

**FIXING THE LEAKS IN BRAZIL’S WATER LAW:
ENCOURAGING SOUND PRIVATE SECTOR
PARTICIPATION THROUGH LEGAL AND
REGULATORY REFORM**

*Brendan McNallen**

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I. INTRODUCTION

Brazil presents a water anomaly. Approximately thirteen percent of the world's fresh water resources, six billion acre-feet, flow within Brazil's borders, yet scarcity due to drought in the Northeast and pollution in the Southeast prevents much of the population from receiving potable water.¹ The semi-arid Northeastern region of the country requires dams, reservoirs, and the associated infrastructure to capture the large and sporadic seasonal flows and provide a more consistent water supply. The more water-rich Southeastern region requires increased sanitary sewage collection and treatment facilities to reduce the harmful waste discharged into rivers. Throughout Brazil, connections to water and sanitary sewage collection remain low.

Brazil's National Water Authority Agency (ANA) recently announced that forty million of Brazil's 180 million citizens do not have access to treated drinking water and fifteen million lack drinking water service of any kind.² Even more problematic, sanitary sewage systems capture only 48.9 percent of consumer wastewater produced and only 32 percent of captured sewage is treated, accounting for 15.6 percent of the total sewage created by Brazil.³ The lack of treated water and basic sanitation accounts for 68

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1. See National Water Agency – Brazil (hereinafter ANA), at http://www.ana.gov.br/ingles/Portais/09-water_supply.html (Last visited February 24, 2006).

2. *ANA Estimates US\$57bn for Water, Sewage Sectors*, BUSINESS NEWS AMERICAS, June 21, 2004.

3. *Natural Resource Aspects of Sustainable Development in Brazil*, UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS, DIVISION FOR SUSTAINABLE DEVELOPMENT, at www.un.org/esa/agenda21/natlinfo/countr/brazil/index.htm (2004).

percent of all hospitalizations in Brazil, costing Brazil's Ministry of Health over \$80 million annually.⁴

In response to these water and sanitation shortfalls, Brazil has set ambitious goals of universalizing water access and sanitation, while treating 80 percent of sewage, by 2010.⁵ Further, the United Nations has set as a Millennium Development Goal, halving the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015.⁶

Such grand expansions require large capital investments. ANA estimates that universalization will cost 178 billion reais (\$57 billion) within the next twenty years. To achieve universalization along with the wastewater treatment goals, Brazil has sought private sector participation (PSP) as a means of expanding, improving, and financing existing utilities.⁷ So far, thirty two of Brazil's approximately 5,500 municipalities have entered into such arrangements. Most municipalities, however, receive service from state-controlled water companies that have achieved only limited PSP success.

If Brazil fails to properly define the property rights for water and sanitation services and establish appropriate mechanisms for setting and adjusting tariffs and enforcing contracts, PSP will ultimately fail, leaving the task to existing governments and state-owned enterprises (SOEs) who have clearly conceded their incapability in this regard. Various PSP models in water and sanitation services exist throughout the world, each forming a type of public-private partnership (PPP) or concession between government entities on one side and a private sector participant (PSP) on the other. Nations that develop institutions that treat water as an economic good may not require PSP or PPP to succeed in improving water and sanitation services. It may even prove beneficial to test the strength and independence of existing SOEs before introducing PSP or PPP through setting rational tariffs, which in turn may prove sufficient to enhance performance by SOEs alone and thereby alleviating any need for PSP.

In terms of introducing PSP, transaction costs associated with delineating, monitoring, and enforcing water rights and service provision rights will remain high, so long as legal ambiguities exist and parties are forced to untie legal wrangles in courts. Transaction costs become further exacerbated when the courts prove to be ineffective forums for establishing,

4. *Lack of Sanitation Accounts for 68% of Hospitalizations*, BUSINESS NEWS AMERICAS, June 11, 2004.

5. UN Department of Economic and Social Affairs, Division for Sustainable Development, at <http://www.un.org/esa/agenda21/natlinfo/countr/brazil/natur.htm#freshw> (last visited February 24, 2006).

6. *Goal 7*, UN Millennium Development Goals, at <http://www.un.org/millenniumgoals/> (last visited February 24, 2006).

7. FEDERAL GOVERNMENT OF BRAZIL, MULTI-YEAR PLAN 2004-2007: PUBLIC-PRIVATE PARTNERSHIP INFRASTRUCTURE PROJECTS PORTFOLIO (2003).

interpreting, or enforcing the law. Albeit created under a dictatorship, the success of PPP in Chile's water sector may provide a compelling model for the general legal and regulatory framework for Brazil to follow. In Chile, three fundamental reforms enabled the water and sanitation sector to garner the benefits of PSP as the country moved away from the SOE as water services purveyor over a period of years. In contrast, Bolivia and Argentina seem to provide examples of how to avoid problems with PPP, in part caused by ineffective legal and regulatory frameworks leading to PPP. A legislated solution, possibly involving resolution of constitutional issues of water rights and recognition of a tariff-setting, monitoring and enforcement body over water and sanitation services takes time. Changes to institutional frameworks cannot occur overnight. Accordingly, this article presents an incremental approach to effect significant sector reform that will move Brazil in the right direction and accommodate PSP or PPP for short-term benefits along the way to a longer-term solution.

II. PRIVATE SECTOR PARTICIPATION AND ASSOCIATED TRANSACTION COSTS

A. Private Sector Participation

The term "private sector participation" has replaced "privatization" in much of the literature on water. This change represents an effort to more accurately characterize the relationship between the public and private sector as a joint, participatory effort and to avoid some of the negative connotations accompanying "privatization." Uniform definitions do not exist among all texts and authors will often freely interchange the terms. For this article the following definitions will be used:⁸

"Private Sector Participation (PSP)" means the involvement of a private sector entity or person at some stage in the delivery of public services. It is a general term covering a wide range of private sector involvement in public infrastructure, from construction contracts, to service contracts, including management contracts, concessions and build-operate-transfer (BOT). This may also include informal sector participation, by individual unincorporated vendors acting in lieu of existing utilities.

"Public-Private Partnership (PPP)" means a form of partnership between government and PSP whereby government acts as the grantor of rights and duties, as the legal entitlement holder to the

8. Andrew Nickson, *The Cordoba Water Concession in Argentina*, GHK INTERNATIONAL (2001).

public works assets and service responsibility, and PSP provides some form of contractual services in conjunction with an existing government utility. Typically, PPP tends to exclude service and management contract arrangements, but includes leases and concessions.

“Privatization” means a more complete transfer of rights and responsibility from government to a private sector entity or person. Typically this refers to divestiture or the transfer of ownership from SOE to the private sector.⁹

As stated in the definition, the form of PSP varies. The types of contracts—management/service contracts, leases, concessions, BOT and divestiture—represent a spectrum of investment, management, and ownership relationships between the government and the PSP or private sector participant. The typical arrangement for PSP in the water sector is in the form of PPP, a legal contract between the government and a private sector entity or person requiring obligations from such PSP in exchange for a financial commitment from the government in the form of a concession that allows PSP to charge and collect from customers for the provision of public services. Below is a table showing the forms of PSP:

TABLE 1: ALLOCATION OF KEY RESPONSIBILITIES UNDER THE MAIN PRIVATE SECTOR PARTICIPATION OPTIONS

<i>Option</i>	<i>Asset Ownership</i>	<i>Operations and Maintenance</i>	<i>Capital Investment</i>	<i>Commercial Risk</i>	<i>Duration</i>
Service Contract	Public	Public and private	Public	Public	1-2 years
Management Contract	Public	Private	Public	Public	3-5 years
Lease	Public	Private	Public	Shared	8-15 years
Concession	Public	Private	Private	Private	25-30 years
BOT	Private and public	Private	Private	Private	20-30 years

9. The term “privatization” may not have any practical meaning in the absence of PPP or PSP, because a public citizenry will not permit an unregulated monopoly in water. In Chile and England, where privatization has extended to include asset transfers, and the government’s divestiture of certain controlling interests, PSP relies on the strength and independence of regulators SAE and OFWAT, respectively.

Divestiture	Private or private and public	Private	Private	Private	Indefinite (may be limited by license)
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Source: World Bank; <http://www.worldbank.org/html/fpd/water/wstoolkits/Kit1/kitone2.html>

The options for PSP fall into several categories. While much can be said about the arrangements, the foregoing table and brief descriptions will be ample for this project.

Service Contracts: The private sector assists the public utility with specific tasks, generally installing or reading meters, repairing pipes, collecting accounts.

Management Contracts: The public utility transfers responsibility for management of operation and maintenance to the private sector.

Leases: The community makes investments and only entrusts the operation of installations to a private supplier. The latter's services are paid by billing the water price, and part of the income is paid back to the community to meet the technical depreciation cost and financial amortization of the supply network.

Concessions: The private operator obtains the long-term right to use all utility assets, including responsibility for all operation and investment. The assets revert to the government at end of concession period, including any created by the operator.

Build-Operate Transfer: A private firm might undertake to construct a new dam and water treatment plant, operate them for a number of years, and at the end of the contract relinquish all rights to them to the public utility. The government or the distribution utility would pay the BOT partner for water from the project, at a price calculated over the life of the contract to cover its construction and operating costs and provide a reasonable return. The contract between the BOT concessionaire and the utility is usually on a take-or-pay basis, obligating the utility to pay for a specified quantity of water whether or not that quantity is consumed.

Divestiture: The public entity sells assets or shares through a management buyout—can be partial or complete.

Often, PSP or PPP includes a financial outlay from the private sector entity or person, and possibly some form of credit support or guaranty from the government in favor of PSP, but invariably these credit arrangements depend on a carefully appraised credit worthiness of the applicable PSP, as conducted by the government. For PSP, the appraisal derives from a reasonable expectation of recovering its financial outlay from the public as consumers or from the government as back-up to consumers, together with a reasonable return on such outlay—its investment (ROI)—commensurate with the risk of non-payment.

B. Why Private Sector Participation?

Brazil typifies a modern trend of developing nations seeking PSP to improve water and wastewater services. Adherents of PSP cite numerous economic benefits to existing water utilities including lower costs (both capital costs and operation and maintenance costs), increased efficiency, innovation and risk management, infusion of capital for prioritized investments, and capacity building to supplement the lack of local expertise.¹⁰ England and Chile provide examples of these benefits realized. Further, world organizations have observed overall increases in service coverage achieved through PSP, particularly to the poor, in such nations as the Ivory Coast and Gabon.¹¹ Theoretically, PSP improves water sector performance in various ways. PSP provides expertise, innovation and successful management experience that public utilities lack; taps into private sector funds previously unavailable to public utilities; harnesses efficiencies and free market forces to reduce costs; and along with PPP, reduces political interference and overstaffing; rationalizes water pricing and reduces subsidies paid by government's general fund; and allows for integrated water resources management (IWRM).

C. Peculiarities of Water and Sanitation Services for Private Sector Participation

The water sector presents unique challenges for PSP. Water and sanitation companies enjoy a "natural monopoly" in the areas they service greater than other utilities such as electricity and natural gas.¹² The high cost of assets, impracticability of offering redundant transmission services

10. Robin A. Johnson et al., *Long-Term Contracting for Water and Wastewater Services*, REASON PUBLIC POLICY INSTITUTE, 2002.

11. UNITED NATIONS DEVELOPMENT PROGRAMME, *NEW DESIGNS FOR WATER AND SANITATION TRANSACTIONS: MAKING PRIVATE SECTOR PARTICIPATION WORK FOR THE POOR*.

12. Zane O. Gresham, *Lessons From the Field: Private Sector Involvement in Water Projects*, MORRISON AND FOERSTER PRACTICES AND INDUSTRIES (2001).

by reticulated piping, and the need to protect and limit raw water production generally limits the water market to a single provider.¹³ In some situations, entrepreneurs and informal vendors provide water services through tanker trucks and sales of bottled water but as unregulated monopolies in areas without piped service, these services remain extravagantly more expensive than the typical water utility and may compromise on water quality. Although septic tanks provide a PSP alternative to piped sewer systems in many countries, such an alternative for sanitation collection and treatment also requires careful regulation to ensure quality treatment and discharge. Introduction of sewage treatment and disposal in the developing world remains a nascent industry, and it is still to be determined whether PSP, PPP or traditional SOE provides the optimal model. Given the enormity of investments required to create sewage collection and treatment systems, it will be important to identify the appropriate role of PSP beyond construction contractor, equipment vendor, and O&M services provider. In the absence of collection systems or treatment facilities, sewage generally runs untreated through ditches into nearby rivers and leeches into polluted groundwater, creating an issue of resource management that cuts across various levels of government responsibility.

A second problem involves the nature of water.¹⁴ Unlike electricity and telecommunications, water is a requirement for life. Opponents to PSP argue that discontinuing service for delinquent payments or requiring any payment for water violates a fundamental human right.¹⁵ Further, for generations many communities have diverted rivers, received water from wells, or even enjoyed service delivery free of charge. The specter of privatization contravenes their sense of entitlement and infuriates the populace. Opponents to PSP believe that governments should remain responsible for water and sanitation service regardless of cost, to protect against the inherent evils of profit-driven private entities. Governments that do provide subsidized water, however, often find their water companies operating at substantial losses.

13. However, there is a prevalence of bottled water, sold by PSP throughout the world, and tankered water or cisterns used throughout the developing world to offset the lack of public water utilities. This might argue in favor of more PSP and competition in water transmission rather than retrenchment of these services within SOE and government controlled utilities. Most importantly, these PSP may continue to serve and prosper with an appropriate legal and regulatory environment to prevent monopolistic pricing tendencies to ensure universal coverage.

14. Gresham, *supra* note 12.

15. *Id.*

D. Competition in Water and Sanitation Services

Sectors such as telecommunications and railways do not face the significant “natural monopoly” problem of the water sector because competition in the market may exist between companies for telecommunications or transport.¹⁶ For example, several cellular telephone companies may operate in the same service area, creating competition within the sector. Further, while a train company may monopolize rail lines, alternative transport providers such as bus companies may compete in the market by offering service along the same routes at competitive prices. Without multiple providers in the same service area, however, water and sanitation services will be perpetually devoid of competition in the market regardless of PSP.

Despite the natural monopoly of water and sanitation service providers, the process of selecting a PSP still interjects the benefits of competition by creating competition *for* the market rather than *in* the market.¹⁷ In the typical situation, a government tenders an offer for a concession or PSP contract to provide services. The rules of the bidding process state the criteria for winning the contract and existing law establishes the regulatory environment outside of contract enforcement. The criteria may include the lowest tariffs, the highest initial financial outlay, and the extent of service improvements and other variables, in each case assuming regulatory compliance. Eligible companies may then bid with the most competitive package the company can manage, but based on a risk assessment of changed circumstances and in reliance on fair and independent regulatory enforcement. Theoretically, this competition for the market would either drive down the tariff rate or increase the financial outlay to accurately reflect the market value of such services. Such competition requires clarity of obligations both in the form of contract and by an established track record of regulatory enforcement.

E. Transaction Costs Generally

While a pervasive definition does not exist, transaction costs generally refer to the costs of specifying, monitoring, enforcing, and trading property rights.¹⁸ Transaction costs exist in all exchanges of property and services and may deter or completely prevent potential transfers when the transaction costs exceed the rents to be captured. In order to reduce transaction costs and thus promote exchange, governments and private owners must take an

16. Competition in the market could conceivably exist for water as with the other sectors such as telephone service and gas, yet the institutions required for handling such competition far exceed the scope of Brazil’s current capabilities.

17. Demsetz, Harold, *Why Regulate Utilities?* 11 J.L. & ECON. 55(1968).

18. THRAINN EGGERTSSON, *ECONOMIC BEHAVIOR AND INSTITUTIONS* 14-15 (1990).

active role in enforcement of exclusive property rights and contracts. Eggertsson states:

The enforcement of exclusive rights is usually undertaken by both individual owners and the state. Enforcement by the state of ownership rights increases the value of privately owned assets and constitutes one of the cornerstones of market exchange. In areas where the state does not help to enforce contracts. . . , high transaction costs usually limit or even prevent exchange.¹⁹

Transaction costs for water may be difficult or impossible to actually quantify and may only represent the unwillingness of a PSP to enter into a contract beset by too many uncertainties. In the context of water PSP, contract tenders that receive no bids may be indicative of high transaction costs created by unfavorable contracting conditions. Additionally, contracts receiving only a single bidder may also indicate high transaction costs associated with uncertainty in the institutional structure, particularly when the single bidder contract subsequently fails due to institutional shortcomings.

F. Transaction Costs in Public Private Partnerships

Increasingly, contract tenders attract only a single bidder or no bidders at all. Contracts secured by a single bidder often fail before the end of the contract period and of course contracts that receive no bids fail to achieve their purpose. Additionally, prospective PSPs from international conglomerates seem to be retrenching and seems to be extremely risk averse to even well-structured PPP in developing countries.²⁰ This dearth of bidders and subsequent failures of PSP in water may be explained by the prohibitively high transaction costs associated with contracting for water and sanitation services in countries with broad institutional problems that inhibit private investment.

The ability of the government and the PSP to enforce exclusive property rights, including performance of service, regulatory, and payment obligations, as manifested by contract depends largely on the legal and regulatory structure of the given country. When ambiguities or uncertainties in the legal and regulatory frameworks exist, transaction costs associated with PSP rise. Effective PSP, therefore, requires careful consideration of certain issues regarding delineation of property rights,

19. *Id.* at 35.

20. See Ada Karina Izaquirre and Catherine Hunt, *Private Water Projects: Investment Flows Up by 36 Percent in 2004*, PUBLIC POLICY FOR THE PRIVATE SECTOR, July 2005, at <http://truu.worldbank.org/Documents/PublicPolicyJournal/297Izaquirre.pdf> (last visited March 2, 2006).

including the respective monitoring and enforcement of contractual rights and obligations, substantially as follows:

Delineation of Property Rights

- Which sphere (public or private) maintains property rights over surface water, ground water, and reservoirs as relevant to a PSP contract?
- If public, which level of government maintains such rights?
- Who has the power to grant PSP contracts?
- What does the contract entail? What rights are conferred/reserved?
- If the existing SOE or water utility fails to achieve cost recovery, and therefore survives by means of government subsidy or subventions in some form, does that subsidy or subvention survive in favor of PSP? With what risk of annual budget constraints or appropriation risk or change of law?

Monitoring

- Does accurate information exist regarding the quantity, value, and condition of existing assets?
- Is there an agency responsible for monitoring PSP contracts? If so, at what level of government does such agency exist? Is there any potential conflict among spheres of government maintaining responsibility over surface water, groundwater, reservoirs, environment quality, potable water services, pricing and water quality standards, each as relevant to a PSP contract?
- Are the activities of the PSP contractor, existing SOE, and applicable government regulator sufficiently transparent?
- Do regulatory instruments exist that may inhibit property rights such as permitting, use restrictions, etc.?
- Who has the authority to set tariffs? What is the process for setting tariffs? Is the process sufficiently transparent that the government, PSP, consumers, and other stakeholders understand?

Enforcement of Ownership Rights

- How does the PSP contractor enforce its rights against the government? With consumers?
- What are the remedies for breach of the PSP contract? By government? By PSP?
- Is there a history of corruption? How dependable, independent, and strong is the assigned judiciary? Is there a

tradition of recognizing/rejecting international arbitration awards or other dispute resolution procedures?

- What are the laws regarding early termination? Renegotiation? Expropriation?

As stated, determining a dollar amount for transaction costs may be difficult or impossible. Yet recognizing institutions that encourage multiple bids and achieve successful PSP provides a model for those countries, such as Brazil, who seek PSP.

III. CHILE²¹

Four South American nations have actively pursued large-scale PSP in the water sector over the past decade—Chile, Argentina, Bolivia, and Brazil. Chile has enjoyed great success while Argentina and Bolivia have achieved, at best, limited success. Brazil, the most recent entrant into the PSP market, has experienced some initial setbacks and, like Argentina and Bolivia, only limited success. In order to achieve a more stable environment suitable for successful PSP, Brazil may benefit from a review of Chile's example and from seeking appropriate legal and regulatory reform.

In the first three quarters of the twentieth century, the water and sanitation services sector in Chile was controlled by a variety of different SOE government authorities. The governments assumed complete authority, leaving no administrative or financial autonomy to any public water company. This system provided limited coverage and poor performance. In 1977, to combat the inefficiencies and centralize the system, the National Sanitation Works Service (SENDOS) was created under the dictatorship of Augusto Pinochet.

A. Creation of National Sanitation Works Service – SENDOS

SENDOS created eleven regional agencies, in conjunction with the two existing state-owned companies—EMOS covering metropolitan Santiago, and ESVAl covering metropolitan Valparaiso—within Chile's first wave of reform. SENDOS, which operated under the Ministry of Public Works, regulated and operated the eleven regional companies and regulated the two state-owned companies. Specifically, SENDOS was responsible for "the planning, control, study, projection, construction,

21. Much of the information for the Chile section is discussed in: Terence R. Lee, *Improving the Management of Water Supply and Sanitation Services in Latin America*, ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN, at http://www.waterpage.com/ppp_debate_5_terence_lee.htm.

repair, conservation, exploitation, improvement, financing and management of water supply and sanitation works, and for the control, treatment and disposition of liquid industrial wastes, in both urban and rural areas.” The Ministry of Economics would set tariff rates for SENDOS, while the Ministry of Health regulated certain aspects of water and sanitation treatment and discharges into waters used for drinking and irrigation.

Throughout the 1980s, SENDOS successfully expanded water supply and sanitation services throughout Chile. By 1990, over 97 percent of the urban population was connected to potable water service and 80 percent to sanitary sewerage. The quantity issues, in terms of urban coverage, were solved. Water treatment and service to rural residents, however, remained a problem and, without financial autonomy to generate funds, the regional service providers’ hands were tied.

*B. A Second Wave of Reform:
Preparing for Private Sector Participation*

A second wave of institutional reform sought to access new capital and to address the lack of coverage extensions felt by Chile’s sprawling agrarian society. The reforms made by Chile over this time set the stage for PSP later in the 1990s and into the twenty-first century. As stated in Section 2, transaction costs associated with PSP will inhibit investment and may lead to failed contracts. Chile sought to decrease transaction costs by providing a structure that clearly defines the property rights, the monitoring procedures, and the enforcement process for PPP contracts. Reform of the water sector occurred in three fundamental steps:

1. Reform 1: Definition of Property Rights for
Water Resources and Water Services

A clear delineation of property rights for water resources has existed in Chile since the early days of the Pinochet regime. Under the Water Law of 1981, water rights are public property, but the government may grant private rights of use.²² Once water rights have been granted by the government, the rights are fully protected as private property rights by the Constitution and may be transferred, bought, sold, or mortgaged.²³ PSPs are

22. Joe Mentor, Jr., *Trading Water, Trading Places: Water Marketing in Chile and the Western United States*, Address Before the AWRA/IWLRI-University of Dundee International Specialty Conference (August 6-8, 2001), in *GLOBALIZATION AND WATER RESOURCES MANAGEMENT: THE CHANGING VALUE OF WATER*.

23. *Id.* at 4.

therefore secure in their purchase of water rights from the Chilean government or other rights holders.²⁴

Property rights associated with service provision also remain clear. Since the SENDOS era, regional companies have been granted service rights over a defined region by some form of concession arrangement.

2. Reform 2: Creation of Mechanisms for Monitoring and Enforcement

a. Water Resources and Water and Sanitation Services

In Chile, the most important water resources regulation affecting water and sanitation services is the granting of water rights. The General Water Directorate (DGA) controls the granting of water rights.²⁵ The DGA's other responsibilities include gathering hydrologic information and lists of users. The DGA has no regulatory power outside the issuance of water rights.

In the water and sanitation services sector, the reformed regulatory framework called for a new regulatory authority, Superintendencia de Servicios Sanitarios (SISS), for all providers, leading to the dissolution of SENDOS. SISS continues to be the primary regulatory body for water and sanitation services today. Under Law No. 18.902 (1990), the responsibilities of SISS include:²⁶ inspecting industries that provide potable water and sanitation services; interpreting and ensuring compliance with standards regarding potable water and sanitation services; developing technical standards regarding the design, construction and operation of potable water and sanitation services; controlling industries producing liquid waste; developing technical standards regarding discharge of liquid effluents; and imposing sanctions on potable water and sanitation service companies.

24. A debate does exist as to whether or not water rights transferred through a concession arrangement become the property of the private entity or whether the property rights remain with the economic and industrial development agency, *Corporación de Fomento de la Producción* (CORFO), as grantor of the concession on behalf of the national government. The question may be one of, what water rights actually transferred to PSP as part of the concession. If the private entity or PSP were not allowed to maintain any property rights in water, then the private water concessionaire would be treated differently than other citizens who may freely purchase water rights. Further, private concessionaires or PSPs might lose the incentive to purchase additional water rights and create more access to water, if indeed they were not allowed to own the water rights. However, this distinction has not deterred investment.

25. Mentor, *supra* note 23, at 4.

26. Canada-Chile Agreement on Environmental Cooperation, at http://can-chil.gc.ca/english/Resource/Reports/2003_enfrpt_annex2.cfm (last visited February 24, 2006).

b. Contract Regulation

SISS has several important functions as related to PSP or PPP. First, SISS monitors the bidding process and maintains the authority to void a bidding process for PSP in the water sector if the bidding rules are breached. By statute, SISS may revoke concession contracts in the event of breach by PSP. In at least one case, SISS has invoked its right of revocation for contractual breaches.²⁷ Most importantly, SISS has proven itself a credible and independent regulator.²⁸ The agency's responsibilities include enforcement and compliance with norms relative to water and sanitation services provision.²⁹

3. Reform 3: Rationalization of Water Tariffs

The third reform established a system of objectively fixed tariffs. Chile sought tariff adjustments to meet five objectives:³⁰ to signal PSPs or private investors that the government was committed to not expropriating their return-on-investment (ROI) through under-pricing, while at the same time reducing the chance of monopoly rents; to introduce appropriate incentives for water sector development; to motivate operators to minimize long-run average costs; to allow efficiency gains to be transferred to consumers by either reducing tariffs or increasing quality of output and services; and to reflect the true costs of output and service provision, and to provide incentives to consumers for water conservation.

SISS maintains responsibility to set tariffs for provision of output and services based on incremental costs, including the cost of capital.³¹ Disagreements between SISS and the concessionaire are resolved by a tripartite commission of experts. This dispute resolution mechanism and the tariff-setting process are transparent and encourage public input in a forum for presenting arguments by PSP concessionaires and SISS.³²

For low-income households, unable to pay the rationalized cost of water and sanitation services, the government has created a unique subsidy

27. SISS recently voided the bidding process for a concession in Region VIII. The concession was for services formerly provided by a private entity that lost its concession when SISS voided the contract for failure to perform contractual obligations. *Regulator Voids Region VIII Concession Process*, BUSINESS NEWS AMERICAS, July 2, 2004, at 1.

28. Anders E. Stenstedt, *Tapping the Private Water Concession*, MORRISON & FOERSTER LEGAL UPDATES & NEWS, (May 2002), at <http://mofo.com/news/general.cfm?ID'709.html> (last visited February 24, 2006).

29. Carlos A. Chavez & Miguel A Quiroga, *Regulatory Schemes for Water Provision in Theory and Practice*, Background Document Before the Second Meeting on Tariff Reform in Urban Water Sector Reform of the NIS (June 2-4, 2002), Moscow Russian Federation, at 11.

30. *Id.*

31. *See App.*, fig. 1.

32. *See Chavez, supra* note 29.

system.³³ First, individuals apply to their municipality for a subsidy. Municipalities, granted a certain amount of funding from the federal government, determine which households may receive a subsidy based on a score (determined by income and other factors such as no existing arrears). At the instruction of the municipality, the water services utility provides services to the selected individuals and transfers the designated subsidy portion of the invoice to the municipality. Usually, the municipality then passes the invoice up through the region and finally to the federal government. The federal government then reimburses the water services utility.

Finally, a pervasive element in all the reform concerns the timing. During the reforms, the Chilean government established a common body of legislation applicable to all services, whether provided by public or private companies. Public water companies operated under the same tariff guidelines and legal and regulatory framework as would a private operator. By 1996, all the regional companies were operating profitably, prior to PSP. The timing of reform presents a marked difference from the efforts of countries such as Bolivia which attempted to introduce increased tariffs and extensive institutional restructuring contemporaneously with the introduction of PSP.

*C. Successful Implementation of Private Sector Participation,
1999 – Present*

Over the last five years, all thirteen regional water utility companies have accessed PSP in some fashion. For EMOS and ESVAL, the water service utilities for Santiago/Metropolitan Region and Valparaiso/Region V,³⁴ respectively, PSP took the form of a sale of a controlling interest in the stock of the water utility company to a consortium of international operators and investors. In 1999, a simple majority of shares of ESVAL and EMOS, were sold by CORFO through a combination of one sale to a single private consortium, another sale to existing employees, and a third public sale of stock made on the Santiago Stock Exchange.³⁵ Through CORFO, the government retains a minority share not less than thirty five percent,³⁶ including a “golden share,” allowing the government to prevent any conveyance of company assets or termination of the concession without government approval. The remaining regions of Chile introduced PPP by

33. Andres Gomez-Lobo, *Making Water Affordable: Output Based Consumption Subsidies in Chile*, World Bank, at <http://rru.worldbank.org/Documents/Other/07ch2.pdf> (last visited February 24, 2006).

34. See App. for administrative procedures and decision tree for setting tariffs.

35. Stenstedt, *supra* note 28.

36. The government actually retains only 33.2 percent of ESVAL because the contract occurred before the law requiring a 35 percent share was passed. *Id.*

means of a concession contract in which the PSP assumed management and investment responsibilities for the water service utility company over a thirty year period, after which PSP will relinquish the assets back to CORFO. The concession form of PSP differs from the sale of stock in which the private entity maintains its share of the ownership in the company in perpetuity.

In 2004, the remaining concessions for Regions I, IX, and XII, sold to a single concessionaire, the Solari family from Chile.³⁷ Bids for these remaining state companies hovered around \$300 million, as at least twelve groups purchased pre-qualification rules in pursuit of the concessions.³⁸

IV. BOLIVIA AND ARGENTINA

A. Bolivia

Bolivia has used PSP for the water and sanitation services of two major metropolitan areas, La Paz/El Alto in 1997 and Cochabamba in 1998, in an effort to expand service and provide needed capital. In both cases, PSP was introduced by means of a (concession) contract, supported by the Superintendencia de Aguas, created in 1994 to act as a national regulatory body for the water sector, with responsibility for oversight of PSP.³⁹ The primary responsibilities of the national regulator are to grant and regulate water and sanitation concessions, monitor compliance with terms of the concession contracts (other than specific investments made by the concessionaire) and approve tariff revisions.⁴⁰

1. Cochabamba

While the PSP concession in La Paz/El Alto has succeeded on many accounts, Cochabamba represents a failed PPP for all parties involved. Although the citizens, the government, and the PSP, Aguas del Tunari, all disagree as to the causes of the failure, two indisputable facts arose from the contractual relationship. First, shortly after assuming operational control, Aguas del Tunari—a partnership of International Water (which itself is half owned by Bechtel Corporation), Abengoa of Spain, and four Bolivian

37. *Solari Family Registers New Water Utility Names*, BUSINESS NEWS AMERICAS, June 30, 2004.

38. *SEP: Remaining Water Utilities Attract 12 to Date*, BUSINESS NEWS AMERICAS, Feb. 11, 2004.

39. Kristin Komives and Penelope J. Brook Cowen, *Expanding Water and Sanitation Services to Low-Income Households: The Case of the La Paz-El Alto Concession*, PUBLIC POLICY FOR THE PRIVATE SECTOR, April 1998, at <http://rru.worldbank.org/Documents/PublicPolicyJournal/178komiv.pdf> (last visited February 24, 2006).

40. *Id.*

companies—faced public protest that turned into armed conflict leaving one civilian dead. Second, the contract for a forty-year concession lasted less than a year.

Many share the view that tariff increases introduced initially after Aguas del Tunari took control were much too high. Anecdotal evidence collected during the protests suggests that some users received bills for 100 to 200 percent tariff increases⁴¹ after Aguas del Tunari took ownership. Further, the concession contract negotiations were shrouded in secrecy and did not allow for public comment. Finally, a law passed contemporaneously with the institution of Aguas del Tunari as concessionaire appeared to divest farmers of centuries old water rights to the aquifer. Some protestors demanded nullification of Aguas del Tunari's concession as well as changes to the new water and sanitation law (Law 2029).⁴² The confluence of events, in the eyes of many, led to the protests, eventual conflict, and finally left a continuing legacy that feeds opponents of PSP in water.⁴³

Bechtel disputes each of the allegations.⁴⁴ While water tariffs increased across the board as directed by the government in its preparation for concession arrangement, the greatest increases were for industrial users (106 percent). The poorest segment of Cochabamba only saw a 10 percent rate increase. Bechtel claims that if water bills doubled or tripled for poor users, this would have been due to increased consumption more so than increased rates. Further, Bechtel asserts that it implored the Bolivian government to issue advertisements educating the public on the impending increases, which the government failed to do. Finally, the law restricting use to the aquifer, Bechtel argues, had nothing to do with them and in any event was misperceived. The law affected only new wells drilled and not existing water rights for farmers. Bechtel believes that in part, the protests were funded by certain of the wealthiest water users, particularly narco-traffickers, to protect their water-intensive interests.

41. The author quotes a monthly charge for water, while Aguas de Tunari suggests the tariff rate was based on a unit price for water consumed. Therefore, it is unclear from the author's description whether he contends the rate actually increased or whether the final monthly total increased (meaning, possibly, the people were just using more water). Jim Schultz, *Bolivia's War on Water*, THE DEMOCRACY CENTER, Feb. 4, 2000, at <http://www.democracycctr.org/newsletter/vol31.htm> (last visited February 24, 2006).

42. Nina Laurie and Carlos Crespo, *An Examination of Changing Contexts for Developing Pro-Poor Water Initiatives via Concession*, PRINWASS (Dec. 2004).

43. See Peter Cook, Maude Barlow, and Sara Ehrhardt, *A Debate on Water Privatization in Three Parts*, GRIST MAGAZINE, July 9, 2004, available at <http://www.gristmagazine.org/soapbox/cook070904.asp> (last visited February 24, 2006).

44. *Cochabamba and the Aguas del Tunari Consortium*, (2005) at http://bechtel.com/pdf/cochabambafacts_0305.pdf (last visited February 24, 2006).

2. La Paz/El Alto

The La Paz/El Alto concession provides exclusive service rights to the Aguas del Illimani consortium (headed by Ondeo) for thirty years beginning in 1997. The primary objective of the concession was to expand services to low-income households while holding down costs by increasing efficiency.⁴⁵ In 1997, 87 percent of the service area had in-house water connections and 48 percent had sewer connections.⁴⁶ The concession contract called for universal water coverage in both areas by 2001 as well as 90 percent sewer coverage in El Alto and 95 percent sewer coverage in La Paz by 2021. Just prior to the execution of the concession contract, the regulator introduced an increasing block tariff structure and an average 38.5 percent tariff increase for the service area.⁴⁷ The tariff currently is indexed to the U.S. dollar. While tariff increases have met with opposition and minor protest, the concession has so far functioned smoothly. As of January 2004, the company provides potable water coverage to 100 percent in both regions while sewerage coverage in La Paz is 91 percent and 60.5 percent in El Alto.⁴⁸

3. Analysis

The two examples from Bolivia show the widely different results that can occur in PSP from a substantially similar institutional framework. In both instances the initial tariff increase was between 35 and 38.5 percent.⁴⁹ The increases in La Paz/El Alto, however, occurred prior to the concession taking force, whereas in Cochabamba the increases occurred simultaneously with the start of the concession period. In both cases, PSP was brought in by governments seeking assistance for increasing tariffs to expand coverage and to more accurately reflect the cost of delivering water and sanitation services. This component of reform ensures that water service utilities operate economically, but the social and political aspects of such reform cannot be delegated solely to PSP. Government must remain in control of water tariffs as well as guiding public perception to the extent possible. In a world that is already leery of PSP in water, and with opponents ready to pounce on any misstep, tariff increases must remain as the government's responsibility, introduced slowly and preferably before the concession period starts and ideally in accompaniment with noted improvements in the utility services. Further, the lead-up to PSP demands transparency and dialogue among stakeholders from an early stage, beginning with the

45. Komives, *supra* note 39.

46. *Id.*

47. *Id.*

48. *Fitch Upgrades Illimani to A-*, BUSINESS NEWS AMERICAS, Jan. 28, 2004.

49. *Supra* note 44.

process of discussing, approving, soliciting, and executing concession contracts, and continuing through tariff setting and adjustment determinations. In Cochabamba, the tariff structure changed significantly and immediately, in a seemingly non-transparent fashion. The stakeholder population, fueled by the opposition that distrusted PSP from the beginning, reacted with armed protest despite later efforts to ameliorate their concerns.

Finally, the rescission of the contract by the government of Cochabamba following the protests indicates the weakness of the regulatory structure. In Chile, the regulator evaluates bids for concession contracts in an open and transparent process, sets tariffs according to a set procedure, provides a forum for renegotiation in the event of changed circumstances, and holds a tribunal for the enforcement of the conditions of the concession contracts. In cases of material breach, the Chilean regulator can rescind a concession contract. In Cochabamba, the bidding process consisted of secret meetings between the government and the concessionaire. The tariffs were changed without revealing the rationale. Renegotiation and dispute resolution were never pursued because no adequate body had been established to hear the argument. The government merely rescinded the contract and now faces a \$25 million suit for the four months of service Aguas del Tunari provided.

Cochabamba remains in financial disarray. Recently, the city government assumed responsibility for a \$2.2 million debt to the Andean Development Corporation that the municipal water company (SEMAPA) incurred and remains unable to repay.⁵⁰ Company creditors have sought repayment of loans from a Brazilian construction company and concessionaire (EMSA), the municipal sanitation department, which will likely lead EMSA into bankruptcy.⁵¹ The water sector desperately requires an infusion of funds, but because of the recent experience of Aguas del Tunari, private investors remain reluctant.

B. Argentina

Argentina has a long history of political centralization. In the late 1980s, in response to high inflation, poor service and increasing poverty, Argentina sought PSP in many of the state-owned utilities. A privatization program was introduced with two main objectives:⁵² (1) reduce the fiscal deficit by eliminating subsidies to inefficient state companies and by

50. *City Authorities to Pay Off Semapa Debt*, BUSINESS NEWS AMERICAS, June 16, 2004.

51. *Emsa Fights to Stave Off Bankruptcy*, BUSINESS NEWS AMERICAS, June 21, 2004.

52. Andrew Nickson, *Building Municipal Capacity for Private Sector Participation: The Cordoba Water Concession in Argentina*, GHK INTERNATIONAL (Jan. 2001), at <http://www.idd.bham.ac.uk/research/publications/Staff/cordoba.pdf> (last visited February 24, 2006).

increasing revenues through the direct sale of assets and tax receipts from newly privatized companies; and (2) improve the quality of basic service provision by generating new investment and introducing new technology.

The move toward PSP occurred in two stages. The first stage (1989-1992) sought PSP in the telecommunications and civil aviation sectors. The primary goal was to introduce private investment to overcome poor service. The objectives were not achieved, however, for several reasons. The state negotiated badly, suffering from corruption, lack of transparency, failing to ensure competition or to enforce contract compliance, and missing the key pre-condition to successful PSP by failing to establish an adequate regulatory mechanism prior to sell-off.⁵³

The second stage (1992-present) witnessed improvement in the negotiating capacity of the state, evidenced by the establishment of regulatory frameworks prior to sell-off in the case of gas, electricity, and water.⁵⁴ Yet recently, public dissatisfaction with both PSP and public regulators has increased in all sectors, particularly after the 10-day blackout that occurred in Buenos Aires in 1999 and given the national financial crisis.

In 2000, the Partido Radical government took control of the federal government and promised increased reliability from both PSP and regulators. The incoming government sought to clamp down on the perceived abuses of monopolistic service providers and increase the strength and legitimacy of the public regulators in all sectors of public works.⁵⁵

During this extended period of experimentation with PSP and PPP in the water sector, Argentina has achieved a modicum of success with signed concession contracts for at least five provinces and two major metropolitan areas, but continues to struggle with a proper implementation. Despite the ubiquitous sentiment of failure throughout Argentina, the concession contracts for the metropolitan regions of Buenos Aires and Cordoba, as well as the concession for the province of Tucumán, provide useful examples of certain institutional strengths represented by Argentina's water and sanitation sector.

1. Buenos Aires

In May 1993, Aguas Argentinas, a consortium headed by Suez (now "Ondeo"), signed a 30-year concession contract for the water and sanitation services within the metropolitan area of Buenos Aires. A regulatory body, ETOSS, was created to (a) enforce compliance with the terms of the concession contract, (b) monitor the five-year investment plans, (c)

53. *Id.*

54. *Id.*

55. *Id.*

determine service provisions, and (d) investigate customer complaints. ETOSS is partly financed by a 2.7 percent tax on the consumers' water bills as invoiced and collected by Aguas Argentinas.

Since its inception, the contract has been renegotiated several times. The renegotiations have led the government to consider rescinding the contract. The government has also levied fines against Aguas Argentinas for failures to meet provisions of the contract. Ondeo brought an action before the Centre for the Settlement of Investment Disputes (ICSID) alleging 27 counts of malfeasance by the government. Currently, the ICSID arbitration is on hold.

The outcomes of the contract are varied, while the political and economic climate of Argentina continues to present institutional challenges for PSP of all types.⁵⁶ Most agree progress has been made in Argentina's water sector during the years of this experiment with PSP and PPP, yet critics will argue that most of the gains disproportionately benefit high and middle-income users who were already connected to the network at the beginning of the PSP concession. Also, the several renegotiations have created significant public disillusionment with PSP. Many stakeholders think Ondeo is using its leverage to alter a seemingly binding contract. Further, lack of transparency and pervasive corruption continues to weaken the institution of the regulator and raises concerns about future attempts at PSP. Finally, an information gap has led to problems since the beginning of this PSP concession. Much of the information concerning the condition of the current system, should have been obtained from the outset and made public and available to any interested PSP bidder.

In a positive sense, the sector has seen a dramatic increase in investment. The majority of this investment has gone toward house connections from funds in the concessionaire's regular expansion program. Also, while the public views the renegotiations with some hostility, the renegotiations have created a more vocal and informed society, in each case, building capacity and a certain transparency in regulatory proceedings. Finally, in spite of the problems, Ondeo has responded to public service needs much better than the former public utility.

2. Tucumán

Vivendi (formerly Compagnie Générale des Eaux) and the provincial government of Tucumán signed a thirty-year concession contract in 1995. At the time of contracting, both the provincial and national governments

56. Claude Crampes and Antonio Estache, *Regulating Water Concessions: Lessons from the Buenos Aires Concession*, PUBLIC POLICY FOR THE PRIVATE SECTOR, at http://rru.worldbank.org/Documents/PublicPolicy_Journal/091crampes.pdf (last visited February 24, 2006).

were led by the Peronist party. Soon after the award of the contract, the provincial government changed to Radical Party leadership.

Only a couple months into the arrangement, Vivendi doubled water tariffs as contemplated by the terms of the concession contract. Reportedly, the service level did not increase and the water turned “inexplicably brown.”⁵⁷ In response, eighty percent of the public refused to pay their bills. The Radical Party government, opposed to PSP from the outset, responded to public discontent by canceling the contract in 1998, leading to protests where people chanted “Take Water; Break Meter.” Vivendi filed suit for \$100 million.

Several factors have been attributed to the failure of this concession contract in Tucumán:⁵⁸ an unrealistic investment plan, lack of political continuity, insufficient political dialogue failing to reach any broad political and social consensus, weakness of the regulator on account of continuing political dependence and insufficient transparency, lack of precise details regarding termination of the contract, and finally the cost of private capital aggravated by a dramatic devaluation of local currency.

3. Córdoba

In 1997, the provincial government of Córdoba signed a concession contract with Aguas Cordobesas, a consortium headed by Vivendi, for the provision of potable water services (sanitation was not included) for the metropolitan area of Córdoba. Although the contract called for service only within the boundaries of the municipality of Córdoba, the municipality itself had no say in the contract. Notwithstanding such a seemingly fatal flaw, currently the agreement has successfully attained the incremental goals set in the contract. Córdoba’s unexpected success derives in great part from the government’s reform measures in anticipation of PSP.⁵⁹

The 1987 provincial constitution granted the municipality of Córdoba a high degree of autonomy in an effort to promote decentralization. Between 1987 and 1993, the province gradually relinquished the authority to own, manage, and operate several utilities including sanitation services. Potable water service, however, has remained wholly within the authority of the provincial government. Hence, while the contract covers the service area of the municipality only, the provincial government was the relevant granting authority, without input from the municipal government of Córdoba.

57. Jenny Piaget, *Limits in Water Concession Contracts: The Case of Aguas del Aconquija (Argentina)*, UNIVERSITE DE LAUSANNE ECOLE DES HAUTES COMMERCIALES (April 2003), at <http://www.hec.unil.ch/iumi/iumi/WP/0302.pdf> (last visited February 24, 2006).

58. *Id.*

59. Nickson, *supra* note 52.

As the federal government tightened its regulatory grip on the water sector at a national level in the wake of the Buenos Aires blackout, and following the election of the Radical Party to federal office, the province of Córdoba also strengthened its regulatory measures under Peronist Governor, Jose Manuel de la Soto.⁶⁰ The provincial Secretariat for Control and Management of Contracts took responsibility for regulation of the water supply system, which was previously regulated by the Water and Sanitation Department.

Further, the provincial government created a multi-sector regulatory agency, the *Ente de Servicios Públicos* (ERSEP). ERSEP consists of six members—three appointed by the governing party, two by the minority party, and one elected by consumers. The funding from ERSEP comes from a 1.5 percent levy on water tariffs (compared to 0.67 percent levy in Buenos Aires to fund ETOSS) and fines imposed by the body. ERSEP, from all indications, functions as both the regulatory body in the water sector as well as an enforcer of concession contracts.

Aguas Cordobesas has so far performed well as concessionaire, yet two potential problems loom.⁶¹ First, Aguas Cordobesas has sought relief totaling \$2 million from consumers not paying their water bills. The non-payment evidently does not stem from inability to pay, but rather a long-standing and widespread practice of nonpayment of utility bills across the spectrum. Second, some provisions of the concession contract, including an obligation of the concessionaire to achieve 97 percent coverage rate, are due by the end of the contract in 2026. Some are concerned that Aguas Cordobesas will “backload” some investments until the end of the concession period, which would cause delays in providing service to some of the population.

4. Analysis

Argentina has experienced more success with PSP in water and sanitation than Bolivia primarily because more of the necessary reform procedures were followed. Although Argentina has enjoyed more success, Buenos Aires and Tucumán exhibit the potential shortcomings of Argentina’s institutional structure. The primary problems in Argentina have been the role and relative strength of the regulator.

The constant renegotiations of the Buenos Aires concession may be viewed as a success or a failure of the institutional structure. Concession contracts typically span twenty to forty years. In that time, circumstances could conceivably change, beyond mere fluctuations in the market or other anticipated events, such that the contract does not have the same value for

60. *Id.*

61. *Id.*

the parties. In order to create a mutually beneficial and secure contract, both the government and the concessionaire will try to anticipate potential problems and create contractual mechanisms to ensure a remedy. When the changed circumstances are not foreseen or perhaps not foreseeable, the renegotiation of the contract provides a means for providing value to both parties.

Conversely, renegotiation may indicate a failure of the institutional structure. Theoretically, PPP contracts are entered into between sophisticated parties capable of negotiating the terms of the agreement and anticipating future changes. Ideally, a party should not alter the terms of the contract after its inception.

Renegotiation attempts are inevitable at some point within a multi-decade concession contract. More important, the institutional framework should support such renegotiations by providing an independent regulator with sufficient power to determine which renegotiations stem from changed circumstances and which renegotiations are based on coercion. In Buenos Aires, the public feels strongly that Ondeo is using its greater power to muscle the government into untenable revisions to the contract. Ondeo asserts that the devaluation of Argentina's currency and incorrect information provided during the negotiations created significantly different circumstances that devalued the contract. So far, ETOSS has not displayed the strength or credibility to decide the dispute. Thus, the renegotiations continue, resentment increases, and Buenos Aires approaches dangerously near a failed concession.

The failure of the Tucumán concession occurred largely because of the poor water quality delivered by the concessionaire. Yet, Tucumán presents another regulatory shortfall. Tariff increases remained within the power of the concessionaire and when tariffs were rationalized, the concessionaire was accused of profiteering. This situation indicates a problem with the timing of PSP. As with Cochabamba, the public in Tucumán was outraged by the introduction of rationalized tariffs by the private provider. The Chilean PSP experience shows that PSP operates well when reforms such as tariff rationalization occur before the introduction of the concessionaire.

V. BRAZIL'S WATER AND SANITATION HISTORY

Legislation defining the institutional framework of the water sector in Brazil has developed significantly during the past four decades, with innovative legislative efforts frustrated by legal and political wrangling among three sectors of government—national, state, and municipal. In response to scarcity and pollution concerns created by rapid urbanization in the late 1960s, Brazil began structuring the water and sanitation sector at a

national level.⁶² The National Water and Sanitation Supply Plan (Planasa), created in 1968 under the management of the National Housing Bank (BNH), encouraged the creation of State Water and Sanitation Companies (CESBs) by offering favorable loans to the states from the Employment Guarantee Fund (FGTS). To qualify for FGTS loans, states were required to obtain long-term concession contracts with municipalities and to acquire water and sanitation service rights originally granted by the Brazilian Constitution to municipalities.⁶³

Planasa was based on the following noteworthy guidelines:⁶⁴ (i) extending service to all urban centers and income groups while maintaining the balance between supply and demand through continuous planning and management; (ii) self-financing Individual State Water and Sewerage Funds (FAEs) through transfers from the FGTS and federal and state budgets; (iii) setting tariffs that allow balance of revenues and expenditures while permitting cross-subsidies between high- and low-income users; (iv) managing CESBs with a business-oriented philosophy; (v) establishing the federal government as manager of National Water and Sanitation Policy; and (vi) devising global feasibility studies at the state level.

Planasa proved highly successful over its twenty years of operation, from roughly 1970 to 1990.⁶⁵ In that span, the percentage of water service coverage for urban residents increased from 45 to 85 percent.⁶⁶ Correspondingly, sanitary sewage coverage increased from 24 to 42 percent in urban centers.⁶⁷ In 1988, however, financial difficulties prompted the dissolution of BNH whose functions were absorbed by the Caixa Econômica Federal (CEF),⁶⁸ thus ending the successful implementation of Planasa.

Several factors ultimately led to the failure of Planasa, yet the most serious were within the CESBs themselves as accentuated by a weak

62. Marta T.S. Arreteche, *Water Supply and Sanitation*, BRAZIL IN FOCUS: DEPARTMENT OF THE NATIONAL WATER RESOURCES SECRETARIAT (2004), at <http://www.mre.gov.br/cdbrazil/itamaraty/web/ingles/economia/saneam/apresent/apresent.htm> (last visited February 24, 2006).

63. *Id.*

64. Antonio C. Parlato, *Privatization of the Water Utility Sector in Brazil*, PRIVATIZATION IN BRAZIL: THE CASE OF PUBLIC UTILITIES – ESSAY 8 (1999), at <http://www.bndes.gov.br/english/studies.asp> (last visited February 24, 2006).

65. David Shaman, *Brazil's Pollution Regulatory Structure and Background*, NEW IDEAS IN PUBLIC REGULATION, Sept. 9, 1996, at www.worldbank.org/nipr/brazil/braz-over.htm (last visited February 24, 2006).

66. *Id.*

67. *Id.*

68. Vinicius B. Rodrigues, *Housing Finance Market in Brazil and the Necessity of Reform*, THE GEORGE WASHINGTON UNIVERSITY: THE INSTITUTE OF BRAZILIAN BUSINESS AND PUBLIC MANAGEMENT ISSUES (Spring 2000), available at <http://www.gwu.edu/~ibi/minerva/Spring2000/Rodrigues.pdf> (last visited February 24, 2006).

regulatory scheme unable to support the bold intentions of Planasa. Soaring debts, unrealistic tariffs, an inability to develop and sustain high standards of performance, low productivity, and the high costs associated with political interference as well as the lack of transparency doomed the majority of CESBs.⁶⁹

The demise of Planasa led to a fragmentation among service providers and a diffusion of the national water policy.⁷⁰ This further aggravated the inherent legal and institutional conflicts that were only temporarily resolved by the FGTS loan arrangements. During Planasa, each state and the Federal District created a CESB and signed concession contracts with nearly 80 percent of the municipalities.⁷¹ After Planasa, and without any strong guidance from a national water policy, states took many different approaches to financing the operations of the CESBs. The state of Rio Grande do Sul shored up the operations of its CESB through the state treasury and created a participatory budget system in which all stakeholders vote on the expenditures of the CESB. Similarly, São Paulo elected to continue providing service through its CESB, SABESP, and reinvesting to improve the system—leading to a successful flotation of SABESP stock on the New York Stock Exchange. In Mato Grosso, the state government elected to return the service operations to the municipalities through a series of three contracts, with the intention of eliminating the CESB entirely. Still other states, such as Paraná and Tocantins, turned to PSP and private investments to continue operation through the sale of assets held by the CESB. Further, states such as Rio Grande do Norte, Bahia, and Rio de Janeiro sought PSP through concession contracts. The smaller and less prominent states continue operations today with funding assistance from the federal government, federal banks such as CEF and BNDES, along with grants and on-lending of national debt made available from international agencies such as the World Bank.

Additionally, municipalities that did not assign their rights under Planasa chose among four different courses.⁷² Some continued operating their facilities autonomously while others received service from micro-regional water agencies. Poorer municipalities, particularly in the Northeast, retained partial autonomy with federal assistance through the Health Ministry. Finally, some municipalities, particularly in São Paulo and Rio de Janeiro, signed concession contracts and continue to seek the benefits of PSP, although with dramatically different levels of success.

69. Parlatore, *supra* note 64.

70. See *infra* App.: Flowchart of Water and Sanitation Authority, 1968-Present.

71. Parlatore, *supra* note 64.

72. *Id.*

Despite the lack of clear legal authority and often in spite of existing laws, several of Brazil's states and municipalities have pursued various forms of PSP for water and sanitation services. The states of Rio de Janeiro and Espirito Santo have both failed in their attempt to sell the assets and sub-grant the operational rights of their water and sanitation services to private operators.⁷³ On a smaller scale, municipalities such as Manaus have entered into seemingly successful PPPs, while other municipalities such as Petrolina have had PSP attempts fail. Overall, private investment in Brazil's water and sanitation services has not nearly achieved the goals of the national government and existing arrangements continue to suffer from the uncertainty created by the prospect of future litigation. The following section analyzes PSP attempts, successes, and failures throughout Brazil, highlighting areas of weakness in Brazil's institutional framework.

VI. BRAZIL'S CURRENT INSTITUTIONAL STRUCTURE

As with Bolivia, Argentina and Chile, Brazil seeks PSP after years of government control in water and sanitation services. Unfortunately, Brazil has sought PSP in much the same manner as Bolivia and Argentina and thus far finds the same limited success. Comparing the current state of Brazil's water and sanitation institutional framework to Chile after the three fundamental reforms lends insight into the deficiencies deterring PSP.

A. Definition of Property Rights for Water Resources and Water Services

1. Water Resources

Brazil's legal history is one of constant flux. Since its independence in 1822, the Brazilian government has authored seven constitutions, culminating with the 1988 effort.⁷⁴ Unlike the Chilean system of private water rights, the 1988 Federal Constitution shifted the ownership of Brazil's surface and ground water from the private to the public domain.⁷⁵ Generally, surface water running between two states, creating a border with another country or entering from or departing into another country is

73. See Infrastructure Briefing (Mar. 1998), at http://www.bndes.gov.br/english/studies/98_026f.pdf (last visited Feb. 22, 2006).

74. BRAZIL INDEX, INTERNATIONAL CONSTITUTIONAL LAW (translated in A. Tschentscher ed.), at http://www.oefre.unibe.ch/law/icl/br__indx.html (last visited Feb. 22, 2006).

75. Prior to the 1988 Constitution, the ownership of water was governed by the 1934 Water Code. Some of that Code is still in force today. See A. Magrini et al., *Environmental Management of Watersheds in Brazil: A New Approach to Environmental and Water Resources Management*, ENERGY PLANNING PROGRAM/COPPE, at <http://www.ivig.coppe.ufrj.br/doc/magewm.pdf> (last visited Feb. 22, 2006).

considered federal water.⁷⁶ The remaining surface water is property of the state in which the water resides.⁷⁷ Finally, according to the Constitution, all groundwater is the property of the state in which the groundwater resides. The Guaraní Aquifer, among the world's largest aquifers, appears, however, to be an exception. Spanning the southern portion of Brazil and parts of Uruguay, Paraguay and Argentina, the Guaraní Aquifer will have its use restricted by an international treaty prepared among the nations.

The Federal Constitution also defined legislative power for the three levels of government—Federal, State and Municipalities—leaving some power and responsibility shared among the three.⁷⁸ Generally, the federal government has the sole power to legislate on waters, unless a supplementary law is created authorizing the states to legislate on specific questions.⁷⁹ The appendix shows the pertinent property rights and legislative power described in the 1988 Constitution for each level of government regarding water resources management and water and sanitation services.

The transfer of ownership from the private to the public sphere in 1988 had little to no effect. The federal and state governments did not curtail the use of its water at that time. The ramifications of this change will likely be felt in the future, if and when Brazil elects to enforce its rights as owner and deny or restrict use of water resources.

Another future problem faced by Brazil regards ownership of the aquifer. The management and planning of surface water occurs at the river basin level. River basin boundaries are determined by topographic crests and aquifer limits are set by high groundwater flow potential. Because these limits never coincide, accepting river basins as a territorial unit would not function well for determining rights to aquifer water. A potential tragedy of the commons problem exists with regard to aquifer resources.

2. Permits

Although water resources remain within the public domain, users may obtain water permits for use of the public resources as detailed in Federal Law 9,433. Specifically, permits should affect facilities for water abstraction and effluent discharge. The following uses require a water use permit:⁸⁰ diversion or impoundment of water from a body of water for final consumption, including public water supply or use in a production process; extraction of water from aquifers for final consumption or for use in a

76. C.F. art. 20 (Braz. 1998).

77. *Id.* at art. 26.

78. See *Id.* at arts. 20, 21, 22, 23, 24, 26, & 30.

79. *Id.* at art. 22.

80. *Id.* at art. 12.

production process; discharge of treated or untreated sewage or other liquid or gaseous waste into a body of water with the objective of diluting it, transporting it, or disposing of it; use of hydropower potential; and other uses that affect flow, quantity, or quality of water existing in a body of water.

The following uses do not require a permit: use of resources for small population groups scattered in rural areas; diversions, catchments or discharges that are considered insignificant; impoundments (reservoirs) considered insignificant.

The relevant permitting authority depends on the domain of the water body, with the federal government authorizing permits for federal waters and international aquifers, while state governments permit the remaining surface and ground waters. In order to preserve the public nature of water and the water permit system, Federal Law 9,433 asserts that the water permitting system cannot be delegated to any institution outside of the government and emphasizes that water permitting does not represent alienation of the water. Thus, water remains an inalienable public good, with a permit representing only the right to use the water.⁸¹

Further, the permit period may not last longer than 35 years⁸² and may be revoked early for several reasons:⁸³ violation of the terms of the permit as provided by the granting authority, failure to use the permitted water for three years, pressing need for the water in a disaster situation, need to prevent or reverse serious environmental damage, need to address priority uses for which no alternative is available, and the need to maintain the navigability of the water.

As stated above, the government has not inhibited the use of its water resources. The permitting program would remain highly relevant for any PSP looking to operate a water facility withdrawing surface or groundwater, or releasing treated or untreated waste effluent into such waters. Theoretically, a PSP would need to acquire a permit for the length of time of the contract or receive adequate assurances that permitting in the future would not be a problem. This feature of Brazilian law increases transaction costs in PSP or PPP arrangements, particularly when the permitting authority exercises its authority inconsistently.

3. Water and Sanitation Services

The right to provide water and sanitation services, and thus the power to sign concession contracts with PSP, remains a hotbed of debate between states and municipalities. Article 30 of the Federal Constitution allows

81. C.F. art. 18 (Braz. 1998).

82. *Id.* at art. 16.

83. *Id.* at art. 15.

municipalities to legislate on matters of “local interest,” and to “organize and provide, directly or by concession or permit, the public services of local interest.”⁸⁴ Throughout the Planasa era, states were technically required to sign concession contracts with those municipalities that would receive service from the state company. While states and municipalities often did sign such agreements, some states provided service to the municipalities without explicitly receiving the authority. Additionally, during Planasa, states provided fifty percent of the capital outlay for the creation of the water and sanitation infrastructure. States believe the service rights belong to the state company because the law is ambiguous and the state companies either explicitly or implicitly were assigned the rights to control the service during Planasa.

The experiences of the states of Bahia and Rio de Janeiro demonstrate the effects unclear property rights have over water and sanitation services in PSP.

4. Bahia

In Bahia, the state government attempted to define legal authority over water and sanitation services at the state level to encourage a PPP for the state water company EMBASA.⁸⁵ In 1999, the government altered one third of the articles of the state constitution without discussion in the state legislative assembly. Among the modifications was the transfer of the ownership of services from the municipality to the state. The Workers’ Union filed suit in the Federal Supreme Court claiming the Federal Constitution granted the rights to municipalities. The court has not issued a final decision. The federal government has pressured the municipalities through EMBASA to accept the changes. Meanwhile, Suez has expressed interest in purchasing EMBASA, yet the PPP cannot move forward until the constitutional issue is decided.⁸⁶

5. Rio de Janeiro

Rio de Janeiro has faced similar problems as Bahia in attempting to define the legal authority over water services within the state. In 1995, Rio de Janeiro became the first state to create a privatization program in an effort to privatize twenty-six of its state owned companies, including the

84. *Id.* at art. 30.

85. Abelardo do Oliveira Filho, *Brazil: Struggle Against the Privatization of Water*, Remarks at the Interamerican Water Conference (2002), available at <http://www.fnucut.org.br> (last visited Feb. 22, 2006).

86. *Quarterly Report on Water Industry Developments in Latin America*, MORRISON AND FOERSTER LEGAL UPDATES AND NEWS (Sep. 2001).

state water company, CEDAE.⁸⁷ The state assembly passed legislation⁸⁸ to create a regulatory authority (ASEP-RJ) for public services. PSP, however, has been slow in coming.

In the second half of 1996, the state put out to tender water and sewage concessions for the municipalities of Barra da Tijuca, Recreio, and Jacarepaguá. The tendering process was halted due to modifications in the tendering documents made by the state. Subsequently, the state decided to tender CEDAE in its entirety.

Meanwhile, the local authority in the municipality of Campos declared that its concession with the state had expired and successfully launched a tender for the concession of its services to a consortium including Águas do Paraíba. CEDAE successfully sued to prevent the municipality from entering into a PSP.

On December 16, 1997, the state assembly approved Complementary State Law No. 87, creating the Metropolitan Region of Rio de Janeiro and micro-region of Lagos, and defining services of public interest in these areas, including basic sanitation, water production and distribution. The law further gave the state government authority over these services. The Democratic Workers' Party appealed to the Federal Supreme Court to suspend Complementary State Law No. 87 and Ordinary Law No. 2,869, which regulated No. 87, on constitutional grounds.

On February 3, 1998, the public hearing for structuring the sale of CEDAE took place. The parties agreed to sell a single lot of 89.9 percent of the company's share capital to a new owner, with 10 percent offered to employees at a 30 percent discount from the determined sale price. In response, the local authority of the municipality of Rio de Janeiro advertised that it would take judicial action if the sale of CEDAE went through without its participation in the process. The local authority asserted that Law No. 87 was unconstitutional. Further, the local authority of Niterói published an advertisement indicating CEDAE did not own the relevant operating assets within Niterói's concession area and that the local sanitation company, EMUSA, had already tendered a concession for the area's sanitation service to a consortium, Águas de Niterói. At that time, the concession granting CEDAE's authority over Niterói's sanitation services had expired.

The litigation between the state and the municipalities currently sits in the Supreme Court. As a civil law nation, though, *stare decisis* does not exist and the results of the cases will not create precedent.

The Brazilian government needs to determine and legally define which level of government should have the property rights to water and sanitation

87. Infrastructure Briefing, *supra* note 73.

88. Lei No. 2.686, de 13 de Fevereiro de 1997, D.O.E.R.J. de 14.02.1997 (Brazil), available at <http://www.asep.rj.gov.br/documentos/legislacoes/2686-97.pdf> (last visited Feb. 22, 2006).

services. This question is crucial in determining which level has the power to grant concessions and receive the proceeds of initial outlays by private investors in water and sanitation services. While lawsuits have prevented PPP attempts by both municipalities and states, the states stand to lose the most as their contracts with municipalities continue to expire and wealthier municipalities have engaged in successful PPP contracts. The federal government needs to weigh the competing interests to decide which level of authority would best ensure universal access to services.

B. Creation of Mechanisms for Monitoring and Enforcement

Federal Law 9,433 created regulatory mechanisms for managing water resources.⁸⁹ The chosen regulatory tools are water resources plans, designated uses, charges, permits, and a comprehensive information system. The permitting process is described above. While these regulations indirectly affect water and sanitation services, specific mechanisms for water and sanitation services, including tariff setting, monitoring performance, and providing a forum for adjudication only partially exist or do not exist at all.

1. Water Resources

a. Water Resources Plans

Water resources plans are meant to define action at the river basin, state, or federal level and provide a basis and orientation for the management of water resources, and the implementation of the National Water Resources Policy.⁹⁰ The plans are created at the national, state, and river basin levels. Each plan should include the following: diagnosis of current status of water resources; analysis of alternatives for population growth, evolution of economic activities and changes in land-use patterns; considerations on future supply and demand of water, both quantity and quality; identification of potential areas of conflict; defining targets for rationalizing use, increasing needs of water, improvement of quality of water available; specifying actions to be taken, programs to be developed, and projects to be implemented to achieve the targets; proposing areas which should be subjected to restrictions of water; and defining priorities for water permits and guidelines or criteria for water charges.⁹¹

89. Lei No. 9.433, de 8 de Janeiro 1997, D.O.U. de 09.01.1997 (Brazil), *available at* http://www.brasilemb.org/environment/water_policy.shtml (last visited Feb. 22, 2006).

90. *Id.*

91. *Id.*

Since plans define targets and priorities for water resources, new treatment plants or water abstraction facilities will fall under the purview of the plans.

b. Designated Uses

Federal Law 9,433 draws on a previous law which requires the classification of water bodies according to designated uses. Resolution No. 20 (1986), of Environmental National Council (CONAMA) classifies bodies of water in eight different classes.⁹² Classifications are applicable to ground and surface water.⁹³ According to Federal Law 9,433, classification of water bodies seeks to ensure a quality level compatible with use and to reduce the cost of combating water pollution through preventative actions.⁹⁴ Water quality is an essential element of effluent discharge and classifications could inhibit PSPs attempting to operate on certain bodies of water.

c. Charges

Water charging follows the same guidelines as water permitting, including the level of government authorized to set the charges as well as the water uses subject to charges.⁹⁵ Water charges are distinct from water tariffs.⁹⁶ Water charges refer to prices paid by consumers for bulk water, diversions of rivers, extractions from and discharges to rivers, or any other uses that cause a change to the flow, quality or quantity of the river. Water tariffs refer to prices paid by water service customers for potable water delivered to the home or sanitary sewage delivered away from the home.

Water charge fees, like water permits, are determined by the relevant authority according to the domain of the river. The charges are determined by volume and time diverted or discharged, variation in stream flow and physical-chemical and biological characteristics and toxicity of discharges.⁹⁷ According to the law, the proceeds from water charges are used to finance studies, programs, and projects in Water Resources Plans. Also, charges defray implementation costs and administrative overhead for agencies and entities of the National Water Resources Management System (limited to

92. Resolução CONAMA No. 20, de 18 de Junho de 1986, D.O.U. de 30.06.1986 (Brazil), available at <http://www.mma.gov.br/port/conama/res/res86/res2086.html> (last visited Feb. 22, 2006).

93. *Id.*

94. Lei No. 9.433, *supra* note 89.

95. *Id.*

96. The distinction is important because translations of the Brazilian law alternate freely between “tariffs” and “charges” while in actuality the distinction is quite important.

97. Lei No. 9.433, *supra* note 89.

7.5 percent of the total amount collected).⁹⁸ While the states and the federal government have the right to charge for water uses, few users are actually charged.

While the existing regulatory instruments work well to protect water resources, water and sanitation services remain almost entirely bereft of a regulatory authority. The essential considerations in a properly functioning water sector such as Chile—monitoring and reporting the effectiveness of service providers, reporting relevant data to consumers, setting and adjusting tariffs, and providing a forum for adjudication of disputes between consumers and government—remain fragmented or non-existent in Brazil.

2. Water and Sanitation Services

a. Monitoring

Currently, the Water Resources Information System provides monitoring and reporting of water and sanitation provision data. The Water Resources Information System is intended as a database of information regarding water resources and factors involved in its management. All agencies within the National Water Resources Management System should provide the information for the database. Currently, the National Information System for Water and Sanitation (SNIS) publishes an annual report, *O Diagnóstico dos Serviços de Água e Esgotos*, detailing many statistics concerning state and municipal water companies. The report is available on-line free of charge.⁹⁹

b. Tariffs

Tariff setting policy also remains undefined. Unlike Chile in which the tariff setting procedure remains ubiquitous, transparent, and predictable, tariff setting in Brazil occurs at several levels in different ways. Brazilian state and municipal governments pass decrees dictating tariff rates. In many jurisdictions, this tariff policy means the government sets and adjusts tariffs without input from the public and without a clearly defined equation or process.

c. Enforcement

Adjudication of disputes between users and the government occurs in courts. Without a regulatory agency for water and sanitation services, no

98. *Id.*

99. Sistema Nacional de Informações Sobre Saneamento, at http://www.snis.gov.br/ingles/diag_2002.htm (last visited Feb. 22, 2006).

more accessible forum exists. Further, as a civil law country, the decisions hold no precedent.

The problem with such a structure for enforcement are a number of consumers, particularly the poorer consumers, cannot afford to pursue claims against the municipalities or states for failure to render service, incorrect billing, or some other breach of the water services contract. Further, the courts do not need to maintain precedent, so neither state nor consumer may adequately predict the outcome of litigation.

3. Concession Contracts

The rights and responsibilities regarding concession contracts throughout all sectors are outlined in Federal Law 8,987 (1995). This law provides for a system of concessions for rendering public services which the Federal Constitution set forth in Article 175. Specifically, this law details the guidelines for adequate service, the user's rights and liabilities, the tariffs policy, the bidding process, requirements of a concession contract, the duties of the granting authority and concessionaire, and appropriate conditions for intervention and termination of the concession. While the law identifies the many of the mechanisms regulating concession contracts, it creates no regulatory agency to monitor compliance with these terms or to enforce the provisions.

a. Minimum Service Requirements

Federal Law 8,987 requires service to be "adequate" for all users.¹⁰⁰ Adequate service includes regularity, continuity, efficiency, safety, updating, and politeness in rendering and adjusting tariffs. Interruption of service does not constitute lack of continuity in situations of emergency and in the event of user default while taking into account public interest. Theoretically, this provision would allow water and sanitation service providers to withhold service in the event of unpaid bills.

b. Users Rights and Liabilities

Users retain the rights to adequate service, to receive information from the relevant government authority necessary for the protection of individual or collective interests, and to choose between providers.¹⁰¹ Users may also inform the concessionaire and government about defaults or illegal acts performed by the concessionaire. Finally, users must maintain the public

100. Lei No. 8,987, de Fevereiro de 1995 (Brazil), available at http://www.planejamento.gov.br/arquivos_down/legislacao/Projeto_Lei_PPP_eng.pdf (last visited March 2, 2006).

101. *Id.* at art. 7.

assets through which the services are rendered. These rights are an important protection for consumers in a concession situation. However, the ability of consumers to enforce their rights remains dubious. Without an accessible, affordable forum for adjudication, the rights may remain unheeded by the concessionaire and government.

c. Tariff Policy

The tariff policy anticipates that the tariff rate will be set by the terms of the winning bid for the concession contract. The contract would then stipulate mechanisms for tariff revision so as to maintain an “economic-financial balance.”¹⁰² The Law does not indicate further the details of such a balance, only stating that the original provisions of the contract create such a balance and the granting authority should maintain it in the event of unilateral action.

Perhaps due to the general nature of the concession law, the tariff policy is vague. Thus, in the municipalities that entered into PPP agreements, the concessionaire has set tariffs. Currently, private concessionaires have maintained a ceiling on tariff rates commensurate with state-owned companies. The potential problems with this system are evident in light of the experiences in Cochabamba and Tucumán.

d. The Bid

The bidding process anticipated by the Law is clearly defined, and every concession requires that the bidding process delineate the criteria for awarding the concession. Further, the Law outlines the specific rules by which the granting authority and the concessionaire must abide for a legally binding concession agreement. The bidding process envisioned by the law is transparent and effective.

e. Duties of the Granting Authority

The duties of the granting authority remain the most troublesome aspect of the regulatory scheme created through the concession law. The granting authority is given wide regulatory responsibilities for governing the contract. The rights reserved for the granting authority include:¹⁰³ regulating the service granted; imposing regulatory and contractual penalties; intervening in the rendering of services; terminating the concession; ratifying tariff adjustments; monitoring quality of service; investigating complaints by users; expropriating assets in certain situations;

102. *Id.* at art. 9.

103. *Id.* at art. 29.

fostering improvement of quality, productivity, environmental preservation and maintenance; and stimulating competition.

While the concession law anticipates the regulation necessary for a properly functioning concession, the law vests the authority in the wrong party. As a party to the contract, the government has conflicting interests regarding operation of the contract and protection of the parties' interests in a public asset. The weakness of this regulatory scheme is evident in the Cochabamba example. Without a strong regulator independent of the contract, the regulatory functions are handled by a party with too much self-interest and the protections included in the regulatory framework break down. Brazil needs some independent body, whether the court system or a regulator, to protect the rights of the PSP against the government's broad powers.

f. Duties of the Concessionaire

The duties of the concessionaire, according to the Law, are clear and reasonable, and include maintaining updated records, allowing for inspection by granting authority, and investing the resources necessary to render the service.¹⁰⁴

g. Intervention and Termination

As stated, the granting authority maintains the right to intervene and terminate the concession contract under special circumstances including inadequate service, breach of contract, lack of required investment or maintenance, and tax evasion.¹⁰⁵ The concessionaire may only terminate the contract if the granting authority breaches the contractual rules and the concessionaire brings the appropriate legal action.¹⁰⁶

h. Enforcement

Adjudication of the rights outlined in Law 8,987 occurs through the legal system. No intermediate tribunals exist to hear grievances between the users, government, or concessionaire. Further, no regulatory body monitors or enforces the contracts. The problem of adjudication is further compounded by the fact that Brazil is a civil law nation. Therefore, the decision in one case is not binding on future cases with similar facts.

The uncertainty surrounding property rights coupled with an ineffective forum for dispute resolution has caused problems with those

104. *Id.* at article 31.

105. Lei No. 8,987, de article 38 (Brazil), *available at* http://www.planejamento.gov.br/arquivos_down/legislacao/Projeto_Lei_PPP_eng.pdf (last visited March 2, 2006).

106. *Id.* at article 39.

states that have introduced PSP, including Paraná, and Tocantins. Further, private investors have indicated the lack of regulatory structure as a deterrent to investing in the failed tender of the Petrolina concession.

4. Paraná

In 1998, the governor of Paraná, Jaime Lerner, signed a contract with the Dominó Consortium—made up of France's Vivendi, the Brazilian construction company Andrade Gutierrez Concessoes, Brazilian investment fund Opportunity Dalleth, and state power company COPEL—transferring nearly 40 percent of the shares in the state water company, SANEPAR.¹⁰⁷ The private group was granted the power to appoint government representatives and have a majority vote on the board. In March 2003, newly elected state governor Roberto Requiao, stripped the private consortium of half its shares and its decision-making power. Further, Dominó was required to return all individual profits received from the water utility. Requiao alleged that Lerner lacked the authority to sign such a contract and that Dominó did not meet its financial obligations. In February 2004, a Paraná state court upheld the takeover.¹⁰⁸ In July 2004, a federal court overturned the decision and returned the expropriated assets to Dominó.¹⁰⁹

Paraná illustrates a grave concern for PSPs. The expropriation, clearly unjust, was upheld by the state court, raising concerns of capture by the government. PSPs require a fair and transparent body for deciding disputes. If state judiciaries evince anti-PSP sentiment, investors will shy away.

Although the Dominó consortium was vindicated by the federal court decision, the expropriation should never have occurred in the first place. Since the granting authority, in this case the state of Paraná, maintains the authority to expropriate assets under specific circumstances based on Federal Law 8,987, concessionaires will have no security. The law does not indicate what special circumstances may qualify or what body determines when special circumstances occur. Further, expropriation of this sort indicates larger issues regarding the stability of the economy as a whole.

Fortunately for Brazil, the contract was ultimately upheld. The decision of the state court to enforce the expropriation further highlights the inefficacy of the existing framework. Without an accessible, transparent, and fair forum for adjudication, concessionaires face the possibility of unjustified expropriation supported by an unjust legal system.

107. *Editorial Comment: The Maverick of Parana*, BUSINESS NEWS AMERICAS, Sept. 3, 2003.

108. *Court Upholds Parana's Hold Over Sanepar*, BUSINESS NEWS AMERICAS, Feb. 23, 2004.

109. *Court gives Dominó back control of Sanepar*, BUSINESS NEWS AMERICAS, July 9, 2004.

5. Tocantins

Tocantins' state water company, SANEATINS, sold 51 percent of its shares to EMSA, a Brazilian construction company, in 1999. The thirty-year agreement called for EMSA to invest 400 million reais (\$219.3 million) to expand and improve service coverage. In its first year of operation, EMSA increased water connections by 30 percent and decreased seepage to 30 percent (well below the national average of 50 percent). In June 2001, the state took back majority control by transferring two percent of the shares from EMSA. The move was made in order for the state to qualify for funding from the federal government's social development plan, Projeto Alvorada. The state government returned the two percent share in June 2002 after the funds from the federal government were disbursed.¹¹⁰

There is no indication of EMSA's willingness to allow the state to take the two percent, the effects of the taking on profits, or any possible remuneration for the taking. As with Paraná, Tocantins' government's actions represent an unjustified expropriation. EMSA's Director of Concessions & Privatizations, Humberto Maciel, remarked in 2000, "for us, the most important thing is that regulations get put in place as soon as possible."¹¹¹ As with Paraná, a forum for adjudication needs to be created.

6. Petrolina

The municipality of Petrolina broke its concession contracts with the state-owned water company, COMPESA. In 2003, Petrolina twice tendered bids for a twenty-five-year concession contract to operate the municipality's water and sanitation service. Both times, the tender attracted no bidders. Potential PSPs indicated that their reluctance to invest stemmed from a high minimum bid price, unfavorable payment scheme, and regulatory uncertainty.¹¹²

C. Rationalization of Water Tariffs

Water tariffs in Brazil largely reflect the cost of delivery. The federal government through SAAEs and some federal programs does subsidize poorer regions, yet subsidies are the exception. PSPs in municipalities have maintained levels similar to CESBs. The primary problem with water tariffs, as stated before, remains the process for setting and negotiating the tariffs. If the state or municipal governments intend to sign PSP contracts,

110. *Emsa Retakes Control of Tocantins Water Utility*, BUSINESS NEWS AMERICAS, June 5, 2002.

111. *Emsa on Track with R\$400mn Saneatins Investment*, BUSINESS NEWS AMERICAS, Sept. 9, 2000.

112. *Petrolina Waterworks Concession Attracts No Bidders*, BUSINESS NEWS AMERICAS, Dec. 29, 2003.

then potential conflicts arise unless a non-party to the PSP contract is given the authority to set and negotiate tariffs. Chile, once again, provides an excellent example or a clear and ubiquitous tariff-setting structure. In Chile, an algorithm created by the SISS provides transparency and predictability in the tariff setting process. For a PSP looking to operate in Brazil, the tariff adjustment procedures would need to be outlined in the contract.¹¹³

The Lagos Region of Rio de Janeiro state, covering the municipalities of Búzios, Cabo Frio, Arraial, and Sao Pedro, signed a concession agreement with a consortium including the Brazilian construction company Oderbrecht and the multinational Ondeo in 1996.¹¹⁴ The region has blossomed into a tourist haven in the last two decades exacerbating existing water and sewage limitations. By 1996, CEDAE, the Rio de Janeiro CESB, did not have money to invest in improving the system and the lack of available water, coupled with stench from the poorly operating sanitary sewerage, prompted the state to sell the concession to the PSP.

The PSP, Prolagos, faced a unique difficulty in recovering costs for this concession. The fluctuations of the tourist market created problems with tariff setting. During peak vacation times, the population of the area would increase as much as forty percent. Additionally, tourists tended to use much greater amounts of water than the significantly less wealthy indigenous population. Prolagos, as part of the concession contract, agreed to meet demand during twenty-four-hour peak events for 90 percent of the population. Prolagos quickly discovered that the existing price structure was insufficient to finance the investments necessary for these improvements. Since Prolagos won the concession contract based on the highest franchise fee paid to the state and not the minimum tariff, Prolagos could adjust the tariff structure.

In adjusting the tariff, Prolagos considered the income disparity among the users. The income of residents in the Lagos Region was \$246 monthly compared to \$397 for tourists arriving by bus and \$2200 for tourists arriving by private car. The use of water and sanitation increased dramatically with income; residents' average monthly consumption was 8.4 cubic meters, compared to 90.5 cubic meters for tourists. To fairly account for the income and use discrepancies among the users, Prolagos assumed the block-tariff structure employed by CEDAE with the caveat that the minimum residential

113. The possibility exists that a government might seek PSP simply to improve efficiency and reduce costs in the water delivery process while continuing to subsidize the populace. In such a case, tariff setting procedures would be moot. The government needs to decide prior to PSP if the goal of PSP is eliminating artificially low tariffs and the corresponding drain on the government budget or simply harnessing the increased efficiency of PSP to reduce the amount of subsidy.

114. Marina Figueira de Mello, *Water Pricing Policy: Efficiency and Equity*, INTER-AMERICAN DEVELOPMENT BANK, at http://www.iadb.org/mif/v2/files/laurin_BR_waterconcession.pdf (last visited Feb. 26, 2006).

bill would be the higher of the following two values: ten cubic meters or sixty-five percent of the highest consumption in the preceding twelve months.

While this tariff structure seemed fair on paper, consumer default rose from 30 to nearly 40 percent in the first year and consumers complained to the state regulator, ASEP, that the bills did not reflect use. Evidently, the problem stemmed from residents renting rooms to tourists during the high season, unexpectedly increasing the bill for the year. The responsibility of negotiating an amendment to the tariff structure fell on the shoulders of ASEP.

ASEP was faced with the problem of accommodating the PSPs' financial requirements and the needs of the citizens while appearing neutral. The primary problem for consumers was the minimum bill requirement of 65 percent of the highest consumption in the preceding year. ASEP decided to eliminate this aspect of the arrangement to assuage consumers and convinced the state government to refund Prolagos the portion of the franchise fee lost because of the change.

The Lagos Region PSP illustrates the challenges to establish a tariff structure that meets the demands of increasing coverage while accounting for the needs of the populace. ASEP acted adroitly to meet the needs of both the PSP and the citizens. Rationalization and subsequent adjustment of the tariff structure requires a transparent and fair system. The tariff-setting model created by Rio de Janeiro – an independent tariff-setting body exhibiting transparency and fairness can be replicated in other states or extrapolated to the national level. In any case, state and municipalities seeking PSP should heed the Lagos Region model.

D. Municipal PSPs

Despite the lack of a clear legal or regulatory framework, municipalities and private investors continue to enter into PSP arrangements. So far, some of the contracts appear to function smoothly. However, experience in other countries shows the tenuous nature of PSP in such a framework.

A more pressing problem for Brazil is the scope of PSP. Without a clear delineation of service rights and regulatory structure to support PSP, investors have sought wealthier municipalities for PSP contracts. With each wealthy municipality that locks itself into a long-term concession contract, the states as a whole lose the ability to provide service for the entire region and use lucrative municipalities to cross-subsidize poorer regions. This same problem of private investors seeking the “low-hanging fruit” has occurred in other nations. Chile's system of regionally-based companies accounts for all users, as illustrated by the universal coverage. Brazil should

consider whether allowing municipal concessions in only the wealthiest parts of the country will achieve the goal of universal coverage.

A look at the existing municipal concessions may give insight into the strengths and weaknesses of the system and possibly provide a structure to clone throughout other municipalities.

1. Manaus

Amazonas' capital city, Manaus, signed a thirty-year concession contract with the French water company Ondeo, on June 21, 2000 for a ninety percent stake in the water company. The public water company, Manaus Saneamento, a subsidiary of the state water company COSAMA, is now known as Aguas do Amazonas. The contract called for an upgrade in the system and operation by Ondeo.¹¹⁵ The sale transferred the company's assets but not its debt to the purchaser.¹¹⁶ The concessionaire plans to invest \$237 million over the thirty-year period with the goal of provided water coverage of 98 percent and sewage collection and treatment for ninety percent of the city's population.¹¹⁷ Recently, Brazilian National Development Bank (BNDES) loaned the Ondeo 65.7 million reais (\$19 million) for a project to increase water delivery from 63.3 to 95.1 percent and sewage collection from 2.9 to 12.6 percent.¹¹⁸ The concession is monitored by Amazonas' state public services regulator (ARSAM) who anticipates an evaluation of Aguas do Amazonas in 2006. To date, the concession appears to function smoothly.

2. Mato Grosso Municipalities

In the state of Mato Grosso, the Department of Modernization is returning state control of sanitation services to the local authorities without the active participation of the state water company, SANEMAT.¹¹⁹ As of 1998, the state government had signed a series of agreements with local authorities relinquishing control of sanitation services. The agreements fall into three categories:

115. Noman Ahmed et al., *Public Private Partnerships and the Poor Case Report 1: Karachi, Pakistan*, WATER, ENGINEERING, AND DEVELOPMENT, LOUGHBOROUGH UNIVERSITY, 12 (2003), at <http://wede.lboro.ac.uk/publications/pdfs/ppp/Karachi%20-%20Case%20Report%201.pdf> (last visited Feb. 22, 2006).

116. *Embasa Auction Could Run to Early 2001*, August, MIDDLE EAST DESALINATION RESEARCH CENTER (Aug. 2000), available at http://www.medrc.org.om/new_content/industry_news/aug00/story4.htm (last visited Feb. 22, 2006).

117. *Amazonas to Invest US\$237mn in 30yr Concession*, BUSINESS NEWS AMERICAS, May 23, 2002.

118. *BNDES Approves US\$19mn for Aguas do Amazonas*, BUSINESS NEWS AMERICAS, January 6, 2003.

119. Infrastructure Briefing, *supra* note 73.

Technical Cooperation Agreements – These agreements were signed with municipalities that had not decided how they would manage their sanitation systems in the future. The agreement allows local authorities to access the information on the financial and operational condition of their systems controlled by SANEMAT. Thirty-eight municipalities signed this type of agreement.

Mutual Cooperation Agreements – These agreements were signed with municipalities that had decided to transfer concessions to the private sector. The municipalities received information about their service from SANEMAT, as well as model tender documents together with documentation necessary to grant legal approval. Five local authorities signed this type of agreement: Cuiabá, Cáceres, Nobres, Alta Floresta, and Jauru.

Shared Management Agreements – Under this agreement, the local authority participates in the management of the concession while operational control remains with SANEMAT. Three local authorities signed this agreement: Jaciara, Vázea Grande and Rondonópolis.

No indication is given as to what arrangements were made for the remaining forty-seven local authorities. As of 1998, no regulatory agency existed within the state. Currently, SANEMAT appears defunct with local control entirely in the hands of municipalities.

3. Other Autonomous Local Authorities

Private investors have found the municipalities that retain service authority free from state companies the most attractive investments. Numbers vary among reports; however, approximately 1,300 of the over 5,000 municipalities in Brazil have not signed concession contracts with the state company and so retain authority of their water and sanitation services. As of 1998, twenty-three concessions had been transferred either by individual municipalities or a consortia of municipalities, primarily in the states of Rio de Janeiro and São Paulo.¹²⁰ At that time, São Paulo had 270 autonomous municipalities, of which 103 had populations greater than 50,000. The following is a list of the autonomous municipalities using PSP by 1998:¹²¹

120. *Id.*

121. *Id.*

TABLE 2: MUNICIPALITIES WITH PSP CONTACTS

MUNICIPALITY-STATE	POPULATION	CONCESSIONAIRE (GROUP)	NATURE OF CONCESSION
Araçatuba - SP	157,467	SANEAR (Amafi, Multiservice, Resil, Tejofran)	Sewage
Birigüi - SP	84,016	AQUAPÉROLA (Isratec/ Hidrogesp)	BOT deep well
Cajamar - SP	33,707	ÁGUAS DE CAJAMAR Ltda. (Multiservice, Rek)	Water
Campos - RJ	350,000	ÁGUAS DO PARAIBA (Developer, Cowan, Queiroz Galvão, Carioca)	Full (water + sewage)
Itu - SP	112,939	CAVO ITU (Cavo, Camargo Corrêa)	Sewage
Jaú - SP	97,354	ÁGUAS DE MANGADA (Amafi, Multiservice, empr. Portugal)	Water
Jaú - SP		Consórcio C.R. Almeida, SILEC (Itália)	Sewage
Jundiaí - SP	288,644	CIA. SANEAMENTO DE JUNDIAÍ (Augusto Velloso, Coveg, Tejofran)	Sewage
Limeira-SP	217,489	ÁGUAS DE LIMEIRA (Lyonnaise des Eaux, CBPO)	Full
Mairinque - SP	35,000	CIÁGUA (Grupo Villanova)	Full
Marília - SP	173,841	ÁGUAS DE MARÍLIA (Hidrogesp)	Water (BOT well, conduit, reservoir)
Mineiros do Tietê - SP	9,462	SANECISTE	Full
Niterói - RJ	448,736	ÁGUAS DE NITERÓI (Cowan, Carioca, Trana, Q. Galvão, Developer)	Full
Ourinhos - SP	79,148	ÁGUAS DE ESMERALDA (Hidrogesp, Multiservice)	Water - deep tubular well
Ourinhos-SP		TELAR (Telar Eng.)	Sewage
Paranáguá - PR	110,000	ÁGUAS DE PARANÁGUÁ (Castilho, Carioca, Developer)	Full
Pereiras - SP	4,850	NOVACON	Full
Petrópolis - RJ	263,838	ÁGUAS DO IMPERADOR (Cowan, Trana, Q. Galvão, Developer)	Full
Lagos region -I RJ (Araruama/Saquarema/Silva Jardim)	200,000	ÁGUAS DE JUTURNAIBA (Cowan, Trana, Q. Galvão, Developer, ERCO)	Full
Lagos region-II RJ (C. Frio/ Búzios/ Arraial/ S.P. Aldeia)		PROLAGOS (Monteiro Aranha/Águas de Portugal/ PEN)	Full
Ribeirão Preto - SP	450,960	AMBIENT (CH2MHil/Rek)	Sewage
Salto - SP	100,000	SANECISTE DE SALTO (Saneciste)	Sewage treatment
Tuiuti - SP	3,000	RIBEIRÃO DO PÂNTANO - Emp. Saneamento Tuiuti (Novacon)	Full

Currently, at least thirty-two municipalities have engaged PSP. Brazil should conduct an analysis of these municipalities to determine their relative success of these municipalities. Interestingly, the PSPs have kept tariffs at or below the levels set by the SOEs. This fact may prove important, as

Brazil will likely avoid the turmoil commonly associated with rationalizing tariffs prior to PSP. Information about these municipalities and the relative successes remains scarce as the concession contracts remain small and somewhat recent. As the relationships progress, these PSPs will provide important information about the security of PSP on the municipal level.

VII. CONCLUSION

Private sector participation is not a panacea for all the problems of a nation's water sector. In fact, seeking PSP to fix certain problems has proved deleterious in some instances and devastating in others. Cochabamba has shown PSP's ineffectiveness as a political scapegoat for rationalizing tariffs and as a tool for vitalizing an industry beset by decades of corruption and opaque business dealings. Buenos Aires proved PSP remains nearly impossible in an institutional structure bereft of properly functioning regulatory mechanisms. Tucumán illustrated the effects of political interference in an unsound institutional structure.

The beneficial uses of PSP, however, remain significant. PSP fulfills specific functions such as making SOEs operate more efficiently and providing funding not available in the government treasury. Chile provides the seminal example of successful water PSP in South America. By clearly delineating property rights over water resources, and water and sanitation services, separating the responsibilities of water steward and water service provider, and creating a strong and independent regulator to monitor and enforce the contracts, Chile has established an institutional structure prepared to harness the positive uses of PSP before the introduction of the first private peso.

Brazil currently stands at a pivotal point in the history of its water sector. The economic liberalization occurring under President Cardoso (1995-2002) encouraged CESBs and municipalities to consider PSP. While many anticipated the Radical Party, ascending to power in 2002, would seek to inhibit PSP, President da Silva has shown interest in PSP by appointing Antonio Palloci as Minister of Economics.¹²² Palloci, a former governor of Ribeirão Preto, introduced PSP to the SOE water company in that municipality. In this positive political climate, Brazil may move forward to institute laws defining the property rights to water resources and water and sanitation services, and codify the regulatory mechanisms required to induce beneficial PSP. The system created under Planasa proved effective. If Brazil could rekindle that system while developing the appropriate

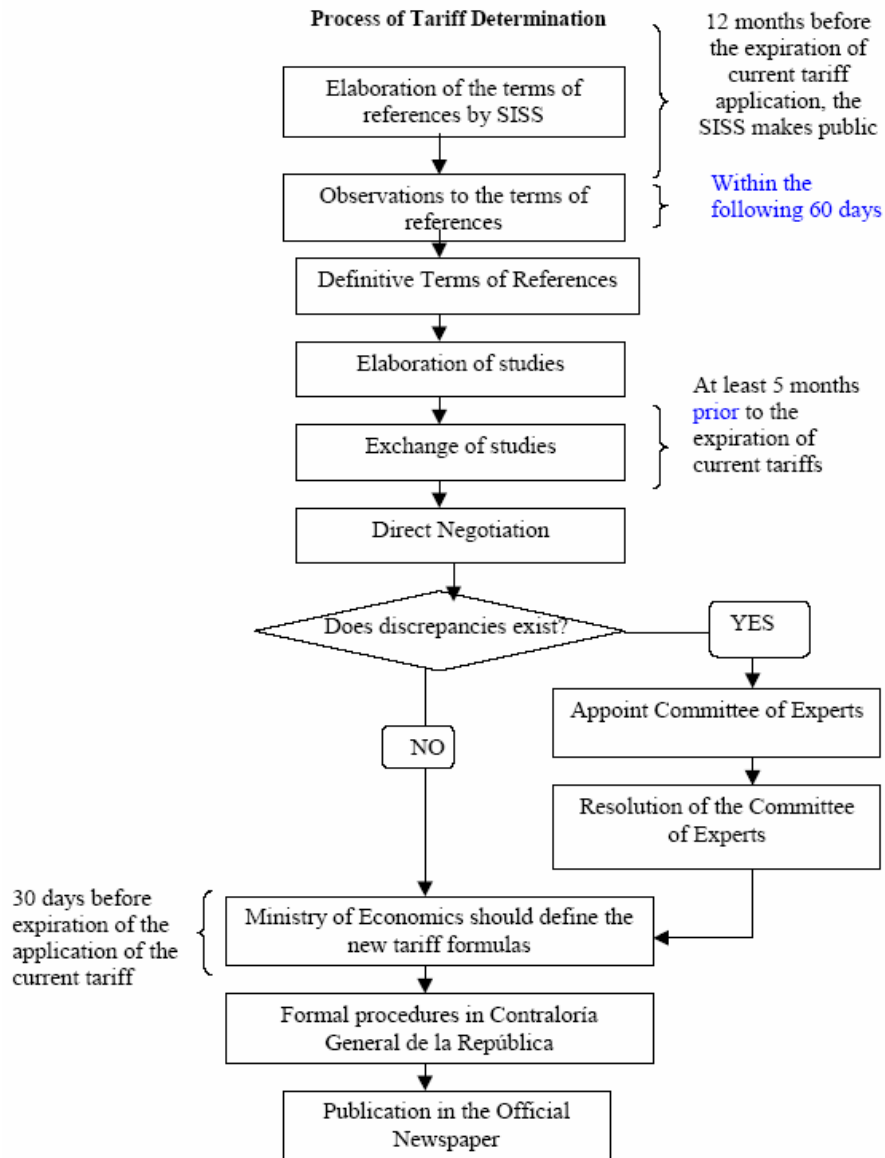
122. Mike Gonzalez, *Brazil in the Eye of the Storm*, 98 INT'L SOCIALISM J. (Spring 2003), available at <http://pubs.socialistreviewindex.org.uk/isj98/gonzalez.htm> (last visited Feb. 27, 2006).

legislation and regulation, the water sector would stand poised to introduce successful PSP.

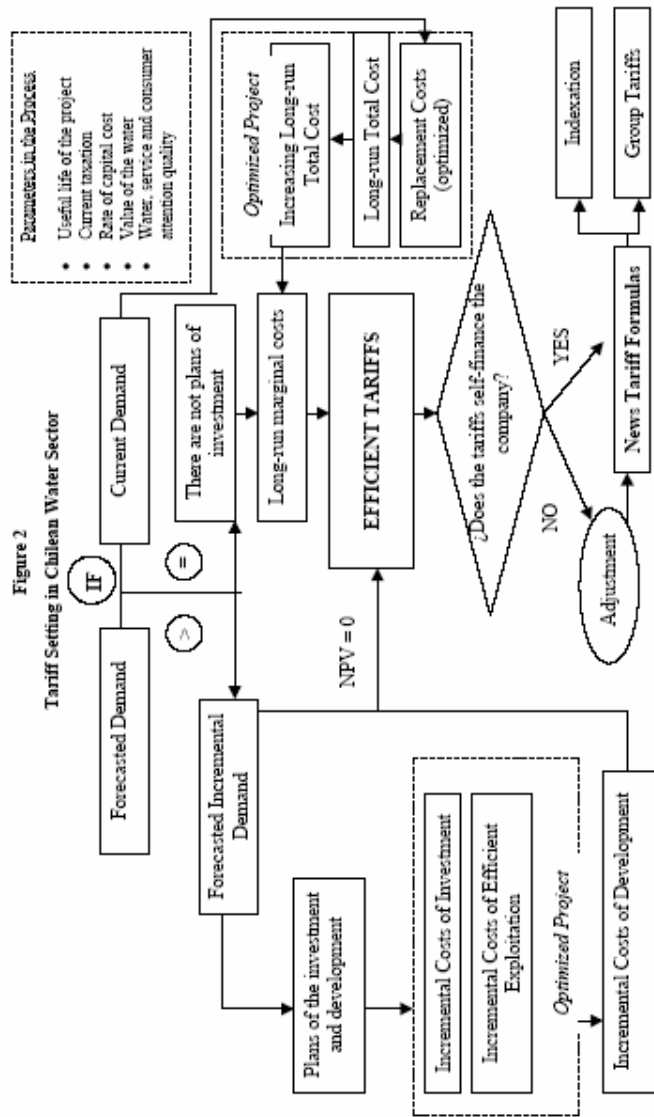
The timing of PSP presents a paradox. Those countries most in need of an infusion of funds and increased efficiency in SOEs, also typically require the greatest institutional improvements; while those countries less in need of PSP money typically possess an appropriate structure to successfully facilitate a PSP arrangement. Unfortunately, the lure of immediate money and the illusion of PSP as a cure-all induce developing nations to seek contracts without first fixing institutional shortcomings, leading to failed contracts and exacerbating existing political and social problems. Countries must recognize this reality and not put the PSP cart before the institutional horse.

VIII. APPENDIX

Figure 1
Schedule of the Administrative Procedures for the



Source: <http://www.oecd.org/dataoecd/43/46/1942127.pdf>



Source: <http://www.oecd.org/dataoecd/43/46/1942127.pdf>

Federal Constitution, 1988**National Authority***Water Resources Management (WRM)*

Property Rights FC, Art. 20: The following are property of the Union: (III) the lakes, rivers and any watercourses in lands within its domain, or that wash more than one state, that serve as boundaries with other countries, or that extend into foreign territory or proceed therefrom, as well as bank lands and river beaches[.]

Legislative Power FC, Art. 22: The Union has the exclusive power to legislate on: (IV) waters...[.] [sole paragraph: a supplementary law may authorize the states to legislate upon specific questions related to the matters listed in this article.]

Water and Sanitation Services (WSS)

Legislative Power FC, Art. 21: The Union shall have power to: (XX) establish directives for urban development, including...basic sanitation...[.]

State Authority*WRM*

Property Rights FC, Art. 26: The property of the states includes: (I) surface or subterranean waters, flowing, emerging or in deposit, with the exception, in this case, of those resulting from work carried out by the Union, as provided by law.

Legislative Power FC, Art. 22: The Union has the exclusive power to legislate on: (IV) waters...; [sole paragraph: a supplementary law may authorize the states to legislate upon specific questions related to the matters listed in this article.]

WSS

Property Rights (silent)

Legislative Power (silent)

Municipal Authority*WRM*

Property Rights None. Implicit in Art. 20 and 26.

Legislative Power FC, Art. 30: The municipalities have the power to:
(I) legislate upon matters of local interest[.]

WSS

Property Rights FC, Art. 30: The municipalities have the power to:
(V) organize and render, directly or by concession
or permission, the public services of local
interest...which is of essential nature.

Legislative Power FC, Art. 30: The municipalities have the power to:
(I) legislate on matters of local interest[.]

Shared Authority*WRM*

Property Rights FC, Art. 23: The Union, the states, the Federal
District and the municipalities, in common, have
the power: (XI) to register, monitor and control
concessions of rights to research and exploit
hydric and mineral resources within their
territories[.]

Legislative Power FC, Art. 23: The Union, the states, the Federal
District and the municipalities, in common, have
the power: (VI) to protect the environment and
fight pollution in any of its forms[.]

Legislative Power FC, Art. 24: The Union, the states and the Federal
District have the power to legislate concurrently
on: (VIII) liability for damages to the
environment...[.] [Paragraph 3: If there is no
federal law or general rules, the states shall
exercise full legislative competence to provide for
their peculiarities.]

WSS

Promotion FC, Art. 23: The Union, the states, the Federal
District and the municipalities, in common, have
the power: (IX) to promote housing construction
programs and the improvement of housing and
basic sanitation conditions.

