

Waste Management in the LATAM Region

20210208 report Waste Management Study LATAM

Waste Management Country Report: Ecuador

This report aims to provide a better understanding of business opportunities for the Netherlands in waste/circular economy sector in Ecuador



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Country Information

Ecuador is quite small compared to the other countries of the region, as a result the country does not have its own Dutch embassy, it is part of the embassy in Peru. The country has a Dutch consulate, both in Quito and Guayaquil.

Ecuador has undergone an incredible transformation in recent years, passing from an economy based prevalently on trade of raw materials to a modern and diversified economy including activities of the highest technological and industrial level, like the information technology industry.

Ecuador also includes the Galápagos Islands in the Pacific, about 1,000 kilometers west of the mainland. The capital is Quito, a city of 1.8 million inhabitants, located at 2,850 meters above sea level.

1. The Waste/CE Market Analysis

1.1 Facts & Figures Waste Generation and Composition

The National Institute of Statistics and Census (INEC) indicates that the country generates about 14.4 thousand tons of waste per day, which comes down to 0.86 kilograms per day per citizen^{ix}. In addition, the INEC and the Ministry of Environment and Water (MAE) estimate that 57% of the total waste generated is organic and 43% of the inorganic waste is made up of: plastic 10.6%, cardboard 5.8%, paper 4.4%, non-hazardous sanitary waste 5.1% and other 16.8%^x.

Besides, INEC reports that 84.5% of the 220 municipalities have a local solid waste management framework, 50.5% have a system for the treatment and / or final disposal of Hazardous waste, 66.2% carry out characterization of their solid waste, 36.5% source separate waste at household level, 37.4% carry out differentiated collection for recyclable waste and 13% of the municipalities organize the treatment of their municipality waste.

In the sector, there are more than 2,000 transport and collection companies, more than 500 companies that

Key Indicators	
Size	Ecuador is 7 times larger than the Netherlands
Population (2019)	17.3 million ⁱ
Nominal GDP (2019)	USD 107.4 Billion world rank: 61 ^{stiii}
GDP per capita (2019)	USD 11,878 ⁱⁱⁱ
Import from the NL (2018)	USD 14 million ^{iv}
Economic growth (2018)	1.4% ^v
Ease of doing business rank (2019)	129/190 ^{vi}
Corruption index (2019)	93/180 ^{vii}
Unemployment rate (2019)	3.8% ^{viii}
Currency	Dollar (USD)
Time difference NL	-6/-7 hours

classify the waste (waste picker organizations) and approximately 200 companies work in recycling and treatment (MAE-PNGIDS, 2020).

1.2 Collection and Disposal

1.2.1 Waste Collection

In Ecuador, the waste collection is 85.5%, which implies that 14.5% of the waste is not collected. Of the 12,400 tons collected every day, 15% is collected via special routes for non-recycle and recycle waste. The country has a national color- standard for waste separation to stimulate source separation and differentiated collection^{xi}, which has not been implemented yet. Besides, the city of Cuenca (third largest city, with a population of approximately 300,000) implemented a fine system for citizens who do not separate their waste^{xii}. In the country, 70% of the waste trucks exceed the useful life of 10 years^{xiii}.

In Quito, the waste collection is done by the municipality company [Emaseo](#). Besides, the company [EMGIRS-EP](#) operates the two transfer stations, the three construction & demolition (C&D) waste landfills and the 'El Inga' landfill of Quito (DMQ)^{xiv}. The North Transfer Station

(NTS) has the highest capacity of waste storage at 1,150 tons per day. NTS is formed by 11 platforms and a transport fleet of 11 trucks with a capacity of 30 tons each. The South Transfer Station has a capacity of 900 tons/day. In a month, 720 trips are made from the South Transfer Station to the landfill. In 2016, the Metropolitan Area of Quito and EMGIRS developed the Master Plan Integral Waste Management of the Metropolitan District of Quito. This plan is a technical framework for municipal solid waste (MSW) management until 2025. The main goal of EMGIRS is to maintain and operate the North and South Transfer Station reducing the amount of MSW going to 'El Inga' landfill^{xv}.

While in most of the small and medium municipalities the public health departments organize collection and final disposal with their own equipment^{xvi}, bigger cities subcontract (inter)national private companies like [Gadere](#) Veolia (among others in Quito, Cuenca and Guayaquil) and [EMAC](#) (Cuenca).

1.2.2 Waste Disposal

Governments (GADM), 45.7% of the municipalities have landfills, 28.8% dispose their waste in temporary cells and 25.6% in open dumpsites or ecosystems. In Ecuador, there are 144 open dumpsites and 77 landfills. The National Program for the Integral Solid Waste Management planned to close the dumpsites before the end of 2017 but have not started this process until today^{xvii}. This process of closing dumpsites and designing and construction of new landfills is an interesting business opportunity for Dutch companies^{xviii}.

In 2017, 53% of the municipalities carried out differentiated collection of hospital waste. 50% of these municipalities do not have facilities for the treatment or final disposal of this hazardous waste stream^{xix}. In 2017, 212 of the 220 municipalities swept 18,248.4 kilometers of streets, which means a coverage of 78% of the roads^{xx}.

The landfill of the Metropolitan District of Quito receives approximately 2,000 tons of waste every day from the Metropolitan District and surrounding municipalities through the two transfer stations. This landfill is equipped for groundwater management, leachate management and biogas extraction^{xxi}, but is facing different problems^{xxii}. EMGIRS-EP charges 26USD/ton at the transfer stations (includes tariff for final disposal) and 15USD for disposal at the landfill^{xxiii}.

Construction & Demolition waste can be deposited for 0.57 USD/m³.

1.3 Value Chain

1.3.1 Recycling

According to the National Institute of Statistics and Censuses (INEC), only 6% of the municipality waste is recycled nationwide. In 2017, approximately 626,000 tons of cardboard, metal, paper, plastic and glass waste were recycled^{xxiv}.

In 2015, the national network of waste pickers in Ecuador (RENAREC) stated that there are around 20,000 informal and formal waste pickers, responsible for the collection of recyclable waste^{xxv}.

Extended Producer Responsibility (EPR) Programs are implemented for a series of waste streams through the [Ministerial Agreement 161](#), including used tires (2014), containers of agricultural pesticides (2013) and batteries and cell phones (2013). The Agreement obliges producers to meet established collection and/or recycling targets. Failure to do so causes a ban on the sale or import of the product.

The Ministerial Agreement 098 of 2015^{xxvi} regulates the extended producer responsibility program for used tires. By 2019, there were about 2.6 million vehicles that generated 3.14 million End of Life Tires, equivalent to 51,266 tons, of which 23,070 tons (45%) were collected by different companies to transform them into other products, such as playgrounds, carpets and synthetic courts or energy. The biggest EPR program is [Seginus](#), representing 80% of the used tires-producer companies. The professionalization of the used tire chain during the next years can offer opportunities for Dutch companies active in this industry, for example offering collection and recycling equipment.

In 2018, Ecuadorians produced 93,000 tons of electrical and electronic waste, that is about 5.4 kilos per person. Only 2% of this amount was recycled^{xxvii}. The Ministry of the Environment and Water is structuring the technical proposal for the EPR-legislation to increase the formal recycling as soon as possible. At the moment, there are 5 registered EPR E-waste programs, such as: [Reinicia](#), [Reciclametal](#) and [Vertmonde](#), which offer their services to the producers to comply with this legislation. Ecuador does not yet have an EPR program for packaging, although developments are expected in this

regard in the future. In November 2020, the National Assembly approved a new law for the regulation of single-use plastics. The law establishes that in 36 months after publication, the manufacture and import of plastic bags, glasses, utensils and tableware that are not recyclable and whose elaboration does not contain the percentage of recycled raw material as indicated by the norm, will be prohibited. This percentage is gradual and must be incorporated in terms of 18, 36 and 48 months. In the fourth year, the bags must have 60% recycled material, flex foam containers 18%, glasses and packaging 30%, utensils 30%, and PET bottles 30%^{xxviii}.

The Law of Promotion and Environmental Optimization of the State Income (2011) created a deposit return system on single-use plastic bottles to reduce the environmental pollution and stimulate the recycling process, the value of the tax is established at 2 cents^{xxix}.

There is no law on C&D waste, as a result the waste ends up in special C&D waste landfills or is dumped illegally.

1.3.2 Composting

Ecuador is a country whose economy is based mainly on small and medium agriculture, a sector that offers huge opportunities for Dutch companies concerning valorizing their waste, both agricultural and agro-industrial.

There is no national law or legislation about organic waste certification. The MAE, the European Union and the Italian [Foundation ACRA](#) developed a manual for the use of municipal organic waste for the different Autonomous Decentralized Municipal Governments (GADM)^{xxx}. The manual gives an overview of the different technologies that could be implemented. At the moment, 37.4% of the municipalities of Ecuador valorize the organic solid waste from the fruit & vegetable markets. All the technologies presented in the manual have a long and successful track record in the Netherlands, in this way offering interesting chances to expand their business in Ecuador. The study of Climate and Clean Air Coalition and the company EMGIRS^{xxxi} shows that Quito is interested in the implementation of composting projects^{xxxii}.

1.3.3 Waste to Energy

MAE made waste to energy technologies part of their national program. Some initiatives are being investigated by the municipalities. In the Pichacay

Landfill, Cuenca, for example, 1.6 MWh of energy is estimated to be generated by biogas recovering and driving a thermal power plant. The Dutch company BGP Engineers was part of the consortium, responsible for the study and equipment^{xxxiii}. Other examples of Waste to Energy projects are being studied in Quinde and Quito^{xxxiv}. In Ecuador, the energy is subsidized (to maintain the price of energy produced by the statal hydroelectric power plants low), which makes it difficult to implement renewable energy projects.

2. Governance on Waste/CE

2.1 Waste Management

The MAE is the environmental authority of Ecuador^{xxxv}, in cooperation with the Ministry of Production, Foreign Trade, Investment and Fisheries (MPCEIP) they design and implement the legislation concerning waste management and circular economy.

The Organic Code of Territorial Organization, Autonomy and Decentralization^{xxxvi} (COOTAD) establishes that the 221 local governments (GADs) are responsible for the municipal solid waste management inside their jurisdiction, which includes designing plan and legislation^{xxxvii}.

Ecuador has a National Waste Management Program 2010-2021^{xxxviii} of which the main objective is to eliminate open dumpsites from all municipalities in the country. At this moment, Ecuador does not have a national waste management law, the most important legislation concerning waste management is the Organic Environment Code (COA). The COA, approved in 2018, promotes the guarantee of a healthy environment and nature right protection^{xxxix}. Chapter 5 of the document describes the general policies of the comprehensive waste management, including municipal, hazardous and special waste.

2.2 Policy Landscape: Circular Economy

Since the beginning of 2019, the MPCEIP, together with the Vice presidency and the MAE, have been working on the roadmap towards a National Circular Economy Strategy. In June 2019, the European Union, in collaboration with ACRA Foundation, organized the first international circular economy seminar^{xl} in Quito and in August 2019, a circular economy pact was signed by 161 adherents from the public, private and academic sectors. The main stakeholders meet every 3 months.

On June 25th 2020, the National Government and [Unacem](#), leader in the Ecuadorian cement industry, presented the First phase of the White Paper on Circular Economy^{xli}. This first document contains an in-depth analysis of the current situation of the sector and establishes a roadmap for the country to move towards a model of sustainable production and responsible consumption. The White Paper includes strategic lines of action, part of the following 4 fundamental pillars:

- i) Sustainable production
- ii) Responsible consumption
- iii) Comprehensive Waste Management
- iv) Policies and Financing.

Concerning the third pillar, waste management, the report stresses that the main constraints for a successful waste management are:

- weak institutional framework and planning
- lack of institutional culture (public and private)
- lack of information for decision making
- lack of use of information, communication and technology systems (ICT)
- source separation
- market development (supply and demand)
- tariff schemes, which include externalities (environmental and social)
- inclusive recycling.

The Second phase will contain the detailed design of the strategic lines of action. The report is expected to be presented in the first semester of 2021, the second phase will be executed by [German Corporation for International Cooperation GmbH](#) (GIZ) and [University Los Hemisferios](#).

At the same moment, the National Assembly is preparing a Circular Economy and inclusive recycling Law^{xliii}, which seems to be mainly focused on improving the current situation of the waste management sector in Ecuador.

The harbor city and biggest city of Ecuador, Guayaquil, is taking a proactive role towards a circular economy. The University [Espol](#) has organized two international

[congresses](#) in which various Dutch experts and Unilever participated.

3. Financial Aspects

The municipalities charge fees for waste collection, transportation, and treatment services, but there are no uniform criteria in determining the fee^{xliii}. 50.7% of the municipalities charge the solid waste collection fee through the electric energy, 23.3% through the water bill, while 7.8% do not have regulations for the collection of the fee^{xliv}. The fee is around the 10USD^{xlv}. The waste tariffs for final disposal in Quito mentioned before are calculated based on real costs of operating an official landfill, which makes it interesting for Dutch companies to present their equipment and discuss return on investment versus short term purchase price^{xlvi}.

Since the municipalities do not collect sufficient financial resources from the citizens to sustain the municipal waste management, they added municipal subsidies to finance on average 43.9% of the service. The implementation of a EPR (packaging) system could help the municipalities finance their municipal waste management and take steps towards a circular economy. A project managed by ACRA Foundation and AME, funded by the European Union, created a software to help municipalities calculate the correct tariff based on the real costs and incomes. The software has been implemented in 10 pilot municipalities and is looking for funds to finance the implementation.

Since 2007, the European Union has financed waste management projects for almost 15 million euros, additionally during 2021 the EU will finance circular economy projects^{xlvixlviii}. There are several international organizations helping Ecuador financially with the design and implementation of waste management and circular economy projects. For example, the International Development Bank finances projects on inclusive recycling in Ecuador through the [Regional Recycling Initiative](#), as well as the German Development Bank [KfW](#) and GIZ. At national level, the [State Bank](#) finances these types of projects.

4. Stakeholders

As showed before, there is a strong relationship between the private and public sector in Ecuador. The private organizations are member of the [Federation of the Chamber of Industries](#), which groups together

companies from 62 productive sectors, and the [Ecuadorian Business Committee](#). The Plastic producers are united in the Plastic Association [Aseplas](#).

The Italian [Fundación ACRA](#), plays an important role in the design of the circular economy strategy by organizing the National Forum of Circular Economy and supporting municipalities with the design of their waste management plans^{xlix}.

Coca - Cola's largest bottler [Arca Continental](#) leads the application of SDG 12: Responsible Consumption and Production. Currently their containers incorporate 25% recycled resin, recover 79% of their PET bottles and provide 25% consumption of Ecuadorian recycled resin.

Also, the academic sector in Ecuador plays an important role, and universities like [Catholic University Pontificia](#), [ESPOCH](#), [ESPOL](#) can be of interest for Dutch players to get to know the long term vision of the policy development.

5. Dutch–Ecuadorian Cooperation

In 2015, together with Emaseo, [VDL Translift](#) implemented a side loader collection scheme with 550 containers, 19 collection trucks and 5 washing machine trucks in Quito^l.

Besides, the Dutch specialized company [EES Engineers](#) B.V. with focus on Energy Engineering Solutions is active in Ecuador.

6. Business Opportunities

In Ecuador, business opportunities are abundant in the waste/CE sector. Let's single out some prominent ones.

The White Paper prioritized the following five sectors for the implementation of circular economy, which gives a clear indication of the long-term vision of the country and opportunities for Dutch companies:

- Manufacturing
- Agriculture
- Commerce
- Construction
- Oil & Mining industry

The potential of the country is mainly based in the 3 cities: Quito, Guayaquil and Cuenca. The territorial

fragmentation of small municipalities requires the creation of joint management to have profitable and sustainable systems (economy of scale), so small-scale Dutch solutions are interesting for local partners.

7. Concluding Remarks

Although the country has some important steps to make in order to improve their current waste management situation (collection and landfills), Ecuador is showing a strategic vision on how to further progress towards a circular economy. The private sector seems the most promising sector for Dutch companies.

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