

Social Infrastructure Development: The Case for Private Participation in Potable Water Supply in Colombia¹

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ABSTRACT

The growing need for promoting the development of social infrastructure in order to close the gap in potable water supply requires an active participation of the private sector. Indeed, public policies are required to detect the critical aspects and challenges toward a reliable water supply for larger populations. This paper emphasizes the analysis and assessment of the current conditions of potable water supply sector in Colombia. In this context, we do consider potable water supply as an important component of social infrastructure taking into account the existing regulations for utility companies in Colombia and the current legislation (Bill 1508/2012), which promotes private sector participation in developing infrastructure. As a result of this analysis, new policies could be implemented by local authorities to foster new private investments in social infrastructure projects. In addition, new funding mechanisms could be explored to diversify the supply of financial resources, including those from capital markets and multilateral agencies. It is expected that this paper will contribute to define policies and best practices to increase the participation of the private sector in potable water supply taking into account the legal and regulatory environment in Colombia, which it is very similar to other developing countries.

INTRODUCTION

During the last decades, the potable water supply sector in Colombia has experienced little changes related to the way it operates and how it involves the private sector in the provision of this essential service. As a result of this condition, the gap in potable water supply coverage has not had a meaningful increase over time. Consequently, this has caused many environmental, economic and public health effects. For example, in rural areas (inhabited by the poorest segments of the population) polluted water sources and distribution networks in poor conditions have produced various diseases gastrointestinal disorders, which is responsible for 7.3% of infant mortality (Mejia et al., 2012).

¹ Second Editions are previously published papers that have continued relevance in today's project management world, or which were originally published in conference proceedings or in a language other than English. Original publication acknowledged; authors retain copyright. This paper was originally presented at the 2nd annual [University of Maryland Project Management Symposium in College Park, Maryland, USA](http://www.pmwldlibrary.net) in June 2015. It is republished here with the permission of the authors and conference organizers.

For this reason, the central government must create mechanisms that encourage the engagement of private investors in the different social infrastructure projects, particularly in the potable water supply sector in order to improve and expand coverage of the service, especially at the poorest areas. In order to encourage the participation of the private sector, the Colombian government enacted in 2012 the Bill 1508 on Public-Private Partnerships (PPPs), which aims to regulate and generate mechanisms of participation and involvement of the private sector to develop public infrastructure.

This legislation and its implementing regulations were developed with the aim of accelerating the development of infrastructure, particularly in roads and other user fee based systems. In 2014, ten projects were awarded with total investments above US\$ 5 billion. These projects and their investments will start by the end of 2015 once the financial closing is achieved. For public services provision, the government issued in January 14, 2015, a decree named 063 to regulate the particularities in the implementation and commissioning of Potable Water and Basic Sanitation projects.

Similarly, this paper addresses the challenges associated with finding appropriate funding for social infrastructure, particularly for potable water. In this context, the observed need for increasing potable water supply coverage confirms the requirement to create mechanisms to involve the private sector to provide infrastructure services of potable water. Therefore, it is necessary to generate strategies aligned with public policies leading to identify key challenges and critical issues. Furthermore, PPPs could define how both parties, the private investor and the public sector, align their interests towards developing projects that consider factors such as sustainability, accessibility, and reliability on potable water supply. Therefore, involving the private sector to provide potable water supply through schemes associated with the development of projects through PPPs and project finance as a mechanism for structuring and financing of projects must be promoted.

Additionally, the literature review showed that the inclusion of the private sectors in infrastructure's provision encourages an increased economic growth. Finally, this research concludes that the Colombian government requires additional policies to promote the involvement of private funding to the development of infrastructure projects for potable water supply, which would impact the capitals market and narrow the gap in coverage (the latter being the primary objective).

An important objective of this paper is to encourage private participation in social infrastructure through different approaches related to coverage, investment and financing, particularly for developing countries in need of basic services such as potable water supply, which could be implemented in other utility sectors such as the energy, waste management, and telecommunications.

METHODOLOGY

This research is based on the hypothesis that the conditions to increase the development of potable water supply infrastructure projects in Colombia, as well as their institutional framework, require adjustments leading to raising the private sector's participation. Hence, this paper addresses the main challenges to create policies related to increase potable water supply coverage and a more active participation of the capitals market in financing projects through PPPs schemes applying Project Finance as a methodology to provide funding.

DEVELOPMENT OF INFRASTRUCTURE PROJECTS UNDER THE BILL 1508 / 2012 UTILIZING PROJECT FINANCE AS A TOOL TO RAISE FUNDING.

Colombia's 1991 Constitution declares as a function of the government to guarantee the provision of basic public utilities through the country, which may be provided directly or indirectly by organized communities or private entities (Congreso de Colombia, 1991). This fact led the government from being a supplier to become a service regulator, as stated by Bill 142, 1994. It establishes the provision of services by private or mixed operators subject to regulation, control and supervision of the government. These services are provided through join stock companies with a special regime (Public Utility Companies, PUC), which can be public, private, mixed or the Industrial and Commercial State Companies (ICS) (Rojas, 2014). A natural consequence of this noble objective of providing water supply, it is the need for private participation. Then, in 2012, the government issued the Bill 1508 that defines PPPs as (Congreso de Colombia, 2012):

"Instruments involving private capital, which is embodied through a contract between a government agency and a natural person or legal person under private law, for the provision of public goods and related services involving the retention and risk transfer between the parties and payment mechanisms related to the availability and the level of service of the infrastructure and / or service" (p.1).

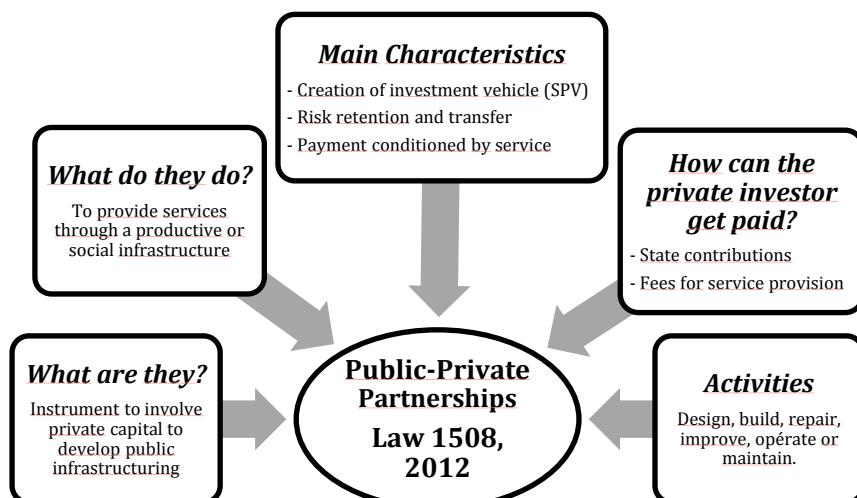


Figure 1. Main aspects of Law 1508, 2012.

Source: The authors, based on the Congress of the Republic of Colombia (2012)

In order to create mechanisms for private participation in public infrastructure development, this bill establishes the parameters to develop infrastructure projects in Colombia, allowing the government (at both the central and local level) to characterize the process of design, management and implementation of projects, and the investors to have clear roadmaps to define the different investment strategies. An important component of this regulation is the need to seek funding from the private investor. This need could be satisfied if the private investor structure its project implementing project finance, which is defined as (Gatti, 2013):

“A structured funding of an economically independent entity created by a sponsor, using equity resources and debt, which lenders consider cash flows as a primary source for credit repayment, while the project’s assets represent the guarantee: collateral”.

In addition, this legislation states that the project’s resources, regardless of their origin (public and / or private), must be administered through an investment vehicle called trust, which must be created by the private party responsible for developing the project. This trust will be supervised by a special agent representing the interests of the public sector which purpose is to guarantee that these resources will only be used in a particular project.

In terms of project finance, it could be established that the projects will be executed through a Special Purpose Vehicle (SPV), which allows the projects’ inherent risks be isolated from the sponsor. This vehicle will allow lenders to have a tangible guarantee, which would be required by the funding entities (commercial banks, private equity funds, pension funds) to provide the financial resources to develop the project. The 1508 bill also states that the projects can be structured under two initiatives: public or private.

Table 1. PPPs project initiatives in Colombia

Public	Private
The government has the conceptual idea of the projects. The resources to develop it can be public and / or private and the selection process is carried out through a public competitive bidding.	The private sector proposes developing the project. The resources given by the public sector cannot exceed 20% of the total. If the project is developed only with private capital, the selection process will require lower costs; in any other case, it will be through a public competitive bidding.

Source: Congress of the Republic of Colombia (2012)

UTILITY COMPANIES – POTABLE WATER

The private sector’s participation in the provision of public services such as energy, potable water, and telecommunications in Colombia has evolved since the early nineties, mainly after the Constitution of 1991 was issued. That is evidenced in the need for institutional efforts to encourage this sector’s participation in public utility development projects, particularly potable water supply projects (Rojas, 2014).

Thus, in order to regulate private participation in potable water supply in PPP projects considering what was included in Bill 1508/2012, the Government issued the Decree 063, 2015 to standardize PPPs implementation in potable water. The purpose of this regulation is to prevent some common events in contractual arrangements under PPP, such as:

- Multiple renegotiations,
- Unfulfillment of goals,
- Inadequate risk allocation,
- Financial imbalances and
- Delays in making investments (Departamento Nacional de Planeación, 2015)

Prior to February 2015 and Under Bill 1508, four projects related to the management and construction of potable and waste water services had been submitted for approval (one of them was withdrawn by the originator). All of these submissions were private initiatives with no public funding.

Considering the above, the importance of including the private sector to provide social infrastructure to improve coverage and quality of goods and services is evident. It has a positive effect on generating economic growth and poverty reduction (Guasch 2004; Saussier, 2013). Therefore, due to the shortage of public funds and restrictions on borrowing money, most countries opted to transfer the provision of infrastructure to the private sector through PPPs schemes (see also: Alonso-Conde et al., 2007; Jin and Zhang, 2011; Thomson et al., 2005; Zhang and Durango-Cohen, 2012)

Thus, it is suggested that the government of Colombia must legislate to promote other sectors, such as potable water, with the aim of improving the coverage and fulfill the Millennium Development Goals (González et al., 2014).

OPPORTUNITIES FOR DEVELOPING POTABLE WATER SUPPLY INFRASTRUCTURE IN COLOMBIA UNDER PUBLIC-PRIVATE PARTNERSHIPS

Due to the scarcity of funding, budget constraints and borrowing capacity, the public sector cannot meet the needs for investing in infrastructure for different sectors. As a result, the government does not invest directly in these projects so the initial capital investment is granted to the private sector. The investment is recovered through commercial exploitation (González, 2007). For the Colombian case, this period must not exceed 30 years (Congreso de Colombia, 2012).

Also, the long-term nature of PPPs allows the development of projects such as potable water, wastewater treatment and irrigation. Through the years, these projects have shown to have a qualitative impact on social and environmental issues (Alborta et. al, 2011). Thus, the characteristics of those projects, particularly the ones on intensive use of capital, help the implementation of long-term contracts.

The following graphs show the aqueduct and sewage system coverage gaps in rural and urban areas in Colombia. They evidence opportunities to involve the private sector (through PPPs) in development projects to help reduce the gaps and issues related to quality and infrastructure improvements; they also show the few changes in coverage gaps during the last 5 years.

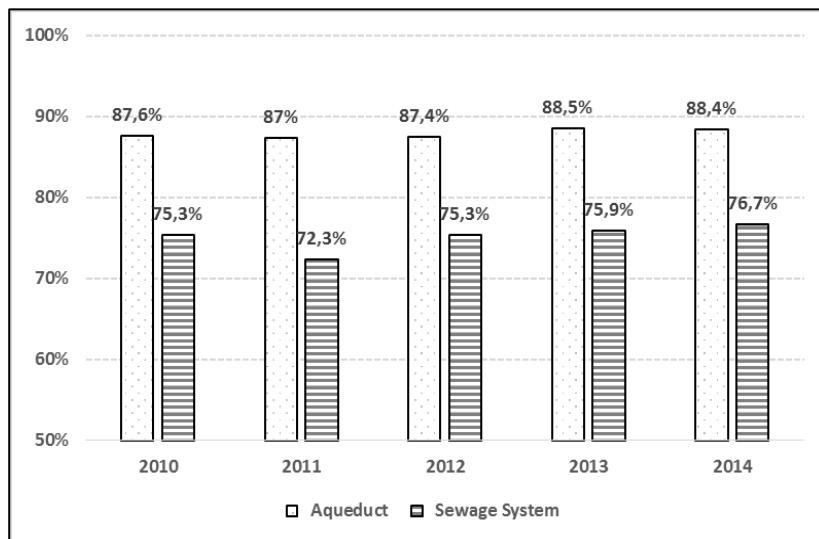


Figure 2. Colombian coverage gaps from 2010 to 2014.
Source: Departamento Administrativo Nacional de Estadística (2015)

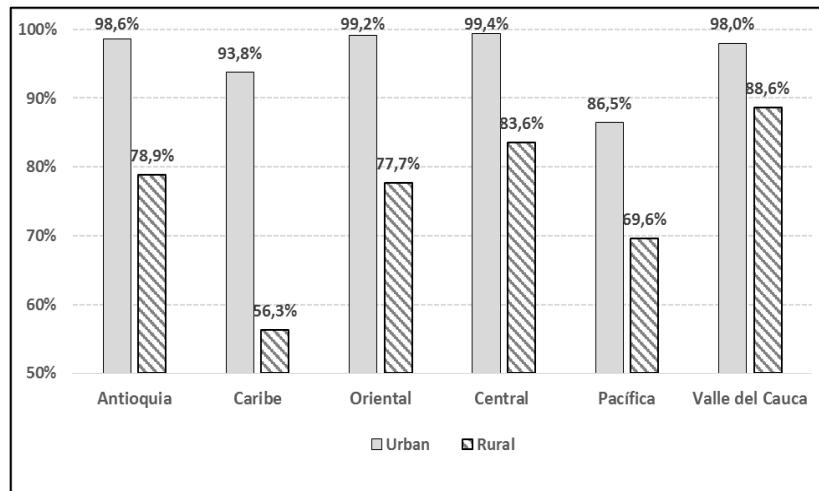


Figure 3. Colombian Urban and Rural Aqueduct Coverage in 2013.
Source: Departamento Nacional de Planeación (2014a)

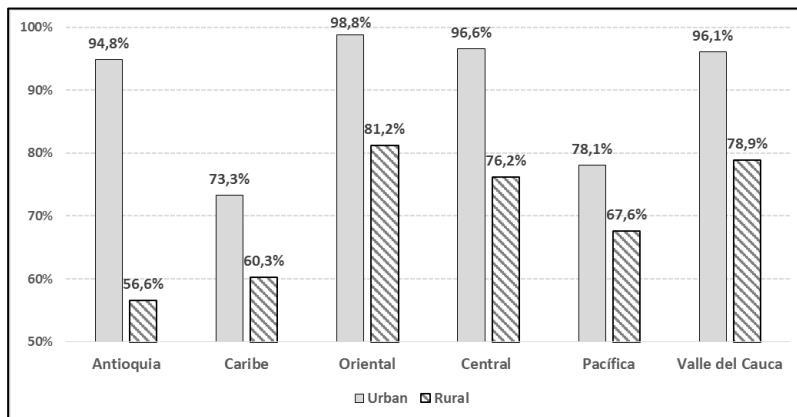


Figure 4. Colombian Urban and Rural Sewage System Coverage in 2013.

Source: Departamento Nacional de Planeación (2014a)

According to the Inter-American Development Bank (2013), the modifications promoting the involvement of private sectors in Colombia's potable water supply and sanitation services have not achieved the expected results, therefore it is considered that PPPs can help improve access and coverage conditions of access and coverage. For the specific case of Colombia, this partnership mechanism would increase coverage, particularly in rural areas where potable water supply and sewage systems are more needed. To improve coverage in the rural sector, the government of Colombia has estimated an investment plan for COP 7.6 billion (USD 3.2 billion) to be implemented between 2014 and 2024. It means that almost 1.8 million new people will be benefiting from potable water supply and 2.5 million people from sewage systems (Departamento Nacional de Planeación, 2014b). The table below shows the estimated investment in potable water supply and sewage systems in the rural areas.

Table 2. Estimated investment needs in the rural sector.
Figures expressed in COP million

Item	Total
Infrastructure construction	5.046.111
Studies and design	519.513
Indoor installations	1.728.356
Social Capital	290.756
Property management	50.253
Total	7.634.989

Source: Departamento Nacional de Planeación (2014b)

CHALLENGES AND PROPOSALS FOR THE IMPLEMENTATION OF POTABLE WATER SUPPLY PROJECTS THROUGH PUBLIC-PRIVATE PARTNERSHIPS AND PROJECT FINANCE IN COLOMBIA

Reducing the gap in coverage and improving services through the private sector's active participation presents several challenges. In order to face them, structural and functional proposals are presented; these allow an increased participation of the private sector and

generate the conditions that promote the sector. The following table lists the identified issues and their proposed solution. It is expected to contribute to the definition of policies leading to increase private participation in potable water supply infrastructure projects in Colombia.

**Table 3. Identified issues and proposed solutions.
Potable water sector in Colombia.**

Issue	Proposed solution
There are not specific securities for infrastructure projects.	To create a special market for infrastructure projects that enables the development of specific financial products for the sector; they should also allow institutional and specialized investors, widening the basis of issuers and investors. This will lead to have a primary and a secondary security market securities linked to infrastructure projects and to transact derivatives and various financial products.
The need for increasing private investment through joint investment with the public sector.	In order to ensure the joint venture between the public and private sectors in infrastructure projects for water supply sector, $m \times n$ purchasing mechanisms can be implemented; in these, each m titles bought by the private sector would make the public sector buy n . The procurement mechanism is determined by the characteristics of the project.
Securities are not being bought by the market.	In order to ensure funds for the infrastructure projects, the Government could ensure (through fixed or to the best offer underwriting mechanisms) selling the remaining unsold securities in the market.
The need for specialized operators and investors who understand the sector's dynamic are required.	To organize an international roadshow in order to attract and involve new operators and investors.
The need for building resilient-structured climate-proofed projects.	To encourage the implementation of sustainable and environmentally-friendly technologies-through tax compensation mechanisms; as well as the funding of instruments promoting ecosystems.
The need for increasing coverage in potable water and sanitation for rural areas.	To create special conditions for investment and funding, such as credits or profitability rates adjusted by the number of new connections or by the improvements in the quality of service in rural areas.
The need for generating financial safeguards to provide confidence to investors and lenders.	To structure (between the Government and multilateral banks) partial credit and risk guarantees specifically to infrastructure projects of water supply.
The need for establishing performance parameters to encourage investors to participate in potable infrastructure projects.	Because of the characteristics of these projects, allowing over-30 year deadlines during the operation stage would require amending Bill 1508, 2012.
The need for generating control mechanisms (through indicators) allowing quality measurement of potable water supply and infrastructure's operation.	To set dashboards (Balanced Scorecard) that allow monitoring projects and guide investment decision-making and governmental financing; and also allowing to create elements for designing policies and risk allocation.
The need for allowing greater community involvement in the development of projects.	To promote active participation of the communities in the different stages of the project (granting access to the boards of directors or councils)

FUNDING FOR POTABLE WATER SUPPLY PROJECTS IN COLOMBIA

To increase access and coverage of resources for potable water supply, the active participation of private sectors, as planners, funders, or investors, is required. Consequently, encouraging domestic and international financial resources will diversify funding sources resulting in better financial conditions, such as the interest rate, the terms and amounts; and better coverage indexes of potable water supply coverage.

A capital market with more participants might lead to more investments and / or divestments according to the investment strategy used and the composition of the portfolio. Therefore, a market of securities referenced to potable water supply projects could turn Colombia into a pioneer and world leader in the implementation of financial products and to lead the structuring and financing of such projects.

Given its social nature, the government has historically been the main supporter of infrastructure projects for potable water supply. Therefore, due to the few opportunities identified by the sector, the low revenues, the lack of funding sources available for the private sector, and in order to create incentives for 2015, the government of Colombia through Findeter (a second-tier bank) allocated COP \$ 850,000 million to develop potable water supply and sanitation projects with a compensated rate (which would result in a 70% saving on interests). That allowed below-the-market financing conditions and a greater financial capacity to implement new projects to improve the quality of life (Ámbito Jurídico, 2015).

Moreover, in 2009 the government of Colombia, through State entities, issued debt under the scheme of “Water Bonds”. These bonds benefited 117 municipalities in the construction of potable water supply and sanitation projects (Ministerio Hacienda y Crédito Público de Colombia, 2014).

That scheme had a significant social impact but over time, the arranged interest rate (set between 11% and 17%) was above the market rates; it caused a high financial expense resulting in a debt substitution operation for a new line of credit with special conditions granted by Findeter (Ministry Finance of Colombia, 2014). This debt replacement operation represented COP \$ 500,000 million; the bonds were expressed in Real Value Units (RVU) and then, they were converted to Colombian pesos preventing that the balance grew at the same pace than the inflation's; this process generated a COP \$ 250,000 million saving in interest payments. Then, more resources to invest in other social projects resulted from that operation (Ministerio Hacienda y Crédito Público de Colombia, 2014).

The following table shows the main private equity funds and development banks, which have investments in the potable water supply sector. These are expected to be actively involved in the development of projects in Colombia.

Table 4. Private Equity Funds and development banks.

International Funds Private Capital	Highstar Capital Catalyst – Private Equity Climate Change Capital The Charlie Group BC IMC – Investment Management Corporation CAI Private Equity
Development Banks	Inter-American Development Bank World Bank Asian Development Bank <u>Asian Infrastructure Investment Bank</u> Banco Desarrollo de América Latina European Investment Bank Findeter Financiera Desarrollo Nacional China Development Bank
Private Capital Funds Operating in Colombia	SEAF Colombia Nexus Capital Partners Brookeld Asset Management Inc Ashmore Management Company Colombia Darby Overseas Investments Ltd Tribeca Asset Management

Other sources of public nature funding contemplated in Conpes² Document 3810 to fund potable water supply projects in Colombia (particularly in rural areas where there is less coverage and therefore higher levels of investment are required) are (Departamento Nacional de Planeación, 2014b):

- The country's General Budget
- The General System of Royalties
- The Regional Potable Water Supply Plans
- The General System of Revenue Sharing

CONCLUSION

Colombia needs to encourage the involvement of private funding in social infrastructure projects, particularly in potable water supply. As a consequence of the gap in coverage and the good possibilities of the Colombian economy (compared to other Latin American countries), investment from international entities who understand the potable water supply sector is feasible and could be very profitable due to the high demand for the service. Potable water projects must comply with quality standards in terms of operational and finance

² Conpes stands for the National Council on Social and Economic Policies

efficiency. In order to do this, more specific regulations are necessary, especially to allocate risks among the private and public sectors. These new regulations should provide a solid framework based on the Bill 1508/2012 and any other regulation on the provision of public services by utility companies. An important component of this framework is the possibility of raising capital through a project finance scheme, where the financial market could have a pivotal role in providing funding for the capital investments. Similarly, the development specific financial products related to the potable water supply sector are needed. Likewise, national or international private equity funds like the multilateral banks are determinants in the investment and financing of such projects. For example, multilateral banks have specialized funds to support potable water supply projects. On the other hand, recent improvements in Colombia's credit rating and the country's possible inclusion in the OECD (Organization for Economic Co-operation and Development) will positively affect that rating resulting in a low financial cost. The government of Colombia should be a leader in financing such projects, which demands from it, the allocation of more resources via royalties and / or future funds.

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