COUNTRY & CITY WASTE LANDSCAPES DATABASE

Frequently Asked Questions

November 2024

This document contains frequently asked questions related to the Country & City Waste Landscapes database in two sections:

I. General Information

II. Glossary of Indicators – Overview and Definitions

General Information

1. What is the Country & City Waste Landscapes database?

The Country & City Waste Landscapes database is a compilation of data and information on plastic pollution and the ecosystem of actors at a country and city / city state level.

Compiling data from 100 cities / island states (hereinafter referred to as "cities") across 40 countries in Africa, Asia, Latin America and the Caribbean, this database provides an overview of the waste management and plastic pollution situation; the key actors; investment types; policies; and programs and initiatives that are in place to tackle plastic pollution in the respective countries and cities.

2. Why was the Country & City Waste Landscapes database developed?

Plastic waste pollution is a challenge that is localized in nature, with the need for localized strategies to address the issue. Existing data on waste pollution is often fragmented and there is a lack of standardization around the data points collected to understand the waste landscape. In the absence of such information, it is difficult for countries and cities to benchmark their progress to improve waste management systems and implement effective strategies.

The tool provides a one-stop platform for country-level and city-level plastic waste and waste management-related data. It aims to simplify the search for relevant information and facilitate an improved understanding of the plastic pollution situation in the respective countries and cities, the initiatives currently being undertaken to tackle the problem, and the key actors involved in the initiatives.

Originally a city-level insights database, the scope of the tool was expanded in Q4 2024 to include data at the national level. Country-level datasets are available for 40 countries. As countries engage in discussions to agree on the text for an international legally binding instrument on plastic pollution, including in the marine environment, baseline data on waste generation, waste management practices, and other related indicators provide the necessary evidence basis for decision-making.

3. What research methodology was used to collect the data?

Data was collected through desktop research and is reported as is, based on information available at the time of the research. Research was conducted between August and October 2024. Note that data has not been verified for authenticity or accuracy, with a reliance instead on more reputable sources of information.

The data sources include government websites or databases, such as Indonesia's Sistem Informasi Pengelolaan Sampah Nasional / National Solid Waste Management Information System (SIPSN); reports from leading organizations in the plastic pollution and circular economy space, such as the International Union for Conservation of Nature, UN Habitat, United Nations Development Programme, and the World Bank; open databases such as the

Hub Residuos y Economía Circular / Solid Waste and Circular Economy Hub; journal or academic articles; and news articles.

4. What are some considerations for using the data?

The following are additional considerations to be kept in mind as the data is used:

- The geographical boundaries of the cities listed may vary with each data point. For example, for Makati City in the Philippines, a part of Metro Manila, some of the data points included are for Metro Manila.
- For the ten small island developing states (SIDS) – Singapore, Antigua and Barbuda, the Bahamas, Dominican Republic, Guyana, Haiti, Jamaica, Puerto Rico, Saint Lucia, Trinidad and Tobago – only country-level data was presented.
- Country-level data obtained from national reports and databases might be based on specific areas in the country only. For example, India's official statistics on waste generation do not include rural areas; hence, official data on waste generation may be underestimated.[1]
- In cases where data points for the same indicator contradict each other, the research team has made a judgment call on the data points selected.
- Some data points have been derived or calculated based on other data points (e.g., per-capita data points).
- All currencies presented are in US dollars (USD) (i.e., GDP per capita, investment amounts). The official exchange rate from the World Bank was used to convert the data from local currencies to USD.

When making direct comparisons between data points from various cities or countries, users should take note of the different methodologies and reporting years of various sources before drawing any conclusions.

Validation for the data included in the Country & City Waste Landscapes tool was carried out primarily through the selection of sources that are considered highly reliable. These include peer-reviewed journals and data available from reputable sources, including from national and local government and other third-party sources. Additional checks to validate each data point was beyond the scope of the tool. Subject to availability of funding, we intend to add these additional checks on data in future iterations of the tool.

5. What is the scope of the Country & City Waste Landscapes database?

The database covers a range of quantitative and qualitative information relevant to the local landscape of plastic pollution.

The following is a summary of the key categories of information included in the database:

a. Overview – Socioeconomic, Climate and Environmental Indicators
b. Municipal Solid Waste, Plastic Waste, and Waste Worker Statistics
c. Municipal Solid Waste Composition
d. Waste Management (End-of-Life Solutions)
e. Ecosystem and Key Actors
f. Investments

[1] Cottom, J.W., Cook, E. and Velis, C.A. (2024). *A local-to-global emissions inventory of macroplastic pollution* [online]. Available from: https://www.nature.com/articles/s41586-024-07758-6

g. Waste Management Policies

h. Programs and Other Initiatives

Some of the above indicators are available both at a country and city level, while others may be available at a country or city level only.

6. How were the countries and cities selected?

The countries and cities selected are mainly emerging economies, which tend to be hotspots of plastic pollution. Approximately 69% of the world's plastic waste emissions (35.7 million tonnes) come from 20 countries, including low-income, lower middle-income, and upper middle-income countries. These low- and middle-income countries typically have much lower plastic waste generation than higher-income countries, but due to a large proportion of uncollected and mismanaged plastic waste, they contribute greatly to plastic pollution.[2]

The selection of cities for each country was then based on the following criteria:

- Capital city
- Mega cities where consumption, and likely plastic waste generation, is higher
- Cities for which data is already available based on existing research or studies
- Cities identified as plastic leakage hotspots by different studies[3]

As discussed above, the geographical boundaries may vary depending on the administrative divisions utilized for the particular study.

[2] Cottom, J.W., Cook, E. and Velis, C.A. (2024). *A local-to-global emissions inventory of macroplastic pollution* [online]. Available from: https://www.nature.com/articles/s41586-024-07758-6

[3] An example of such research is Meijer, L.J.J. et al. (2021). *More than 1000 rivers account for 80% of global riverine plastic emissions into the ocean* [online]. Available from: https://www.science.org/doi/10.1126/sciadv.aaz5803#tab-citation

7. Which countries and cities are covered in the Country & City Waste Landscapes database?

AFRICA

- **Algeria**
  - El Djazair
- **Angola**
  - Luanda
- **Democratic Republic of Congo**
  - Kinshasa
- **Djibouti**
  - Djibouti City
- **Egypt**
  - Cairo
- **Ethiopia**
  - Addis Ababa
- **Kenya**
  - Nairobi
  - Mombasa
- **Morocco**
  - Rabat
  - Tangier
- **Nigeria**
  - Abuja
  - Lagos
- **Senegal**
  - Dakar
- **South Africa**
  - Cape Town
  - Johannesburg
  - Durban
- **Tanzania**
  - Dar es Salaam
- **Tunisia**
  - Tunis
  - Sousse
- **Uganda**
  - Kampala

ASIA

- **Cambodia**
  - Phnom Penh
- **India**
  - Ahmedabad
  - Bengaluru
  - Chennai
  - Delhi
  - Hyderabad
  - Kolkata
  - Mumbai
  - Pune
  - Udaipur
  - Varanasi
- **Indonesia**
  - Bali
  - Bekasi City
  - Bogor City
  - Depok City
  - DKI Jakarta
  - Makassar
  - Malang
  - Semarang
  - Surabaya
  - Tangerang City
- **Laos**
  - Vien Tien
- **Malaysia**
  - Johor
  - Kuala Lumpur
  - Malacca
  - Penang
  - Putrajaya
  - Sabah
  - Shah Alam City
- **Philippines**
  - Caloocan City
  - Cebu City
  - Davao City
  - Makati City
  - Mandaluyong City
  - Manila City
  - Pasig City
  - Quezon City
  - Taguig City
- **Singapore**
- **Thailand**
  - Bangkok
  - Chon Buri
  - Nakhon Ratchasima
  - Nakhon Si Thammarat
  - Phuket
  - Rayong
  - Ubon Ratchathani
- **Vietnam**
  - Can Tho
  - Da Nang
  - Hai Phong
  - Hanoi
  - Ho Chi Minh City
  - Long An Province
  - Nam Dinh Province
  - Quang Nam Province

LATIN AMERICA AND THE CARIBBEAN

- **Antigua and Barbuda**
- **Argentina**
  - Buenos Aires (Metropolitan area)
- **Bahamas**
- **Brazil**
  - Brasilia
  - Rio de Janeiro
  - São Paulo
- **Chile**
  - Santiago Province
- **Colombia**
  - Barranquilla
  - Bogota
  - Cali
  - Medellin
- **Dominican Republic**
- **Ecuador**
  - Guayaquil
  - Quito
- **Guyana**
- **Haiti**
- **Jamaica**
- **Mexico**
  - Guadalajara City
  - Mexico City
  - Monterrey City
- **Panama**
  - Panama City
- **Peru**
  - Lima (Metropolitan area)
  - Trujillo
- **Puerto Rico**
- **Saint Lucia**
- **Trinidad and Tobago**

8. Who can use the database, and what can they use it for?

The database can be used by individuals, city planners, and organizations such as non-governmental organizations (NGOs), corporates, and investors who are interested in information on any of the countries or cities covered. For example, a company considering a plastic waste reduction campaign can refer to the database to understand the current amounts of plastic waste generated and identify other programs or initiatives that have been implemented.

The database allows users to access country-level data, city-level data, as well as compare across countries, across cities within one country, and across cities in different countries.

9. Can I provide feedback on the database?

Yes! As the data has been collected through desktop research, we recognize that there may be newer or local-language data sources that may not have been considered. We invite stakeholders to share their feedback and perspectives on this work to help us improve the data available on the Country & City Waste Landscapes database. You can submit your feedback through the feedback form available on the database page.

10. What are the future plans for the database?

The Country & City Waste Landscapes database may be updated with data for more countries / cities. If there is a particular city you would like to see added to the database, you can submit your feedback through the feedback form available on the database page.

11. Can I cite data from the Country & City Waste Landscapes database?

Yes, please attribute all data citations to “Source: The Circulate Initiative’s Country & City Waste Landscapes database” and direct audiences back to the website.

Glossary of Indicators – Overview and Definitions

12. What are the indicators presented in the Country & City Waste Landscapes database?

The following is a list of the indicators within each key category of information. The information presented on indicators, such as key actors, and programs and initiatives, is based on research undertaken by The Circulate Initiative and may not be an exhaustive list.

Some of the indicators below are available both at a country and city level, while others may be available at either a country or city level only.

Category	Indicators
Overview	Socioeconomic Indicators ‣ Total Population ‣ Tourist Arrivals ‣ Urban Population % ‣ Gross Domestic Product (GDP) Per Capita ‣ No. of Households Climate and Environmental Indicators ‣ Annual Average Precipitation ‣ Annual Average Temperature ‣ GHG Emissions per Unit of GDP ‣ GHG Emissions from Waste

Category	Indicators
Solid Waste, Plastic Waste, and Waste Worker Statistics	Municipal Solid Waste (MSW) ‣ Municipal Solid Waste Generated ‣ and/or Municipal Solid Waste Generated Per Capita ‣ Municipal Solid Waste Collected ‣ and/or Municipal Solid Waste Collected Per Capita ‣ Waste Collection Coverage Plastic Waste ‣ Plastic Waste Generated ‣ and/or Plastic Waste Generated Per Capita ‣ Plastic Waste Collected ‣ and/or Plastic Waste Collected Per Capita ‣ Share of Plastic Waste in Municipal Solid Waste ‣ Single-Use Plastic Waste Generated ‣ and/or Single-Use Plastic Waste Generated Per Capita ‣ Mismanaged Plastics ‣ Uncollected Plastics ‣ Plastic Leakage ‣ and/or Plastic Leakage (%) ‣ Plastic Waste Imports ‣ Plastic Waste Exports Waste Workers ‣ No. of Waste Workers ‣ No. of Informal Waste Workers ‣ Share of Informal Waste Workers ‣ Share of Female Informal Waste Workers ‣ Minimum Wage ‣ Living Wage
Municipal Solid Waste Composition	MSW Composition Components ‣ (Based on weight or volume, where specified)

Category	Indicators
Waste Management (End-of-Life Solutions)	End-of-Life Fates ‣ % of Waste Diverted to Landfills ‣ % of Waste Composted ‣ % of Waste Incinerated ‣ % of Plastic Waste Collected that is Recycled Landfill(s) to which Waste is Diverted Waste-To-Energy (WTE) Plants ‣ Name of WTE Plant ‣ Status (Operational or Announced) ‣ Year Implemented / to be Implemented ‣ Capacity
Ecosystem and Key Actors	Organizations involved in activities that tackle plastic pollution in the city. The following are the categorizations of the key actors: ‣ Governments ‣ Corporates ‣ Civil Society Organizations (includes NGOs) ‣ Recycling Companies and Aggregators ‣ Waste Management Providers ‣ Others
Investments in Waste and Plastic Waste Management (2018-2023) ***(Country-level)***	‣ Total Investment ‣‣ Waste Management Expenditure ‣‣ Development Finance for Waste and Plastic Waste Management ‣‣ Private Investments ‣ Private Investments in Plastics Circularity (2018-2023) by Archetypes ‣ Private Investments in Plastics Circularity (2018-2023) by Investment Categories ‣ Single Biggest Private Investment (2018-2023)
Investment ***(City-level)***	Investments that have been made to tackle plastic pollution ‣ Description of Investment ‣ Investment Amount ‣ Source of Funding

Category	Indicators
Policies	Policies, action plans, or strategies addressing waste management and plastic pollution at the local, regional, or national level that are currently implemented or in development
Programs and Other Initiatives	Programs / initiatives that aim to tackle plastic pollution

Below are additional notes on some of the indicators.

The exact definition applied may vary for each city / country.

Indicator	Notes
Tourist Arrivals	Depending on available data, tourist arrivals can include domestic and international tourists; domestic tourists only; or international tourists only.
No. of Households	Depending on available data, the number of households can be derived by dividing population by the average household size.
GHG Emissions per unit of GDP	GHG emissions per unit of GDP illustrates the emissions intensity of each country. The data is generally retrieved from the Emissions Database for Global Atmospheric Research (EDGAR) to allow for ease of comparability across countries.
GHG Emissions from Waste	Waste, as defined in the EDGAR database, refers to solid waste disposal on land, solid waste composting, hazardous solid waste processing / storage, waste-water handling, and waste incineration, and is thus not limited to MSW. GHG emissions from waste thus include emissions from waste incineration (no energy recovery), including open burning of MSW, industrial solid waste, biogenic waste, clinical waste, sewage sludge waste, waste from cremation, and other waste; emissions associated with waste-water handling; emissions from landfills; and emissions from waste composting. The data is generally retrieved from the Emissions Database for Global Atmospheric Research (EDGAR) to allow for ease of comparability across countries.

Indicator	Notes
Municipal Solid Waste	MSW typically refers to waste generated from: households, commerce and trade, small businesses, office buildings, and institutions (schools, hospitals, government buildings). It also includes bulky waste (e.g., white goods, old furniture, mattresses) and waste from selected municipal services, e.g., waste from park and garden maintenance, waste from street-cleaning services (street sweepings, the contents of litter containers, market cleansing waste) if managed as waste. The definition excludes waste from municipal sewage networks and treatment, and municipal construction and demolition waste. (UN-Habitat) Depending on available data, the following indicators may be derived from different sources from different years: ‣ MSW generated per capita (from MSW generated amount and total population data) ‣ MSW collected per capita (from MSW collected amount and total population data) ‣ MSW collected (from MSW generated amount and waste collection coverage)
Waste Collection Coverage	Waste collection coverage is calculated based on the total amount of MSW collected divided by the total amount generated. (UNEP) Depending on available data, the country-level waste collection coverage may be an average of the collection rates in urban and rural areas or based on collection rates in urban areas only, in which case the waste collection coverage may be an overestimate.
Plastic Waste Generated	Plastic waste generated primarily refers to the amount of post-consumer plastic that enters the municipal solid waste stream, which comprises waste generated from households, commerce and trade, small businesses, office buildings, and institutions (schools, hospitals, and government buildings). (UN-Habitat) Depending on available data, the plastic waste generated may be derived from the share of plastics in MSW composition and MSW generated.
Mismanaged Plastics	Primarily refers to plastic that is not adequately collected and is improperly managed, such that it can or will end up in the environment. (IUCN-EA-Quantis, World Bank)
Uncollected Plastics	Primarily refers to plastic that is not collected by the municipal waste collection services or the informal sector.
Plastic Leakage	Primarily refers to plastic that is released to the environment, specifically to rivers and oceans or terrestrial and aquatic environments. (IUCN-EA-Quantis, OECD)

Indicator	Notes
Total Number of Waste Workers	This refers to the total number of waste workers, including formal waste workers, informal waste workers, and waste pickers, depending on available data. Formal waste workers are individuals who are employed by public service providers and private waste and recycling companies that are officially recognized by state authorities. (The Circulate Initiative)
Informal Waste Workers	Workers in the waste and recycling sector whose remunerative work (i.e., both self-employment and wage employment) is not registered, regulated, or protected by existing legal or regulatory frameworks, as well as non-remunerative work undertaken in an income-producing enterprise. (International Labour Organization) This typically also includes waste pickers, who participate (individually or collectively) in the collection, separation, sorting, transport, and sale of recyclable and reusable materials and products (paper, plastic, metal, glass, and other materials) in an informal or semi-formal capacity, as own-account workers, in a cooperative or social and solidarity economy setting, and as workers who subsequently achieved formal work arrangements through their organizations. (International Alliance of Waste Pickers)
Minimum Wage	Minimum wage refers to a minimum level of income as stipulated by local regulations either at the national or regional level. (Fair Circularity Initiative, Systemiq) Depending on available data, the minimum wage may be derived from hourly rates or daily rates, multiplied by an estimated eight hours a day, 26 working days a month.
Living Wage	Living wage refers to the living income – defined as a standard of living with all the components essential for a decent life – that also takes into account the number of full-time workers within a household. (Fair Circularity Initiative, Systemiq) The living wage may be specific to a particular study area or region, depending on the available data. Depending on available data, the living wage may be derived from hourly rates or daily rates, multiplied by an estimated eight hours a day, 26 working days a month.
Landfill	Landfill mainly describes landfill disposal facilities and sanitary waste dumps permitted by the authorities. Some datasets might also include illegal dumping (dumpsites) and unsanitary landfills. (The Circulate Initiative) The percentage of waste diverted to landfills can thus include waste diverted to sanitary landfills and to inadequate disposal sites or dumpsites.

Indicator	Notes
Waste-To-Energy (WTE) Plant	This mainly includes formal, permitted WTE plants with heat and electricity recovery, where known. Datasets might also include some basic incineration plants without energy recovery, depending on datasets available, and biogas plants. (The Circulate Initiative)
Investment *(Country-level)*	This section includes the indicators reflected in The Circulate Initiative's Country Fact Sheets, which highlight key data points on plastic material flow, policies, and investments for 50 countries to provide quick and easy access to a one-stop resource on tackling plastic pollution. ‣ Waste Management Expenditure: Primarily refers to the government expenditure on the collection, transportation, and disposal of waste. ‣ Development Finance for Waste and Plastic Waste Management: Includes official development assistance (ODA) for the ocean economy (waste management) and development finance to curb plastic pollution. ‣ Private Investments: Refer to private financing in the form of grants, equity / quasi-equity, debt, and blended finance structures, including credit guarantees and other similar financial instruments. The data are based on data from the Plastics Circularity Investment Tracker, and reflect the sum of deal values in the country from 2018 to 2023. For more details on each of the definitions, please refer to the Country Fact Sheets Glossary.
Investment *(City-level)*	This includes investments to manage waste in the city in the form of: ‣ The city's annual solid waste management budget ‣ Investments to improve waste management infrastructure or increase recycling capacity ‣ Investments in new solutions to reduce waste ‣ Funds provided to organizations whose operations lead to the overall reduction of waste in the city For the city's annual solid waste management budget, depending on the source, this might refer to the entire budget or specific components of the budget relevant to solid waste management.

13. How are the MSW composition categories defined?

To consolidate the MSW categories from different sources, these have been standardized to follow the International Solid Waste Association (ISWA) Plastic Pollution Calculator definitions. The table below shows eight categories and the various types of waste captured within each. The nomenclature of waste types mentioned below follows original sources. Some of the waste types have only been captured in one category to avoid double counting. "Glass, Ceramic, Stone," for example, has been captured under the waste type "Glass" even though the waste may include ceramic and stone; which, when separately reported, is captured under "Others."

Organic Waste	Garden Waste	Paper & Cardboard	Metals	Glass	Plastics	Textiles	Others
‣ Biodegradable ‣ Bones & Shells ‣ Coconut / Coconut Shells ‣ Food & Kitchen Waste ‣ Green Waste ‣ Organic Material ‣ Putrescible (Organic Waste) ‣ Vegetable	‣ Garden Green Waste ‣ Garden Yard Waste ‣ Grass / Leaves / Wood ‣ Horticultural ‣ Sticks & Leaves ‣ Timber (Wood) ‣ Wood / Bamboo ‣ Wood, Cloth (Organic Dry) ‣ Wood & Leaves ‣ Wooden Matter ‣ Wooden Materials ‣ Yard Waste / Wood	‣ Carton ‣ Paperboard ‣ Paper & Recyclables (including Metals) ‣ Paper-Cardboard ‣ Tetra Pak	‣ Aluminum ‣ Metal (Ferrous) ‣ Metal (Non-Ferrous) ‣ Steel ‣ Steel & Materials ‣ Tins	‣ Bottles ‣ Glass / Bottles ‣ Glass, Ceramic, Stone	‣ Consumable Plastics ‣ Fiberglass ‣ Industrial Plastics ‣ Other Plastics ‣ PET Bottle ‣ Plastics (including 1% Styrofoam) ‣ Plastic (Other Composite) ‣ Plastic & Packaging ‣ Plastic Bags ‣ Plastic Dense ‣ Plastic Film ‣ Plastic, Rubber ‣ Plastics / Sachets / Bottles	‣ Cloth / Rags ‣ Fabric ‣ Rags ‣ Rags & Textiles ‣ Sanitary Textiles ‣ Textile / Leather	‣ Ash & Sludge ‣ Bags & Packaging ‣ Bio Medical Waste / Medical Waste ‣ Coal Slag ‣ Combustible NC ‣ Composite Packaging / Products ‣ Construction & Demolition ‣ Diapers ‣ E-Waste ‣ Fine Elements ‣ Foam ‣ Hazardous (Household & Others) ‣ Inerts ‣ Other Inorganic Material ‣ Non-Hazardous Sanitary Waste ‣ Non-Recycled Waste (Soil, Sand, Porcelain) ‣ Pathological Waste ‣ Residual ‣ Rubber & Leather ‣ Sand, Silt, Fine Earth, Oil ‣ Sanitary ‣ Scrap Tyres ‣ Special Wastes ‣ Stone & Ceramic ‣ Uncategorized ‣ Used Slag