60 were selected to be a part of the strategy. The initiatives were consolidated into the following resilience pillars:

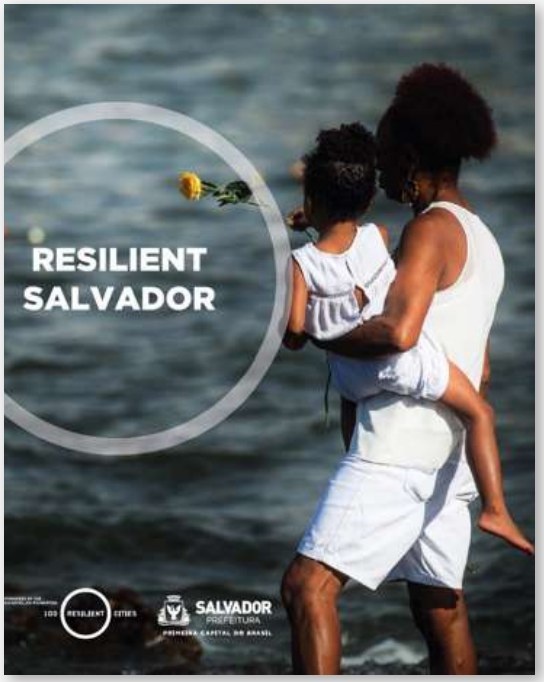
PILLAR 1:
Culture and Multiple identities

PILLAR 2:
A Healthy and Engaged Community

PILLAR 3:
A Diverse and Inclusive Economy

PILLAR 4:
A Knowledgeable City and Innovative Governance

PILLAR 5:
Sustainable Urban Transformation



"A city that is recognized by its rich human and cultural heritage, open to the sea and to the world. It is a capital of multiple identities, creativity and innovation, where sustainable and technological development promotes people's resilience, inclusion and integration."

Waste management and plastic leakage are key priorities within two of these pillars.

Pillar 3: A Diverse and Inclusive Community

Salvador's Circular Economy Initiative aims to support vulnerable communities and create cooperatives for recycling and reusing recovered materials. The initiative builds an enabling environment by registering and incentivizing circular-economy companies, while encouraging the community to purchase goods made from recycled materials. By supporting waste-related startups and offering courses and workshops for waste transformation, the city aims to create a market for reused materials, empowering the community members who are already driving recycling in the city.

Pillar 5: Sustainable Urban Transformation

A municipal sanitation plan was developed to address four key areas: water services, sewage, municipal solid waste (MSW) and drainage of urban rainwater. The primary attribution of the plan is the sustainable management of waterways.

RESILIENT SALVADOR CHALLENGE

In 2019, the Municipality of Salvador and the Resilient Cities Network joined partners including Avina and BID-Lab to launch the Resilient Salvador Challenge and kick-start implementation of Salvador's Resilience Strategy. The challenge was a part of the Regional Resilient Cities Initiative, which aimed to enhance urban resilience in Latin America and the Caribbean

FIGURE 11
Timeline of Resilience in Salvador and Urban Ocean

2016-18

Development of Resilience Strategy

Waste management and plastic leakage identified as key priorities in Salvador's Resilience Strategy

2019

Resilient Salvador Challenge

Competitive selection process launched to identify pilot projects that enhance the circular economy of Salvador

2020

Launch of Urban Ocean Cohort 1

Pune (India), Semarang (Indonesia), Melaka (Malaysia), Panama City (Panama), Can Tho (Vietnam)

2022

Launch of Urban Ocean Cohort 2

Santiago (Chile), Mumbai (India), Chennai (India), Surat (India)

2023

Launch of Urban Ocean Cohort 3

Santa Fe (Argentina), Salvador (Brazil), Bangkok (Thailand)

2024

Salvador Gap Assessment

Circularity Assessment Protocol, City Waste Management Profile, Opportunity Assessment

Urban Ocean Summit

First in-person Urban Ocean summit hosted in June 2024 in Chennai with the participation of all 12 Urban Ocean cities. The primary objectives of the summit included project presentation, peer-to-peer learning, networking and experiential learning through site visits to pilot projects in Chennai.

2024-2025

Project Design

Full development of project statement

by engaging the private sector.

The specific goal of the challenge was to strengthen pilot projects and sustainable technology ventures that generate solutions addressing circular economy and gender equity while creating income opportunities. The focus on the circular economy emerged from dialogues with the private sector, which highlighted waste management and social inequality as major challenges for the city.

The challenge focused on three key themes:

1. **Food supply chain:** Food access and security, local food production, logistics and energy consumption
2. **Waste management:** Reuse, energy production and enhanced recycling infrastructure and processes
3. **Water treatment and sanitation:** Reuse of wastewater and industrial water, restoration of ecosystems and beach clean-ups

RECYCLING AT PUBLIC EVENTS

Salvador is well known for its culture and music, which coalesce into a vibrant events scene attracting millions of tourists. Unfortunately, these events have historically caused significant upticks in the levels of pollution and waste leakage.

Over the last few years, the city has leveraged this spotlight, usually reserved for musical and artistic talent, to highlight its vision for sustainability and circularity. Through initiatives like Carnaval Circular and Centrais de Reciclagem, the city has drastically improved circular outcomes during large events including the Iemanjá Festival, Carnival, the Salvador Marathon and the New Year's Eve celebration. These initiatives have raised awareness of the impact of plastic pollution and the importance of the circular economy. Additionally, they support the informal waste sector, providing a stream of income to waste pickers and recycling cooperatives.

CIRCULAR BEACHES

Salvador's 25 kilometers of beaches play a fundamental role in the culture and daily life of the city, representing both an economic hub and a destination for leisure. However, they suffer from solid-waste pollution, especially during large events, weekends and holiday seasons. This has led the government to prioritize beaches as a springboard for community engagement in the waste management sector.

The city has taken a multipronged approach to addressing solid waste pollution on its beaches. Initiatives like Praia Massa é Praia Limpa, A Onda é Preservar and Operação Tá ná Pegada complement regular cleaning services through volunteer action, community engagement, beach clean-ups and education campaigns. Additionally, in recent years, the city has bolstered waste-disposal infrastructure, increasing the density of recycling bins and recycling drop-off and reward stations. These initiatives are supported by partnerships with the private sector and non-governmental organizations, ranging from large corporations like Braskem to grassroots organizations like Fundo da Folia and SOLOS.

While these solutions are responsive to the challenges of coastal waste management, they have not been wholly successful, as beaches are still regularly littered. Upstream solutions targeting collection; reduction of plastic use, packaging and design; regulations; behavior changes and awareness are necessary to systematically reduce litter on beaches.

COMMUNITY AND STAKEHOLDER ENGAGEMENT

Salvador has leveraged the community to promote a more resilient and circular approach to waste management. Through LIMPURB and SECIS, the city has championed awareness campaigns, surveys and education as part of its large event and beach clean-up strategy, focusing on plastic pollution. During one such campaign, A Onda é Preservar, a city team, in partnership with local universities and non-governmental organizations, traveled along city beaches while offering biodegradable garbage bags and providing information about recycling and the impacts of plastic pollution (Tribuna da Bahia, 2024). The city has increasingly leveraged informal waste pickers and recycling cooperatives as key change agents in engaging the community and amplifying the importance of circular economies.

FIGURE 12
Central de Reciclagem at the New Year's celebration (Jefferson Peixoto, SECOM)

4. Legal, Policy and Governance

Governance Structure

TABLE 2
Roles and responsibilities of departments related to waste management

	MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE	
NATIONAL LEVEL	**Department of Waste Management**	• Define implementation strategies for programs, projects, and guidelines related to the National Solid Waste Policy, particularly those concerning reverse logistics systems and landfill closures. • Promote the recycling of solid waste generated nationwide. • Work in close collaboration with states, municipalities, the Federal District, and other entities at both national and international levels.
	National Solid Waste Management Information System (SINIR)	• Developed to collect, store and provide data on solid waste management nationwide. • Contains data submitted by states and federal agencies as well as census data on generation, collection, treatment and final disposal of solid waste.
	Department of Urban Environment	• Formulate policies, guidelines, strategies and initiatives related to urban environmental quality. • Pursue technological innovations aimed at reducing greenhouse gas emissions and solid waste. • Promote the circular economy and the use of clean energy in cities.
	Department of Environmental Quality	• Promote improvements in air, soil and water quality and reduce pollution through implementation programs and guidelines for the sustainable management of natural resources and the protection of public health. • Define implementation strategies for programs, projects and guidelines related to environmental liabilities and areas contaminated by solid waste, including hazardous waste.

NATIONAL LEVEL	**MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE**	
	Department of Ocean and Coastal Management	• Support the development and implementation of a strategy to combat marine plastic pollution. • Implement agreements on ocean protection and plastic pollution.
	MINISTRY OF CITIES	
	National Agency for Environmental Sanitation	• Coordinate activities related to the development of studies and projects for water supply systems, sanitation, solid waste management, drainage and household sanitation improvements. • Oversee investment of R$ 1.8 billion in solid waste management as part of the sustainable and resilient cities component of the New Accelerated Growth Program.
	SPECIALIZED AGENCIES	
	The National Health Regulatory Agency (Anvisa)	• Regulates and oversees the management of solid medical waste.
	The Brazilian Institute of Environment and Renewable Natural Resources (IBAMA)	• Oversees the management of hazardous and dangerous waste including batteries, tires, and used or contaminated lubricants and oils.
STATE LEVEL	**URBAN DEVELOPMENT AGENCY**	
	• Plan, regulate and oversee the implementation of the state solid waste plan, as part of the National Solid Waste Policy, in collaboration with municipal administrations. • Promote improvements in solid waste disposal throughout Bahia.	
CITY LEVEL	**MUNICIPAL DEPARTMENT OF PUBLIC ORDER**	
	• Develop public policies for the regulation and oversight of informal commerce and for the management of municipal fairs and public markets. • Oversee urban cleaning operations.	

CITY LEVEL	**MUNICIPAL DEPARTMENT OF SUSTAINABILITY, RESILIENCE AND ANIMAL PROTECTION AND WELLBEING**
	• Design, implement and promote sustainable development and resilience initiatives in Salvador. • Protect and manage the natural environment of Salvador. • Implement the municipal urban resilience strategy. • Lead initiatives focused on developing Salvador's innovation ecosystem.
	SALVADOR URBAN CLEANING COMPANY (LIMPURB)
	• Plan, coordinate, contract and perform urban cleaning services in the municipality. • Collect, transport, transfer and dispose of household and public waste. • Contract organizations and companies to support or execute urban cleaning services.
	SUBCONTRACTED WASTE SERVICE COMPANIES
	• Bahia Transferência e Tratamento de Resíduos Ltda (BATTRE): Manages and maintains Salvador's landfill and transfer station. • Consorcio Sotero Ambiental, ECOSAL, and BF Serviços Ambientais are responsible for providing urban cleaning and solid waste management services in different regions of Salvador. • Águas Claras Ambiental and Eucafi are responsible for the treatment of construction and demolition waste.

National and Local Regulations and Guidelines

NATIONAL POLICIES AND GUIDELINES

National Solid Waste Policy

Federal Decree no. 10.936/2022 regulates the National Solid Waste Policy (Política Nacional de Resíduos Sólidos, PNRS). Established by Law no. 12.305/2010, the PNRS prescribes the principles, objectives and instruments promoting integrated and sustainable solid waste management nationwide. Its core focus is on waste prevention and reduction, alongside promoting reuse, recycling, treatment and proper final disposal. The policy adopts a regulatory approach that assigns significant financial and operational responsibility for hazardous waste management to producers. Additionally, the national policy calls on states, regions and municipalities to develop localized strategies to implement and align with the national framework.

The PNRS is a comprehensive policy, covering public, domestic, industrial, mining, agroforestry, transportation infrastructure, construction and healthcare waste. Reverse logistics forms a key component of the policy, based around polluter responsibility, specifically in relation to:

a) pesticides, hazardous waste and associated packaging

b) batteries

c) tires

d) lubricating oils and their containers

e) fluorescent lamps, sodium and mercury vapor lamps, and mixed lighting

f) electrical and electronic products and components.

The policy outlines multiple pathways for collaboration among producers, reverse-logistics service providers and municipal and state governments. These partnerships are essential for managing waste streams, recovering valuable materials, increasing recycling rates, and ensuring the environmentally responsible disposal of end-of-life products.

The policy also includes specific provisions to support waste pickers. The federal government has introduced subsidy programs and technical assistance to help local governments enhance recycling systems and workforce training, with a strong emphasis on social inclusion initiatives for communities of waste pickers.

General Agreement on the Packaging Sector

The 2015 **General Agreement on the Packaging Sector** (Acordo Geral do Setor de Embalagens), developed by the Coalizão Embalagens, or Packaging Coalition, representing 14 industry associations and approximately 850 companies, established a voluntary extended producer responsibility system for packaging. This system enables the return of product packaging after source separation and recycling. The agreement also encourages the participation of the informal recycling sector.

Recycling Incentive Law

Law no. 14.260/2021, known as the Recycling Incentive Law, promotes recycling in Brazil through tax incentives. Its goal is to support projects that foster the circular economy, reduce waste generation, and increase the use of recyclable and recycled materials, contributing to sustainability and social inclusion.

Other National Regulations

Other relevant national policies include **Decree no. 11.044/2022**, which established a Recycling Credit Certificate through the Recicla+ program, and **Decree no. 11.300/2022**, which introduced a reverse logistics system for glass packaging, incorporating criteria based on distance from production to increase the feasibility of returnable packaging.

Decree no. 5.940/2006 implemented separate waste collection in federal buildings, additionally prioritizing the transfer of materials to organizations of waste picker. **Law No 11.445/2007** legally enabled municipalities to contract cooperatives of waste picker associations and cooperatives directly, granting them an unprecedented level of legitimacy and further integrating them into the formal waste management system.

STATE AND CITY POLICIES AND GUIDELINES

The Bahia State Solid Waste Plan (Plano Estadual de Resíduos Sólidos da Bahia) was established in 2017 as a mechanism for implementing the National Solid Waste Policy. The plan supported assessment of solid waste management in Bahia and proposed guidelines, strategies and targets to enhance efficiency and effectiveness of waste management services.

In the City of Salvador, **Law no. 8.915/2015, structured by Decree no. 29.921/2018**, established the Municipal Policy on Environment and Sustainable Development. This legislation marks an advancement in environmental governance, setting out guidelines and instruments to promote sustainable development, conservation and responsible resource use.

Additional separate waste collection initiatives in Salvador include **Law no. 7.865/2010** and **Law no. 4.461/1991**, which mandate waste sorting in shopping centers and schools, respectively. Law no. 9.699/2023 prohibits plastic bags composed of less than 51 percent renewable materials, while **Law no. 9.805/2024** bans the distribution of plastic straws, encouraging the adoption of recyclable, biodegradable and/or edible alternatives.

Key City Strategies and Plans for Waste Management

Salvador seeks to position itself as a model for urban development by integrating environmental sustainability, innovation, resilience and circular economy principles; prioritizing social inclusion; and ensuring that communities have access to the opportunities and resources needed to thrive. By creating incentives, implementing projects, raising awareness and developing regulatory frameworks, Salvador aims to mainstream resilience and circularity, driving new business opportunities and job creation while conserving the environment.

Beach Clean-up and Awareness Campaigns

Promoted by the municipal government, Praia Massa é Praia Limpa, A Onda é Preservar, and Operação tá a Pegada are focused on cleaning the city's beaches. Praia massa é Praia Limpa relies on volunteers, who have collected around half a ton of waste per edition, and raises awareness about the importance of the ocean and marine life (Bnews, 2022). These initiatives have encouraged citizens to adopt responsible waste disposal practices, fostering awareness of beach conservation.

Carnaval Sustentável

The importance of Carnival as an incubator for innovative, environmentally friendly initiatives led the municipal government, through SECIS, to create the Sustainable Carnival initiative. Held since 2013, Carnaval Sustentável aims to incentivize artists, revelers and businesses to embrace a more sustainable approach to Salvador's Carnival. In addition to prioritizing clean energy with LED lighting, luxury boxes and floats are decorated with recycled materials (SECIS, 2023).

Central de Reciclagem

In collaboration with AMBEV, SOLOS and recycling cooperatives, the city of Salvador has installed recycling centers across major events. Not only do these recycling centers drastically improve recycling outcomes both at the events and for the entire city, but they also provide much needed income and support for waste pickers, while highlighting their contribution for recycling in the city (Gitel, 2024).

Pontos Verdes

LIMPURB's Green Points initiative has transformed illegal dump sites into community gardens. Locations were selected through a mapping process that identified key problem areas. This was followed by a cleaning process and the provision of resources to enable planting. Seedlings were placed in repurposed tire planters, and signage was installed to dissuade improper waste disposal and to encourage residents to participate. Between 2016 and 2020, 116 Green Points were established; in the first quarter of 2021 alone, 100 units were installed in over 45 neighborhoods.

Cidade Circular

Through the Circular City project, authorities have aimed to create incentives and regulatory frameworks for circular economy solutions across sectors in Salvador, while generating new business and employment opportunities. The project encompasses a wide range of activities, including voluntary recycling drop-off points, a guide for businesses to transition to circular production, and the incorporation of the circular economy in public procurement.

The Seja Circular platform, launched in 2023, is a key component of the Circular City initiative. The platform contains resources, ranging from interviews to data and case studies, to support and incentivize companies, government agencies and other organizations to transition towards a circular economy (SECIS, 2023).

Ecopontos

The City of Salvador has also established a series of locations where residents can voluntarily drop off small volumes of recyclable materials (i.e. paper, cardboard, plastic and aluminum), furniture and green waste.

Casa So+ma

Casa So+ma is a recycling rewards system promoted by the City of Salvador in collaboration with So+ma Vantagens and a host of partners and sponsors. After downloading the application and registering, residents receive points for delivering recyclable materials to the 11 converted containers called So+ma Houses across the city (SECIS, 2024). Users can redeem points to access courses, obtain discounts and purchase goods including food along with cleaning and hygiene products in local stores or on site.

FIGURE 13
Ecoponto in Itapuã neighborhood (Itapuacity, 2021)

FIGURE 14
Casa So+ma in Ondina neighborhood (Bruno Concha, SECOM)

Fundo da Folia

Launched in 2010, Fundo da Folia recruits volunteer divers to clean the ocean beyond the beaches. With up to 40 operations per year, the project raises awareness by showcasing the waste that has been collected and promoting educational activities on the beach (Mion, 2024). Waste is then turned over to the appropriate government agencies, who sift through items to identify recyclable waste. Fundo da Folia also championed the Barra Marine Park, the first ocean conservation area of its type in the city.

5. Waste Management in the City

Overview of Salvador's Waste Management System

Salvador generates an estimated 0.93 kilograms of waste per person per year, significantly higher than the global average of 0.74 kilograms, but slightly less than the Brazilian national average of around 1 kilogram per capita. With no door-to-door recycling service, the city has relatively low levels of recycling, with nearly all municipal waste going to the city's landfill. However, this represents only around half of all municipal waste, indicating high levels of leakage. Moreover, the city does not have a systematic composting program, despite its high proportion of organic waste.

The city has made significant strides towards a more circular economy over recent years, prioritizing large events, beach actions, and voluntary and rewards-based drop-offs to reduce plastic pollution and raise awareness in accordance with the city's specific context and culture. However, challenges remain due to financial constraints, informal settlements and the topography of the city, which continue to hinder systematic and comprehensive action.

Waste management services in Brazil are the responsibility of each municipal government. In Salvador, LIMPURB, a government agency, is tasked with planning, coordinating and executing urban cleaning services. In practice, LIMPURB contracts several companies to provide services including door-to-door collection, urban cleaning and management of landfills. These activities are funded primarily through regular government revenues from taxes on property, services, and income, but they also leverage other fiscal mechanisms including fines and direct federal investment.

The federal government fulfills a regulatory and oversight role, enacting laws and establishing requirements and guidelines for waste management across the country. The federal government is also legally mandated to support municipal waste management systems, with ministries and departments tasked with creating shared data systems, pursuing technical innovations, providing critical investment for local waste management capacity and promoting the circular economy and sustainable waste management practices.

Waste Composition

The Circularity Assessment Protocol (Circularity Informatics Lab, 2024) provides a snapshot, illustrated in figure 16, of estimated municipal waste across the city. Over half of all MSW, representing slightly over 500,000 tons per year, is estimated to be organic, a proportion consistent with findings across Urban Ocean cities. This high proportion of organic waste provides a key opportunity for systematic composting in the city. Recyclable waste makes up 32 percent of municipal waste, equivalent to around 300,000 tons a year. The remaining waste, including materials that cannot be recovered, represent almost 200,000 tons per year.

FIGURE 15
Urban Sanitation Workers in the Pelourinho

FIGURE 16
Waste Streams in Salvador

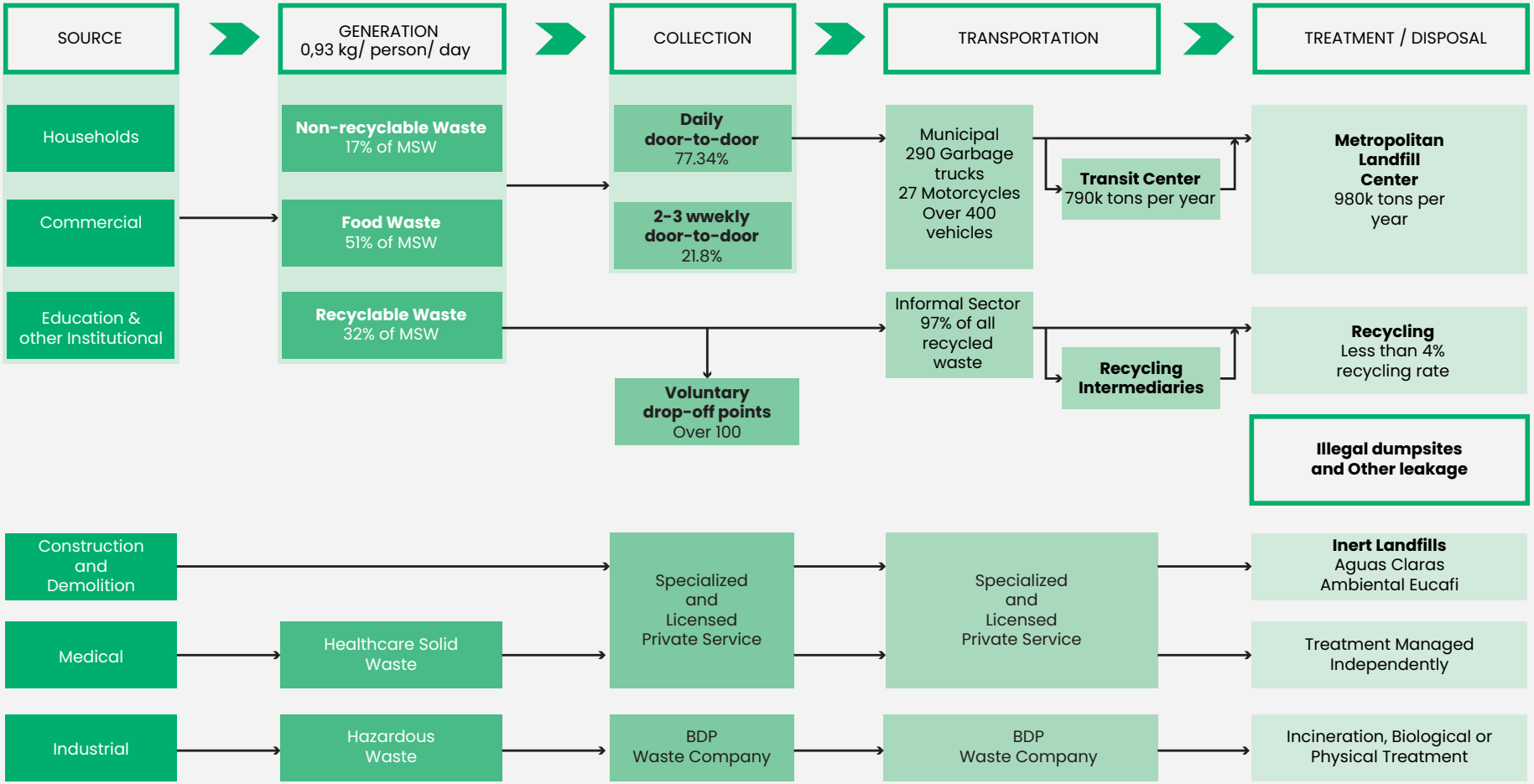


Figure 18 provides a breakdown of convenience items sampled at stores. Plastic is the most popular packaging material used in convenience items, food staples and cleaning products. For convenience items, plastic is used in the packaging of up to 73 percent of all items. Multilayer film, a particularly problematic plastic for recycling, represents almost half of all packaging in sampled convenience items, and up to 90 percent in certain items like chips and rice. Polyethylene terephthalate (PET), a material of significant value for recycling cooperatives in Salvador, was also a prevalent packaging material. Other popular recyclable materials in sampled products included aluminum, glass, high-density polyethylene (HDPE) and paper-based materials.

Restaurants and food vendors used mostly single-use plastic for pick-up or delivery of to-go. Of the businesses surveyed that offered to-go options, only three offered recyclable or biodegradable alternatives to plastic.

FIGURE 17
Municipal solid waste composition in Salvador (CIL, 2024)

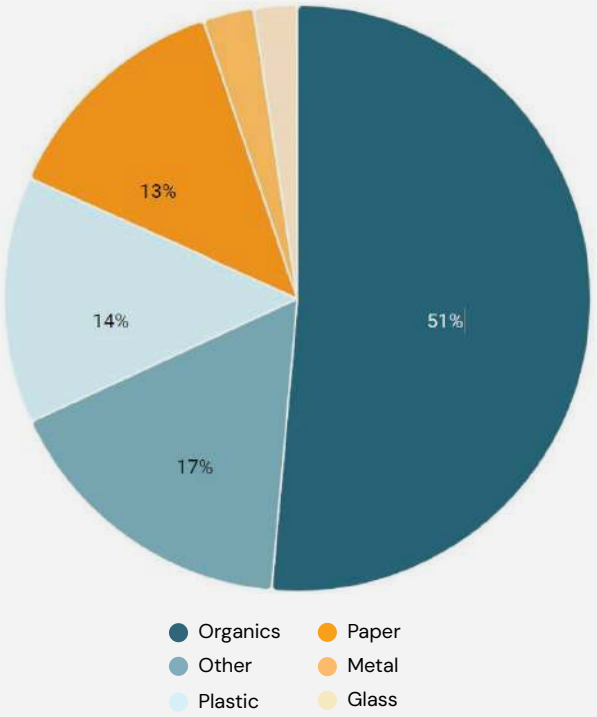


FIGURE 18
Material breakdown of sampled convenience items in Salvador (CIL, 2024)

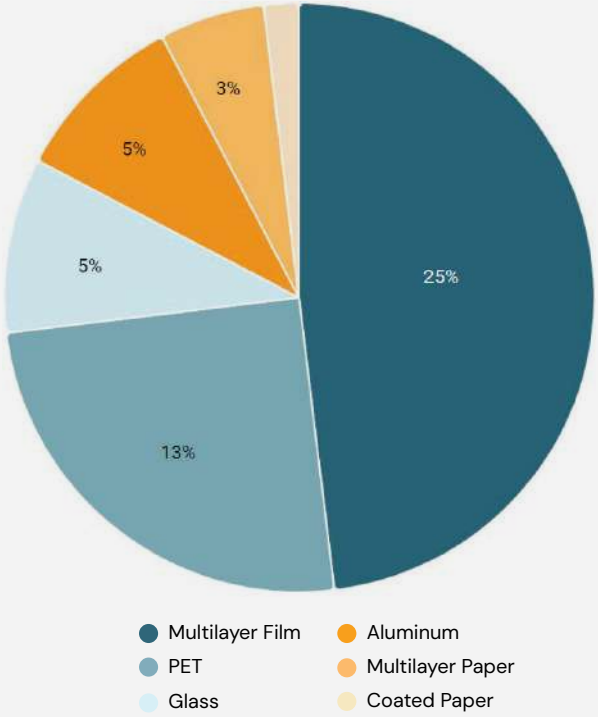


FIGURE 19

Material breakdown of staple items surveyed in Salvador Stores (CIL, 2024)

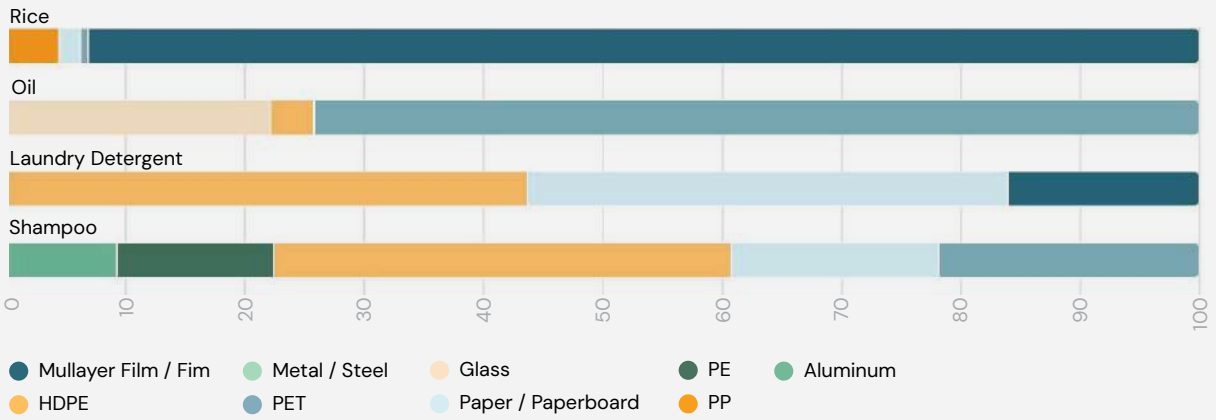
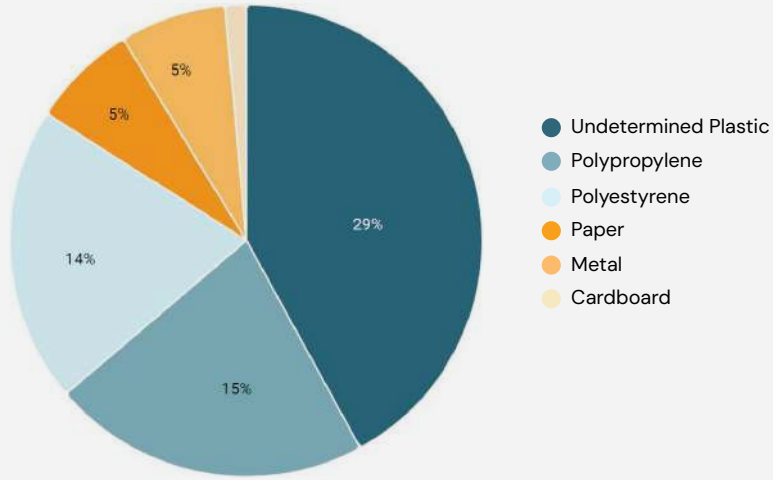


FIGURE 20

Material breakdown of to-go items surveyed in Salvador (CIL, 2024)



Beaches

Central to daily life and culture in Salvador and highly accessible, beaches are often dotted with waste. The CAP assessment revealed that the most prevalent materials on surveyed beaches were plastic and wood. Cigarette filters were also common. Plastic items included disposable cups, straws and food packaging, all of which were sold on beaches by vendors.

Waste Collection and Transportation

In Salvador, waste management is coordinated and managed by LIMPURB, under the auspices of the Municipal Department for Public Order. Government agencies in charge of sanitation and MSW management may subcontract and delegate services to third-party companies with appropriate capacity, resources and legal requirements. The contracts for collection, transportation and disposal services are awarded through a multi-year bidding process.

Currently, multiple companies hold contracts for collection, and others hold contracts for landfill management. MSW collection is managed by Consorcio Sotero, Consorcio ECOSAL and Serviços Ambientais Eireli, with the first two sharing responsibility for mainland districts, and the latter operating collection for the city's islands.

Door-to-door or direct collection, as it is known locally, is the primary system in Salvador, with some households receiving "indirect" collection using containers, dumpsters and other fixed receptacles. Whether households and communities receive door-to-door or indirect collection is generally determined by the accessibility to garbage vehicles of each neighborhood. In neighborhoods where roads are tight or steep, for example, indirect collection might be preferred (Circularity Informatics Lab, 2024, p .39).

FIGURE 21
Public solid waste bins (SOLOS)

FIGURE 22
Container used for indirect waste collection (SOLOS)

FIGURE 23
Consorcio Sotero Waste Collection Truck

In 77.34 percent of households, waste is collected daily, with 21.8 percent receiving collection two-to-three times per week. Most collection is done using compacting garbage trucks. The city has around 130 of these trucks, which are operated by a team of one driver and three waste collectors. The terrain in Salvador is highly uneven and hilly, and for less accessible areas, collection services leverage smaller trucks and even motorcycles. In addition to compacting trucks and motorcycles, the collection companies, taken together, have a fleet of over 400 vehicles including boats, dump trucks, tractors and buses.

There is no curbside separate waste collection service, with urban cleaning and collection services almost invariably routing waste to the city's only landfill. Residents who wish to recycle can either use the city's voluntary or incentive-based drop-off points, or choose to give their recyclable materials directly to local recycling cooperatives. While there is a willingness to embrace a comprehensive separate waste collection system – and the city has taken several steps in that direction – budgetary constraints continue to inhibit any such city-wide program.

Treatment and Disposal

Most MSW generated in Salvador is currently sent to the Aterro Metropolitano Centro (AMC), the city's only landfill, with around 80 percent of that waste initially processed through the city's transfer station. Both the AMC and transfer station are operated by BATTRE, a private company which provides transfer, treatment and final disposal services. The AMC serves as the final disposal site, while the transfer station functions as an intermediate and temporary storage site with the goal of optimizing time, distance and transportation costs.

In 2020, the AMC received approximately 980,000 tons of MSW while the transfer station processed over 790,000 tons. Today, the AMC receives between 75,000 and 80,000 tons monthly, with between 58,000 and 60,000 tons processed through the transfer station (BATTRE, 2024).

While most collected MSW is sent to landfill, the city does promote and support targeted recycling operations. During public events, the city collaborates with private-sector organizations to install recycling centers run by recycling cooperatives. Voluntary drop-off points and rewards stations around the city provide another option for residents to recycle waste. Additionally, independent and registered separation facilities, also run by cooperatives, process and sell a small portion of the city's recyclable waste to industry.

Salvador generates over 2 million tons of waste annually, with approximately half disposed of in the city's landfill. This reflects significant levels of waste leakage into the environment and the proliferation of informal dumpsites. The state of Bahia has the highest number of illegal dumpsites in Brazil at over 400 (ABREMA, 2024). There is currently no widespread composting program in the city nor comprehensive, binding local extended producer responsibility regulations.

MEDICAL WASTE

The disposal of healthcare waste is the sole responsibility of the generator and is governed by federal regulations. The Municipality of Salvador does not collect these materials directly or manage its final disposal. Healthcare waste generated by public services is collected, treated and disposed of by companies contracted by the city.

CONSTRUCTION AND DEMOLITION

Construction and demolition waste is sent to inert landfills by generators or specialized collection companies. There are two operators of landfills for inert material serving Salvador: Águas Claras Ambiental and Eucafi Engenharia e Consultoria Ltda.

INDUSTRIAL WASTE

Industrial waste in Salvador originates primarily in the petroleum refining, petrochemical and metallurgical industries. This waste is deposited in specially equipped and controlled landfills. Around 10 percent of industrial waste is categorized as dangerous, and must be sent to more specialized landfills and treated in accordance with national laws. BDP Waste is the primary company charged with collecting, storing and transporting industrial and hazardous waste to appropriate landfills.

FIGURE 24
AMC Landfill

LEAKAGE

According to the city's circularity assessment protocol (CAP) report, litter density in Salvador averaged 1.11 items per square meter. Food-related plastic items, such as cups and packaging, make up most of the sampled litter. Plastic fragments, cigarette butts, and personal protective equipment are also prevalent, with cigarette butts making up the single most common individual litter item identified. The report indicates that plastics account for 48 percent of the litter items sampled.

For litter sampling, the CAP process identified transects in three population categories: high, mid, and low activity over 24 hours. Litter densities were equivalent in the mid and lower population tertiles, with the highest population tertile having a lower density of litter. In both the lower and upper population areas, tobacco products were the most common litter item. Food-related plastic items were prevalent across all three tertiles, but were most prevalent in the medium-density areas.

FIGURE 25
Count of litter items (CIL, 2024)

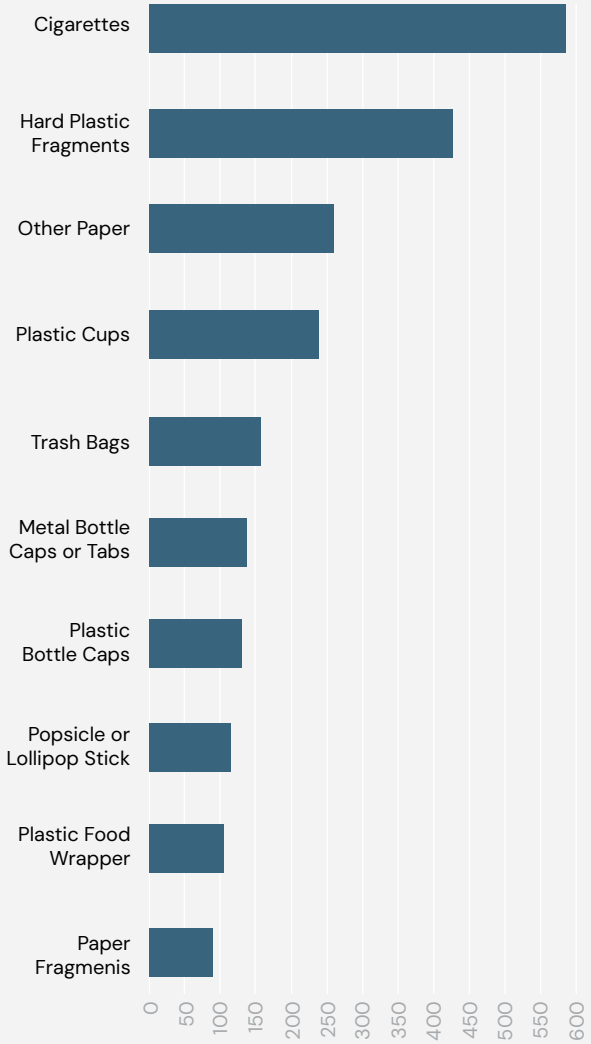


FIGURE 26
Litter material breakdown (CIL, 2024)

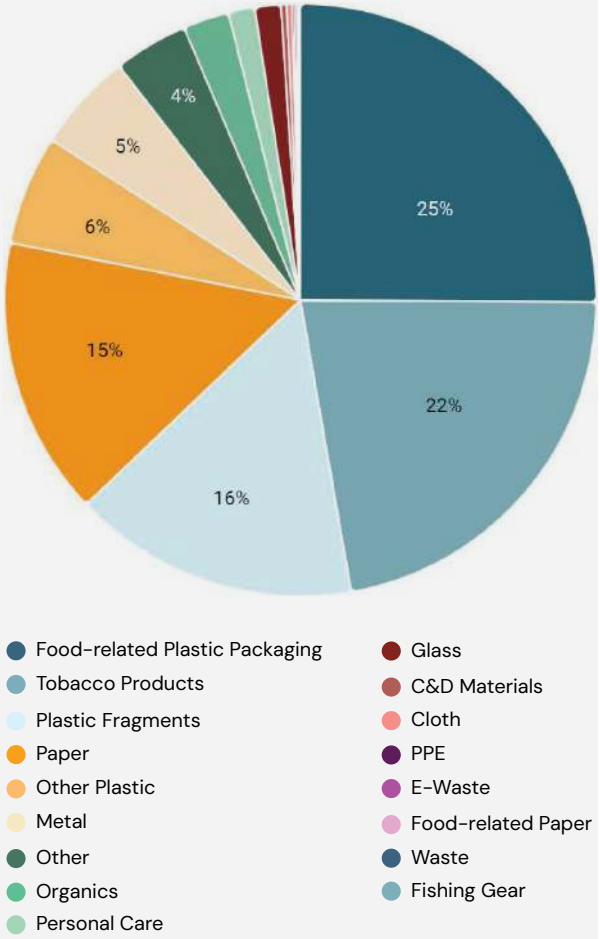
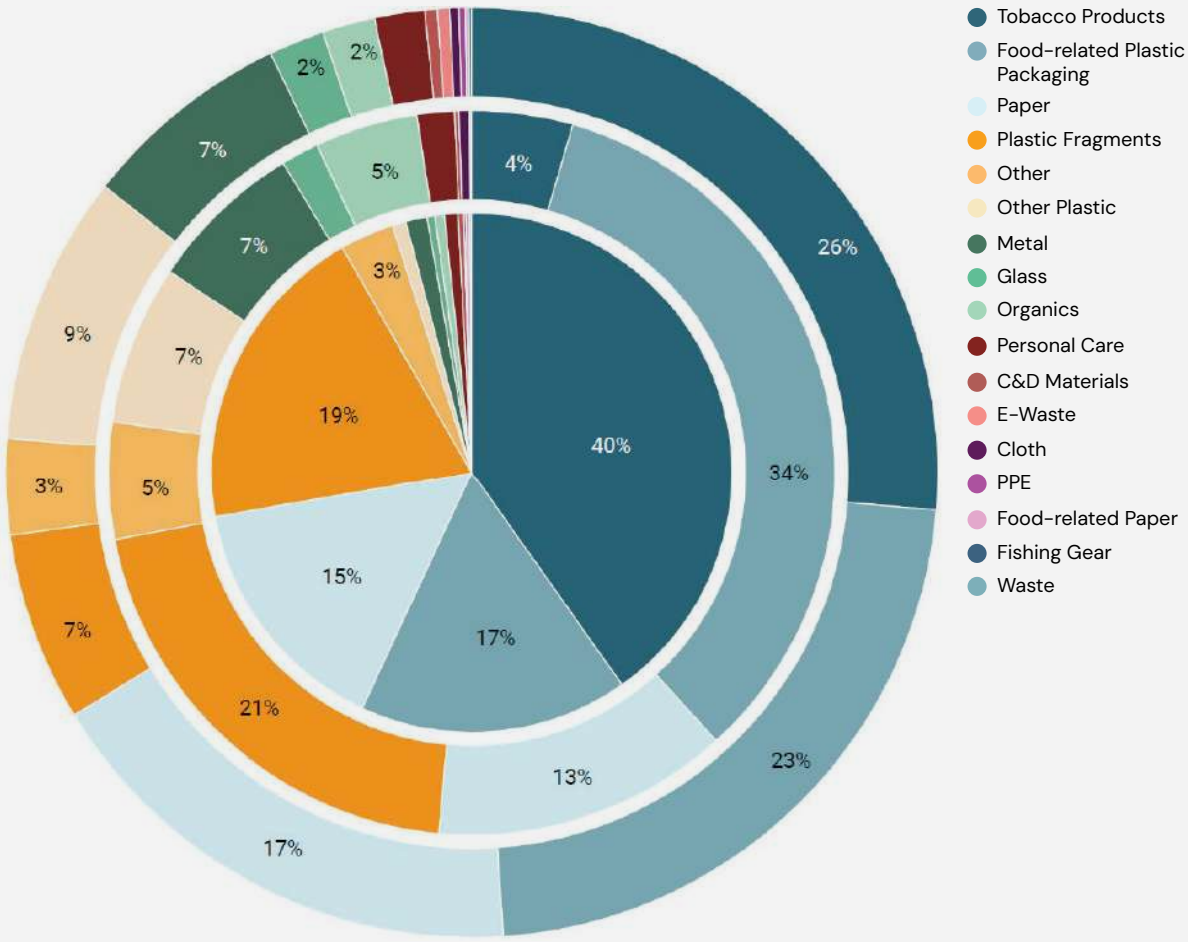


FIGURE 27

Proportion of most common plastic items in low (inner), mid (middle) and high (outer) population count areas in Salvador (CIL, 2024)



Recycling Waste

The City of Salvador does not currently offer systematic door-to-door recycling services. As a result, according to the CAP, less than 4 percent of the city's municipal solid waste is recycled or otherwise reused. The most recent procurement process for urban cleaning and solid waste management services does, however, include provisions for implementing separate waste collection.

Salvador promotes separate waste collection by supporting recycling cooperatives registered with LIMPURB and through recycling drop-off points. As of early 2021, more than 90 voluntary drop-off points were operating across 50 neighborhoods, with the collected materials directed to registered cooperatives for processing.

Through the Casa So+ma rewards-based recycling program, residents can recycle materials at their preferred location. Their items are weighed and converted into points that can be redeemed for goods and services. Since its launch in 2021, the program has collected approximately 3,000 tons of recyclables from nearly 22,000 families across its 11 locations (SECIS, 2024). In addition to engaging residents, the program provides financial support to cooperatives responsible for processing the collected materials.

Among the cooperatives that submitted data for CAP analysis, cardboard and white paper emerged as the most commonly recycled materials in the Municipality of Salvador, with 950,366 kg and 691,694

kg recycled in 2019, respectively. PET plastic also featured prominently, ranking as the fourth-most recycled material that year, with a total of 244,218 kg. Glass accounted for 148,785 kg, while aluminum cans totalled 83,610 kg.

PUBLIC EVENTS AND FESTIVALS

In recent years, the City of Salvador has successfully promoted separate solid waste collection during major public events by installing recycling centers. Recycling drives have taken place during the New Year's Eve celebration, the Iemanjá Festival, the Salvador Marathon and the Salvador Carnival in collaboration with organizations and companies including SOLOS and Ambev.

During the 2025 Iemanjá Festival, 120 informal waste pickers collected over 6,300 kilograms of recyclable materials – an increase of more than one ton compared to the previous year – resulting in nearly R$ 60,000 in income (SECIS, 2024). During Carnival, collection was even greater – in 2024, 1,335 waste pickers collected more than 135 tons of recyclables, generating over R$ 880,000 in income (approximately $ 150,000 USD) (Gitel, 2024).

Since the introduction of recycling centers at Carnival in 2020, a total of 292 tons of recyclable waste have been collected during the festivities through 2024, generating over R$ 2,000,000 in income for waste pickers (Gitel, 2024). The municipality has also required major sponsors to assume responsibility for waste generated from products distributed along the official event routes.

SALVADOR BAHIA AIRPORT

Salvador Bahia Airport hosts a key circular economy program. As the first zero waste to landfill airport in Brazil, all the waste generated on site is collected and processed for recycling, energy generation or cement (biO3, 2021). This feat was first achieved by 2020, when the airport began providing an annual average of 1,300 tons of solid waste for reuse and recycling (Salvador Bahia Airport, 2020).

The Informal Recycling Sector

Catadores

In Brazil, most recycling is carried out by waste pickers known as catadores. In 2024, approximately two thirds of all recycling in the country was carried out by informal waste pickers (ABREMA, 2024). According to municipal sources, this proportion is even higher in Salvador, where there is no systematic door-to-door recycling service. Waste pickers operate either independently or as members of recycling cooperatives who collect, sort and market recyclable materials to provide a source of livelihoods and income where there are often few other opportunities (Bouvier and Dias, 2021).

FIGURE 28
Recyclable materials at local cooperative

Cooperatives

In Salvador, 14 cooperatives and three associations of waste pickers are registered with LIMPURB to carry out recycling operations. Most operate independently, using their own resources. According to Urban Ocean interviewees, sales are made either directly to industry or through intermediaries. The most frequently cited buyers include Bahia Ecologia, MMetais and Penha. The growth of recycling purchase and sale points, ranging from traditional scrapyards to the emergence of applications and social networks, have facilitated marketing pathways between collectors of recyclable material and industry.

Specific operations increase the capacity of cooperatives. Throughout the year, LIMPURB provides collection trucks to increase their output potential. These trucks follow routes determined by each cooperative from Monday to Saturday, collecting recyclable materials sourced from ecopontos and the Casas So+ma. When hired by third parties, such as companies or neighborhood groups, cooperatives collect recyclable waste in buildings and other developments. They are a key component of the recycling strategy at public events, where they are hired to collect, sort and market recovered materials.

FIGURE 29
Recycling center of a local cooperative

WORKING CONDITIONS AND LIMITATIONS

Although Salvador relies on waste pickers for recycling, they often work in precarious, unsafe and informal conditions. They frequently lack access to adequate infrastructure and protective equipment. Without legal recognition, they are typically excluded from social protection, labor rights and basic services. In addition, they face significant health risks and economic insecurity, while their vital contributions to the waste management system often go unrecognized.

Despite their crucial role, cooperatives retain only a limited capacity to effect recycling at scale. They face logistical constraints, and challenges related to inventory management and planning contribute to uncertainty around the demand for and commercialization of recovered materials. Moreover, an overeliance on intermediaries, as opposed to selling directly to industry, often restricts their income potential.

6. Key Findings and Opportunities

Key Findings

LACK OF POLICIES AND REGULATIONS TO ENABLE COMPLIANCE IN THE MARKETING AND SALES OF POLLUTING PRODUCTS AND PACKAGING.

The city faces difficulties in coordinating the various waste management stakeholders, such as government departments, companies, cooperatives and communities. The lack of coordination can lead to disjointed and ineffective actions. Furthermore, like many other large cities, Salvador must contend with budgetary constraints and the need to attract external investment to develop and maintain adequate infrastructure, including advanced technologies and efficient collection and recycling systems.

Another ongoing challenge is ensuring that businesses and commercial establishments continuously adapt to evolving environmental regulations in order to remain in compliance.

LIMITED COVERAGE OF SEPARATE WASTE COLLECTION SERVICES, PREVENTING THE GROWTH OF RECYCLING AND EFFECTIVE SOLID WASTE MANAGEMENT.

Salvador lacks specific public policies, and red tape causes delays in implementing the sanitation plan. The *ecopontos* – collection points for recyclable materials – do not meet the city's needs, and they have lower capacity than those in many other cities. The urban area's complex geography also complicates regular waste collection and increases its cost.

Integration across municipal departments – including the cabinet office and the education and health departments – is crucial for a comprehensive and effective approach to waste management and the successful implementation of resilience and circularity projects in the city.

HEAVY RELIANCE ON RECYCLING INTERMEDIARIES AND A LACK OF DIRECT SUPPORT FOR WASTE COLLECTORS, REDUCING THE EFFICIENCY OF CIRCULAR ECONOMY PROGRAMS.

Waste pickers are individuals, groups or families who depend on collecting recyclables for their livelihoods. They often work autonomously or as part of cooperatives, in precarious and informal conditions, without access to adequate infrastructure, social protection nor labor rights. They face health risks, economic insecurity and a lack of recognition for the critical role they play in the recycling chain. Without these workers, much of the material currently recycled would end up in landfills, worsening environmental problems and wasting valuable resources.

The lack of direct support such as training, infrastructure and safety, along with the absence of policies and programs that formally integrate waste pickers into the recycling chain, combine to limit these workers' ability to collect and process recyclable materials efficiently, leading to lower recycling rates. The lack of proper support and organization also restricts their opportunities to improve their quality of life.

Opportunities

INPUT | Invest in solutions to meet sustainability goals and comply with regulations.

Allocation of financial, human and technological resources to develop and implement innovative and effective approaches that ensure compliance with laws and regulations related to waste management. These may include environmental safety standards, proper waste disposal practices or recycling policies, among others. The overarching goal is to promote waste management practices that are ecologically sustainable in the long term, minimizing environmental impact, conserving natural resources and promoting social equity. In doing so, the city could strengthen its ability to address challenges such as climate change and natural resource crises.

Recommended actions:

→ Implement public policies to offer companies incentives to invest in sustainable solutions.

→ Channel tax revenues into a fund for environmental and circular initiatives.

→ Involve stakeholders through governance initiatives into the waste management chain.

→ Encourage major brands to invest in training for cooperatives.

COLLECTION | Establish service provision contracts for separate waste collection to expand recycling coverage.

Procurement and contracting with specialized companies and/or recycling cooperatives to provide collection services for recyclable materials. These contracts typically include details around frequency of collection, materials to be collected and the responsibilities of each party. By expanding the coverage of recycling services, these contracts increase the amount and rate of materials recovered, conserving natural resources and reducing the need for virgin plastic and other materials. Moreover, by engaging the community in the process, they foster a culture of environmental stewardship and circularity.

Recommended actions:

→ Deploy strategic action by cooperatives towards the systematic collection of recyclable materials, including training, connections, fair prices and dignified work.

→ Pay for environmental services through a structured separate-collection program with cooperatives.

END OF CYCLE | Collaborate directly with waste pickers to reduce reliance on intermediaries.

These programs will empower waste pickers by providing training, access to resources and support to improve their working conditions and increase their efficiency in collecting and sorting recyclables. Initiatives may include the formation of cooperatives or associations, provision of proper equipment, training in material separation and financial management, and formal integration into the city's waste management systems.

Intermediaries play a key role in the waste–value chain, but they may have a negative effect on waste pickers' income by purchasing materials at low prices and reselling them for profit. Programs can reduce dependence on these intermediaries by empowering waste pickers to sell directly to industry or to recycling centers, thereby increasing income and autonomy. Recognizing their importance, intermediaries should be engaged in strategic planning to incorporate their perspective and address distributional concerns.

By promoting the social and economic inclusion of vulnerable groups, these programs improve the effectiveness of separate collection and strengthen the local economy by keeping recycling revenues within the community.

Recommended actions:

→ Purchase machines, equipment, and training.

→ Establish hubs for cooperatives.

→ Guarantee the availability of recyclables for cooperatives.

→ Set up a new industrial site to receive waste.

→ Create a support center for cooperatives that receive waste year-round.

Please refer to the Salvador Project Statement for a detailed and actionable proposal to improve waste management and build a more circular economy in Salvador based on the selected opportunities above.

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