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ECUADOR REPORT

PLASTIC WASTE INVENTORY

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01
INTRODUCTION

Plastic pollution has become a global environmental challenge. The increasing production and consumption of plastics, combined with insufficient waste management systems, has led to growing volumes of plastic waste. In response, the Basel Convention and its Plastic Waste Amendments aim to strengthen the control of transboundary movements of plastic waste and promote its environmentally sound management.

Within this context, the project "Support the development of a plastic inventory of Plastic Waste Flows in Latin America and the Caribbean (Bolivia, Ecuador and Suriname)" aimed to strengthen countries' capacity to monitor, quantify, and manage plastic waste flows. The project was implemented in Bolivia, Ecuador, and Suriname from April 2025 to April 2026, with technical support from the Sustainable Cycles (SCYCLE) Programme of the United Nations Institute for Training and Research (UNITAR) and the Basel Convention Regional Center for Training and Technology Transfer for the South American Region (BCRC Argentina) under the coordination and financial support by the Secretariats of the Basel, Rotterdam and Stockholm (BRS) Conventions/the United Nations Environment Programme (UNEP) and in collaboration with national authorities and key stakeholders.

The project focused on improving the understanding of plastic flows, including plastic placed on the market (POM), plastic waste generated, environmentally sound management practices, transboundary movements, and unknown or unmanaged flows. It also aimed to strengthen national capacities for data collection, analysis, and long-term monitoring.

The project was implemented in collaboration with the Ministry of Environment and Energy, Ministry of Production, Foreign Trade and Investment, National Institute of Statistics and Census, with the support from a representative of the National Plastic Action Partnership - WWF-Ecuador.

02
METHODOLOGY FOR PLASTIC WASTE INVENTORY

The plastic waste inventory is developed using the **Product Lifetime Approach**, a methodology that estimates plastic waste generation based on the lifespan of products Placed On the Market (POM). By linking past consumption to current waste generation, this approach provides a realistic representation of plastic waste flows over time (United Nations Environment Programme and United Nations Institute for Training and Research, 2026).

Plastic-KEY classification system

To support consistent data compilation and analysis, the methodology uses the Plastic-KEY classification system, developed by UNITAR. This system enables the integration of data from different sources (e.g. production and trade data) and supports the mapping of plastic flows from consumption to waste management.

The Plastic-KEY classification includes 65 Plastic-KEYs and covers two main categories (United Nations Environment Programme and United Nations Institute for Training and Research, 2026):

- Plastic products (entirely made of plastic)
- Plastic-containing products (products where plastic is one of several materials)

Each Plastic-KEY groups products that share:

- Similar function, comparable material composition, related end-of-life characteristics
- Similar average weight and lifetime distribution

Plastic-KEYs can be further aggregated into **Plastic-KEY groups**, representing the largest plastic-related 'product groups' (United Nations Environment Programme, 2022):

- P1 Packaging
- P2 Transport
- P3 Building and construction
- P4 Electrical and electronic equipment[1]

[1] These are mostly electronic and electrical equipment and could be gathered through the guidelines of e-waste statistics, through the UNU-KEYs. See Annex 4 of the *Statistical Guideline for Measuring Flows of Plastic throughout the Life Cycle* (United Nations Environment Programme and United Nations Institute for Training and Research, 2026) for more information about the UNU-KEYs, and for further information, see 'E-waste Statistics Guidelines on Classification Reporting and indicators' (Lysaght, 2026).

- P5 Consumer and institutional products
- P6 Industrial machinery
- P7 Apparel and textile furnishing articles
- P8 Other

The Plastic-KEY classification can be linked to international classification systems, including the Central Product Classification (CPC), which provides a standard framework for harmonizing economic and product-related statistics, and the Harmonized Commodity Description and Coding System (HS), which is used for classifying traded goods in international trade statistics. A graphical representation of the relationships between the different classifications is presented below.

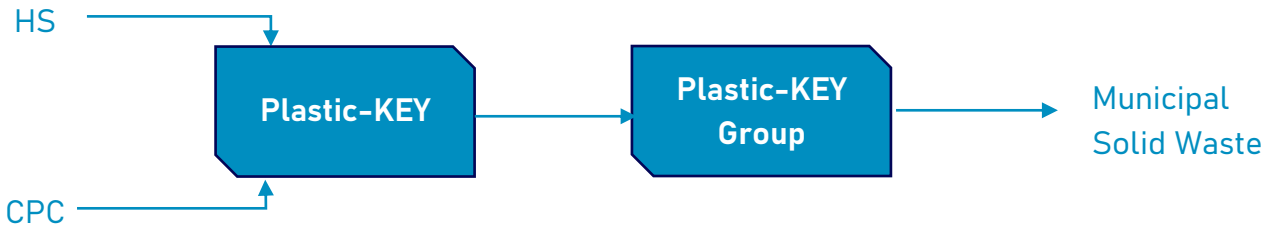

Figure 1 Linkages between classifications

The methodology is implemented in the following steps:

1) Estimation of plastic placed on the market (POM): to understand consumption trends within a specific country
2) Calculation of plastic waste generated: to assess the amount of plastic waste generated within a specific country
3) Assessment of plastic waste formally collected and recycled: to evaluate the amount of plastic waste handled by the formal system
4) Assessment of plastic waste trade: to analyse imports and exports of plastic waste

Estimation of plastic placed on the market (POM)

Plastic POM represents the amount of plastic materials available for use within a country, including both finished plastic products and plastic contained in other products (e.g. electrical and electronic equipment, vehicles, and textiles).

Estimating plastic POM is essential to understand consumption patterns and serves as the basis for calculating future plastic waste generation.

Consumption of products is calculated using the apparent consumption method, based on the following formula (United Nations Environment Programme and United Nations Institute for Training and Research, 2026):

$$Apparent\ consumption = Domestic\ production + Imports - Exports$$

This represents the amount of products available on the national market. In general, products enter the market either through domestic production or imports, while exports are subtracted as they leave the country and are not consumed domestically.

To calculate plastic POM, a plastic fraction parameter is applied to capture only the plastic content of plastic-containing products (United Nations Environment Programme and United Nations Institute for Training and Research, 2026):

$$Apparent\ consumption\ of\ plastic = Domestic\ production \times f_{CPC} + Imports \times f_{HS} - Exports \times f_{HS}$$

where f_{CPC} represents plastic contents in the domestically produced products and f_{HS} represents plastic contents in the imported and exported products.

This calculation relies on the following types of data:

- Domestic production data are typically classified using the CPC
- Trade data (imports and exports) are typically recorded using the HS
- Plastic fraction data

Data on domestic production should ideally be obtained from official statistics. In this project, such data is sourced from international databases for available years and subsequently projected for missing years. Data on trade statistics were obtained from country authorities. Data on plastic fractions can be obtained from product manufacturers or relevant industry associations. For the project, estimated default values for plastic content were used. These values can be found in Annexes 1 and 3 of the *Statistical Guideline for Measuring Flows of Plastic throughout the Life Cycle* (United Nations Environment Programme and United Nations Institute for Training and Research, 2026). Further details on data sources are provided in Chapter 3.

Calculation of plastic waste generated

Plastic waste generated is defined as the amount of plastic embedded in discarded products containing plastic within the country during a given reporting year, prior to collection, reuse, treatment, or export (United Nations Environment Programme and United Nations Institute for Training and Research, 2026)

Estimating plastic waste generation is essential to support waste management planning (collection, recycling, and disposal), as well as to inform national strategies, monitor trends over time, and support compliance with international frameworks such as the Basel Convention.

Two approaches were applied to estimate plastic waste generation. Initially, Approach A (Product Lifetime methodology) was tested; however, several data gaps were identified, particularly related to domestic production. To address these limitations, Approach B was

developed based on alternative data sources, including national statistics (National Institute of Statistics and Census of Ecuador, 2026a), (National Institute of Statistics and Census of Ecuador, 2026b) and the Global Plastic Action Partnership (GPAP) study (Global Plastic Action Partnership, 2024).

In Approach B, plastic waste contained in municipal solid waste was used as a proxy to estimate total plastic waste generation at the national level. The two approaches are described in detail below.

Approach A:

Plastic waste generation represents the amount of plastic waste arising in a given year from products previously placed on the market, based on their lifetimes.

Plastic waste generation is estimated based on the lifespan of products and the probability of products reaching their end of life. After estimating plastic POM, a probability function (a Gaussian or normal distribution) is applied to link the year a product is placed on the market to its likely year of disposal (United Nations Environment Programme and United Nations Institute for Training and Research, 2026).

$$Plastic\ Waste\ Generated\ (n) = \sum_{t=t0}^{n} Apparent\ consumption(t) * L^{p}\ (n - t)$$

$$L^{p}(n-t) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(n-t-\mu)^2}{2\sigma^2}}$$

$L^{p}\ (n - t)$ represents the lifespan distribution, which reflects the probability of products reaching the end-of-life in year n after being consumed in year t. Estimated values for the parameters (μ, σ) can be found in the *Statistical Guideline for Measuring Flows of Plastic throughout the Life Cycle* (United Nations Environment Programme and United Nations Institute for Training and Research, 2026).

Figure 2 presents the lifespan distributions for main sectors, at Plastic-KEY group level or at Plastic-KEY level, plotted as probability density function.

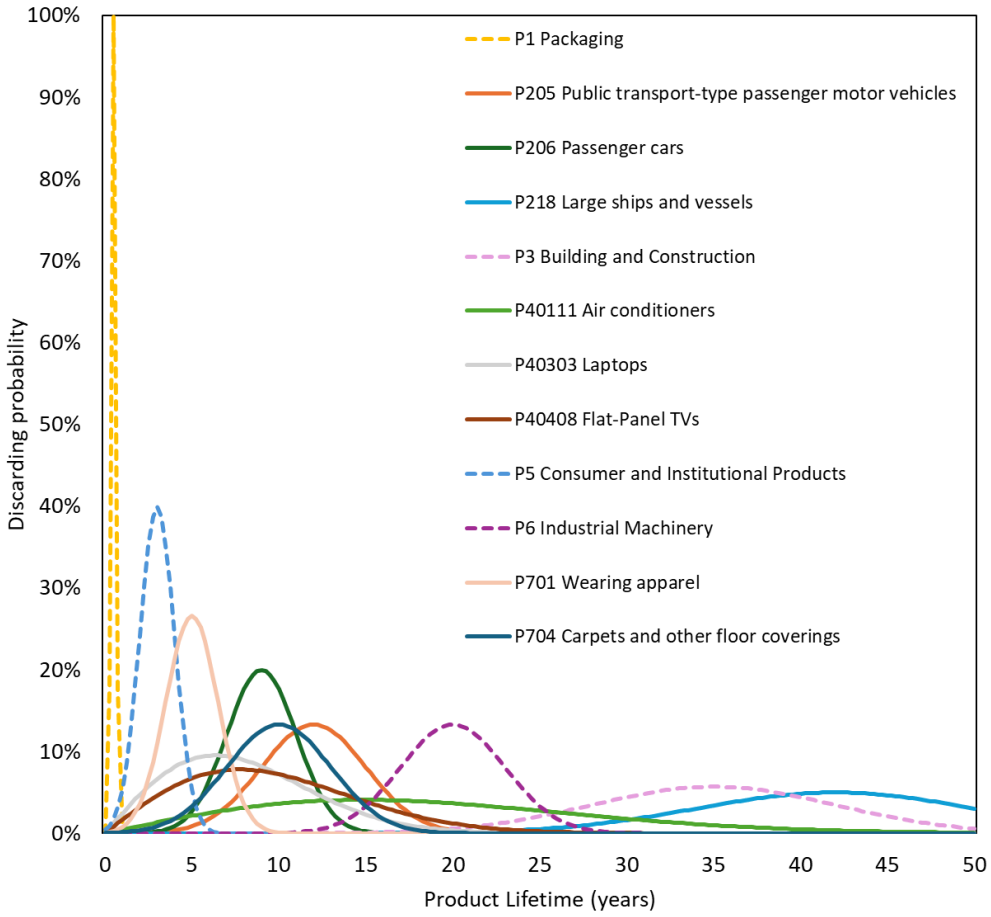

Figure 2 Lifespan distributions of some Plastic-KEYs (or Plastic-KEY groups)

Approach B:

Plastic waste generation is estimated on the basis of municipal solid waste generation per capita in urban areas, the plastic fraction in the composition of municipal solid waste generated in urban areas, population data, and 2012 data on per capita plastic waste generation in urban and rural areas. For data sources, consult Chapter 3.

Step 1. Estimation of urban per capita plastic waste generation

Urban per capita plastic waste generation is estimated by multiplying urban municipal solid waste generation per capita by the share of plastics in urban municipal solid waste.

Example for 2023: $0.879 \times 0.1138 * 365 = 36.49$ kg/per capita

Step 2. Estimation of rural per capita plastic waste generation

Data on per capita plastic waste generation for urban and rural areas (2012) are used to derive a coefficient representing the relative difference between rural and urban plastic waste generation.

Since these data do not cover all plastic waste streams, they are not used directly as absolute values. Instead, the ratio between rural and urban values is used to calculate a **rural-to-urban adjustment coefficient**.

Example for 2023: $36.49 \times \frac{32.3}{36.3} = 32.46$ kg/per capita

Step 3. Estimation of total plastic waste generation

Urban and rural plastic waste generation are calculated by multiplying the respective per capita values by the corresponding population. The total plastic waste generation is obtained by summing both components.

Example for 2023: $(36.49 \times 11\,280\,970 + 32.46 \times 6\,553\,861)/1000 = 624\,359$ tonnes

Assessment of plastic waste formally collected and recycled

Formally collected and recycled plastic waste represents the amount of plastic waste that is captured by the formal waste management system and directed to treatment processes, including recycling.

Plastic waste enters the waste management system through collection before being recovered. Waste collection refers to the gathering of waste, including its preliminary sorting and storage for transport. The performance of collection systems depends on factors such as infrastructure, coverage, and the role of formal and informal actors. These factors influence the amount of plastic waste that is captured by the formal system.

Assessing formally collected and recycled plastic waste is essential to understand how much of the generated plastic waste is effectively managed within the formal system and to identify potential gaps between waste generation and treatment.

Data on formally collected and recycled plastic waste can be obtained from household surveys, municipal administrative records, secondary raw material collection points, and plastic recycling facilities.

Recycling rate is one of the core indicators used to assess the performance of plastic waste management system. It is calculated as the ratio of recycled plastic waste to total plastic waste generated.

$$Recycling\ rate = \frac{Plastic\ waste\ formally\ recycled}{Plastic\ waste\ generated}$$

In this project data from available literature, official data and stakeholder consultations were analysed and used. Further details are provided in Chapter 3 and 4.

Assessment of plastic waste trade

Plastic waste trade includes imports of plastic waste into the country and exports of plastic waste from the country. Analysing these flows helps assessing the need for domestic waste management infrastructure and the extent of reliance on external treatment capacity.

These flows are classified using HS (code 3915) and analysed using official international trade statistics. Additional information may be obtained from waste management and recycling companies, where available.

Tools and data processing

The methodology is implemented through the **BRS Plastic Waste Inventory Toolkit**, which consists of two main tools:

- A tool to estimate plastic POM, including plastics embedded in products
- A tool to estimate plastic waste generation over time based on product lifetimes

The toolkit includes predefined lists of CPC and HS codes for plastic-related products across different Plastic-KEY groups.

The toolkit also integrates key parameters such as plastic content, polymer composition, and product lifespan, which are prefilled to enable immediate and user-friendly application by country. The prefilled parameters can be consulted in the *Manual for the Product Lifetime Methodology and the associated Plastic Waste Inventory Toolkit* (Li & Baldé, 2024).

As part of the data analysis, outlier detection and gap filling of missing or inconsistent data were conducted. Outliers were identified using the median absolute deviation (MAD) method with a threshold of 5, with particular attention to values that had the greatest impact on the results.

Note

This section provides a simplified overview of the methodology. For detailed guidance, please refer to the Manual for the Product Lifetime Methodology and the associated plastic toolkit (Li & Baldé, 2024), and the Statistical Guideline for Measuring Flows of Plastic throughout the Life Cycle (United Nations Environment Programme and United Nations Institute for Training and Research, 2026)

03
DATA SOURCES

The development of the plastic waste inventory in Ecuador is based on the collection and analysis of national data from multiple sources. The main data sources used for each category are presented below.

Estimation of plastic placed on the market (POM):

- **Imports and Exports**

Source: Central Bank of Ecuador (2013–2023)

Data type: Imports and Exports of plastic-related goods

- **Domestic Production**

Source: Industrial Commodity Statistics of the United Nations Statistics Division (2013-2016) (United Nations Statistics Division, 2026a) and projection made by Ecuadorian project team (2017-2023) based on historical trends and adjusted to reflect the average growth of the national plastic sector (Ecuadorian team with support from WWF, 2025)

Calculation of plastic waste generated

Approach A:

Within this approach, plastic waste generated is estimated using data on plastic POM and product lifetimes, implemented through the BRS Plastic Waste Inventory Toolkit. Built-in parameters such as lifespan, plastic content, and polymer composition are used to derive annual waste generation. These parameters can be found in the *Statistical Guideline for Measuring Flows of Plastic throughout the Life Cycle* (United Nations Environment Programme and United Nations Institute for Training and Research, 2026).

Approach B:

Administrative data from Decentralized Autonomous Municipal Governments of Ecuador (AME-INEC), Integrated Solid Waste Management Registry (National Institute of Statistics and Census of Ecuador, 2026a):

- Urban municipal solid waste generation per capita (2017-2023)
- Share of plastics in urban municipal solid waste (2017-2023)

Population data from INEC (National Institute of Statistics and Census of Ecuador, 2026b):

- Urban population (2017-2023)
- Rural population (2017-2023)

International source: Ecuador National Plastic Action Partnership (Global Plastic Action Partnership, 2024):

- Per capita plastic waste production for urban and rural areas (2022)

Plastic waste formally collected and recycled

Administrative data from Decentralized Autonomous Municipal Governments of Ecuador (AME-INEC), Integrated Solid Waste Management Registry

Stakeholder consultations on plastic waste recycling

Ecuador National Plastic Action Partnership (Global Plastic Action Partnership, 2024)

Plastic waste trade

Plastic waste imports and exports have been retrieved from the UN COMTRADE database for the years 2013 to 2023 (United Nations Statistics Division, 2026b).

Tools and data processing

Default parameters such as plastic fraction, polymer composition, and product lifespan were used for the estimations. These parameters can be consulted in the *Manual for the Product Lifetime Methodology and the associated Plastic Waste Inventory Toolkit (Li & Baldé, 2024)* and *Statistical Guideline for Measuring Flows of Plastic throughout the Life Cycle (United Nations Environment Programme and United Nations Institute for Training and Research, 2026)*. These values are based on existing scientific literature and relevant reports.

Together, these data sources provide the basis for estimating plastic placed on the market and plastic waste flows in Ecuador.

04
PLASTIC WASTE RESULTS

Approach A:
This section presents the main results of the plastic waste inventory for Ecuador using **Product Lifetime methodology,** including estimation of plastic placed on the market (POM) and plastic waste generated over the period 2013–2023.

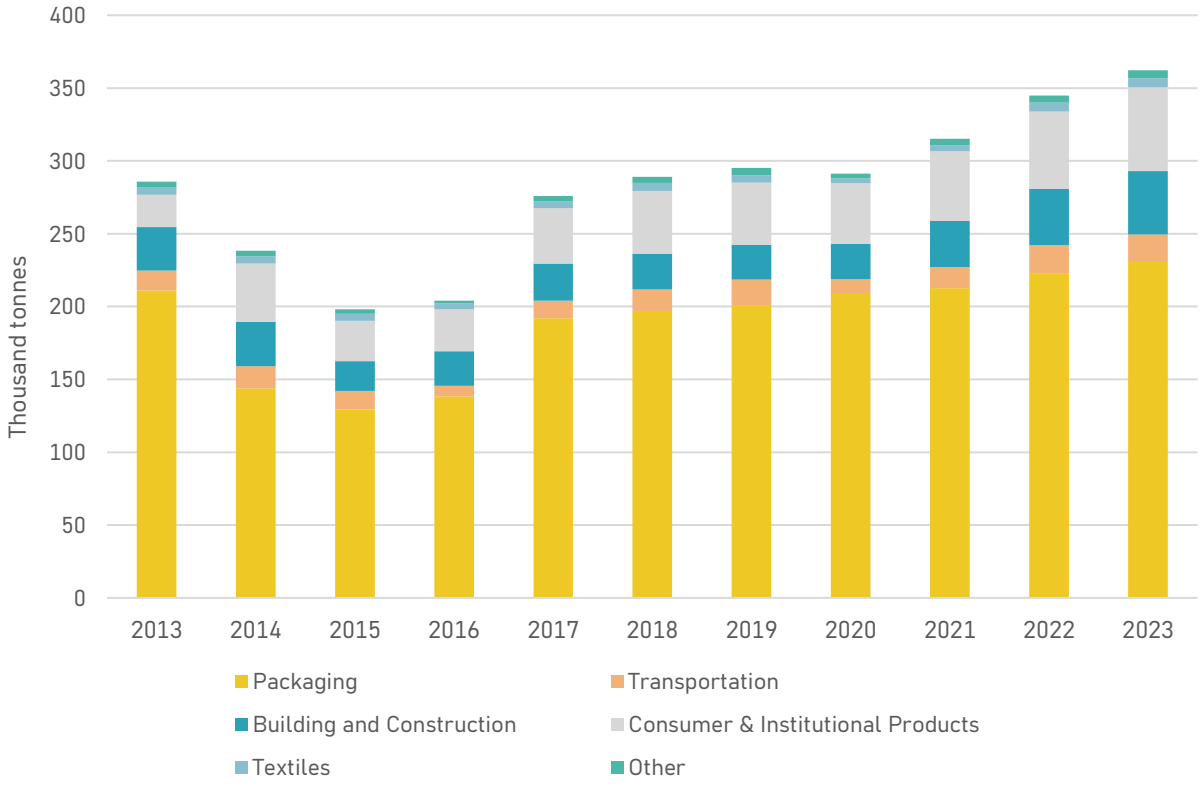

Figure 3 Plastic placed on the market by Plastic-KEY Group

The total amount of plastic placed on the market (POM) across six Plastic-KEY groups in Ecuador between 2010 and 2023 ranged from 198 thousand tonnes to 362 thousand tonnes, with an average annual level of approximately 328 thousand tonnes during the period 2020–2023.

Packaging represents the dominant category of plastic use, consistently accounting for the largest share across all years, ranging from approximately 60% to 74% of total POM (129–231 thousand tonnes). **Consumer and institutional products** constitute the second-largest category, contributing between 14% and 17% of total POM (22–58 thousand tonnes), with the exception of 2013, when the share dropped to 8%.

The **building and construction** sector accounts for 8% to 13% of total POM, corresponding to 20–44 thousand tonnes annually. Plastics associated with **transport** contribute between 3% and 6% (7–19 thousand tonnes per year). **Textile** and **other** categories remain relatively stable over time, each representing approximately 1% to 2% of total POM (2–6 thousand tonnes annually).

Plastic waste generation, based on POM and product lifetimes, is presented below.

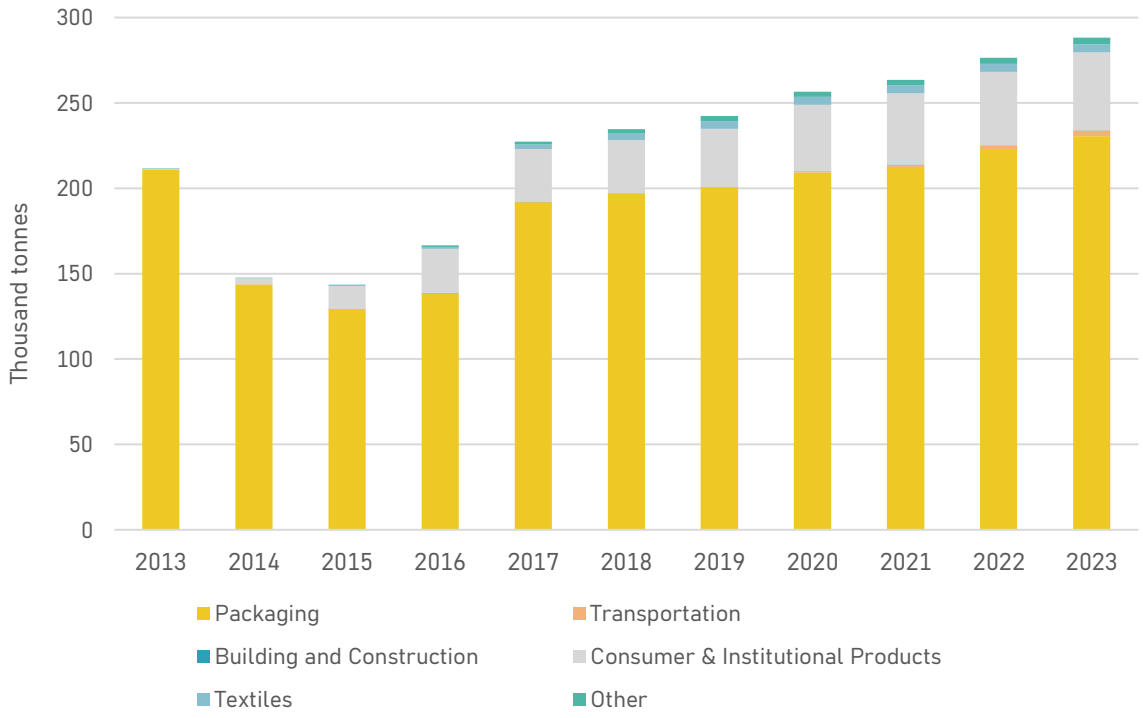

Figure 4 Plastic waste generated by Plastic-KEY Group

The total amount of plastic waste generated across six Plastic-KEY groups in Ecuador increased from 211 thousand tonnes in 2010 to 288 thousand tonnes in 2023.

Packaging and **consumer and institutional product** waste are the main contributors to plastic waste generation in Ecuador. The share of packaging gradually decreased to approximately 80% (231 thousand tonnes) in 2023. In contrast, the share of consumer and institutional products increased over the analysis period, reaching approximately 16% (42–46 thousand tonnes) during 2021–2023. **Textiles** accounted for approximately 2% of total plastic waste (around 4.7–4.8 thousand tonnes annually), while **transport** and **other** categories each contributed about 1% (2–4 thousand tonnes per year) during the same period.

Plastic waste can also be analysed by polymer type, as different polymers require specific treatment methods.

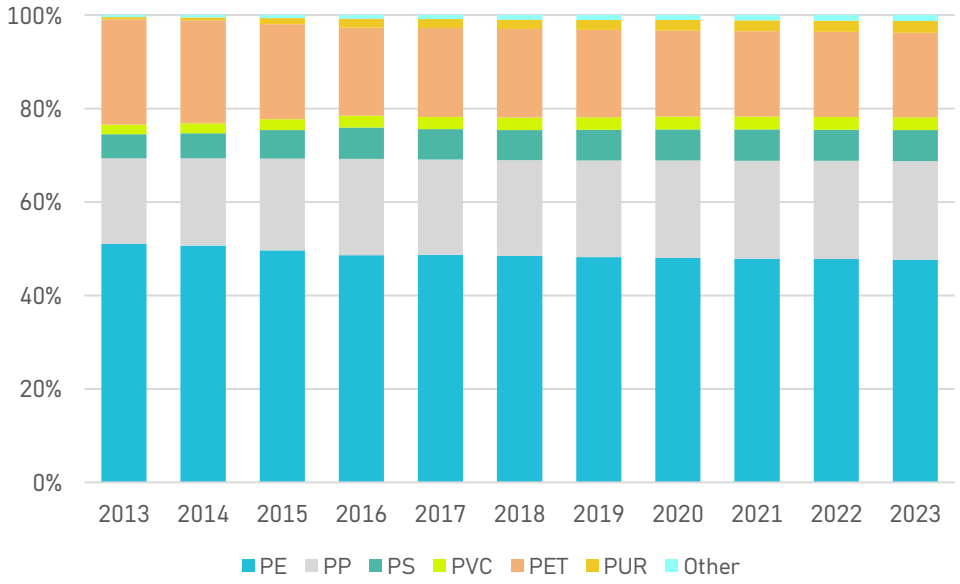

Figure 5 Plastic waste generated by polymer type

Plastic waste generation in Ecuador is dominated by polyethylene (PE), polypropylene (PP), and polyethylene terephthalate (PET), reflecting their widespread use in packaging and consumer products. PE remains the largest contributor; however, its share shows a gradual declining trend, decreasing from 51% in 2013 to 48% in 2023. PP and PET each account for approximately 19-20% of total plastic waste. The share of PP increased slightly from 18% in 2013 to 21% in 2023, while PET declined from 23% to 18% over the same period. Polystyrene (PS) accounts for around 5% to 7% of total plastic waste generated. Polyvinyl chloride (PVC), polyurethane (PUR), and other types contribute relatively small shares, each ranging between 1% and 3%.

Approach B:

Within Approach B, as described in Chapter 2, the total plastic waste generated for the period 2017–2023 is presented below.

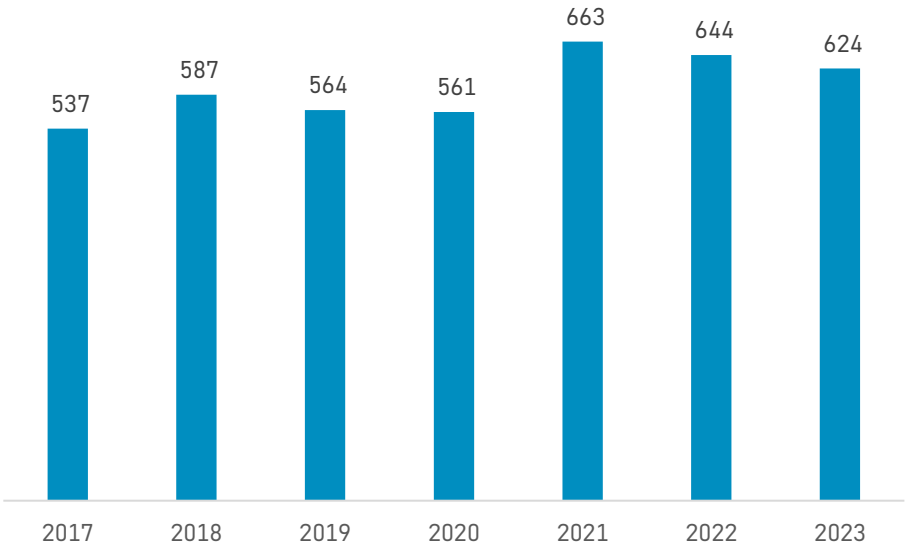

Figure 6. Plastic waste generated, thousand tonnes

Plastic waste generation increased overall from 2017 (537 thousand tonnes), peaking in 2021 (663 thousand tonnes), after which it gradually decreased to 624 thousand tonnes in 2023.

Comparing the results of plastic waste generation obtained using different methods, the estimate for 2023 based on the Product Lifetime methodology is 288 thousand tonnes, while the estimate using the second method is 624 thousand tonnes, which is approximately 2.1 times higher.

Incorporating more national data on domestic production would improve the accuracy of estimates obtained using the Product Lifetime methodology.

In addition to estimated plastic waste generation, data on formally collected and treated plastic waste can provide further insight into waste management practices.

Municipal solid waste in Ecuador is primarily collected by local governments through a combination of mixed waste collection and separate collection systems (organic and inorganic, including plastics). In 2023, a total of 5 264 thousand tonnes of solid waste was collected, of which approximately 84% was managed as mixed waste, while 16% was collected through separate collection systems (National Institute of Statistics and Census of Ecuador, 2026a).

In 2023, separately collected waste was almost evenly divided between organic and inorganic fractions, with volumes of approximately 420 thousand tonnes and 413 thousand tonnes, respectively.

The proportion of plastic in municipal solid waste composition remains relatively stable for the period 2017–2023; in 2023, plastics accounted for 11.4% of total waste generated in urban areas (National Institute of Statistics and Census of Ecuador, 2026a).

The GPAP study (Global Plastic Action Partnership, 2024) indicates that, on average, 87% of total plastic waste generated is collected at the national level, while collection rates in rural areas are significantly lower, at approximately 69%. The remaining 13% of plastic waste at the national level remains uncollected and is typically disposed of through open burning or direct leakage into land and water bodies.

Waste pickers play an important role in waste management activities in Ecuador. They contribute to the collection, sorting, and recovery of recyclable materials, often operating outside formal municipal systems. It is estimated that waste pickers collect around 48 thousand tonnes of plastic waste annually (Global Plastic Action Partnership, 2024).

Data on **plastic waste recycling** in Ecuador are fragmented and limited. Existing official national data mainly cover single-use plastic regulated under the Organic Law on the Rationalization, Reuse, and Reduction of Single-Use Plastics, while comprehensive data for other plastic waste streams remain unavailable.

In Ecuador, plastic waste that is not separately collected is disposed of together with mixed municipal waste in landfills, dumps, and emergency waste, depending on the

level of waste management infrastructure. In 2023, out of 221 Municipalities in Ecuador, 122 (55.2%) had landfills, 61 (27.6%) had emergency waste cells, and 38 (17.2%) relied on dumps (National Institute of Statistics and Census of Ecuador, 2026a).

In addition to waste generation and treatment, transboundary movements of plastic waste (imports and exports) are also considered to provide a more complete picture of plastic waste flows in Ecuador.

Plastic waste imports into Ecuador were irregular over the period 2013–2017, ranging from 1.5 to 4 thousand tonnes. In 2018, imports more than doubled, reaching 8.1 thousand tonnes, and remained relatively stable at approximately 7.6–7.7 thousand tonnes over the following three years. In contrast, imports declined to 4.4 thousand tonnes in 2022 and dropped sharply to less than 1 tonnes in 2023 following the entry into force of legislation prohibiting the import of plastic waste for recycling. Plastic waste exports showed an overall decreasing trend, falling from 29.6 thousand tonnes in 2013 to 3.8 thousand tonnes in 2023, despite a temporary increase to 6.4 thousand tonnes in 2021.

05
OPPORTUNITIES AND LIMITATIONS

The development of the inventory has strengthened national capacity to monitor and analyse plastic flows, including plastic POM and waste generation. The results provide an evidence base that can support policy development and decision-making.

The project also contributed to enhanced collaboration across governmental and non-governmental stakeholders. This creates a strong foundation for improving data collection and institutionalizing regular monitoring of plastic flows.

Based on these results, several key opportunities emerge:

- Strengthen data sharing and coordination mechanisms among relevant institutions (National Institute of Statistics and Census, National Customs of Ecuador (SENAE), Ministry of Environment and Energy, Ministry of Production, Foreign Trade and Investment, private sector and environmental agencies) to improve consistency and accessibility of plastic-related data.
- Incorporate national data on domestic production, classified according to the Central Product Classification (CPC), for all identified plastic-related products into the toolkit.
- Integrate plastic-related indicators into official statistics systems, including the systematic tracking and reporting of plastic waste flows (e.g., quantities collected, recycled, landfilled, and otherwise treated).
- Establish regular updates of the national plastic inventory, using the developed methodologies and tools, to support continuous monitoring and evidence-based policymaking.

Despite these achievements, several limitations were identified, primarily related to data availability and quality:

- Limited availability of data on plastic placed on the market, as well as on plastic waste management activities, constrains a comprehensive assessment of plastic flows. In particular, these data gaps limit the estimation of plastic waste generation, the analysis of polymer composition, and the evaluation of waste management practices.

Overall, the project provides a solid basis for long-term monitoring systems and supports compliance with international reporting obligations, including under the Basel Convention.

06
FUTURE ROADMAP

This chapter outlines the future roadmap for strengthening plastic waste statistics at the national level. It is based on inputs provided by national stakeholders and outlines short-, medium-, and long-term steps to improve data systems, methodologies, and institutional capacities.

Strengthening Data Availability and Quality

The improvement of data availability and quality is a key priority. To address this, the country plans to:

- Improve data sharing and consolidation between institutions, including National Customs of Ecuador, National Institute of Statistics and Census, Ministry of Environment and Energy, and other relevant institutions
- Develop a centralized, integrated plastics data system that consolidates information on production, imports, and waste, and linking all key stakeholders
- Improve the traceability of plastic waste across all stages, including generation, collection, recycling, and final disposal
- Strengthen data reporting by the private sector
- Strengthen institutional capacities for continuous monitoring and data analysis, including the implementation of digital platforms for real-time tracking of key indicators
- Align information systems with international reporting requirements (e.g. Basel Convention)
- Ensure annual or biannual data updates

Near-Term Improvements (1–3 years)

To improve plastic waste statistics in the near term, the country will focus on the following priority areas:

- **Domestic production**
    - Analyze available data based on CPC codes and convert units of measurement in mass units required by the BRS Plastic Waste Inventory Toolkit
    - Validate data in collaboration with the National Institute of Statistics (INEC) and the Ministry of Production, Foreign Trade and Investment

- **Plastic waste**
    - Strengthen data collection at local level by engaging municipalities to improve information on waste official collection, recycling, and final disposal
    - Integrate the informal sector into data collection systems through targeted studies and appropriate reporting mechanisms
    - Conduct study on unmanaged flows and losses to the environment.

Developing a National Quantitative Assessment Model

To implement a national quantitative assessment model for plastic flows, the country will focus on strengthening key capacities and systems. Achieving this will require the following:

- **Human capacities**
    - Allocate dedicated personnel to conduct data monitoring and validation prior to entry into the BRS Plastic Waste Inventory Toolkit
- **Technical capacities**
    - Enhance the use and adaptation of the toolkit, including necessary adjustments to national context
    - Implement digital platforms for real-time monitoring of key indicators
- **Financial capacities**
    - Mobilize resources through private sector and international cooperation
- **Awareness and communication**
    - Strengthen institutional capacities for continuous data monitoring and analysis
    - Develop and maintain national baseline datasets with regular updates

Key Challenges and Roadblocks

Several challenges remain in strengthening plastic waste data systems:

- Fragmented data that are not systematically integrated, combined with limited coordination across institutions
- Reliance on secondary data sources, which in some cases can not be fully utilized
- Data on domestic production require further processing and standardization to ensure consistency and usability

The Way Forward: Long-Term Vision (5-Year Term)

Over the next five years, the country aims to establish comprehensive, reliable, and regularly updated plastic waste data systems that support evidence-based policymaking.

- **Stakeholder coordination:**
  - Establish an inter-institutional working group or committee and define clear roles to ensure coordinated collaboration among key stakeholders
- **Data validation**
  - Strengthen information systems and standardize methodologies across stakeholders
  - Review and adapt methodologies to the national context to avoid inconsistencies and improve comparability of results
- **Publication**
  - Publish data once baseline datasets are established, ensuring sufficient data quality and traceability
- **Capacity development**
  - Allocate financial and human resources for continuous use and updating of the BRS Plastic Waste Inventory Toolkit

The actions outlined above are translated into a set of concrete implementation steps, presented in Table 1. The table defines key activities, expected outputs, timelines, and responsible institutions, providing a structured framework for implementation.

Table 1 Implementation plan for strengthening plastic waste statistics

Activity	Output	Timeline	Responsible
Prepare a project plan on plastic waste statistics	Prepared pilot implementation plan	Short-term	MAE, INEC, MPCEI, SENAE and private sector
Develop and standardize methodologies for plastic waste statistics	Adopted national methodology for plastic waste statistics	Mid-term	MAE, MPCEI and private sector
Develop an integrated national data system	Implemented integrated national data system	Mid-term	MAE, INEC, MPCEI SENAE, private sector
Improve mandatory data reporting requirements for the private sector	Strengthened mandatory reporting requirements and mechanisms	Mid-term	MAE, MPCEI and private sector
Compile long timeseries of plastic POM and insert in Plastic Waste Generated Tool	Compiled long-term plastic POM data	Mid-term	SENAE, MPCEI, INEC, private sector
Establish data collection mechanisms for formal plastic waste collection, recycling, and final disposal	Standardized data collection and reporting mechanisms for plastic waste	Mid-term	MAE, INEC, MPCEI and municipalities

Activity	Output	Timeline	Responsible
Integrate informal sector	Established registry and integration mechanism for waste pickers	Mid-term	MAE, municipalities
Conduct studies on unmanaged waste flows	Conducted and published studies on unmanaged waste flows	Mid-term	Academia, MAE
Prepare key plastic waste findings	Compiled, reviewed, and validated plastic waste data and prepared key findings	Mid-term	MAE, INEC, MPCEI
Conduct stakeholders' meetings to share findings for comments	Established a stakeholder engagement process through a working group and collected stakeholder feedback	Mid-term	MAE, INEC, MPCEI, SENAE and private sector
Incorporate comments from stakeholders	Finalized and validated plastic waste data and key findings	Mid-term	MAE, INEC, MPCEI
Align national reporting with international requirements	Submitted report on plastic waste statistics	Mid-term	MAE

Ultimately, these efforts will enable the country to monitor plastic flows across the lifecycle, support policy development, and track progress towards national targets and international commitments.

07
LITERATURE

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