

Waste Management in the LATAM Region

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Waste Management Country Report: Costa Rica

This paper aims to provide a better understanding of business opportunities for the Netherlands waste/circular economy sector in Costa Rica



Source: Photo by Alex Fu on Pexels. 2021.

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COSTA RICA

Country Information

“Switzerland of Central America”. This is how Costa Rica is often described, for its natural beauty and its relative political tranquility. Many Europeans know the country as an attractive tourist destination, with its abundant forests, its range of volcanoes and its beaches along the Pacific and the Caribbean Sea. More than 40% of Costa Ricans live in four provinces in the Central Valley: the capital San José, Alajuela, Heredia and Cartago. This area is also referred to as the “Gran Área Metropolitana” or the GAM. The country has enjoyed steady economic growth over the past years. In part because of its dependency on tourism, Costa Rica has been hit hard by the COVID-19 crisis.

The political stability, relatively high standard of living and well-developed social benefits set Costa Rica apart from most of its Central American neighbors. The country has attracted one of the highest levels of foreign direct investment per capita in Latin America. Still, doing business in Costa Rica does require patience and resilience.

“Pura vida” is what Costa Ricans (aka “Ticos”) say when they meet. Indeed, the country offers much to lead a “Pure life”. But it has its share of challenges in waste management. Much remains to be done.

An important source for this report is a 2019 study carried out by a coalition of Costa Rican organizations and GIZ Germany, meant as a preparation for NAMA projects in waste management (the “NAMA study”).

1. The Waste/CE Market Analysis

1.1 Facts & Figures Waste Generation and Composition

Costa Ricans generated around 1.45 million tons of Municipal Solid Waste in 2018, or 0.81 kilograms per day^{ix}. 60% of this waste is generated in 16 out of the 82 cantons, which are almost exclusively located in the GAM. The composition is 52% organic material, 13% paper and cardboard, 12% plastics, 3% textiles and some smaller fractions (based on an analysis of 10 municipalities as part of the NAMA study).

In 2018, a total of 31,342 tons of Hazardous waste was registered in the Management System for Hazardous

Key Indicators	
Size	Costa Rica is 23% larger than the Netherlands
Population (2019)	5.8 million ⁱ
Nominal GDP (2019)	USD 61.8 Billion world rank: 79 ^{thii}
GDP per capita (2019)	USD 20,443 ⁱⁱⁱ
Import from the NL (2018)	USD 17 million ^{iv}
Economic growth (2018)	2.6% ^v
Ease of doing business rank (2019)	74/190 ^{vi}
Corruption index (2019)	44/180 ^{vii}
Unemployment rate (2019)	12.4% ^{viii}
Currency	Costa Rican Colón (CRC)
Time difference NL	-6/-7 hours

Waste SIGREP^x. The province of Guanacaste stood out with 44.7% of the hazardous waste received.

1.2 Collection and Disposal

1.2.1 Waste Collection

According to the NAMA study, 3,132 tons of waste per day is collected and recycled or sent to landfills. This is 82% of Municipal Waste.

In Costa Rica, municipalities are responsible for collection, transportation and treatment of solid waste. However, only a few municipalities have environmental management systems that allow them to plan their activities properly. 87 out of the 488 districts do not have municipal collection, forcing citizens to resort to

inappropriate practices such as burning garbage, dumping it in vacant lots or bodies of water (Comptroller General of Costa Rica, 2016).

1.2.2 Waste Disposal

Despite the small size of Costa Rica, waste travels fairly large distances. Strategically placed transfer stations could ameliorate this situation. There is also a lack of specific collection equipment for source separation of recyclable waste. A thorough analysis of waste logistics in Costa Rica could yield promising business opportunities, inherently profitable for all involved (including the environment).

According to the Ministry of Health, in 2017 Costa Rica deposited 1.04 million tons of waste in landfills.

The 2019 NAMA study provides a detailed overview of the number and location of (7) sanitary landfills and (numerous) waste dumps in Costa Rica. It also shows which municipality is using which landfill and the associated transport distance. This is definitely a good basis for projects aimed at mitigating climate change.

Most sanitary landfills are in private hands. The Canadian owned company EBI Costa Rica S.A. is a major player. It operates three landfills: La Uruca in San José; El Huaso in Aserrí; and Limón on the Caribbean coast. According to its website, in Costa Rica EBI applies the same standards for landfill management and biogas treatment than in Canada. Another example is the sanitary landfill “Parque Eco Ambiental Miramar” in Puntarenas, managed by a Mexican firm. In contrast, the sanitary landfill in the Northwestern province of Guanacaste is operated by the Municipality of Santa Cruz.

The 2016-2021 Costa Rican Solid Waste Plan (PRESOL) announced the development of regional sanitary landfills based on municipal cooperation and public-private investment. The aim was to gradually close local waste dumps. In the last eight years, 12 landfills have been closed, but only two new ones were put into operation.

The promotion of regional cooperation (including regional landfills) can be a promising field to explore in Costa Rican - Dutch cooperation. The Netherlands has a lot of experience with regional public service waste companies, partial ownership entities and contract

management models. In the slipstream, Dutch companies with expertise in development and revitalization of landfills could step in.

1.3 Value Chain

1.3.1 Recycling

According to a recent study by the Costa Rican Technology Institute (TEC), storage centers for recyclable waste (so called "centros de acopio", registered or non-registered, private or public) are spread throughout the country. Processing plants tend to be located in the central valley. The final destinations for recyclables are export primarily (to other Central American countries with processing facilities but also overseas): 60,193 tons of paper and cardboard; 78,628 tons of metals and 81,125 tons of aluminum in 2019. Plastics were lagging behind with 21,788 tons.

Some barriers to recycling are the low quality of collected materials, the scarcity of local processing capacity, volatile prices and the lack of a market for recycled products. Plus, the modest size of the overall market. The one plant in Costa Rica that is able to process cardboard has been working at 40% capacity for lack of demand. In plastics it is the other way around: there is a lack of collected material. However, low prices for virgin material do not help either. In some cases, informal waste pickers are not able to sell to the storehouses because they don't have the right credentials, which does not help to build up sufficient volume.

The Embassy of the Netherlands supported a project of the Tierra Madre Verde Foundation to build plastic recycling machines designed by the Dutch company Precious Plastic. During PreCOP 25 in Costa Rica, the company had a booth where it showed the operation of a small-scale factory for recycling and manufacturing products out of plastic waste. This model is already being replicated in some communities both to address the problem of pollution and for the development of businesses in plastic recycling.

An inspiring private initiative in recycling is Ecoins. This program encourages Ticos to take their clean, dry and separated valuable materials to one of 287 collection centers. As a reward, they get “virtual money” (Ecoins) that can be exchanged for discounts on products and services from dozens of participating businesses. The program is sponsored by Pepsico and is branching out to

Panama, Peru, Guatemala and El Salvador. There is another program called AmbientaDOS, spearheaded by Kimberly Clark together with the television station TeleTica. In their campaigns, they collect plastics, tetra pack, glass, aluminum, paper and cardboard.

1.3.2 Composting

In the past decade, municipalities and private enterprises have developed initiatives in composting. Some municipalities (especially in the GAM) teach their citizens home composting techniques and provide basic equipment. Other regions have established centralized composting facilities. The biggest plant is located in the canton of Pérez Zeledon, where a total of 3,287 tons of separately collected organic waste from households, restaurants and gardens was processed in 2017. The retail price of the compost is around 100 colones per kilo. The composting plant saved the municipality over € 10,000 on a monthly basis. This may be a driver for further development of composting in Costa Rica. The Nationally Appropriate Mitigation Action (NAMA) plan, the Decarbonization Plan and the National Composting plan of Costa Rica all help to make composting into a potentially fertile business opportunity. On the downside there is the difficulty to collect "clean" organic waste and a lack of a market for the compost.

1.3.3 Waste to Energy

At Two cement companies offer co-processing of waste materials: HOLCIM (through Geocycle) and CEMEX. In 2018, HOLCIM processed 20,000 tons of MSW (1.4% of the total output of Costa Rica). Processing costs vary: € 16-25/ton for spent tires; € 600/ton for pharmaceutical waste.

Costa Rica has the highest electricity rates in Central America (according to GlobalPetrolPrices.com, in March 2020, the costs for electricity were 0.15 US\$/kilowatt-hour (kWh) for households and 0.20 US\$/kWh for businesses). However, the modest waste output of Costa Rica as a whole probably does not justify mass burn incineration. Apparently, the current mayor of San José is interested to explore Waste to Energy, but the national electricity company ICE, a force to be reckoned with in this area, is not.

Anaerobic digestion is primarily limited to the agricultural sector. Six cantons in the Cartago Province

are working towards a regional waste treatment facility including an anaerobic digestion plant. This project may still be halted because of the high investment costs.

2. Governance on Waste/CE

2.1 Waste Management

In 2010, the Costa Rican Government published the Integrated Waste Management Law (Law GIRS8839 and regulations). At the national level, waste policy making, monitoring, evaluation and control was put in the hands of the Ministry of Health (MinSalud).

MinSalud has issued the Costa Rican Solid Waste Plan 2016-2021 (PRESOL). It promotes proper solid waste management along five lines of action: economic, technical, legal, institutional and socio-cultural. Specific strategies for waste separation and valorization (ENSRVR) and for the substitution of plastics (ENSPARC) were also published. With Law 9786 (restrictions on plastic bags, straws and plastic bottles) and Law 9703 (banning polystyrene) Costa Rica is taking the first steps towards a circular economy.

Another important development is the National Climate Change Strategy (ENCC), which contains goals to reduce greenhouse gas emissions and identifies landfills as an important source.

The municipalities are responsible for proper waste management in their jurisdiction. They have to develop and execute Municipal Waste Management Plans, including actions to promote waste separation at source.

2.2 Policy Landscape: Circular Economy

As stated before, the national motto of Costa Rica is "Pura Vida" or "Pure Life". With this motto in mind, it should be relatively easy for Ticos to take the shortcut towards a circular economy. Indeed, efforts are underway by the Ministry of Economy to formulate a National Circular Economy Strategy. COVID-19 is slowing down these developments, but progress is being made.

On the 29th of May 2019, the Holland House Costa Rica (www.hollandhouse.cr, do pay them a visit when you're in the country) announced a half day seminar on "Circular Economy – Business Models to Compete Tomorrow". Within two hours 150 people had signed up. The main focus was on plastics: Costa Rica contemplates

a ban on single use plastics and an environmental labeling system is in the making. What is missing still is an Extended Producer Responsibility system for packaging (for other waste streams such as tires and WEEE it is already in place).

This Holland House event clearly showed the keen interest of Costa Ricans in Circular Economy. The field appears wide open for collaboration and mutual business in this area.

The Dutch Embassy has been actively promoting Circular Economy by participating in business forums, conferences and seminars with the private sector. Dutch technologies have been showcased and the Dutch Circular Economy Plan 2050 was presented. As a result, the Netherlands is considered a frontrunner on the subject in Costa Rica.

3. Financial Aspects

In many countries, the waste sector is underfinanced. In Costa Rica this is not necessarily the case. In the 2019 NAMA study, a list is provided of the expenditures of Costa Rican municipalities in waste management. Amounts vary from € 18/ton in Sarapiquí to € 210/ton (almost 12 times as much) in Dota. If these figures are correct, there appears to be sufficient financing for integrated waste management (at least in significant parts of Costa Rica). A more thorough investigation into the financial aspects, with a view to optimize the triangle environment – service level – finance, could pave the way for sustainable waste management in Costa Rica as well as promising business opportunities. Regionalization of waste services could be part of the solutions. Costs could be cut, services improved, and the environment would benefit.

4. Stakeholders

In 2020, the German GIZ published a map of Costa Rican enterprises working in ISWM. There is an overview of recovery centers for recyclables, processing companies, waste collectors and transporters, organic waste processors, co-processing and final disposal companies. The informal sector is included as well. This is matched with an overview of the waste management tasks carried out by selected municipalities. Although the authors indicate a lack of data, their report provides

an invaluable overview of the current players in the Costa Rican waste sector.

Some important stakeholders are:

- [ACIPLAST](#)
- [CEGESTI](#)
- [CICR](#)
- [TEC](#)

5. Dutch–Costa Rican Cooperation

The Netherlands is the second largest destination for Costa Rican exports and one of its top foreign investors (e.g. Philips Medical Services and APM Terminals). A bilateral agreement was signed in 2015, looking for partnerships around common interests such as innovation, best practices, knowledge and technology. Waste management and circular economy are a promising field of cooperation.

6. Business Opportunities

Same as other countries, Costa Rica has been hit hard by COVID-19. The unemployment rate hovers around 25%. Waste management and circular economy may not be among the first priorities right now, but they will no doubt return high on the agenda when the pandemic subsides. Apart from some promising fields already mentioned (notably composting), below are some business opportunities considered especially promising.

6.1 Regionalization and Climate Projects

The Costa Rican government aims to close down waste dumps and develop regional sanitary landfills. The high costs of waste management in some parts of the country reveal inefficiencies that could be tackled by more regional cooperation. This could be a promising field of cooperation to be explored by the Netherlands and Costa Rica. The Embassy of the Kingdom of the Netherlands could initiate this cooperation with the Costa Rican Union of Local Governments (UNGL) as a partner. The Netherlands has lots of experience with a variety of regional cooperation models in waste management. Such program could be accompanied by Dutch private sector providers in optimized waste logistics and sustainable landfill design and rehabilitation. The latter projects could be financed in the framework of climate change mitigation programs.

6.2 Data Management

One of the foundations for sustainable waste management and circular economy is good data management. A recurring outcome of the recent NAMA studies has been the lack of complete and consistent data on waste flows in Costa Rica. Plus, large differences in costs of waste management between municipalities. This is another field where the Netherlands has lots of experience: not only in generating the data, also in the analysis, benchmarking and feedback of data to achieve continuous improvement. A cooperative role in data management in the Costa Rican waste sector, spearheaded by the Dutch Embassy, would put the Netherlands in the driver's seat to identify and follow up on business opportunities in the waste/CE sector.

6.3 Processing of Construction and Demolition (C&D) Waste

In terms of weight, Construction & Demolition waste is one of the dominant waste flows in Costa Rica. The municipalities are looking for local and regional collection and recycling solutions to solve the problems caused by the illegal dumping of mixed waste in rivers and other ecosystems.

Besides, the construction sector offers opportunities for Dutch companies active in the first phase of the building life cycle. Costa Rica lacks knowledge on how to close the loop of building materials, starting at the design phase (eco-design). Architects and suppliers of sustainable construction materials can fill this void.

6.4 Circular Economy

The May 29, 2019 circular economy event organized by Holland House Costa Rica has revealed the keen interest in Costa Rica in this subject. Costa Rica and circular economy appear to be compatible. The Ministry of Economy is developing a circular economy strategy – let's step in and lend a hand. This could be followed up with a local Circular Economy Hub and young entrepreneurship programs. The Embassy of the Kingdom of the Netherlands has already laid the groundwork to develop such programs.

7. Concluding Remarks

Though small in size, the challenges Costa Rica is facing on the way towards sustainable waste management and a circular economy are very similar compared to other countries in Latin America. At best, the country can serve as a testing ground for sustainable waste technologies and services. For less common waste streams such as WEEE and batteries, it is recommended to seek cooperation with other Central American countries.

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