

Case Study— La Línea Regional Scheme, Colombia

Erica Ortiz Moreno and Maria Salvetti

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Key Characteristics of Aggregation Case Study

La Línea Regional Scheme, Colombia	
Context	<ul style="list-style-type: none"> • Upper-middle-income country • Aggregation covering urban and rural areas • Low level of water supply and sanitation (WSS) performance
Purpose	Performance, professionalization, economic efficiency
Scope	WSS functions and services
Scale	<ul style="list-style-type: none"> • Administrative boundaries • Localities covered: 4 for water • Population covered: 32,000 inhabitants for water • Coverage: 67%^a for water • Connections: 5,051 for water
Process	Voluntary and incentivized
Governance	<ul style="list-style-type: none"> • Delegated (18 months and 15 years^b) • Public-private partnership (PPP) • Decision making: the intermunicipal public company for local services is the contracting party signing the build-operate-transfer (BOT) contract • Asset transfer: assets remain the property of municipalities and are transferred to the operator for the duration of the delegation contract • Liability: liabilities and debts from previous operators are not taken over by the private operator • Staff transfer: none • Clear entry and exit rules as stipulated in the PPP contract
Outcome	Negative
Findings	Political opportunistic behaviors, lack of long-term financial support, lack of utility champion and governance leader, blurred definition of asset ownership and associated duties, set targets to be reached gradually (allow some time for improvement)

a. This figure corresponds to the average coverage for the four municipalities: San Estanislao de Kostka (95%), Soplaviento (98%), Villanueva (30%), and Santa Rosa de Lima (45%).

b. Operation was terminated prematurely. Giscol operated for six years.

Within a context of poor conditions of WSS infrastructure and low service quality, the Empresa Intermunicipal de Servicios Públicos Domiciliarios de Acueducto y Alcantarillado (Inter-Municipal E.S.P. Regional La Línea) decided in 2007 to entrust to a private operator the construction of an aqueduct and the operation of the WSS services of the four municipalities it encompasses. The contract started in 2008 and was to last until 2023. This aggregation initiative, known as Acueducto Regional La Línea, was developed with the support of the national government through the Ministry of Housing, City and Territory (Ministerio de Vivienda, Ciudad y Territorio, or MVCT), as a solution to a regional issue regarding the provision of WSS services in the Bolívar department. However, because of political, economic, social, and technical difficulties, as well as a failure to adequately consider context, the contract was terminated prematurely by the Superintendency of Public Services and was taken over by the original service provider.

An Aggregation Trend Supported by the Successive National Development Plans but with Limited Success

In Colombia, the water sector policy has set aggregation as one of the strategic paths to follow to improve service quality, given its potential to generate economies of scale through the aggregation of users. As a result, the last four National Development Plans (NDP) have all included references to aggregation. The 2002-06 NDP, which provides guidelines for the supply of public services, establishes for the first time that the government must create incentives for WSS utilities to invest in aggregation schemes. The 2006-10 NDP reinforces the WSS aggregation trend by linking it with the implementation of departmental water plans (*planes departamentales de agua*, or PDA) to achieve effective coordination between national, departmental, and municipal levels to improve service quality, achieve higher control of resource allocation, and allow more effective management of

financing sources. The plan also allows the possibility for the General Participation System (Sistema General de Participaciones, or SGP) to directly transfer resources to service providers, as an incentive to aggregate. The 2010-14 NDP continues to acknowledge the importance of aggregation by creating the possibility of implementing regional schemes for service provision in municipalities of categories 4, 5, and 6,¹ including their rural areas, through exclusive service zones. Furthermore, it allows the defining of unified prices for regional markets of non-interconnected systems served by the same provider, under the supervision of the Water and Sanitation Regulatory Commission (Comisión de Regulación de Agua Potable y Saneamiento Básico, or CRA). The current NDP (2014-18) further develops the guidelines set by previous plans for implementing aggregation. It establishes that the national government and the departments will promote the creation not only of regional markets, but also of schemes of municipalities and metropolitan areas. It also establishes that the national government and the departments will strengthen regulation, monitoring, and control processes in the WSS sector where aggregation is applied, to generate incentives to increase productivity and efficient management of service providers. In addition, CONPES 3819 of 2014 (Policy to Consolidate a System of Cities in Colombia) has included, as one strategy of its action plan, the development of regulatory and legal instruments to incentivize aggregation and encourage mayors to create unique public service authorities at an intermunicipal level. As a result, CRA issued a resolution in 2013, in which it defines the concept of the regional market as “a set of users served by the same WSS service provider through non-interconnected, interconnected or mixed systems, in a specific geographical area larger than one municipality and within a department or bordering departments, whose joint provision allows for the improvement of the coverage, quality and continuity conditions in public services.”² To date, only one company has applied for and received approval to become

a regional market, although there were 20 regional service providers in Colombia in 2013. The limited success of regional market development can be explained by the lack of commercial attractiveness of loss-making water systems, by the difficulty for operators to meet stringent performance requirements at the beginning of the contract when they are just starting to provide service in remote areas with low user payment capacity, and by the reluctance of municipal administrations (a) to lose control over WSS provision and (b) to provide financial support to WSS operators.

An Aggregation Aimed at Addressing WSS Poor Conditions and Low Service Quality

From 2003 to 2008, the Empresa Intermunicipal de Servicios Públicos Domiciliarios de Acueducto y Alcantarillado (Inter-Municipal E.S.P. Regional La Línea) provided WSS to four municipalities (San Estanislao de Kostka, Santa Rosa de Lima, Soplaviento, and Villanueva) located in the Bolívar department, representing an urban population of 48,562 inhabitants. (See table 1.)

The service provision in the territory of the four municipalities was inadequate because of poor operative and maintenance conditions of the supply system, insufficient storage capacity, absence of network cadastre, low continuity of service, obsolescence or deterioration of more than half of the water network, and illegal-connection issues. In terms of service provision indicators, the four municipalities had low

water coverage rates, low water drinking quality, and an absence of micrometering. For sewage, the lack of infrastructure resulted in the disposal of wastewater in latrines and septic tanks. Much of the wastewater was discharged on public roads and in rainwater pipes, generating contamination pockets and proliferation of diseases. Taking into account the poor conditions of WSS services in the four municipalities, the MVCT conducted a diagnostic assessment of infrastructure and service provision in 2005 and started structuring a service provision scheme to hire a specialized operator, within the framework of the Business Modernization Program (Programa de Modernización de la Economía, or PME). In 2007, Inter-Municipal E.S.P. carried out a BOT bidding process to hire a specialized operator to provide WSS in the four municipalities. The process was supported by the MVCT, and in October 2007 Inter-Municipal E.S.P. and Giscol S.A. signed a BOT contract establishing that Giscol would start operations by January 2008.

Implementation of Aggregation through a BOT Contract

The BOT contract covered managing, financing, operating, rehabilitating, building, expanding, and maintaining infrastructure for WSS service provision in the municipalities of Santa Rosa de Lima, Villanueva, San Estanislao de Kostka, and Soplaviento in the Bolívar department. (See map 1.) The specific water supply of Santa Rosa de Lima was to be provided by the company Aguas de Cartagena (Acucar) through a bulk water sale contract. The BOT contract included the construction of works (namely, a regional water aqueduct) during a period of 18 months (from January 2008 to July 2009) and the operation of the service for 15 years (from 2009 until 2023).

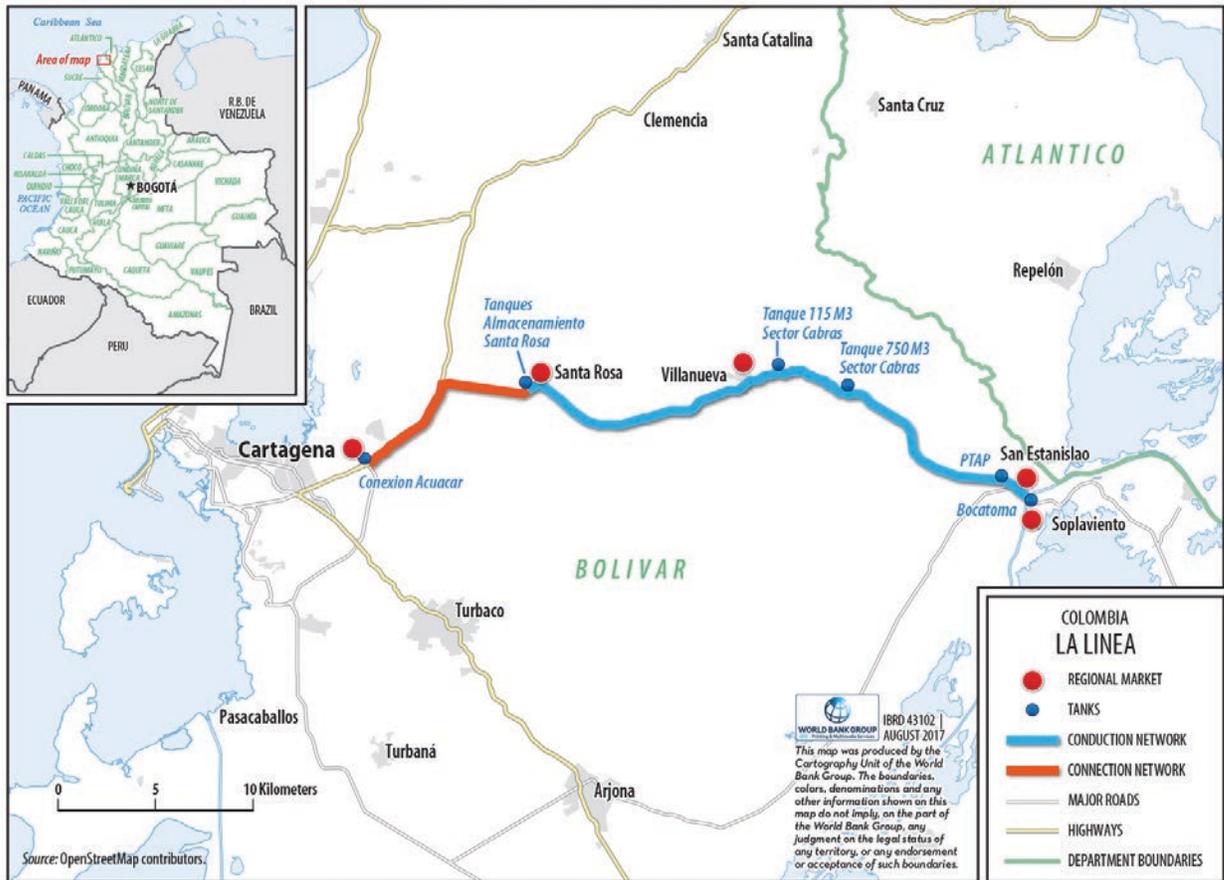
Resources for the execution of the contract were to come from the World Bank via a loan taken out by the Colombian government through the Ministry of Environment, Housing and Territorial

TABLE 1. Municipalities Served by Inter-Municipal E.S.P.

Municipality	Urban population (inhabitants)	Water users
San Estanislao de Kostka	11,189	1,890
Soplaviento	8,039	1,298
Villanueva	16,413	1,379
Santa Rosa de Lima	12,921	2,637

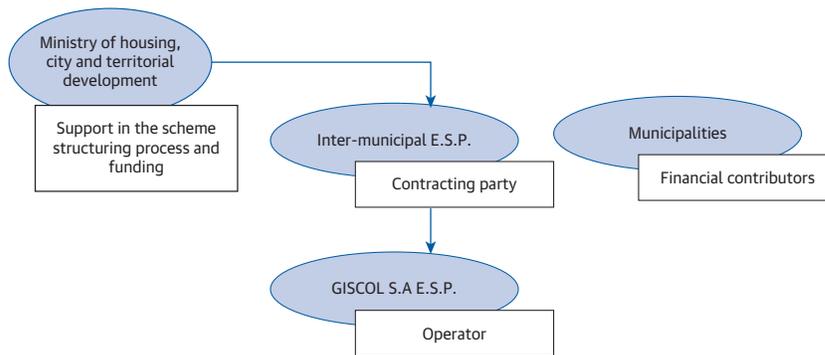
Source: Departamento Administrativo Nacional de Estadística (DANE), <http://dane.gov.co>.

MAP 1. Municipalities Covered by La Línea Regional Scheme



Source: Colombia Ministry of Environment, Housing and Territorial Development.

FIGURE 1. PPP Institutional Framework for Service Provision



Source: Author's elaboration.

Development, as well as from subsidies from the four municipalities through an agreement signed with Inter-Municipal E.S.P. Regional la Línea in 2007. (See table 2 and figure 1.)

The contract established water supply fees for users with and without metering, valid for three years (planned term for contract consolidation). After that time,

the operator would be entitled to establish the service provision costs and carry out corresponding cost and tariff studies in accordance with CRA regulations. In the event of early termination of the contract because of the operator, the contracting party would immediately take over the operation and the operator would

lose the performance guarantee. Similarly, a procedure for the restoring the contract's economic balance was also defined.

Inter-Municipal E.S.P. was the contracting party that signed the BOT contract with the operator. It was responsible for the operation and works supervision and for the transfer of subsidies to the operator according to the agreement signed with municipalities, among other things. Giscol was responsible for WSS provision and for building and upgrading infrastructure. The BOT contract specified that the private operator should progressively comply with general targets throughout the first four years of operation as well as during the whole operation period. (See table 3.)

TABLE 2. Annual Amounts Committed by the Municipalities

Municipality	Amount (US\$)
San Estanislao de Kostka	94,937
Soplaviento	87,644
Villanueva	139,049
Santa Rosa de Lima	198,974

Source: Inter-Municipal E.S.P., 2007.

TABLE 3. Performance Targets for the First Four Years

	Santa Rosa de Lima	Villanueva	San Estanislao de Kostka	Soplaviento
Water supply continuity (%)				
Year 1	50	35	50	50
Year 2	75	64	75	75
Year 3	100	100	100	100
Year 4 and after	100	100	100	100
Water supply coverage (%)				
Year 1	35	43	80	74
Year 2	70	43	81	74
Year 3	100	100	100	100
Year 4 and after	100	100	100	100
Micrometering coverage (%)				
Year 1	0	0	0	0
Year 2	50	50	50	50
Year 3	75	75	75	75
Year 4 and after	100	100	100	100
Nonrevenue water index (IANC) (%)				
Year 1	50	50	50	50
Year 2	45	45	45	45
Year 3	40	40	40	40
Year 4 and after	35	35	35	35

Source: Inter-Municipal E.S.P., 2007.

Note: IANC = El Índice de Agua No Contabilizada (Nonrevenue Water Index).

Failure of BOT Contract to Deliver the Targeted Purposes Because of Political, Economic, Social, and Technical Difficulties

During the contract execution, several modifications were made to the initial terms and provisions of the works construction. Various postponements also took place because of difficulties in the network interconnection between Santa Rosa de Lima municipality and Cartagena. Furthermore, some political, economic, social, and technical difficulties arose. Before the beginning of the BOT contract, infrastructure was already in poor condition, and, because of the lack of asset inventory, the resource allocation planned by the national government was not properly estimated. An initial public hearing³ resource allocation of nearly 4.20 million Col\$ was planned, as well as another allocation in 2007 of nearly 7.00 million Col\$. However, initial estimates anticipated the need of nearly 44.68 million Col\$. On top of that underestimate of investment need, technical studies failed to capture demand needs because of obsolete population data. Because of a lack of local political empowerment, mayors transferred only 86 percent of the committed financial resources, in the form of subsidies, which they committed to the project. Taking into account the fact that most of the investment was to be subsidized, the operator failed to implement the investment and ensure service provision enhancement as required. As a result, users were unwilling to pay because of the nonprovision of service. On average, during the years 2008, 2009, and 2010, the collection ratio amounted to only 18 percent, 30 percent, and 26 percent respectively. Low billing collection resulted in high operating deficit, which hindered service provision by Giscol. The community rejected the installation of meters, and the operator was not well accepted. Also, issues with the energy provider resulting in discontinuous supply of electricity affected the continuity of the water supply. There were also delays in the execution of the investment plan, so that by July 2011, only 82 percent of the work was done. The bulk water provision contract with Acuar was not

properly designed. Although Acuar and the Ministry had a preliminary agreement on the bulk water price, that agreement did not take into account the impact of bulk price on end-user charges. That oversight resulted in a water tariff that exceeded end-users' payment capacity. Finally, the performance targets embedded in the contract were not clearly set.

As a result, the aggregation of WSS services through the PPP contract was not successful, as reflected by the performance indicators achieved by Giscol. Continuity of services, sewage/water coverage, and micrometering coverage remained below 100 percent. Drinking water quality did not improve, either. (See table 4.)

A PPP Terminated by a National Supervisor and an Aggregation Scheme Taken Over by a Public-Private Joint Venture

In November 2014, the Superintendency of Public Services⁴ imposed sanctions on the private operator, thus "prohibiting the direct or indirect provision of public services by Giscol for a 10-year period starting 3 months after the execution of the resolution." As a result, Inter-Municipal E.S.P. took responsibility for service provision without having the proper organizational structure or the capacity to do so. Given this situation, the MVCT and the Bolívar governorate decided to provide support to Inter-Municipal E.S.P. in the form of a technical assistance contract (1.9 million Col\$). In June 2015, the joint venture Aguas de La Línea (formed by the companies Aqualogy and Aguas de Cartagena) was created. The joint venture's objective is to support and provide technical assistance to Inter-Municipal E.S.P. in the legal, commercial, financial, technical-operational, administrative, and social management of the public aqueduct service provision within the urban areas of the four municipalities. The main purpose of the agreement is to improve the organizational structure of the regional provider by designing tools such as operating manuals, risk manuals, user cadastre, assistance in complying with legal obligations, information technology (IT) commercial software, and information

TABLE 4. Results of the Service Provision Indicators

	Santa Rosa de Lima	Villanueva	San Estanislao de Kostka	Soplaviento
Water continuity (%)				
2011 ^a	0	15	31	31
2013 ^b	0	42	54	54
2016 ^e	42	46	50	50
Water supply coverage (%)				
2011 ^a	0	38	69	72
2013 ^b	N/A	N/A	N/A	N/A
2016 ^c	60	70	95	85
Micrometering coverage (%)				
2011 ^a	0	0	8	0
2013 ^b	0	0	8	0
2016 ^c	0	0	8	0
Nonrevenue water index (IANC) (%)				
2011 ^a	N/A	60	60	60
2013 ^b	N/A	N/A	N/A	N/A
2016 ^c	N/A	N/A	N/A	N/A
Water quality (IRCA)^f (%)				
2011 ^d	25.4	17.2	11.1	30.5
2013 ^b	50	49.2	1.6	N/A
2016 ^e	9.52	9.52	7.14	10

Sources:

- a. Superintendency of Public Services, 2014;
b. Ministry of Housing, City and Territory, 2017;
c. Intermunicipal service provider;
d. Ministry of Housing, City and Territory, 2013;
e. Acucar, 2015.
f. IRCA (Índice de Riesgo de la Calidad del Agua para Consumo Humano) is a water quality indicator that combines physical, chemical, and biological variables. It ranges between 0 and 100 according to the following ranges: 0%-5%: Water out of risk; 5.01%-14%: Low risk; 14.01%-35%: Medium risk; 35.01% -80%: High risk; 80.01%-100%: Unfit for health.

Note: IANC = El Índice de Agua No Contabilizada (Nonrevenue Water Index), N/A = Not applicable.

campaigns with communities to improve the payment culture and efficient use of water. Currently, as a result of the first phase of the technical assistance provided by Acucar, Inter-Municipal E.S.P. has improved its organizational structure and has hired 36 people, two-thirds of whom have operational profiles. In addition, Inter-Municipal E.S.P. now has (a) a proper cost study, (b) an agreement with municipal councils regarding subsidies,

(c) a good-governance code, (d) an accounting records formulation and implementation, (e) a training program for staff, (f) a user cadastre, (g) an operation and risk manual, (h) some supply and purchase plans, (i) a security and occupational health program, (j) a nonrevenue water program, (k) an invoice implementation process, (l) a collection program, and (m) an emergency plan to secure water supply.

A Lose-Lose Scenario Mainly Because of Overlooking Context

La Línea Regional Scheme is an example of an aggregation process failing because of political, economic, social, and technical issues combined with the incomplete assessment of overall context. From the start, the structuring process failed to correctly assess the investment needs and the user demand. Furthermore, there was a lack of appropriate and timely supervision. In a context of a low-payment culture and low invoice collection, and taking into account municipalities' failure to provide agreed subsidies, Giscol failed to comply with the contract provisions. As such, the aggregation process turned into a lose-lose scenario for all parties.

Aggregation Case Study at a Glance

Key Lessons Learned from the Aggregation Case Study

Lesson 1: Neglecting to Acknowledge Context and Purpose When Designing an Aggregation can Lead to Failure

Context should be taken into account and purpose has to be clarified when designing aggregation. Disconnecting the former from the latter can lead to failure. La Línea Regional Scheme, formed to build and operate an aqueduct, failed for various reasons linked with neglecting to adequately consider context. During the structuring of the regional scheme, investment needs were underevaluated. Technical studies failed to capture demand needs because of obsolete population data. Moreover, the aggregation did not benefit from the support of a local political leader. Because of that lack of local political empowerment, mayors transferred only 86 percent of the

committed financial resources, in the form of subsidies, which they committed to the project. Taking into account the fact that most of the investment was to be subsidized, the operator failed to implement the investment and ensure service provision enhancement as required. In addition, the aggregation suffered from the absence of a large populated city to act as a nucleus and allow the implementation of cross-subsidies among settlements to balance differences in system sizes, because systems of different sizes do not exhibit the same production costs.

Lesson 2: Defining Principles but Allowing Flexibility in Implementation Ensures Local Ownership

In most case studies, aggregation reform was implemented as a top-down process led by national stakeholders. However, national reforms are more likely to be successful when they follow the principle of subsidiarity and allow flexibility for local stakeholders to own the aggregation process and adapt it to their local context. In Colombia, La Línea Regional Scheme suffered from a lack of political empowerment and ownership at the local level, leading, to a certain extent, to the failure of the scheme.

Notes

1. Law 617 of 2000 establishes that all municipalities must be classified under a category, from 1 to 6, according to their population and their current level of income; categories 4, 5 and 6 correspond to smaller and poorer municipalities.
2. CRA, Resolution No. 628 of 2013.
3. Public hearings were the mechanism used to identify and select drinkable water and basic sanitation projects that were to be funded by government budget resources.
4. The Superintendency of Public Services is a national-level technical entity that is in charge of the inspection, monitoring, and control of public service providers.



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