



COCHABAMBA, BOLIVIA, URBAN WATER EXPANSION

Case Study (Water)

Project Summary:

For over thirty years, the water services in Cochabamba, Bolivia were managed by the city's Servicio Municipal de Agua Potable y Alcantarillado (SEMAPA). The system was characterized by significant maintenance and administrative problems. Only half of the population was being served, on a highly-irregular basis, and the water often did not meet public health standards. To address these problems, the national legislature passed the Drinking Water and Sanitation Law in October of 1999, creating the legal framework for public-private partnerships (PPPs) for the water sector.

A competitive bidding process did not produce a successful bid, but did lead to the formation of an international consortium of companies from the US, Spain and Bolivia. Under the name of Aguas del Tunari (AdT), the consortium was awarded a 40 year concession in October, 1999 and began operations immediately. The concession included operation of the existing water supply system and construction within two years of the US \$214 million Misicuni Multipurpose Project (MMP), which used the River Misicuni for electricity generation, irrigation and water supply to the city. Also, the consortium was obligated to pay SEMAPA's outstanding debt.

In the first two months of operation, AdT increased supplied water by 30 percent, simply through repairs and technical enhancements. However, because of the contract's provision for construction of the MMP and servicing of SEMAPA's previous debts, an average tariff increase of 35% was agreed upon during contractual negotiations. Public officials were to inform the public about the size and rationale for the increase, but did not carry through on this commitment.

By January 2000 (only three months into the operations), significant public opposition emerged. The Coalition in Defense of Water and Life, a broad alliance of professional associations and civil society organizations, led a series of protests against the contract and the increase in water tariffs. Within weeks, public demonstrations prompted the government water superintendent to roll back the rates and force a refund of the difference paid. The protests continued and escalated to the point that in April the military was sent into Cochabamba to restore calm. In the deteriorating situation, AdT personnel abandoned their offices and the government cancelled the contract. In November 2001, AdT filed a request for arbitration with the International Centre for



Settlement of Investment Disputes (ICSID), regarding the assets expropriated by the Bolivian government when the contract was cancelled.

Subsequently, Cochabamba returned to the PPP model to address their water problems, but avoiding the problems of the first PPP. In December, 2004, a new partnership, the Agua para Todos (Water for All or ApT), was formed with SEMAPA, a private sector consortium Plastioforte, local communities and a non-profit foundation. The previous SEMAPA debt and the MMP were not included in this new partnership. Under the Agua Tuya (Your Water) program, the ApT partnership is part of an initiative to unite stakeholders, and improve coordination and efficiency by combining the resources of the various partners. As part of this program, Plastioforte has constructed secondary water systems in coordination with SEMAPA, which planned where to direct its main pipelines.

Project Objectives:

With the original PPP, the government had several objectives, both short-term and long-term. The first objective was to improve the delivery of water to the residents and businesses of Cochabamba. The existing system was experiencing losses of up to 50 % of the water, through broken pipes, illegal connections and other system failures. Collection of payments was an additional major problem, including payments from a number of government agencies. The existing rate structure provided discounts for high consumption, favoring the wealthier families using the system but resulting in disincentive for conservation and higher rates for those who could least afford the water rates. As a result, many of the poorest residents were purchasing water from delivery trucks, but at a rate per gallon that was excessive.

Under these circumstances, the government decided that private management of the water system was required to improve the water system, and that a public-private partnership would help increase operating efficiencies and improve service delivery.

Cochabamba: Third-largest city in Bolivia, population 600,000. Population has increased rapidly, outstripping infrastructure, due to influx of families from poor rural areas.

A second objective of the government was to increase the long-term water supply through the construction of the Misicuni Multipurpose Project, which involved drawing water resources from the basin of the Misicuni, Viscachas and Putucuni rivers. The project involved building a 120 meter dam, a reservoir to regulate the flow of water, a 20 km long tunnel and a hydroelectric power plant. This major project was expected to benefit five municipalities by providing drinking water, water for irrigation and 120 MW in new electricity generation capacity. In



retrospect, this was too large of a project to add to the PPP designed to supply potable water to Cochabamba.

Project Description:

1. Partners

The bidding process for the water services project in Cochabamba was concluded in April 1999. Ten companies expressed interest in the original Request For Proposals (RFP) issued by the government. However, they as well as the World Bank and consultants all deemed the total package to not be financially viable. Since Bolivian law stipulated that there should be a minimum of three bids for any project, the process was declared null and void.

Despite this response, only one bidder was willing to enter negotiations that ultimately became the basis of the contract and ill-fated initial PPP. Since AdT's proposal did not meet the conditions for the original tender, a government team initiated direct negotiations with AdT. The government was represented by its negotiating committee, whose members came from the Ministry of Foreign Commerce and Investment, the Superintendency of Water, the Superintendency of Electricity, and the Prefect of the Province, in addition to the mayor of the municipality, the president of the public water utility SEMAPA, and the president of Empresas Misticuni, a public sector corporation established in 1987 to implement the MMP.

A subsidiary of a major United States water company decided to pursue the tender to provide urban water services in Cochabamba. A joint venture was formed, Aguas del Tunari (AdT), with the US company providing 55 percent of the capital investment. Additional partners in AdT were a Spanish company that invested 25 percent, and four Bolivian companies that invested 5 percent each. The government required the companies to incorporate the Misticuni project in their contract, despite the consensus that the project was not considered financially viable. In fact, AdT's initial bid did not meet the terms of the tender, and since it was the only bidder, the process was declared null and void.

As a result, the government decided to proceed with direct negotiations with AdT. Based on the negotiations, AdT recalculated its proposed initial tariffs to enable them to secure financing from the pension funds in Bolivia under requirements established by multilateral banks like the Inter-American Development Bank, International Finance Corporation and La Corporacion Andina de Fomento (CAF).



2. Implementation Environment - Legislative and Administrative

In 1994, several years prior to the formation of AdT and the Cochabamba water contract, the Bolivian government undertook a major institutional and socio-economic reform program that encouraged Private Sector Participation (PSP), including a national system of public utility regulation, Sistema de Regulacion Sectorial (SIRESE). This legislation covered telecommunications, transport, hydrocarbons, electricity and water services. Separate superintendents for each sector and a general superintendent to head SIRESE were established. The five sectoral offices were created as autonomous public sector agencies with managerial, technical and financial authority, with oversight by a general superintendent.

In 1997, a presidential decree expanded SIRESE's authority, establishing the procedures for regulation. This significantly altered the institutional framework for water regulation in Bolivia, and the Office for Water Regulation became the Sectoral Superintendency for Basic Sanitation (SSSB). SSSB was empowered to grant, revoke, extend or modify concessions and licenses, to approve tariff structures and price increases, to monitor price increases and water services performance, and to intervene and sanction water companies. In addition to this, SSSB is also responsible for promoting competition and efficiency in the delivery of water services, and to act as a court of appeal in deciding on consumer complaints. Its activities are financed through a regulatory tax paid by all water services providers that operate concessions.

Following the creation of the new regulatory structure, the main functions of the water sector were transferred to two ministries. The Ministry of Housing and Basic Services was responsible for the development and sustainability of water services, annual planning for service expansion, sanitary education, information systems and the promotion of private sector participation. The Ministry for Sustainable Development was responsible for water resources management, the preservation of the quality of water sources and environmental regulation. The responsibility of the central government at the departmental level is limited to planning the expansion of water services.

The concession awarded to AdT was made possible only after the passage of Law 2029, the Drinking Water and Sanitation Law, in October 1999. This law, which was developed and passed with little involvement of the stakeholders, created the legal framework to enable PPPs in the water sector by using private firms to take on the legal responsibility for service provision and water sources, with an objective of effectively ending government subsidies to this sector.



3. Financial Agreement

In September 1999, a 40 year concession was negotiated to Aguas del Tunari (AdT) to provide water services in Cochabamba, Bolivia. With passage of Law 2029 the next month, the contract went into force. AdT obtained the necessary capital from a combination of private sources, including the United States partner (55 percent), the Spanish partner (25 percent) and four Bolivian partners (at 5 percent each).

The concession included operation of existing water services and construction of the Misicuni Multipurpose Project (MMP), a project involving the use of the water resources of the river Misicuni for electricity generation, irrigation and water supply to the city. The concession contract agreed upon between AdT and the government contemplated an initial average tariff increase of 35 percent as well as a further tariff increase of 20 percent in 2002, when water would be delivered from MMP. Also, the original design of the MMP was modified, reducing its estimated cost to US\$ 214 million. The entire financial package was approved by SSSB in September 1999 and introduced in January 2000.

When AdT took over service on November 1, 1999, it was required under the contract to rent fixed assets from the state municipality SEMAPA and to buy its moveable assets and inventory. During the concession period November 1, 1999 to April 10, 2000, AdT invested US\$ 10 million in capital and SEMAPA's debt decreased.

4. Contract Provisions

Under the negotiated concession contract, the government insisted that the Misicuni dam be built during the first two years of the contract. AdT also was required to pay off the US\$ 30 million debt of SEMAPA and construct a treatment plant that AdT and others felt was too expensive and unnecessary.

To make the project financially viable, AdT was granted the exclusive right of water resources in Cochabamba as well as any future sources required for the supply of water to the consumers in the city. This required that many private wells be shut down, a decision with significant negative political implications. Also, AdT proposed a new rate structure intended to address the pricing inequities in the previous tariff structure. Through an Increasing Block Tariff (IBT) structure, an initial average tariff increase of 35 percent was agreed to, designed to allow the recovery of the large investment required to finance the MMP (AdT was guaranteed a 16 percent rate of return on their capital investment).



The details of this rate increase ultimately became a significant source of the controversy, as discussed below. This rate increase was finally approved in September 1999 and introduced in January 2000.

5. Implementation Metrics

The Increasing Block Tariff (IBT), proposed by AdT and approved by the government, created a rate structure under which consumers were classified in nine groups. Residential consumers were divided into four "socially defined" bands. Residential 1 covered empty lots, houses under litigation and houses being demolished. Residential 2 covered "precarious" constructions (basic two-room buildings). Residential 3 covered "economic dwellings" and functional apartments and Residential 4 covered luxury housing constructed of high-quality building materials. The new tariff was socially progressive, incorporating differential rates within the fixed charge, with high income households (residential 4) paying nearly three times as much as low income households (residential 2) for the first 12 m³ of water.

The progressive IBT also ensured that high income households would pay around twice the amount per cubic meter for consumption above 12 m³ that low income users would pay. Although the average tariff increase was 35 percent, the actual increase varied since small and lower-income consumers benefited from the introduction of the new IBT, with increases of as little as 10 percent. Large and higher-income consumers however, experienced tariff increases as high as 106 percent as they began to pay more per cubic meter under the IBT (rather than less as before) for their high level of consumption. Improved billing administration led to considerable re-categorization of consumers, both within the residential category, and between categories.

As stipulated in the contract, AdT also achieved a dramatic decrease in leakage rates, which led to a reduction in the need for water rationing. However, the greater availability of water led many consumers to increase their consumption. The resulted in increased water bills not only because of an increase in price but also because of an increase in volume.

Exclusive rights for the provision of water services as well as over water resources were granted to AdT, to guarantee a strong revenue basis for AdT and thereby ensure the viability of the expensive Misicuni Multipurpose Project. While it may be argued that this was a sound strategy for natural monopolies such as water supply, the Cochabamba case was different because the irregular water supply system had given rise to a number of private wells as alternative sources of water. The wealthier citizens relied on these wells and storage tanks, while the poor relied on tanker-based vendors. The exclusivity granted to AdT meant that richer consumers were no longer permitted to benefit from the cheaper supply of their own wells. In the short term, the



exclusivity also reduced options for low income households since they needed water vendors to remain available until their houses were connected to the network. The concession contract threatened other informal provider groups in the neighborhood (truck vendors, small cooperatives and neighborhood associations) as AdT consolidated its dominant market position as the main supplier of water services.

Commentary:

1. Methods for Overcoming Impediments

The failure of the first Cochabamba water PPP was due to a combination of political, social and economic factors. While the introduction of the concession contract awarded to AdT was the spark that ignited the protests, the conflict had its roots in a number of emerging problems in the country. Despite a range of poverty alleviation programs, toward the end of the twentieth century 70 percent of the population remained below the poverty line. Economic conditions had been the cause of a number of protests in many parts of the country.

The government committee that negotiated the contract with AdT did not appreciate the financial implications when it insisted on the construction of the Misicuni dam, a project that was not deemed financially viable by the World Bank and international water companies. The government also insisted that AdT sign and execute a contract for construction of a treatment plant that the consortium thought expensive and unnecessary. AdT was also required to pay for existing SEMAPA assets and pay off the existing US\$ 30 million debt that SEMAPA had previously accumulated. As a result, AdT had to reflect these increased costs in the tariff structure, even though these had not been discussed.

Many of the problems that arose could have been avoided early in the process, through effective stakeholder consultation and communication. Law 2029, the Drinking Water and Sanitation Law that enabled the concession contract, was created with little input by stakeholders and as a result, the terms and conditions of the concession eventually established in the Cochabamba project were not suited to the cultural, political and economic situation in the area.

The problems of the initial partnership are clearly illustrated by the corrective actions taken in later years. Three years after the collapse of the original PPP concession with AdT, a new partnership was formed that took into consideration the lessons from the first. Agua para Todos (Water for All) was created as a partnership between local communities, the municipal water provider, a company that designs and constructs water distribution systems and two micro-credit



providers in Cochabamba. Most importantly, the Misicuni Multipurpose Project and the new treatment plant were not included in the new partnership.

This new partnership avoided many of the problems that faced the first contract by focusing on stakeholder involvement at an early stage of the project. It involves local community water committees in setting priorities. It also uses the services of a local commercial enterprise, Plasioforte/Agua Tuya that designs and builds water supply networks and offers training in their operation and maintenance. The partnership also receives funding from the United Nations Development Program (UNDP) and two micro-credit organizations, CIDRE and Pro-Habitat. SEMAPA is also involved in approving the Plasioforte/Agua Tuya designs and planning the building of future main lines according to projected demand. By relying on a local participatory, demand-driven approach, the partnership, although still at a nascent stage, has attracted the attention of international organizations and was selected for the SEED (Supporting Entrepreneurs in Environment and Development) Initiative Partnership Award for Sustainable Development partnerships in 2006.

In the first year since the creation of the new PPP, seven systems were completed, benefiting over 5,000 people and cutting the unit cost of water by half. The new project aims to provide 17,000 additional connections serving 85,000 people within the next five years.

2. Key Points for Success or Failure

The success or failure of any public-private partnership is dependent on six key factors: the political and legislative environment, a skilled dedicated unit to oversee the partnership, a viable contract, a clear, dedicated revenue stream, strong communication with all interested parties, and careful selection of the private sector partners. In the case of the first Cochabamba PPP, there were significant problems in each of these areas.

The political environment presented the initial impediment. The government's desire to include projects beyond the financial capacity of the partnership was the cause of increased water rates that caused the political unrest. With the reversal of the government's endorsement of these rates and the return to the old rate structure, the project became nonviable. The needs of the private component of the partnership were not recognized by the political structure. Even more damaging, the government did not fully communicate the objectives and rationale of the partnership and rate increases to the public. The government's declared state of emergency in early April 2000 was a clear indication of this failure. The abrupt cancellation of the contract underlined the limitations in understanding of the private sector's requirements in this concession



project. The combination of these factors - excessive contractual requirements, poor public information efforts, and political intervention in the regulatory process - was a significant component in the failure of this PPP.

The regulatory oversight of this partnership was not adequate to the challenges. The Sectoral Superintendency for Basic Sanitation (SSSB) had insufficient political independence and only a limited regulatory capacity due to budget constraints and lack of trained management staff. This added to the eventual breakdown of the concession contract. The SSSB was unable to effectively intervene in the conflict, and since negotiations and decisions over tariff-setting were dealt with by the central government, this agency had little role to play in the entire process. The Cochabamba case presents an example of how constant political pressure by the government exacerbated the conflict. In countries where regulators have to deal not only with technical issues such as tariffs and service quality but also with social demands, regulatory independence can be a crucial factor in the success of a public-private partnership.

The contract and its administration were flawed in several ways. The contract required AdT to invest heavily in new infrastructure, repay SEMAPA's existing debts and complete construction of a dam that was not considered financially viable. In addition, it did not provide an adequate dispute resolution process, which might have been a vehicle to avoid the eventual breakdown of the contract. Finally, the government abrogated the contract and failed to comply with its terms, duly negotiated in good faith by all parties.

A guaranteed review stream is critical to the survival of a partnership. The private sector partners must have a means for recouping their investments, with a reasonable return. The initial proposal, with the Misisuni project, was not considered financially viable by the World Bank and the original bidders responding to the RFP. Under the terms finally negotiated for the original contract, the revenue appeared to be sufficient for financing the project. Reversal of the rates, by the government's response to the political unrest, removed that adequate revenue source.

Communication with all interested parties and gaining stakeholder support is another important factor in the success of a PPP. The need for regulatory bodies to be involved in effective public education and communication was clearly illustrated with the Cochabamba water project. Although the main portions of the contract had been published in the press, there was a public perception that the bidding process had not been open and competitive. This lack of transparent communication and effort to educate and gain the support of stakeholders led to public unrest and distrust. It is important to carry out education early on in a project, not only to provide



education on the benefits and gain stakeholder support, but also to get a timely perspective on the social and political environment based on the feedback from educational efforts.

AdT had strongly recommended to the government that it carry out an information campaign to notify the public of the changes that were to be implemented, the new Increasing Block Tariff structure and the resulting new tariffs for water as well as the reasons for the tariff increase. AdT asked the municipality to inform the population about the proposed construction of the new Misicuni dam that was largely responsible for the tariff increases.

However, the municipality never carried out the campaign. As a result, most people were unaware of the reasons for the increase in tariffs. While such communication might not have overcome the latent political and socioeconomic problems, it would have at least provided a positive influence in allowing the PPP to proceed. A key lesson that can be learned from this project is that while it is important to keep stakeholders aware of upcoming changes, it is more important to properly convey the benefits of those changes and the reason for the changes in order to gain stakeholder support.

Selection of the right private partner for a partnership is also critical. In the case of Cochabamba, there appears to be little more that the selected partner, AdT could have done. The consortium had the technical capabilities, the financial resources and the political sensitivity (note their recommendation for Increasing Block Tariff) to carry out the project.

The new Agua para Todos partnership formed in Cochabamba avoids many of the mistakes of the previous project. The emphasis on stakeholder involvement and a demand-driven, participatory approach has led to a successful PPP between local community organizations, a local commercial enterprise Agua Tuya/Plastioforte and SEMAPA. Local micro-credit organizations CIDRE and Pro-Habitat Foundation have helped in financing local water committees to design and construct water supply lines through innovative 'shared-risk' schemes. The private operator's designs are approved by SEMAPA to ensure compatibility with the main lines, as well as to help SEMAPA estimate demand in various neighborhoods and plan the long-term expansion of the network.

Since the partnership allows local communities to build self-financed secondary networks through a private operator in their neighborhoods, SEMAPA can focus on expanding the main distribution lines into the poorer regions of Cochabamba. The clear distinction of responsibilities and the lack of government interference have been key factors in the success of the partnership and the project has benefited over 5,000 people in a year since March 2005, also cutting the unit



cost of water by half. As earlier noted, the project also aims to provide 17,000 additional connections, serving 85,000 people, within the next five years.

While the Agua para Todos partnership is still in its early stages, the approach of managing water services delivery from the bottom up and including a wide range of stakeholders at every stage of the process is promising. Documenting the ongoing development of the partnership and determining its strengths and weaknesses may raise the possibility of replication elsewhere in Bolivia and provides an interesting case study of a failed Public-Private Partnership that was revised and transformed.