



Rijksdienst voor Ondernemend  
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# *Market survey: The Panamanian waste sector*

The Embassy of the Kingdom of the Netherlands in Panama

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>> *Duurzaam, Agrarisch, Innovatief  
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## Content

This market survey responds to the developments in the Panamanian waste sector. The objective is to scout business opportunities in this sector for Dutch companies. It includes background information about the country, an analysis of the current state of the Panamanian waste sector, an overview of relevant stakeholders and an analysis of the future plans and investments.

## Overall Goal

Explore opportunities for Dutch businesses in the Panamanian waste industry driven by recent developments.

## Results

The Panamanian waste sector is on the verge of changes. By the creation of a national waste authority with the task to design and implement a national waste strategy, the central government acknowledged the urgent need for changes. Yet, these changes come with new uncertainties and risks.

The task to make a national strategy is complicated by the decreasing national budget for waste management as part of a decentralization process and by the long-lasting contracts between private entities and municipalities. Moreover, the decentralization process causes more obscurity regarding the division of responsibilities.

Nevertheless, opportunities for Dutch businesses are present. On a regional level, pilot plans are launched which incorporate opportunities for the construction of waste separation plants and waste transformation plants. Besides, investments in equipment (collection vehicles and containers) are expected in 2016 and 2017. On a national level, a plan about the financial organization of the waste sector is missed. Moreover, no company or organization in Panama yet is specialized in the collection and treatment of hospital waste.

Investments on a national level regarding waste treatment are not expected in the coming years. However, Panamanian authorities regard waste to energy as the easiest and preferred solution for large scale waste treatment.

## Recommendations

The level of investments in the Panamanian waste sector remains ambiguous. The central waste authority is keen to improve the waste sector, but faces several serious challenges. Therefore it is recommended to focus on small individual projects with the AAUD or with local municipalities. The implementation of a well-organized national plan is considered unrealistic for the near future.

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## 1. Introduction

Panama is booming. From 2010 on, economic growth has always exceeded 5% and in 2011 and 2012 it even exceeded 10%, fewer people live in extreme poverty and the middleclass is expanding. Before the 21<sup>st</sup> century, Panama did not have significant problems regarding waste management as the country did not produce a lot of waste. Yet, Panama's waste production has increased by almost 50% over the last twenty years. In 2014, the average Panamanian produced 1.2 kg<sup>1</sup>, just slightly less than a Dutchman (1.37 kg).

The current state of the Panamanian waste management cannot be compared with the Dutch. Newspapers report about disturbing situations at landfills, polluted rivers and illegal dumps. Several initiatives have commenced to raise awareness of the importance of a more sustainable use of goods and the development of a national waste strategy.

The municipalities and the central waste authority proposed several investments for improving the waste collection and waste treatment processes. For this reason the embassy decided to conduct a market research to explore the business opportunities for Dutch companies in the Panamanian waste sector.

<sup>1</sup> Source: [Municipality of Panama City](#)

## 2. Profile of Panama and its waste sector

### 2.1 Country Profile

Panama is the connection between North and South America, bordered to Colombia, Costa Rica, The Atlantic Ocean and the Caribbean Sea. Although Panama is almost twice as big as The Netherlands, it is sparsely inhabited with a population of 3.8 million (2014)<sup>2</sup>. Most *panameños* live in the metropolitan area between the city of Colón and the capital: Panama City. The main ethnic groups are 65% *mestizo* <sup>3</sup>, 12% indigenous, 9% African descent and 7% white.<sup>4</sup> The official language is Spanish. Panama's landscape is characterized by mountains, a tropical coastline and the jungle. Its climate is tropical maritime: hot, humid and cloudy.

Panama's major trademark is the Panama Canal. The canal, constructed by the United States but operated by Panamanians since 1999, is one of the main contributors to the country's economy. Others are the Colon Free Trade Zone, the ports and the financial sector. With a GDP per capita of US\$ 11.948 in 2014, Panama is one of the wealthiest countries in Central America and has the largest share of Foreign Direct Investment in the region (compared to the size of the economy). This is due to its stable and business friendly politics. Besides this, Panama has a strong currency (the official Balboa is pegged to the US dollar) and inflation and unemployment are low.

Yet, challenges remain present. Still 10.3% of the Panamanians live in extreme poverty and income inequality is large with a Gini Coefficient of 0.52 (similar to other countries in Central America). In terms of doing business, Panama scores

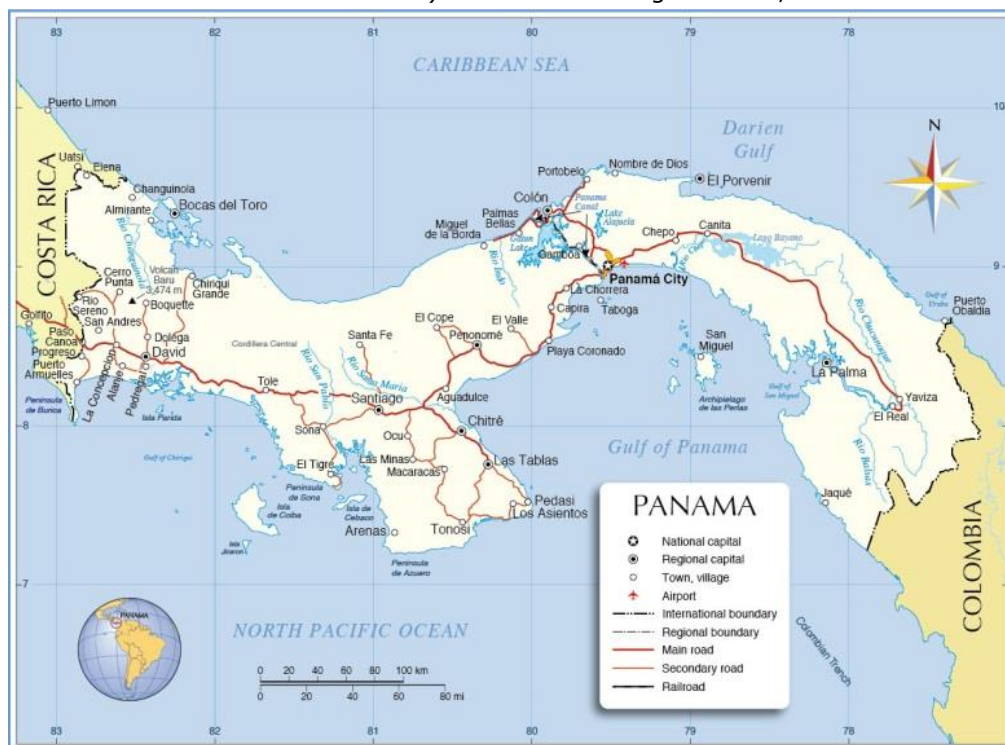


Figure 1: Political map of Panama

<sup>2</sup> Source: World Bank

<sup>3</sup> Mestizos: mixed descendants of Indians and Europeans

<sup>4</sup> Source: [Central Intelligence Agency's World Fact book](#)

relatively high on the ease of starting a business, access to credit, availability of electricity and trading across borders. Weak points are contract enforcement, resolving inefficiencies and the ease of paying taxes. Moreover, corruption continues to be displayed in several layers of public and private organizations.

## 2.2 Panama's waste sector

### 2.2.1 Waste Production

Due to the growing population and the economic development, Panama's waste production has increased rapidly over the last years. In the late 1990s Panamanians produced only 0.81 kg of waste per day. By 2014, this number has increased to 1.2 kg per day, which is comparable to the waste production of developed countries. At this moment, there is little awareness among Panamanians about the importance of reducing the use of materials such as plastic.

In order to design a well-functioning waste strategy, knowledge about the waste composition is crucial. Reliable data about the Panamanian waste sector is missing. The last official figures date from 2003, when the Japanese Overseas Development Cooperation (JODC) studied the waste composition.

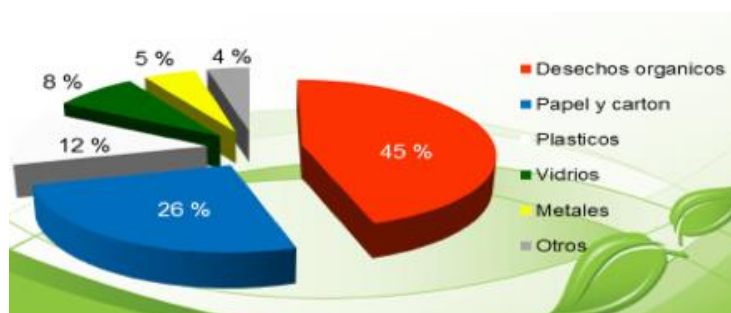


Figure 2: Panama's waste composition in 2003 (45% organic, 26% paper, 12% plastics, 8% glass, 5% metal and 4% other)

### 2.2.2 Waste Collection

According to the University of Central Catalonia, the current Panamanian waste collection system is comparable with the Spanish system of 25 years ago: garbage can be found on every street and containers are very rare.<sup>5</sup> Moreover, only 70% of the waste is formally collected which means that 300 tons of garbage per day is not formally collected.

Panama's geographic and demographic features affect the waste collection. Panama has a population density that is almost ten times lower than The Netherlands, two times lower than Costa Rica and practically equal to Colombia. This low population density and the rugged landscape cause difficulties in implementing an efficient waste collection strategy. Especially in the rural regions, one has to cover large areas with few inhabitants and thus a low volume of waste.

Apart from Panama City, local municipalities are responsible for the waste collection. Most municipalities contracted private companies for the execution of the waste collection. The share of private contractors is remarkably high compared with

<sup>5</sup> Source: [La vanguardia](#)



other countries: 40% in the district of Panama City, 48% in Colon, 73% in La Chorrera and 100% Arraijan.<sup>6</sup>

The bill for household waste is included in the drinking water bill and is collected by the corresponding institution: The National Institute of Aqueducts and Sewers (IDAAN). This organization however, has difficulties in collecting money: in 2013 only 8% of the bills were paid on time and in 2015 US\$ 67 million has not been collected.<sup>7</sup> The contractors are obliged by law to continue with the collection even though individuals systematically do not pay their bills. For this reason, local authorities and private contractors wanted to include the waste bill in the electricity bills. This has not yet been accepted by the central government as they want to prevent the disconnection of electricity due to payment arrears in the waste bill.

### 2.2.3 Waste Treatment

Large scale waste treatment in Panama is limited to burying in landfills and burning. On an industrial level, the most advanced treatment strategy that has been identified, is compressing the waste and burying it. This practice takes place for example in David. Less developed treatment strategies are also present, for example at the capital's major landfill: Cerro Patacón. This landfill is located northeast of Panama City and receives more than 2400 tons of waste per day.<sup>8</sup> The capital's poorest civilians live and work on Cerro Patacón and try to find garbage with any value on the dump. Uncontrolled fires often emerge. For example in 2013, when it took the fire brigade more than a week to control a huge fire which also caused a toxic cloud. Environmentalists claim that Cerro Patacón pollutes rivers, the air and the soil.

Large scale waste separation or recycling programs do not exist. Yet, several small scale initiatives have just started.

<sup>6</sup> Source: [Inter-American Development Bank](#)

<sup>7</sup> Source: [La Prensa](#) & [Telemetro](#)

<sup>8</sup> Source: [La Prensa](#)

### 3. Institutional framework

#### 3.1 National authorities and legislation

Panama's most important institution regarding waste management is the Authority for Urban and Household Waste (AAUD). The AAUD is responsible for the waste collection in Panama City and developing a countrywide strategy for waste management. It is a relatively young institution founded in 2010. Their budget for 2015 totaled US\$81 million including US\$25 reserved for new investments. For 2016 their budget is US\$64 million including US\$13 for investments. In the subsequent years, the budget for investments will even further decrease: US\$ 10.5 million in 2017, US\$ 8 million in 2018 and US\$ 7.5 million in 2019.<sup>9</sup> It is unclear if this lower national budget is compensated by an increase in the budget for local governments.

Besides the AAUD, various ministries and authorities have a say in the waste sector. In terms of the legislation, the most important party is The Ministry of Health. According to them, Panama's legal system regarding waste is indistinct and not well-developed; it relies mostly on international regulations. One of the international laws to which Panama is committed, is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Besides this, the Ministry of Health has two major laws: one regarding the obligation to register any company that executes waste related activities (regardless of the type of waste) and the other regarding the transportation of waste. The complexity of Panamanian laws and the obscurity of the implementation discourage foreign companies to do business in the Panamanian waste sector<sup>10</sup>. A list of relevant laws can be found in the appendix.

The Ministry of Environment does not have any particular laws regarding waste management. However, this ministry deals with all business activities that might affect the environment in which waste is incorporated.

As explained before, the National Institute of Aqueducts and Sewers (IDAAN) is responsible for collecting the bills for household waste collection and treatment.

#### 3.2 Local authorities

On a local level, the municipalities are the key players as they are officially responsible for processing the waste in their municipality. Some municipalities execute their own waste management, but in most cases private contractors are hired for the waste collection (and sometimes the waste treatment). Whereas it is beyond the scope of this market research to provide information of each individual municipality, a list of the major ones is provided here:

##### 3.2.2 Municipalities without significant private contractors

- Chitré:  
Chitré is one of the municipalities keen to improve its waste management and has not yet contracted a big private company for the execution of its waste management. The municipality of Chitré recently started conversations with the AAUD to discuss possible projects.
- Bocas del Toro:  
At this moment 20 one-man businesses are hired for the waste collection in Bocas del Toro.

<sup>9</sup> According to the national government's strategic plan

<sup>10</sup> According to AAUD (Gabriel de la Iglesia)



- **Panama City:**  
Besides the AAUD (responsible for the waste collection and treatment in the capital), the municipality of Panama City has a special department for waste: Basura Cero (Zero Waste). It has four employees and two main goals: to raise awareness about the environment and stop excessive waste production, and to act as an intermediary by connecting different parties to improve their waste management.

### 3.3.2 Municipalities with private contractors

- **David:**  
The municipality of David hires the private company SACH Waste for the execution of both the waste collection and treatment (compressing and burying). Sach has done this for more than ten years and aims to continue its activities.
- **Others:**  
Other municipalities that outsourced their waste strategy are: La Chorrera (to the Colombian company Empresa Metropolitana de Aseo – EMAS), Arraijan (to Aseo Capital), Santiago (to Sacosa) and Colón (to Aguaseo).



Figure 3: Panama's provinces

## 4. Current developments in the waste sector

Four major developments in the waste sector are identified. First of all, Panama's national government is currently initiating a process of decentralization which also applies to the waste industry. Second, foreign players have been trying to get involved in Panama's waste management. Third, several initiatives commenced to raise awareness of responsible use of materials. Last, private companies have been trying to increase the collection tariffs, but face difficulties in doing so.

### 4.1 Decentralization

The central government's decentralization strategy also affects the waste sector. Whereas the AAUD is still the umbrella organization, the responsibilities for waste management will be fully shifted to the municipalities.

At present, the situation is rather complicated. When the AAUD was founded in 2010, the central government assigned them to design a national waste strategy. However, before this strategy will be completed, the decentralization process will start. Due to this, the current responsibilities of the AAUD remain unclear. On the one hand, the municipalities are responsible for their own waste management. On the other hand, the municipalities appear to wait for the AAUD to take action as they claim to lack funds to improve their waste management.

In areas where local contractors execute the waste policy, the AAUD is hardly present. Their hands are tied by long term contracts between municipalities and private companies and they do not have sufficient capacity to intervene in all regions. This is for example the case in David where SACH Waste recently renewed its contract to execute the waste management without any interference of the AAUD.

On a national level and in Panama City the AAUD remains the most important authority. Yet, its job to design a national waste strategy without reliable data is considered unrealistic. Especially given the time pressure, the central government's deviating priorities and the call for immediate action to clean the streets of Panama City and to improve the situation at Cero Patacón.

### 4.2 Assistance from abroad

The need for developments in the waste industry did not go unnoticed abroad. Several foreign companies, embassies, universities and the Inter-American Development Bank (IDB) showed their interest in developing the Panamanian waste sector.

Since 2003, Panama has sought assistance with Japan, Canada, Great Britain and Spain. Besides, AAUD officials have visited Colombia, Mexico and Singapore to learn about the developments in these countries.

The most important and concrete foreign activities in Panama are performed by Spain and Great Britain. The British embassy organized a waste mission in November 2015 called *Panama: towards an integral waste management*. Both the AAUD and the municipality of Panama City (Basura Cero) attended this event and the international speakers were: Chris Murphy (CIWM<sup>11</sup>), Helen Bird (WRAP<sup>12</sup>), Nicholas Willenbrock (British government) and James MacTear (Blue Planet<sup>13</sup>). WRAP is hired by the municipality of Panama City to study problems related to food waste, household waste and recycling to in the province in the metropolitan area. It

<sup>11</sup> [Chartered Institution of Wastes Management](#)

<sup>12</sup> [Waste and Resources Action Program](#)

<sup>13</sup> [Blue Planet](#)

focusses on food waste and aims to present an action plan in the first months of 2016. To the best of our knowledge, this is the only concrete project for British organizations.

Whereas the municipality of Panama City collaborates with WRAP, the AAUD contracted the Spanish company INECO in November 2015 to provide a master plan for the national waste sector. This project is worth US\$ 4.3 million and the goal is to 'determine the guidelines, objectives and primary lines for action for sustainable waste management.' According to the AAUD, the major task of INECO is to gather information about the waste composition.

The IDB performs a developmental project to overcome environmental problems at the archipelago of San Blas. Before, numerous inhabitants worked as informal waste collectors and sold aluminum for US\$ 0.40 per kilo. The program sought to incorporate these informal workers in the legal market. The most important actions are: finding legal markets for more recyclable goods and creating infrastructure (providing vehicles) for the collection of garbage on four islands. The project started in January 2014, is completed for 90% and resulted in the collection of two to four tons of recyclable garbage per month.

#### **4.3 Raising awareness**

There are several initiatives to raise awareness about the importance of protecting the environment and of reducing the waste production. As touched upon before, raising awareness is one of the objectives of Basura Cero and they aim to do so by separating waste on festivals and on strategic points throughout the city (parks and sport areas). Raising awareness was also part of the IDB's recycling project described above and several municipalities aim to do so as well. An example of a private initiative is the *I recycle fair* organized by Roba Morena. This monthly event attracted around a thousand visitors per event last year.

#### **4.4 Pressure on tariffs**

Tariffs are crucial for a well-functioning waste strategy since it is the most important method to finance waste collection and treatment.

The tariffs in Panama differ between regions. In the region of David the tariffs are between US\$ 4,- and US\$ 10,- per month (depending on the distance to the waste treatment facility) and waste is collected twice a week. In urban zones the tariffs are around US\$ 5,-. Compared with developed countries, these tariffs are low. In the Netherlands for instance, the average household pays around €22 per month. Low tariffs are a regional problem in Latin America; the tariffs in Colombia are currently even lower than the ones in Panama. According to the private sector, increasing the tariffs is an essential step towards a better waste management. They claim that the low tariffs are an important reason for their inefficient waste management. Sach's director Ali Sucry underlines this frustration: 'Panamanians do not want to pay for services.'

Meanwhile, entities that try to increase the tariffs are confronted with (political) resistance: EMAS wanted to double its tariff in La Chorrera (Province of Panama Oeste) to \$10.50. This was prohibited by the Supreme Court. Aseo Capital announced in December 2015 that it wanted to increase the tariffs in Arraijan, this has not been put into practice yet.

## 5. Future plans and investments

The current developments in the waste sector have led to several concrete projects and (future) investment plans. Most of the announced investments come from the AAUD. However, other municipalities and private companies have revealed some of their plans as well. Even though these plans and investments are not necessarily concrete business opportunities for Dutch businesses, they contribute to a better understanding of the future of the Panamanian waste sector.

### 5.1 Future plans AAUD

The AAUD's strategy can be divided in short term (concrete) plans and long term plans. In the short run, the AAUD aims to clean the streets and the landfills by improving the waste collection and by tackling the problems at Cerro Patacón. In terms of waste treatment, only small scale projects are expected. In the long run however, when the collection problem is resolved, the authority aims to improve the waste treatment as well.

#### 5.1.1 Short run

- Pilot programs:  
The AAUD launches several pilots this year. One of them is to clean and close landfills in Aguadulce, Antón (both in the province of Coclé), Chitré and Las Tablas. These landfills are prioritized because they are closely located to drinking water sources. Environmentalists argue that is one of the major problems in Panama. The proximity of landfills and drinking water sources is illustrated with the figure below. In total, the AAUD aims to close 41 of the 65 open sky landfills outside Panama City, which should cost about US\$ 3.3.  
The regions of Bocas del Toro and Chitré are of special interest due to other possible pilots.
- Transformation plant:  
The AAUD also aims to increase the efficiency of the waste processing systems and to make it more environmental friendly. One measure to do so, is the construction of waste transformation plants on several intersection points throughout the country. These intersection points are required due to the large distances and low volumes of waste. Smaller vehicles could dump their waste in the transformation plant at which all waste is accumulated before further treatment. Amongst others, the cities of Chitré and Santiago are being considered as locations for transformation plants.

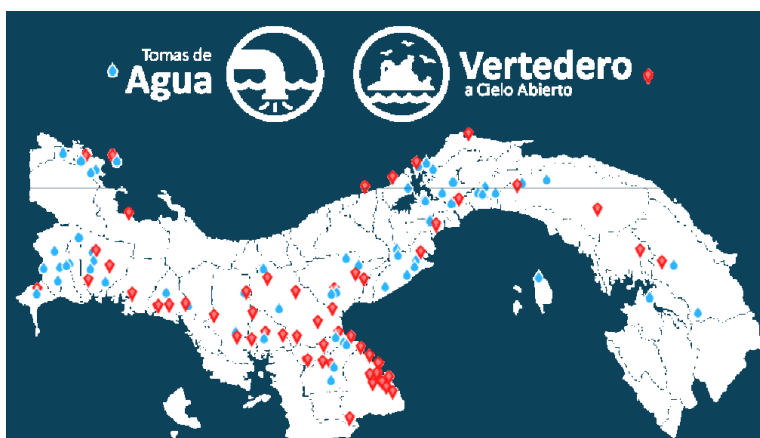


Figure 4: Panama's drinking water sources (blue) and open sky landfills (red)

- **Purchase of equipment:**  
The authority plans to install (underground) containers in Panama City this year. Therefore it will purchase 3000 containers. Besides this, the AAUD will invest in an unknown amount of collection vehicles in 2016 and again in 2017 with a capacity of 15 m<sup>3</sup>. The tenders for the new vehicles are expected in April or May 2016.
- **Balance the power between municipalities and private sector:**  
Currently, most municipalities are dependent on one single contractor as they do not have the capacity to execute the waste management by themselves, nor do they have private alternatives. Moreover, the local authorities frequently have long term contracts (around 20 years) with private waste collection companies. By purchasing new collection vehicles, so municipalities can theoretically execute their own waste management, and by prohibiting these long term contracts, the power of the municipalities should be enhanced.

#### 5.1.2 Long run

The AAUD's long run strategy will depend on INECO's findings. Due to the lack of information and the high value of the required investments, it is considered unlikely that the AAUD will invest in huge projects before the outcomes of INECO's study.

Nevertheless, the AAUD revealed some of the long term plans:

- **Waste separation and treatment plants:**  
In the summer of 2015, Eladio Guardia (administrator of the AAUD) announced a plan for a waste separation and treatment plant which should process 50 tons per hour and should cost around US\$ 250 million<sup>14</sup>. This plant would treat 11.83% of the country's total waste production. According to Gabriel de la Iglesia, the AAUD's second man, the authority plans to build three or four gigantic waste treatment plants like this. The plants are supposed to enable all sorts of waste treatment. However, locations or reference prices have not yet been identified.
- **Waste to energy: incineration**  
The AAUD seems to be very interested in waste to energy programs as a long term solution. It was impressed by the effectiveness and simplicity of the incineration programs in Singapore. The AAUD is eager to learn from the Dutch experience with regard to waste to energy programs. It is however unclear if the AAUD will have sufficient funding.

### **5.2 Additional room for improvement**

- **Financial Consulting:**  
Although the main consulting job will be executed by INECO, opportunities remain present. INECO will focus on the waste composition and volume. It will not provide a detailed plan about the financial organization of the sector. However, since Panama only collects 8% of their waste bills on time and because of the current problems regarding waste tariffs, the financial and organizational part offers plenty room for improvement. Next to the financial consulting, assistance about improving the legislation is required and the Ministry of Health is interested in support from abroad. It is unclear if there is sufficient funding and political support for these jobs.

<sup>14</sup> Source: [El Siglo](#)

- **Hospital Waste:**  
There is not a single company that is specialized in processing hospital waste in Panama. Both the private and the public sector call for assistance regarding the treatment of hospital waste.

### **5.3 Plans from other organizations**

Not only the AAUD is expected to invest in the Panamanian waste industry. Several other organizations are likely to invest in the Panamanian waste sector as well:

- **Biomass Plant Colón:**  
The most ambitious plan comes from the private company that executes the waste management in the Colón: Aguaseo. They released a plan for the construction of a biomass plant in the summer of 2015. The plant should process 450 tons of garbage per day and should generate 15 megawatts per hour. The total investment in the plant would be around US\$80 million.
- **Study Basura Cero:**  
The municipality of Panama City, by means of Basura Cero, wishes to conduct a separate study of the waste composition in Panama City as it believes that the AAUD will focus more on other areas. At this moment, Basura Cero seeks funds for this study.
- **SACH Waste:**  
The contractor of the municipality of David stated that it is interested in any new type of technology regarding waste separation and recycling. However, it believes that the volume of waste is too low (200 tons per day) for a cost-effective waste treatment plant. Moreover, it is uncertain whether they have sufficient funds for a waste treatment plant.



## 6. End note

Dutch companies interested in the Panamanian waste sector can contact the embassy for assistance with regard to market information and contacts.

## 7. Appendix

Law 21 1990: Commitment to Basel Convention

Law 51 2010: Creation of AAUD

Resolution 455 2009: Registration hospital waste

Resolution 1029 2011: Registration for hazardous waste collection and treatment

Resolution 0089 2015: Modification resolution 455

Decree 116 2001: Waste transportation airports

Decree 34 2007: Objective and actions waste strategy

Decree 40 2010: Health and environment

Decree 856 2015: Modification decree 40

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