

CASE STUDY

Colombia Waste Tariff Reform:

A Cost-Recovery Approach



TOOL TYPE:
COST RECOVERY
MECHANISM



CASE: COLOMBIA

Introduction:

A step change in the development of the waste sector in Colombia can be linked to the approval of Law 142 in 1994, which established the framework for the provision of all utility services throughout the country, including Solid Waste Management (SWM) services. The Law established as some of its main objectives to permanently **increase coverage** levels of waste services, to provide **continuous and efficient services**, to seek economic efficiencies by leveraging economies of scale, and to develop progressive **tariff structures** that help subsidize the cost of service for low-income areas. The institutional framework that supports these objectives in Colombia is robust and includes two different entities

at the national level, the Regulatory Commission for Water and Basic Sanitation Services (or CRA, for its Spanish acronym) and the Superintendence of Residential Public Services (or SSPD for its Spanish acronym), which are in charge of the development of a detailed tariff methodology and of monitoring the quality of the services provided. The tariff methodology developed enables the recovery of operational costs and is periodically being reviewed and updated. The combination of the waste tariff for cost recovery and a strong institutional framework has had a positive impact on the SWM sector in Colombia, and has helped put it at the forefront of economically sustainable waste management in the region.



Objectives

Besides the initial objectives previously mentioned in the 1994 Law, the waste sector government institutions (including CRA, SSPD, the Ministry of Housing, City and Territory (or MVCT, for its Spanish acronym), the Ministry of Environment and Sustainable Development (or MADS, for its Spanish acronym) and the Department of National Planning) have worked over the past few decades to enhance the SWM systems.

The tariff methodology is part of those efforts and includes the following objectives:

- 01** Creating a transparent methodology at the national level for calculating how much waste sector service providers can charge, based on the type of service they are providing;
- 02** Creating a level playing field for alternative waste treatment technologies beyond landfilling;
- 03** Increasing the implementation of SWM valorization alternatives through financial incentives for providers; and
- 04** Increasing revenue for more sustainable SWM alternatives (including composting).

The Process of Establishing a SWM tariff






The Colombian Waste Tariff is a fee established by the Colombian national government through the CRA. The **tariff operates on a cost-recovery basis**, meaning that the revenue generated from the tariff is directly allocated to the providers to cover the costs of the SWM services provided. As an initial step in 1997, the first tariff methodology established a **gradual approach to introduce the charge**, in order to not affect the willingness to pay of the population. To this end, there were regular increases to the fee until 2005, when the charge fully reflected the real cost of providing the services according to what was calculated and established within the tariff methodology¹.

The tariff methodology includes **detailed calculation formulas** for each of the activities under the SWM services framework. These activities are defined according to the national policy established by the MVCT, which is Colombia's lead policymaking institution for the SWM sector. The formulas are dependent on variables such as the number of users served, tons of waste processed, collection and transport distances to facilities, as well as very detailed items such as equipment needed for operation (from gloves, rakes and brooms used for cleaning of public areas, to garbage trucks for collection, as well as considerations such as equipment age to include maintenance costs). The methodology establishes **cost ceilings**, which are periodically updated with the corresponding national index that measures price changes due to inflation.

¹ ONU Medio Ambiente, 2018.

Due to this cost ceiling approach, providers receive signals for what is an appropriate charge for the service provided based on detailed calculations at the national level, yet are not allowed to charge more than what is defined as a ceiling charge. The fees are charged mainly through the water and sanitation bills.

The tariff methodology is updated on average every 7 years and because of that, it has evolved since its first iteration in 1997. For instance, the methodology from 2005 included the fixed costs for the activities of sweeping, cleaning of public areas and administrative costs, as well as the variable costs of collection, transport, transfer and final disposal. It is worth mentioning that the methodology has always included administrative costs in the fee, including:

-  Bulling
-  Providing customer support to clients,
-  Maintaining user data
-  Developing educational campaigns
-  Reporting waste data to the national Information System for Public Services (SUI)

Under the 2005 methodology there was not yet an explicit formula to calculate the costs of managing organic waste separately, since this activity was not explicitly defined in the national policy. Therefore, there were no incentives in place for providers to invest in organic waste treatment technologies such as composting or anaerobic digestion.



FIGURE 1:
Elements of the Tariff Formula

Adapted: CRA, 2020

 **Fixed charge**

1. Administrative Costs
2. Cost of sweeping and cleaning of roads and public areas
3. Cost of Urban Cleaning per subscriber

 **Variable charge**

4. Cost Collection and Transport
5. Final Disposal Cost
6. Cost of Leachate Treatment
7. Treatment Cost (e.g. composting)
8. Recovery ("aprovechamiento")



One of the key changes to move toward a more comprehensive tariff (that could incentivize the implementation of alternatives to final disposal), was the definition of new activities within the national policy. This was established in Decree 2981 of 2013 by the MVCT and the MADS. The updated methodology of 2015 introduced several new activities including “aprovechamiento” (material recovery), alternative treatment and leachate treatment. The “aprovechamiento” activity is currently used as the framework for management of recyclables, while the alternative treatment activity now includes alternatives to manage waste such as composting and anaerobic digestion. It is worth noting that the national policy does not include landfill gas capture and use as an activity under the waste management services, therefore it cannot receive resources from the tariff. The “aprovechamiento” category was successful in incentivizing informal organizations of waste pickers to join a gradual formalization process established by the national government, in order to receive payments for their waste sorting and recycling work from the tariff. This process also led to improved quantification of the amount of waste that was being recycled through their work. In 2017, reporting on waste recycled by waste pickers increased by 81.7% compared to the previous year.²

As for the organic fraction, the methodology from 2015 established that the providers that manage organic waste separately would be allowed to receive a payment through the tariff equivalent to adding the costs of landfill disposal and leachate treatment in addition to any prior revenues received through the

sale of compost. Even though this change was meant to recognize and promote the implementation of technologies that could replace final disposal, studies have shown that since the costs of implementing other technologies are higher than the costs of final disposal, new technologies were not being effectively incentivized.³

The most recent update to the tariff is from 2018 and applies to providers that serve municipalities of up to 5,000 subscribers. In this version, the tariff methodology has included a **specific formula to calculate the charge for composting activities, based on the costs of implementing a composting plant with forced aeration technology.** The definition of this new fee is expected to fully cover the costs of implementing this type of technology. However, since the change only came into force in 2019, there is limited information of the effect this incentive has had on the sector.⁴

For upcoming updates to the tariff methodology, the CRA is considering including more specificity in the calculations for the alternative treatment activities focused on organic waste treatment, including other SWM alternatives (such as anaerobic digestion) so that more sustainable alternative treatment options are incentivized. The introduction of reporting requirements for the organic waste fraction and for associated greenhouse gas (GHG) emissions is another key recommendation that is being considered for the coming update (L.E. Navarro, personal communication, Jan 3rd, 2023).

² SSPD, 2017.

³ Banco Mundial et. al., 2021.

⁴ *Ibid.* P. 17.



Lessons Learned: Key factors for cost recovery success

Oversight and Governance

One of the **key success factors for the tariff reform and cost recovery system in Colombia is the institutional structure.**

At the national level, the CRA is the governing body in charge of defining and updating the tariff methodology for the waste sector. The CRA is an independent national level entity that oversees the water and basic sanitation tariff regulation, as well as the one for the waste sector.

Additionally, the SSPD is a **separate independent agency at the national level, which is responsible for inspecting, monitoring and enforcing requirements on service providers** to ensure that the services are reliable, efficient, and equitable. Its responsibilities include supervising the quality of the service provided as well as the evaluation of their financial, technical and administrative management practices, aiming to guarantee the rights of the users and the sustainability of the provision of services. To this end, the SSPD makes periodic visits (both random and scheduled) to operators and monitors several indicators including the compliance with schedules and frequencies of services, the correct charge of the tariff to users, the timely attention to user's complaints and claims, and the fulfillment of reporting requirements to the SUI. The SSPD also directly manages the SUI.



Another key component for Colombia in successfully applying the tariff methodology is the amount of information available. The SUI information system is an online platform where data reporting is compulsory for service providers. The data available includes items such as accounting information, number of subscribers served, collection frequencies, equipment age, tons of waste collected and tariff collection, among others. Based on the data in the SUI, the SSPD can sanction providers when non-compliant with service quality standards, reporting requirements, when finding mistakes in calculating/charging the tariff to users, or when user's complaints are not addressed in a timely manner.

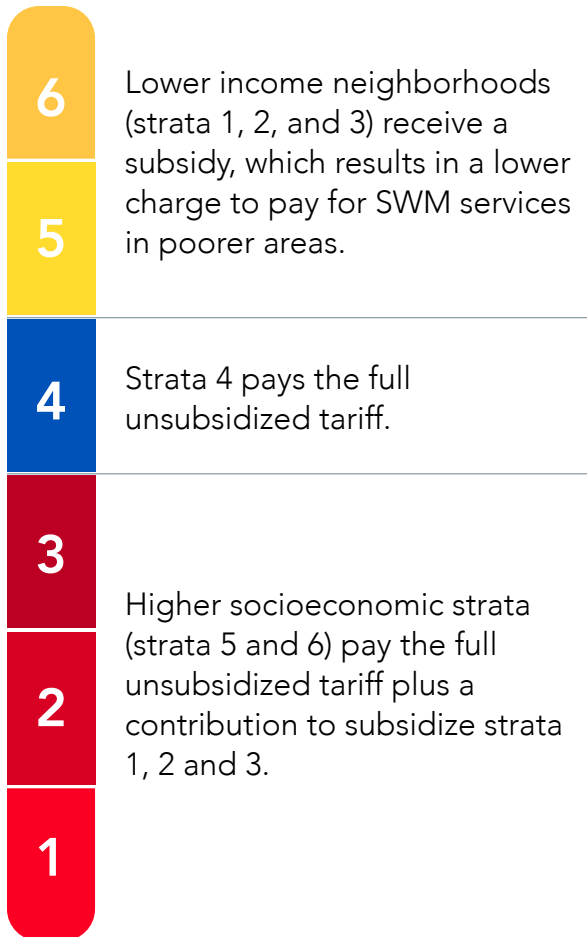
The **information available is also used to analyze the state and quality of the services provided.**

Having this information readily available helps the CRA identify gaps and areas where improvements can be made for the methodology updates. Additionally, the CRA also develops cost implementation studies for different waste management technologies in order to decide how to incorporate new activities and charges to the tariff methodology.

The Waste Tariff - Subsidies

Building on the waste tariff's formula, the 1994 Law established that the public utilities should have a progressive **"solidarity scheme" through cross-subsidies to support the provision of equal waste services to lower income areas.** In this case, it is based on strata, which is the level assigned according to the neighborhood

were the user of the service is located. The strata classification in Colombia ranges on a scale of 1 to 6, 1 referring to the lowest income areas and 6 referring to the areas of highest socio-economic class. By considering this classification, the system enables:



Commercial and industrial users also provide contributions to the subsidy scheme.

In cases where there is a deficit between subsidies and payments, the municipality must assume the cost, using resources transferred from the national annual budget and assigned for that purpose.

⁵ IDB, 2010.

⁶ SSPD y DNP, 2015..

⁷ MVCT, 2022.

⁸ ONU Medio Ambiente, 2018.

Results: Progress by the Metrics

According to the Inter-American Development Bank, by 2010 Colombia had the most thorough economic financial **regulation of the waste sector for the LAC region, due to the regulations that included an explicit methodology to be used to calculate fees and cost ceilings, which have guaranteed the financial sustainability of the services.**⁵ By 2015, the collection of tariffs were already high enough where adequate waste disposal was being provided for 96% of the total waste generated in the country.⁶ As of 2020, 91.6% of the municipalities were disposing their waste adequately, which represents 98.5% of the total waste generated.⁷

In terms of the financial sustainability of SWM services, the main source of income for the waste sector in Colombia is the tariff, which accounts for 85% of the income. The national and municipal governments cover the remaining 15% through different amounts dedicated specifically to the sector and transferred by the national government. This has allowed for the provision of services with financial sustainability, which attracts the active participation of the private sector and the provision of high-quality service.





Lessons Learned: Challenges and Barriers to Implementing a Waste Tariff

The specific formulas developed for each activity go into great detail on the real costs of SWM services and provide operators with signals of appropriate charges to use based on technology and services provided. Colombia also has mechanisms for operators to provide information to the national authorities to request/suggest adjustments to the cost estimations to better reflect the realities on the ground. These are taken into account in the methodology updates. The updates of the tariff include multi-stakeholder participation processes and are open for input to every citizen. This feedback procedures strengthen the decision making processes and has a positive effect on the sector overall. Additionally, the creation of a cross-subsidy system promotes provision of high quality SWM services to lower income areas.



The gradual introduction of the tariff over an eight-year period is another important strategy and takeaway that countries seeking to replicate Colombia's success should consider when introducing higher waste management fees to cover costs. Strong community engagement and communication of the benefits of tariff reform can help users understand the rationale for the charges. The subsequent improvements to service quality also help to improve willingness to pay.



The existence of a strong institutional framework in Colombia, which has several independent entities (MVCT, MADS, CRA, SSPD) at the national level with specific roles and enough capacity to implement their responsibilities, enables the effective establishment of fees and the maintenance of a public information system that equips all institutions with the data to implement informed decision making. The availability of this information helps identify incentives that are not yielding results, which in turn allows the development of new strategies to

achieve the established goals. Additionally, the national nature of the SSPD gives it the required technical capacity and resources to take on a robust oversight role with sufficient staff capacity to operate in the field. Their national level nature also allows both the SSPD and the CRA to learn about the various contexts of the different territories, their specific challenges and also the best practices in the sector.



References

- Banco Mundial - Ministerio de Vivienda, Ciudad y Territorio de Colombia, Witteveen+Bos Raadgevende ingenieurs B.V., MAG Consultoría S.A.S. (2021). Tratamiento de residuos sólidos en el marco del servicio público de aseo. Informe final - Reporte de conclusiones, recomendaciones y consideraciones regulatorias.
- Comisión de Regulación de Agua Potable y Saneamiento Básico (CRA) (2020). Guía para la aplicación de la metodología tarifaria del servicio público de aseo en municipios de hasta 5.000 suscriptores. Resolución CRA 853 de 2018.
- Congreso de Colombia (1994). Ley 142 de 1994. Por la cual se establece el régimen de los servicios públicos domiciliarios y se dictan otras disposiciones.
- Inter-American Development Bank (IDB), Asociación Interamericana de Ingeniería Sanitaria y Ambiental (AIDIS), Pan American Health Organization (PAHO) (2010). Regional Evaluation on Urban SWM in Latin America and the Caribbean. <https://publications.iadb.org/en/publication/17408/regional-evaluation-urban-solid-waste-management-latin-america-and-caribbean-2010>
- Ministerio de Vivienda Ciudad y Territorio (MVCT) (2022). Informe Nacional de Monitoreo. Sistema General de Participaciones. Agua Potable y Saneamiento Básico. Vigencia 2021. Bogotá, Colombia.
- ONU Medio Ambiente (2018). Perspectiva de la gestión de residuos en América Latina y el Caribe. Programa de las Naciones Unidas para el Medio Ambiente, Oficina para América Latina y el Caribe. Ciudad de Panamá, Panamá.
- Superintendencia de Servicios Públicos Domiciliarios (SSPD) y Departamento Nacional de Planeación (DNP) (2015). Informe Sectorial del Servicio Público de Aseo.
- Superintendencia de Servicios Públicos Domiciliarios (SSPD) y Departamento Nacional de Planeación (DNP) (2017). Informe Nacional de Aprovechamiento.