

Water Services in Latin America:
Public or Private?
(Discussion of Four Case Studies)

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*“Whether a cat is black or white makes no difference.
As long as it catches mice, it is a good cat.”*
Deng Xiaoping

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ABSTRACT

This research paper reviews and discusses elements within the water services sector with the aim of analyzing the appropriateness of public versus private models of providing and managing water and sanitation services. It is based on the premise that governments should be the owners of water in order to ensure an equitable allocation of the resource; nevertheless it advocates for reforms to inadequate national water policies and management frameworks that do not aim for cost-efficient use and reliable universal access to potable water. To achieve efficiency in the use and allocation of water, and affordability of prices in its delivery to consumers, private participation in the water services sector might bring benefits and should not be discarded just because of a political or ideological position. Better management practices, along with well-suited institutional arrangements, are needed to meet the Millennium Development Goals (MDGs) on water supply and sanitation; it does not matter if water services are run by a public or a private entity, what matters is what type of arrangement is best suited to provide the service efficiently, improving coverage and at the lowest costs possible, while taking into consideration the socioeconomic, cultural, and physiological importance of water for every person.

In Latin America, where the four case studies presented in this paper take place, the subject of privatization of public services is still today a source of controversy within the debates of public administration reform. The design, or redesign, of institutional and regulatory frameworks to manage water resources and services is in a transitional phase, and it seems that at this pace, it might be unnecessarily prolonged.

The case studies presented in this paper, Buenos Aires, Cochabamba, Cartagena de Indias, and Santiago de Chile, are cases in which there has been private participation in the water services sector. Each case has its own particular experience with regards to governance, the institutional arrangements, and the particular socioeconomic conditions that were in place at the time of the private sector's participation. They also have particular results of that experience. The paper concludes that private sector participation in water services in Latin America may increase the possibility of reaching the targets established in the MDGs, but that can only happen if: 1) an appropriate financial scheme for water tariffs is in tune with the costumers ability to pay, 2) a solid institutional arrangement and a regulatory framework are in place, 3) an active citizen participation at the community level is present, where solutions for water problems should grow (bottom-up perspective) by consensus.

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REMARKS ON THE PURPOSE OF THIS RESEARCH

The aim of this research paper is to present actual conditions of the water services sector in four cities in Latin America. The purpose of this is to provide additional elements to the debate currently existing in Latin America about public versus private management of public services and the need to improve them, specifically water services. Additionally, it aims to compare these different cases in order to analyze which are the key elements in the process that should be prioritized in order to obtain the most appropriate management model for efficient water supply and sanitation (availability, high quality and low cost).

The academic and scientific relevance of this research is that it builds upon existing literature about the debate on privatization and provides elements to analyse water and sanitation problems, and the challenges that the public domain faces to provide the services that it ultimately is responsible for. It is the government who has to decide whether water services should be operated under public or private management. It contributes to Latin American public administrations to achieve objectiveness regarding what is needed to improve water and sanitation conditions where they are more needed. The practical relevance of this research is that it will eventually give its author the possibility of getting hands-on experience in this type of issues to come up with recommendations for future problems in water services management.

This research project was made in a period of three months and the method was mainly desktop research in libraries and the Internet. The case studies were selected mainly by two criteria: 1.) Available information, and 2.) the case presented a controversial situation with regards to the debate of public versus private management of public services. It is pertinent to state that this might be the beginning of a more elaborated research, as time was not enough to acquire sufficient and in-depth information about the case studies. Information initially planned to get was not available and much of it was outdated. It would have been very useful to be able to be physically present and interview persons directly involved with the water services, public and/or private, in each geographical location where the cases presented take place.

I. INTRODUCTION

Life is not possible without water. It is essential for our health, our food security and for all economic activities. It is also a key element to balance the planet's diverse ecosystems. Humans are composed, more or less and depending on their age and sex, between 60 and 75 per cent of water. There is a strong bond: without water, the human body would rapidly fall apart. Having access to potable water has become an issue with global dimensions that has increasing effects on political, social, and economic relationships across the world.

Water is a finite and renewable resource. Its characterization as an economic good is evermore increasing. Nevertheless, human populations are, in many cases, not appropriately distributed with respect to fresh water sources (offer and demand are not in the same geographical location), and access to potable water is a problem that societies in many regions around the world are facing nowadays. Additionally, population growth, urbanization, industrialization, pollution, and inefficient use of water (primarily in agriculture) are factors that generate stress over water quality and availability for human consumption. The main water problem that mostly poor countries face is a lack of adequate delivery of potable water and sanitation. If no action is taken, water shortages in several areas will worsen and in those regions there will be water shortages affecting human health, food production, and other basic necessities for the functioning of our societies.

Water services management refers to “all services necessary to bring water to customers and to get waste water treated”(Van Dijk, 2003) The water sector has been traditionally owned and managed by the state and it is regarded as a natural monopoly. In the majority of scenarios subsidizing the cost of water provision is the rule. Today, “ninety percent of worldwide water and sanitation services remain under government ownership and administration.” (Cevallos, 2006) Several cases show that the state, having the monopoly of the service, does not strive for efficiency and therefore it not capable to attend the growing demand for water and sanitation with an appropriate coverage and allocation.

Subsidization of water, often socially well accepted, is in many cases needed to maintain the livelihoods of poor people and their local economies, but it has often generated a social perception that does not recognize the value of water, leading to wasteful practices and an unsustainable use and management of the resource. (UN and WWAP, 2003) Reforms are needed, and if actual conditions in public management systems are not working for the benefit of the people, the involvement of the private sector presents itself as a viable option to explore when searching for alternative and additional resources. Its input can be not only in the efficient management and utility operation, but also in the injection of capital for needed infrastructure. In the past few decades this trend has begun to shift, mostly in developed countries like the United Kingdom and France, where the private sector has been playing an increasing role in the provision of public services.

Decisions about how the private sector can get involved in water services management are mainly political decisions that may have profound economic and social implications as everyone has an interest over water. The strategies followed and the decision-making processes in the water sector shows important societal characteristics in development, as it is a way of observing how the interests of various stakeholders take part in a power struggle that results with particular consequences.

Several studies have identified the problem of lack of potable water as one of lack of appropriate management. (Moreno, 2006) This has political and socio-economical consequences. First of all, water is considered a public social good. It is argued that safe potable water is a basic human right and therefore affordable access is a priority for everyone, and particularly for the poor. On the other hand, water has a value and must be charged for appropriately so that it promotes efficiency of use and prevents its misuse. Reforms in major current water services management systems are necessary in order to meet these basic criteria about water being a public good that must be charged for. Solutions are being debated in the public policy arena, dealing mainly with: i) how to achieve effectiveness and efficiency of water services, ii) whether water services should be public or privately owned and managed, and iii) water financing and pricing. The contribution of this research paper to these debates can be summarized as follows: The discussion should not be about black or white, but about the different shades of gray in which the private sector may be involved and controlled in order to improve effectiveness and efficiency in water and sanitation systems while paying the lowest prices possible for its service.

Appropriately, the United Nations considered water and sanitation a key issue in the Millennium Development Declaration in the year 2000 and it was included as a specific target within *Goal No. 7* of the Millennium Development Goals (MDGs): Ensure environmental sustainability. *Target 10* - Cutting by half the proportion of people without sustainable access to safe drinking water and sanitation by 2015 (UN, 2000). It is claimed that to achieve this target, water resources must rely on an efficient, organized and inclusive management. The following table illustrates the estimated global amount of people that needs access to potable water and sanitation in order to meet the specific MDG target. As can be observed, it is estimated that to achieve the goal in Latin America, potable water has to be provided to approximately 141 million people and adequate sanitation conditions have to be provided to approximately 161 million people in the next 10 years. This is not an easy task and not only good management systems are needed but also a good deal of financing for infrastructure. The following Table (Table 1) shows the world's current situation in water supply and sanitation and helps to observe the manitude of the challenge ahead.

Table 1: Number of People to Whom Access Must be extended by 2015 to meet the MDG target

Region	No. of People to Gain Access to Improved Water Supply (in millions)			No. of People to Gain Access to Improved Sanitation (in millions)		
	Urban	Rural	Total	Urban	Rural	Total
Sub-Saharan Africa	175	184	359	178	185	363
Middle East & North Africa	104	30	134	105	34	140
South Asia	243	201	444	263	451	714
East and Asia Pacific	290	174	465	330	376	705
Latin America and the Caribbean	121	20	141	132	29	161
Central and Eastern Europe	27	0	27	24	0	24
TOTAL	961	609	1570	1032	1076	2108

source: UN Millennium Project. (UN, 2005)

Additionally, achieving this target is crucial to achieve other MDGs, as water has a direct relationship with the eradication of hunger, with reducing child mortality, with improving maternal health, and with combating HIV, malaria and other fatal diseases. Recently, in the 4th World Water Forum that took place in Mexico, this specific target was dealt with and it is claimed that if it is to be met, “poor people and poor countries must get priority, and resources and policies must be focused on spurring and supporting community-led action.” (Savodoff and Spiller, 1999)

This research paper intends to review and discuss ways for the provision of potable water and sanitation. It is based on the premise that governments must be the owners of water in order to ensure an equitable allocation of the resource; nevertheless, to achieve efficiency in use and allocation, and affordability of prices in the delivery of water to consumers, private participation in the water sector might bring benefits for the achievement of the goals.

Its aim is to compare different water services management cases in four particular Latin American cities where there is, or has been, private sector participation. Factors like the water governance within particular institutional arrangements, and the particular socioeconomic conditions of costumers will be taken into account. The central question of this research project is *whether private sector involvement in the provision of water services in Latin America has increased the proportion of human population accessing an equitable and sustainable source of drinking water at affordable prices?*

The starting point of this paper will be a factual presentation of water as a renewable natural resource and its role in society, with the aim of discussing the perception of water as a human right but also as a resource that has characteristics of an economic commodity. Following this, the problem of water resources management will be presented focusing on governance and management issues. Further on there will be a discussion about the role of the markets versus the role of the governments in the

economic driving of a country, and specifically in the role they play in the provision of public services, focusing particularly on water and sanitation. The pros and cons of private sector involvement will be discussed. Furthermore I will present the different types of contracts through which the private sector can be involved in the water business. The next section will contain a general introduction about the state of water services in the Latin American region and followed by the presentation and discussion of four case studies that expose different situations and outcomes that can be explained in the light of particular socioeconomic and political factors.

I.1. Literature Review

The knowledge and ideas that have been established in the topics of public-private partnerships (PPPs) and market and non-market failures are central aspects of this research project. To answer whether the involvement of the private sector in the provision of water services in Latin America has been beneficial or not, one must first acknowledge the reasons why private sector participation in traditionally public responsibilities was envisioned in the first place. Providing public services has been mainly a state responsibility; it is one of the reasons for modern states to exist, but PPPs are now seen as viable and politically attainable mechanisms for combining the advantages of both private and public sectors; and of the type of market in which they interact.

Public-private partnerships (PPPs) are nowadays a standard concept in the socio-economic development realm. A public-private partnership may take different forms and may be used for different situations. The literature review done for this concept in Latin America has shown that PPPs can best be considered as a method rather than an objective. There is an immense amount of literature about PPPs in general and for the purposes of this research, this review is not exhaustive, but rather focused on recent approaches and definitions. In a general sense, the definition of the PPP used in this document comes from Grimsey & Lewis (Grimsey and Lewis, 2004) who define it as “a risk-sharing relationship based on a shared aspiration between the public sector and one or more partners from the private and/or voluntary sectors to deliver a publicly agreed outcome and/or public service,” in this case, water services.

Regarding market and non-market failures, I have not attempted to cover every possible survey of literature because of time and resource constraints, and, as such, I have utilized concepts and definitions within the document in its respective section (see Section III). The bibliography includes specific references reviewed.

II. WATER SERVICES

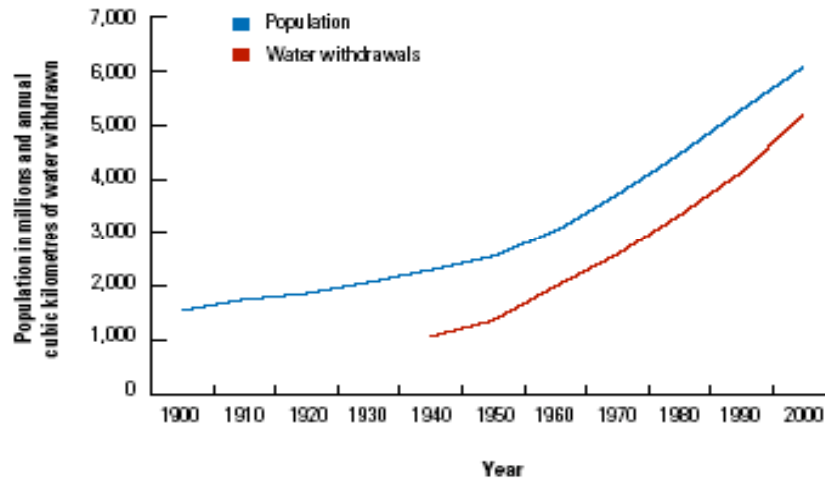
II.1. Water: A Common Social Resource

The evolution of human societies is dependent on water; our existence requires a stable water supply. The agglomerations of human settlements generally obtain much of its water needs from underground sources (aquifers) and rivers. The geographic locations of these aquifers and rivers greatly determine the location of human settlements. Specific geological, atmospheric and oceanic conditions are crucial for the availability of water. During the past century “technology for the exploitation of aquifers has advanced vertiginously, along with the levels of water consumption, and today groundwater is at the top of the world’s most extracted natural resources.” (UN and WWAP, 2003) We have developed engineering strategies that have made us an important actor influencing the water’s natural cycle and today water is employed in multiple activities, all of them essential to maintain a balance in the way we live. The advances in hydrological sciences, as history shows us, come along with social and economic development; but increasing overexploitation of watersheds and its aquifers may create unsustainable problems that have a great potential of worsening over time: water shortages, pollution, and the lack of universal supply of potable water and sanitation.

Today, the availability of water depends not only on available sources, but also on the demand for water and the efficiency of water services management in supplying this demand equitably. We are observing that growing populations are constantly increasing the demand for water generating stress over water sources and over W&S systems. Additionally, diverse uses of water are in constant resource competition with the domestic demand.

Inadequate access to safe potable water is a central aspect of poverty, and eradicating poverty is a principal goal established in the Millennium Declaration. Therefore the improvement of access of poor people to good-quality water may be a step forward to enhancing the possibilities of eradicating poverty. Access to potable water has direct impact on the ability to eradicate hunger, to reduce child mortality and improve maternal health, and to combat diseases such as HIV and malaria.

Population is rapidly growing and this has dramatic consequences in the use of water. Even though water is a renewable resource, it is finite and it has its limits with regards to increasing demands. The well management of this resource becomes ever more important. As Figure 1 shows us, when population increases, freshwater demand increases and therefore the portion of water available for each person declines. (UN and WWAP, 2003)

Figure 1: World's Human Population and Freshwater Use

source: Gardner-Outlaw and Engelman, in UN & WWAP, 2003

Population growth does not only increase the demand for domestic supply of water, but for the other uses as well, like agriculture to produce food, maintenance of industrial activity, energy production, etc. The institutional framework of water services is a complicated one as it involves numerous stakeholders often with conflicting interests. Furthermore, amongst the characteristics of the information age is that people are moving into urban areas where the main economic activities of countries take place. Urban areas are becoming increasingly complex and interconnected, therefore urban public services are expanding and becoming more complex. (Castells and Borja, 1997). A city's development in productive competitiveness and economic growth, and social well being, is directly linked with the provision of urban services. There is a direct relationship between adequate urban services systems and socioeconomic development; and water services are one key element in the quality of urban life.

As mentioned previously, pollution of water sources has become a chronic problem in several areas of the globe. Rivers, lakes, and aquifers are constantly receiving industrial wastes and chemicals, agricultural pesticides and fertilizers, sediments from human induced erosion, heavy metals, and other types of wastes, including domestic waste. Sewerage systems are important and are closely linked to water provision services as they use water as a primary input. If untreated, the inadequate disposal of sewerage to downstream water bodies reduces the quality of the resource for downstream users and this may have impacts in several issues, such as food security and health.

There are wide direct and indirect impacts of water services in society; its direct ones are mainly health and food security, and its indirect ones are mainly for economic development. An inadequate maintenance of water and sanitation (W&S) systems in urban areas whose population is expanding generates local overexploitation of aquifers, and creates an overload in the W&S infrastructure. This might generate a deterioration of water and sanitation conditions and the resulting outcome might be generalized health crisis. Human health is a key aspect in the relationship of water with social development.

We need safe potable water to lead healthy lives; unsafe drinking water accounts for a vast majority of the deaths in developing countries (diarrhea, infections, worms, etc.) mostly of children in poor communities. “It has been estimated that half of the population of the developing world is exposed to polluted sources of water that increase disease incidence.” (UN and WWAP, 2003). Good sanitation facilities are crucial.

The water services sector interacts with all other sectors in the economy; therefore it is a key element in the economic growth of a country. Economic growth usually brings rises in income and this comes hand-in-hand with an increasing demand for water in the energetic and industrial sectors, and therefore for wastewater treatment. The water services sector influences and is influenced by numerous variables (population growth, increasing costs of water delivery, water quality maintenance, etc.) that, as mentioned previously, put a considerable amount of strain and complexity in the level of management that is needed in order to provide an adequate service that considers the aforementioned economic growth, the protection of the environment, and the human basic needs.

II.1.1. Water: An Economic Good? A Human Right?

There is a debate nowadays about water being an economic good versus a human right. These two concepts about water somewhat contradict each other because if water is treated solely as an economic good, access to it will depend on the market and the capabilities users have to pay for it, and not on the inherent right that every human is entitled to. Those who cannot pay will therefore be deprived of life. Recently there have been efforts to redefine the concept of water where these two concepts are combined. For example, the United Nations Committee on Economic, Cultural and Social Rights has issued statements declaring that access to water is a human right and has stated that water is a social and cultural good, and not merely an economic commodity. 145 countries that ratified the International Covenant on Economic, Social and Cultural Rights are obligated to progressively ensure access to clean water, equitably and without discrimination. (Capdevilla, 2002)

This declaration is in tune with a generalized perception that is a natural public right that should be in the hands of the state to ensure a non-appropriation of a resource that is for all. The assumptions are the following: (i) is a public natural resource owned by the state, thus, by all citizens; and (ii) it is a vital element for life and human health. The idea of water as a human right implicitly states that individuals have an inherent right and an entitlement to water and that it belongs to all inhabitants of the earth. Therefore water is unlike any other resource. But there is something that has to be taken into account and it is that even though water may have ‘come from God’, it came without the pipes to bring it to our households, industries, fields, etc., and without a natural efficient treatment system in accordance with the rate of human consumption and pollution. In the strictest sense, recognizing water as a human right would require creating national and international legal obligations and responsibilities that are not in place today, that would allocate a minimum amount of water per person for a definite period of time. (Mehta,

2003)

From an economic point of view, water has a price and this price will be “self correcting and self-regulating in the free market” (Gutierrez et al., 2003) As a public good, water has a standard definition with inherent characteristics of being a non-rival good for consumption and by having non-excludable benefits. (Kaul and Mendoza, 2003) The notion of water as a public good, which in the end is a social construction developed by policy choices and human actions, implicitly states that the state is the provider, thus taxes are the main financing mechanisms. It also assumes that the market cannot price water efficiently and that it is in the group of commodities where markets fail, thus promotes the rationality for government intervention.

This is a traditional notion of a public good that needs some revisiting; a revisiting that takes into account actual socioeconomic and political realities. If for example, a person drinks a glass of water, this water is no longer available for others. In this sense water is a rival good and contradicts the standard definition of a public good, therefore “water is not a pure public good – (it is)... a common pool resource that is non-excludable but rival in consumption” (Mehta, 2003); rather it is a contested resource. People see water as something for which they have to compete (and should not) and this contradiction generates divisions. Through institutional arrangements and regulatory frameworks that strive for an efficient use and a guaranteed equitable distribution with legal protection, it can be made ‘more public,’ and in compliance with its ‘human right’ characteristic.

But issues of ownership, control, regulation and equitable access still remain unsolved. The nature of water nature makes difficult to determine water rights and can lead to conflicts over access; the hydrological cycle is not static in time or space. It is also closely related to land rights as the use of land is determined greatly by the availability of water. In this sense, water and land rights need to be reformed coherently. Along with water rights there should be water responsibilities as well, in order to not only maintain the resource but to respect the use that others need to make with water, such as downstream users, the avoidance of pollution and resource depletion due to overexploitation.

Water also acquires different values for different economic, sociocultural and environmental uses. Water is claimed by multiple actors in society, and for diverse uses. Another, less debated issue is who owns the water when it becomes waste and who is responsible for preventing water contamination. It is common that nobody wants to claim ownership of this so it is a responsibility of the state to handle wastewater and promote environmental protection by minimizing water pollution through tax mechanisms.

In the globalization era, the structuring of the ‘public domain’ is taking new faces. Achieving a balance between equity and efficiency, and adequacy of provision of water are sticky and complicated issues. Making policy decisions regarding this needs a clear conceptualization of what a public good is in order to shape the actions that humans do. Water has costs and benefits that cut across countries, regions, economic sectors, and across current and future generations.

There are many parts of cities in the world, mostly in the developing countries, that have no access to water and sanitation systems and users get their water from polluted rivers or buy it from private sellers at high prices. A top priority of political leaders must be to take action for an appropriate institutional arrangement to ensure this commodity as a basic human right, as established by the United Nations Committee on Economic, Cultural and Social Rights. Every administration should be doing whatever is possible to get water to those that don't have access to a reliable water source and are excluded from the water and sanitation systems. In the majority of cases this means connecting poor areas and providing subsidies for those who cannot afford the price of the good and the service; and this surely requires alternative ways of acquiring the financial resources, as governments from developing countries who own and manage the water and sanitation systems, in general, have relatively low capabilities for tax collection and administration. (Moreno, 2006) The effective governance of water would require that water rights and obligations are clearly defined.

II.1.2. The Value of Water & Tariff Setting

The value of water is not easy to determine as it depends on different aspects that vary in particular scenarios where culture, traditions, aesthetics, economics and competition for its different uses and users are key determinants. As the World Water Development Report states, the “value of water is a multidimensional and controversial concept... it seems that there exist as many approaches to valuing water as there are societies and cultural settings.” (UN and WWAP, 2003) For example, in rural Kutch in western India, there are seven ways to refer to water: sweet, saline, bland, surface, subterranean, ripe, and raw. Each type of water has different costs and benefits for different users. (Mehta, 2003) Still, after various international conferences and meetings about water issues, efforts have been made and there are some general principles about water that are becoming widely accepted.

For example, amongst the resulting outcomes of the International Conference on Water and the Environment celebrated in Dublin, on January 1992 -previous to the Rio Summit, -was the establishment of four guiding principles for action that remain vivid today. The fourth principle says: “Water has an economic value in all its competing uses and should be recognized as an economic good.” Nevertheless, it is also established that “it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price.” (GDRC, 1992) What this principle explicitly establishes is that water is a basic resource for all humans and that we all have the right to access it. This includes the concept of equity in the use of water. If people all around the world have the same right to access potable water, then it is necessary to establish management systems that are able to provide it.

But prioritizing the use of water is a sticky issue because, as mentioned earlier, it depends on social, cultural, political and economic traditions. It is context-dependent. Nevertheless, providing water must take into account that it should not be sold at a price

that is more than the value that costumers place on it, as this could derive in social and political unrest, as recent cases have shown (e.g. El Alto and Cochabamba in Bolivia). Affordable prices mean having the ability to recover the costs of supplying water through tariffs that are socially acceptable. Cost recovery is an important notion to be introduced in water management systems in order to promote efficiency and efficacy of use, and a sustainable service. This notion will invariably be linked to the establishment of water tariffs. “The reforms of water policies need to include the need for equating water costs and prices with its value to the beneficiaries.” (UN and WWAP, 2003)

So, in order to establish a coherent management system with appropriate water tariffs, it is necessary to be able to differentiate three concepts regarding water:

- a) value,
- b) price, and
- c) cost of water

a) The value is the measurement of the benefits that users give to water. (Beato, 2002) These benefits vary depending on culture, geographical location, economic activities involved and other non-economic benefits of water. Defining water’s benefits is not an easy task, but it is possible when there is public participation and management is decentralized at the local level. Additionally, the value of water also depends on its availability. You put more value on it when you face scarcity, and you put less when there is abundance. Its value is site-specific as it differs when offer and demand are in the same or different locations. This becomes a core characteristic for the institutional arrangement necessary for its management.

b) The price is represented in the tariffs that consumers have to pay to receive the water they need. (Beato, 2002) A tariff is a payment for access and provision to water services. The price of water is a key determinant of both the economic efficiency and the environmental effectiveness of water services. It is in many cases difficult to establish because property rights of water are not clearly defined. “Most of the world's water resources are implicitly or explicitly government-owned, leaving rights to water from particular sources and for different uses vague and often inconsistent.” (Tynan, 2000). In most countries water is state property therefore the state is responsible of clearly defining property rights and responsibilities.

The full range of phases in the water services sector must be well priced, including production, supply and delivery, sewage treatment and disposal, so that costs can be recovered and sustainability in the service can be achieved. Therefore a requisite to provide an efficient service and to promote an optimal use of water is a coherent tariff scheme. (Mehta, 2003)

An absence of coherent tariff policies generates a deficient service. Furthermore, public water companies usually suffer from a lack of measurement of water consumption and bad commercial management that generates financial losses. So, in order to have a coherent tariff system for water and sanitation, several basic requisites are needed:

- Make sure the goals are clear and well defined before embarking on a tariff reform.
- There must be a financial policy for the water services sector
- Tariffs must be in accordance with the financial and economic feasibility, and must contribute to equity and redistribution
- Charges for consumption and discharge must be correspondent to the cost per volume of water used
- Maximum limits for subsidization must be established before hand and they must be accounted for in the investment needs. (Beato, 2002)
- Public Participation mechanisms must be included in tariff setting as prices are influenced by cultural practices and social and gender relations.(Mehta, 2003)

These requisites may be met and a renewed tariff structure may be appropriately designed by generating a good strategy of action. For this, there are a series of useful questions that should be answered while designing a tariff strategy:

Table 2: Useful Questions To Design a Tariff Scheme

1.	What is the present service coverage in the contract area, by levels or service?
2.	What is the socioeconomic profile of the population served?
3.	What is the consumption profile?
4.	What is the consumption profile by socioeconomic strata, and by levels of service?
5.	What subsidies are embedded in the present tariff structure (how are they distributed)?
6.	What are the objectives set in the contract in terms of extension and improvement of service?
7.	What is the socioeconomic profile of the population present not served or underserved?
8.	What are the financial consequences of extending coverage to that population?
9.	What is the justification –political, economic- for the present tariff structure? Who designed it, on which basis, and when? Is the tariff study available?
10.	Is there socioeconomic data available to carry out a tariff study?
11.	What is the operator’s perception about the present tariff structure and its efficiency?
12.	Are there other issues regarding efficiency, equity and financial sustainability?
13.	What is the population’s perception about the present water tariff? Does the utility or responsible authority communicate relevant information to the population?
14.	What is the position of the regulator regarding a reform of tariff structure?
15.	Are there previous proposals for reform?
16.	How is the relationship between the operator and the client and regulator? Does it produce workable solutions?
17.	Are different utilities in different situations?

Source: (Sohail, 2004)

c) Lastly, the cost of water includes the costs of building, maintaining and operating the infrastructure necessary to obtain and transport water from point A (extraction) to point B

(end users), to point C (sewage treatment) taking into account the intermediate processes of water quality management. A first step is to establish what are these costs of production, treatment, transportation, operation and distribution. For sanitation, it is necessary to establish the costs of collecting and treating wastewater for its final disposal. This process of establishing costs will result in tariff setting, and it is very important to include public participation mechanisms during the process.

Better valuation of water also depends on how the costs are going to be financed. For this we need to establish what are the investment needs to obtain the goals established and what are the available financing sources. Water has to be priced so we can measure more accurately any given situation and analyze the economic efforts needed to achieve the goals, in this case, the related MDG goal. Some estimates of the cost that will be incurred if we are to meet the drinking water target of the MDGs in the next 10 years have been developed and, even though an accuracy cannot be accounted for, it is stated that “between US\$10 billion and US\$30 billion a year on top of the amount already being spent” is needed. On sanitation, the estimates “range from US\$20 per person to US\$500 per person per year; ... total funding requirements for the whole water sector are estimated by three sources as ranging from approximately US\$111 billion to US\$180 billion a year” (UN and WWAP, 2003).

Being able to finance the costs of implementing the needed W&S infrastructure is a difficult issue as governments who own and manage approximately 90 percent of the world’s water services, in general do not have the fiscal capacity to meet those needs.

II.1.3. Water Financing and Subsidies

So, how can the right to water be financed? We now that reliable financing is needed to obtain safe drinking water (effective treatment, secure distribution, continuous monitoring, and quick action rehabilitation of infrastructure when problems are found) and to expand water supply and sanitation services to those without access.

Financing can come from a wide range of sources, including public revenues from taxes, international development assistance (through loans or donations), private financing, and charging for the use of water services. Ideally over the longer term the water system, in order to be sustainable, must be able to finance itself. Therefore it must strive to rely primarily on water tariffs, with provisions (such as subsidies) made to ensure affordable access by the poor to water services.

As mentioned previously in this section, one of the outcomes of the recent 4th World Water Forum was that management approach should focus at the local level and that users must get closely involved in the management of water resources. For this, decentralization needs to be promoted; municipalities must strive for their ability to pay the costs of maintaining their drinking water systems and they must be able to access financial mechanisms through, for example micro-credits, and develop local capital markets that enable sustained financing. The issue is finding an appropriate financial mix at the local level (municipality) that will enable the sector, in the medium-long term, to

become auto sustainable. This is not easy as municipalities lack sufficient revenues to finance their W&S infrastructure and maintenance and lack the appropriate financial organization.

A requirement for governments to find and maintain this appropriate local financial mix is the need to shift from supply to demand-oriented financing mechanisms and to make improvements in their accounting systems at a decentralized level. Clarity and transparency will make it easier to attract different investment sources. Recent trends show that many governments are building legislation for full cost recovery of water services (see the Canadian system, (e.g. Ontario)). This means that all costs are identified, budgeted for and recovered through a variety of user fees and charges. Uniform and clear accounting standards for reporting and appropriate technical instruments are key to create and maintain a coherent financial system with clear tariff schemes. As Van Dijk reports (Van Dijk, 2004) there are some key requisites for the establishment of decentralized financial institutions for water services provision:

- Professional management and a committed permanent staff with career opportunities.
- Greater market orientation that would lead to more rigorous project appraisal procedures and selection processes.
- Evolve an efficient market mechanism where appropriate institutional arrangements that can mediate between “surplus spenders” and “deficit spenders” in the economy, with an ‘investor-friendly’ regulatory environment.
- Optimize the mix of government and private sector competencies by identifying win-win situations.

Additionally, in municipalities where subsidies are necessary, its policies must be based on clearly organized financial objectives where key actors are defined: mainly, the ones who will receive the subsidy and the ones who will finance it. The amount of subsidies must also be defined as well as the goals expected to achieve with those subsidies. The aforementioned application of methodologies to measure the household income levels is necessary to determine who receives subsidies and for how much, and in this process all stakeholders (central and local government, public or private service providers, consumers and financers) must be involved.

II.2. Water Governance and Management

The term ‘governance’ is a somewhat elusive concept, but in general terms it refers to the “implementation and development of efficient and stable institutional arrangements that enable the conditions to confront constant challenges that societies face.” (Corrales, 2002) Governance implies institutions, and institutions are enduring rules in society in which decisions are made, (Baumgartner and Jones, 2002) therefore the term refers to the political and administrative characteristics of a problem that needs to be solved. When there is a governance crisis it means that the institutions are not well founded in society or that society no longer admits the established institutions and it starts a process of establishing new rules of the game. Thus, the concept of governance implies a relationship between society and its government.

With regards to water, the term governance refers to “the range of political, social, economic, and administrative systems that are in place to allocate, develop and manage water resources and the delivery of water services for a society.”(Rogers, 2002) This definition inherently states that there must be a design process of socially accepted public policies that strive for an adequate development of water related issues. These ‘socially accepted’ policies refer to a common understanding of the nature of the relationship between water and society: that decisions about the management system for water services should be agreed upon. An institutional arrangement capable of designing consensual and transparent management systems that necessarily includes public participation, thus providing information and knowledge transfer.

As water is a common and shared resource, its appropriation by one user will have an impact over the interests of other users, therefore there is the need for the creation of an environment where people with different interests can discuss and reach an agreement to cooperate and coordinate actions for the well being of the general public. This can be done more effectively at the local level (municipality). An effective governance of water resources is one that has methodologically evolved to the point where it can design and implement an institutional arrangement capable of maximizing cooperation and generating compromise between actors for the equitable and efficient allocation of water. In his report, Peter Rogers (Rogers, 2002) established some basic principles of what water governance should be. A few of them are summarized below:

a. Open, Transparent, and Accountable. Government agencies and private companies, must actively communicate, in an accessible language, about the political and financial decisions they take. The “rules of the game” have to be clearly specified (and the consequences of their violation). Good accounting. This improves the levels of citizen trust in institutions and helps them follow the steps established with a particular policy.

b. Participative. Wide channels for public participation should be available throughout the decision making process. This will ensure quality, relevance and effectiveness of government policies.

c. Effectiveness and Efficiency. Clear objectives and evaluations of the processes are key for an efficient delivery of what society needs. An appropriate accounting system and a coherent financial reporting are necessary.

d. Coherent and Sustainable. Policies and action must be coherent and easily understood. Coherence requires political leadership and a strong responsibility on the part of the institutions to ensure a consistent approach within a complex system. Accounting and financial systems must be coherent. Policies must serve future as well as present users of water services.

e. Equitable. Equity between and among the various interest groups, stakeholders, and consumer-voters needs to be monitored throughout the process of policy development and implementation.

f. Ethical. Above all, water governance has to be strongly based upon the ethical principles of the society in which it functions. This manifests itself most strongly in the issue of property rights for use, access, and ownership of water.

Additionally, the New Public Management (NPM) Theory has introduced innovative ideas for improving public management, and concepts like customer orientation, autonomy, accountability, and market based instruments in public management are increasingly being introduced. The NPM paradigm, under which best practices in public management are mostly being promoted, is one of rational economics, where markets have an important role in optimizing organizational efficiency, therefore there seems to be a widespread notion that “efficiency will be acquired if the public sector adopts models from the private sector; organizations are better able to survive in a competitive market economy if they are more efficient and operate under more effective management systems.” (Collier, 2004)

Studies suggest that in many regions and countries in the world there is not a sustainable use of water resources (Sayedoff and Spiller, 1999) and that flawed management has led to polluted and overexploited freshwater sources, undermining water quality and making it unfit for human use. (Mehta, 2003) Water is being contaminated and aquifers are being depleted, natural monopolization tends to promote a lack of efficiency and equitable distribution, there are conflicts between administrative jurisdictions –national and international- regarding allocation, distribution, etc. It is therefore necessary to start a renovation process of the existing institutional arrangements dealing with water, along with its managerial systems so that efficiency, equitable distribution, good quality and low prices can be achieved.

In order to meet these current and future needs, many countries will have to reconceptualize water policies and management of its service. This requires new norms such as market-based instruments. There is not one formula that can make water services function appropriately everywhere as each country, city, or town setting has unique conditions and necessities that define in a large manner the appropriate management

system. But the key issue is managing water having in mind that it is an economic good to which every human has the right to access.

Good governance and an appropriate institutional arrangement in the water sector are determinant factors to achieve the targets established in the MDGs. Management is invariably linked to these aspects as the water sector development depends much on the decisions made and the way they are made regarding the arrangements needed to provide water and sanitation services and the setting of tariffs.

To achieve appropriate *water governance* with the characteristics previously mentioned - efficient, equitable, good quality and affordability-, there are various challenges to overcome. Amongst these are:

- b. A lack of political will.
- c. Reconceptualize the common understanding of water (water is a right and an economic good that needs to be paid for).
- d. Water rights and obligations must be clearly defined.
- e. Reforming inadequate water policies and regulatory frameworks.
- f. Reforming weak and disorganized institutional arrangements that contain high levels of politization, and lack of autonomy to make decisions.
- g. Decentralization.
- h. Counteracting the power asymmetries and inequalities in water distribution and delivery through regulation. (Mehta, 2003)
- i. Avoid the rejection to any form of private sector participation.
- j. Lack of technical and financial resources to invest in W&S infrastructure, operation and management.(Beato, 2002)

Additionally, in order to obtain adequate *management of water services*, another series of tasks need to be addressed. These include the following:

- More studies -country, regional and local- that are able to show what are the actual water demands by sector and by segment of population. This may help to calculate a more accurate allocation and determine an efficient consumption, taking into account the universal right of access.
- An efficient administration of operations that enables an appropriate distribution in accordance with water uses.
- An efficient financial administration that recovers the costs of service, operation, and maintenance of the W&S system by implementing adequate water price policies.(Mehta, 2003)
- The establishment of water tariffs according to users' ability to pay and the use that will be given to water, considering financial schemes where the poor can be subsidized or partially subsidized. (Beato, 2002)
- Give continuation to 'senior water managers' and avoid the constant change of personnel in the water services sector every time there is a change of government.
- Decentralization of political and managerial decision making.

This last bullet, which was also previously mentioned in section I of this paper, resumes one of the key outcomes of the recent 4th World Water Forum. It was highlighted that the

management approach should focus at the local level and that users must get closely involved in the management of water resources. It is stated that many of the current problems of water governance derive from too rigid, hierarchical and a centralized control by the State, and its inability to provide sufficient water related services or enforce regulations. On the other hand, it is often argued that local communities, through water users' organizations, can govern common resources in more equitable and efficient ways. The decentralization of management responsibilities to the lowest possible level of administration in this sector should be promoted along with technical assistance that enhances the local capabilities and facilitates managerial decentralization.

III. GOVERNMENTS OR MARKETS: AN ONGOING DEBATE

What is the role of governments and markets in the functioning of the economic system? Are water users citizens –ones who have rights- or consumers – the ones who sufficiently value a commodity such that there will be willingness to pay for that commodity? (Gutierrez et al., 2003) These are key questions within the debate taking place in water services regarding the participation of the private sector in a traditionally owned and managed public sector.

Both markets and governments are mechanisms in society by which economic activities are coordinated, and each one plays a role in the provision of goods, being they public or private. In general, the provision of private goods is perceived as a market function, and the provision of public goods relies on the state. But as we have seen, both sectors contribute to the public and private domains as the characteristics of goods such as water, can change; sometimes water behaves as a private good and sometimes as a public good. Sometimes one of the sectors presents a better management performance than the other and this largely depends on the socioeconomic and cultural conditions in which water is perceived by society. As presented in section II.1.2, water is a good with somewhat contradictory characteristics.

Water is considered a public good. From an economic perspective, this implicitly carries the notions of non-rivalry and non-excludability. (see section II.1.2) The intervention of government in the water sector (owning it and managing it) has a rationale based on the fulfillment of these characteristics. In fact, the existence of the state is more or less based on the provision of public goods. A radical pro-government perspective, “based on an idealized model of an informed, efficient and humane government, presents that government policy and intervention are key aspects to maintain economic stability, efficiency and enhanced social equity and it is able to remedy market deficiencies.” (Wolf, 1994) On the other hand, a pro-market perspective, also in its radical sense, states that “a freely functioning market economy results in economic and technological progress, an efficient utilization of resources, a rising standard of living that with certain exceptions it will be distributed with reasonable equity and a society characterized by social mobility and political freedom.” (Wolf, 1994)

Both of these views are an idealization of what should be and neither of them actually happens in real life. They more or less represent the two extremes in a pendulum, and both present failures and successes. Water is a contradictory resource: it is sometimes a public good sometimes a private good and often somewhere in between. Water services development can lead to natural monopolies, and it presents economic and physical externalities. These inherent characteristics of water have led to various types of failures, including market failures, government failures, or simply system failures that are generally attributed to either one of the two, depending on the political debate of the moment.

The most common government failures can be related to a lack of knowledge of the water

resource, its uses and the existing demands for it, deficient organizational and institutional arrangements to operate and regulate water use. (Beato, 2002) Because water services are generally a state natural monopoly, the state has, in many cases, an extended bureaucracy and a lack of incentives for efficiency. Additionally, the absence of regulation and legislation, and a lack of institutional efficacy to promote intersectoral communication and public participation, including mechanisms for conflict resolution, can also be related to government failure. So, in sum, causes for government failures typically include the characteristics presented in the following table:

Table 3: Typical Characteristics of Government Failures

Failure to correct market distortions,
Failure to regulate prices,
Failure to establish coherent subsidies for the poor.
Failure to ‘punish’ polluters.
Inappropriate tax incentives and credits,
Over-regulation or under-regulation, and conflicting regulatory regimes
Bureaucratic obstacles or inertia,
Political short-sightedness,
Voter ignorance and imperfect information,
Special interest effects, including political weaknesses and vested interests,
Little entrepreneurial incentive for internal efficiency,
Imprecise reflection of consumer preferences and the bundle purchase effect,
The ability of the government to control and regulate the sustainable use,
The non-payment of services,
The independence and impartiality of the organisms of regulation,
The effective knowledge of the resource,
The demands imposed on, the resource, and the current uses that are made of it.

Source: (Rogers, 2002)

On the other hand, advocates of free market tend to favor private and transferable water rights, and pricing that reflects scarcities. (Mehta, 2003) The assumption is that this will lead more efficient and equitable allocation and will promote an optimal use by avoiding wasteful practices. But private property rights imply excludability as the owner can choose not to provide water to those who cannot afford it. This might exclude the poor from being able to consume water and this is a legitimate claim made with regards to market failure. Additionally, many of the typical dysfunctions of the market are related to the lack of market for certain things that do not have a price, and which are common in the water sector. Examples of this can be the control of water quality, or the control of floods, etc. (Beato, 2002) In general a lack of certainty in the water market may influence an appropriate pricing. Moreover from a merely economic point of view, market failures mean “the existence of monopoly, monopsony, price controls, externalities and public goods preventing the attainment of economic efficiency,” (Van Dijk, 2003) hence, taxes are needed to finance these market failures. Market failures are then those non-economic outcomes that are typically caused by any of the following:

Table 4: Typical Characteristics of Market Failures

The existence of upstream downstream externalities (environmental, economic, and social)
Unpriced assets and missing markets, such as water rights, or issues like flood control, which are not priced.
Flood control and water quality can often be public goods
There are economies-of-scale in most water investments and many management systems.
The transaction costs of trading or selling water may be prohibitively high.
Who owns the property rights may not be clear.
There may be large ignorance and uncertainty about water markets, leading to inability to set prices correctly.
The policies may be shortsighted and miss benefits and costs due to third parties.
The choices may be irreversible.
Provision of water services are natural monopolies.

Source: (Rogers, 2002)

In addition, there also the so-called system failures that may be an absence of appropriate legislation and of mechanisms for decision and conflict resolution, lack of intersectoral communication and lack of mechanisms for public participation. (Rogers, 2002)

The conclusion is that water policy decision makers are confronted nowadays with restricted options, in the sense that they need to choose between imperfect functioning markets, and imperfect functioning governments to come up with a solution to provide adequate water services.

But the question remains. Even though we must acknowledge that users are both citizens that have the right to access potable water, and consumers that must assume an economic cost for their access to water, how can we measure these variables and prioritize potential benefits and failures in order to decide which political and economic options to choose? As mentioned previously, there is not a magic formula for every case, but there are certain parameters that can be followed. One of them is efficiency: If the market can accomplish a job using less resources, therefore lower costs, than other institutional arrangements, then it is beneficial, but if other institutional arrangements may do the same task at a lower cost, or do it better for the same cost, then the market is inefficient and a government approach is better suited. (Wolf, 1994) Another key parameter is the distribution of the resource. This might be even more important than the efficiency parameter as it has the ability to make more heart-felt social judgments, and thus have more impact over the socially accepted concept of ‘equality.’

The following two subsections summarize some of the most common pros and cons actually existing in the debate about private participation in water services management.

III.1. Arguments Against Private Participation in Water Services

Water services have been traditionally provided by the state, but recently this has begun to change and the private sector has been increasingly participating in the provision of this service. There are many sectors in society who reject private sector participation. The arguments used for this are political and economic. Van Dijk clearly presents them in his report; they are the following (Van Dijk, 2003):

Political Arguments

- Privatization does not work because it has failed in its implementation and furthermore in providing an appropriate service while increasing prices.
- Unbundling the water services sector is a difficult task.
- Government intervention is needed to avoid the lack of subsidies for the poor
- Citizens expect the government to solve things that may go wrong with the service. The feeling is that at least with the government involved you, as a citizen, still have some control and can do something about it.
- Fear of stranded costs as a consequence of the fall of prices.

Theoretical Arguments

- Water is a public good and a human right.
- Market failures justify government intervention to solve disparities.
- Water services are a natural monopoly managed by government.
- Externalities (positive and negative) are not taken into account by private operators, so the price does not reflect the real cost.
- The vertical integration of the water sector is in contradiction with the free market as it does not permit competition.
- Sunk costs are barriers for new entries in the sector. Incumbents want a return of their previous investments in infrastructure. Permissions to operate water companies are difficult to get.

III.2. Arguments in Favor of Private Participation in Water Services

The advocates of private sector participation promote a liberalization of the water sector into the market. The main arguments in favor of this, also presented by Van Dijk in his inaugural address (Van Dijk, 2003) are:

Political Arguments

- It is expensive and unsustainable to subsidize water.
- Political pressure from private businesses pushing for the liberalization of the market is high.
- Governments do not have necessary financial capabilities to invest in the infrastructure and related services required.
- There is a need for independent regulation
- Customer orientation leads to better services and prices claimed by citizens.

Theoretical Arguments

- Governments fail to provide adequate water services. Coverage, price, and quality.
- Private companies may attract FDI more easily because they have more contact with the outside world; closer contact with the international financial possibilities. Also private companies need a well-defined financial scheme to operate that ensures gains in its operations and enables new investments to expand coverage of services.
- If entry barriers are removed or softened, private suppliers will have more space to step in the business, compete and increase the rate of investment in the sector.
- Increased efficiency in resource exploitation because private firms can set up multi-utilities that can achieve economies of scale and scope. Competition brings prices down and stimulates technological innovation, thus an improvement of the service. Private companies have incentives to rationalize costs and efficiently allocate its resources because its gain depends on that.

These arguments against and in favor may help us try to analyze and figure out tools for debate which can result in the ‘optimal’ degree of privatization, or at least the nearest to optimal. We know that privatizing may bring significant gains in the efficiency of the system, but we also know that the water sector has characteristics of a water monopoly, therefore the argument in favor of public sector involvement is strong. Additionally, the notion of public participation is undermined if citizens do not see that their interests are taken into account by a private company that follows its own interests. The regulatory role of the state and its institutional framework must create well-defined rights and obligations and have the ability to assign responsibilities; furthermore it has the democratic obligation to promote public participation, and this is a key aspect for success in every water management experiment.

IV. HOW DOES THE PRIVATE SECTOR PARTICIPATE IN WATER SERVICES?

As mentioned in the previous section, the claim about the increase of efficiency due to private sector participation in water services exists and in many cases has proved successful. Nevertheless this efficiency does not necessarily guarantee that the social benefits will be distributed equitably and universally. This is one of the reasons why the concept of privatization generates controversy, and it gives rise to feelings such as “that it can distort the notion of ‘value’ by replacing it with one of ‘price.’” (UN and WWAP, 2003)

Even though most water and sanitation systems in the world remain under the public domain, there is a growing industry of private water service providers that are competing for the right to finance, build, manage and operate water service facilities. Recent trends show the increasing involvement of private water companies in urban water supply and sanitation of developed countries, as full or partial privatization is gradually taking place. Parallely, governments are shifting their operational responsibilities to a regulating function (OECD, 2003) It seems though that water is moving away from being a public service run by the state to an economic commodity managed as such. Development Banks, such as the World Bank, and other donors have also been promoting the private sector as a solution for the improvement of water and sanitation conditions in developing countries where there are restrictions in public sector borrowing and expenditures. Therefore several multinational water companies have been actively lobbying and have acquired contracts to operate water services there through loans and grants provided by these entities.

As already mentioned, and as Public Choice theorists have shown, the water sector gives rise to common pool problems that markets cannot deal with efficiently therefore governmental regulation appears as a way to remedy those failures. (Sabatier, 1993) It must not be forgotten that today the public sector owns and manages more than ninety percent of the water sector, so striving for better and efficient public management is imperative if we want to see a fulfillment of the MDGs. Private sector participation can help the public sector to improve its performance and vice versa, but the results of private sector involvement will greatly depend in the institutional and regulatory arrangements (the rules of the game), and in the governance capacity to reinforce the issues of coverage, quality and universal access that countries have in place. The public sector will need to carry on new activities, which will need different skills and knowledge from its personnel, and it will have to withdraw from other activities it has traditionally performed.

An underlying objective of this research project is that: Analyze ways in which public and private sectors cooperate with each other to improve the performance of water services in order to meet the MDGs. The following is a presentation of the several types of arrangements -the previously mentioned shades of gray- in which the private sector can be involved in water services provision.

But before starting with this it is necessary to establish that, first, a prior regulation of the sector is a key aspect for the adequate provision of water services, and second, it should be made clear that there are situations in which private firms are enabled to operate public water systems without buying assets of the public water company. This is what is called Private Sector Participation in the Public Sector, or Public-Private Partnerships (PPP). It happens when there is contracting out or outsourcing of certain aspects of the water services process. It refers to “any form of agreement between public and private parties. In these types of arrangements, governments remain responsible for monitoring the activities agreed in the contract and for guaranteeing that the consumers’ interests are met. They should not be misunderstood as privatization, where ownership and management of infrastructure are transferred completely to the private sector.” (OECD, 2003) In other words, an actual ‘privatization’ happens when the assets of a public company have been bought by a private entity. The total sell out of a public water system is usually done through public share offerings, and this means that the entire system is now a private property. As of today, this model has only taken place in the United Kingdom. (Hall and Lobina, 2006)

There are several types of forms of transferring water services activities from the state to the private sector. Each one has different implications with regards to degree of responsibility of each party, investment, and coverage. Some arrangements keep the ownership and the operative system in public hands, while involving the private sector in the design and construction of the infrastructure. Other arrangements involve private companies in the management, operation, and financing of assets. Each type of arrangement requires a proper balance of power between the actors involved in the activities. These are:

Concessions – This is when a public authority enters in a contract with a private firm so that the latter runs the water system, which is publicly owned. The private firm is able to charge costumers and make a profit out of this. Typically, in a concession contract, targets are set out to be met by the private firm, such as particular type of investment during a specific time spam, or for example, to increase coverage to a certain amount of households. The private firm is responsible to make the necessary investments on infrastructure. Doing so, the private firm is able to obtain its financing from various sources. Concessions are generally granted for a long-term, sometimes more than fifty years. (Hall and Lobina, 2006)

Joint Ventures – These are strategic alliances made between public and private entities to undertake projects. Parties agree to create a new entity (often called a mixed capital entity) together by both contributing equity and then they share in the revenues, expenses, and control of the entity. (Wikipedia, 2006)

Leases – These are contracts in which the private firm is responsible to operate the distribution system that is actually in place and to maintain and renew its infrastructure when needed by its own investment. With this type of contract the public authority, and not the private firm, remains responsible for making new investments for the expansion

of the network to connect more households to the water and sanitation system. (Hall and Lobina, 2006)

Management Contracts – These are contracts where private firms are responsible for the management of the water services but they are not obliged to make any type of investment, therefore the risks for the private firm are minimal. The private firm is paid by the management service it provides. Typically these contracts are for short periods of time (between 1 to 5 years).(Hall and Lobina, 2006)

Build Operate Transfer (BOT) Contracts – This type of contract is generally made to build new infrastructure for which the public sector does not have the necessary financing capabilities. These contracts do not deal with the distribution system, rather they are typically used to build reservoirs and treatment plants. “The private sector receives a franchise from the public sector to finance, design, construct, and operate a facility for a specified period, after which ownership is transferred back to the public sector.” (Wikipedia, 2006)

As observed, a management contract does not involve private investment while leases do by maintaining the system, and concessions do as well by maintaining and expanding the system. To achieve the MDGs in water and sanitation, the expansion of the system is necessary, so in this case, and in a simplified view, the concessions in theory are the form of contract that provides the best alternative to achieve those goals through private investment. Even though the BOT contracts involve private investment, and have an indirect impact on the general finances of the sector, they typically have nothing to do with the expansion of the distribution system.

It must be said that entering into a contract of any type does not guarantee that things will run smoothly. There are different degrees of responsibility in each type of contract. As can be observed in the following table, the typical degrees of responsibility between public and private parties vary depending on the arrangement that was made. A first glance at the table below shows that in the majority of arrangements made, the public sector maintains the most responsibilities, alone or shared. It is important to note that setting performance standards and monitoring them is a public responsibility, therefore clear regulation must be in place so that effectiveness is achieved.

Table 5: Matrix of Allocation of Public/Private Responsibilities across Different Forms of Private Sector Involvement in the Water Services

	Setting Performance Standards	Ownership of Assets	Capital Investment	Design, Build and Maintain	Operation	User Fee Collection	Monitoring Performance and Fees
Full Public Provision	Red	Red	Red	Red	Red	Red	Red
Concession	Red	Red	Yellow	Yellow	Yellow	Yellow	Red
Joint Ventures	Red	Blue	Blue	Blue	Blue	Blue	Red
Lease	Red	Red	Red	Blue	Yellow	Red	Red
Management Contract	Red	Red	Red	Red	Yellow	Blue	Red
BOT	Red	Red	Yellow	Yellow	Yellow	Red	Red
Full Private Provision	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Red

Key: Red = Public Responsibility; Blue= Shared Public/Private Responsibility; Yellow= Private Responsibility

Source: Yale-UNDP Partnerships Program 1998 & OECD, (2000), Global Trends in Urban Water Supply and Waste Water Financing and Management: Changing Roles for the Public and Private Sector, Paris in (OECD, 2003)

It is recommended to establish an institutional arrangement where a third party (typically another public entity) is responsible of tracking and monitoring the contract so the parties can be held accountable for the responsibilities they assume. This third party must have the necessary power to modify certain aspects of contracts in case there are ambiguous interpretations, and act as a facilitator of conflict resolution.

These different forms of private sector involvement in water-based public services requires readjustments in the roles the state plays in water management. The state will have to withdraw from some activities and will need to take on new ones, generally in managerial actions for regulation. New institutional arrangements are needed so that the on-going government responsibility for the provision of basic water services can be met, even when the operators of such services are private companies. As the following table shows, most of the alternatives for private sector participation discussed above are feasible.

Table 6: Forms of Private Sector Participation in Water Services

Public Ownership	YES
Concessions	YES – Most Probable (Due to the sunk and long-term nature of investments, there are difficulties for effective regulation, and a high regulatory risk.)
Joint Ventures	YES (with an appropriate institutional and regulatory framework, a strong regulatory capacity and low regulatory risk)
Leasing	YES – Under special circumstances (Where there is an inadequate regulatory framework or political and economic instability.)
Management and Service Contracts	YES (Possible transitional or wherever they are effective alternatives under any ownership agreement.)

<i>BOTs</i>	<p style="text-align: center;">YES</p> <p style="text-align: center;">(Possible transitional or wherever they are effective alternatives under any ownership agreement.)</p>
<i>Unregulated Private Ownership</i>	<p style="text-align: center;">NO</p> <p style="text-align: center;">(it might be acceptable where there is a large unmet demand)</p>

Source: (Lee and Jouravlev, 1997)

V. WATER SERVICES IN THE LATIN AMERICA REGION

Latin America has an approximate area of 17.9 million square km and a population of less than 400 million, which represents about 6% of the world total. It produces about 26 percent of the world's water resources. Even though there are critical cases of populations with water shortages in several areas in Latin America, in a global perspective these countries are in the global 'middle-water-income' bracket range. Countries in Africa or Asia apparently have worse situations. In Latin America "total water supply coverage is extended to approximately 87 percent of the population, while total sanitation coverage is slightly lower at 78 percent. However, (...) if adequate provision for water supply is taken to be a house connection from a pipe distribution system and sanitation is taken to mean a toilet connected to a sewer, the lack of adequate provision in cities throughout Latin America...is significantly higher than what the estimates of improved coverage suggest" (UN and WWAP, 2003)

Target 10, within *Goal No. 7* of the MDGs is achievable in Latin America but requires important financial efforts, in a sustainable manner, so that poor and remote areas can be reached and the service maintained. Public sector spending is the actual primary source of financing for water and sanitation systems, and even though global and regional development banks and other donors make contributions, the budget is constantly under constrain and its financial capabilities are not enough. The Inter-American Development Bank has stated that to obtain the goal by 2015 it is necessary to include approximately 70 million new users to potable water services, including the ones that do not have it and the ones who will be needing it in the future, taking into account population growth. The World Bank's Vice-president for Infrastructure and Leader of the Delegation to the recent 4th World Water Forum stated that about 15 percent of the population in Latin America, (aprox. 76 million people) lack safe water, and 116 million do not have access to sanitation services.

Additionally, it is stated that the region, due to management flaws and lousy operational systems, loses about 9 trillion cubic meters of water each year, about 33 percent of the water collected and treated for public consumption. (Sayedoff and Spiller, 1999) The traditional organization of the water services sector in Latin America has some basic characteristics that can be summarized as follows: low prices for water, inadequate tariffs, administrative inefficiency, political interference, lack of commercial capabilities, lack of coverage and water misuse and waste. (Beato, 2002) Political interference in water services is a key factor in the inefficient vicious circle in which many systems are stuck.

Latin American countries have been in a recent process of restructuring and adjustment in their economies and political structures, and this has consequences in the way in which water is managed. The promotion of decentralization and the insertion of market-based mechanisms, as well as private sector participation in public affairs have increased during the last decade. (Moreno, 2006) Among developing countries, it seems that this region is

furthest advanced in its engagement with the private sector. This incursion is something recent and has come along with the aforementioned structural reforms and adjustments, but still, the discussion about private sector involvement in the water and sanitation sector is quite agitated. Both critics and promoters pose well-argued cases on both sides; but what they are lacking is the public acknowledgement that both sides have failures.

Latin America’s governments, regulators and private investors are still in the learning curve. Ambiguous rules regarding tariffs and subsidies, lack of transparency and lack of community participation in the decisions are constant impediments for viable solutions. The great majority of the region's population still depends on public utilities for its water supply, and this situation is not likely to change drastically in the near future. Water governance in Latin America is in crisis, and according to Rogers the five major factors for this crisis are exposed in the following table:

Table 7: Five Major Factors for Water Governance Crisis in Latin America

<ul style="list-style-type: none"> • lack of integrated planning of water use;
<ul style="list-style-type: none"> • the generally dispersed and uncoordinated agencies of the state, NGOs, local governments, the intellectual community, and the multilateral, bilateral, and international agencies who interfere with water planning;
<ul style="list-style-type: none"> • the lack of a transparent (clear rules of the game) and effective institutions for arbitrating conflicts over water use;
<ul style="list-style-type: none"> • the emphasis on certain management instruments, often imported concepts, over carefully thought through instruments that may fit the local conditions better; and
<ul style="list-style-type: none"> • a lack of perceptions of what is actually necessary to effectively govern water.

Source: (Rogers, 2002)

It is therefore necessary to improve public management because, as it is today is deficient, and if no reforms are made the MDGs will not be met. A common denominator in the region is the lack of credibility and lack of trust that citizens have with regards to public institutions. Traditionally, public institutions are seen as inefficient in solving problems that Latin American societies face, and even worse, when political leaders get to do something about it, it tends to get worse as they usually try to pursue their private interests rather than the public interest. There is a lack of qualified human capital in the public sector and the organizational structures that exist are perceived as inefficient and in many cases, redundant. The state is not seen as the guarantor of the respect of the rules of the game. On the other hand, even though there have been some recent positive trends, the mechanisms for public participation are also an impediment for civil society to consolidate as such and this also generates power asymmetries that can remain unsolved when dealing with water issues. For this, and for various other reasons –like the lack of funding for education-, Latin Americans generally feel impotent before the choices they can make to try to improve their situation.

The recent reforms in Latin America have brought more private investment by big water companies if compared to other regions. During the nineties several concessions were

granted and these investments have in many cases contributed to an extension of coverage of water systems. Still, opposing views are present stating that this private sector involvement has not been that beneficial. “While connections appear to have generally increased following privatization, the increases appear to be about the same as in cities that retained public ownership of their water systems”. (Hall and Lobina, 2006) Arguments such as this, even though they are not necessarily scientifically founded, have echo amongst the population who, in the end, is the one that votes.

Private sector participation in water services in Latin America had its first experience in Buenos Aires, Argentina at the beginning of the 90s. Today many Latin American cities have also enabled new experiences with private sector participation: Córdoba, San Miguel, Tucumán and Santa Fe in Argentina, La Paz in Bolivia, various cities in Brasil, Cartagena and Barranquilla in Colombia, in Ecuador, Habana in Cuba, Honduras, Panamá and in Venezuela. It is expected that the private sector will continue to expand its participation across the region for the years to come. (Beato, 2002)

The following is a presentation of four (4) case studies. The intention is to present different experiences of private sector participation in water services in different Latin American cities. As mentioned, the purpose is to evaluate if private sector participation in this cases has improved or worsened the original situation of coverage, quality, and prices, and if these cities are on track to achieve the water goals established in the Millennium Declaration. Each of the case studies is analysed systematically using the same type of variables to compare. First, a background of the city/country is provided which presents the general setting where the case study takes place. Afterwards comes a brief presentation of the regulatory framework where the situation takes place (the legal and institutional environment). Furthermore an explanation of what was the cause for change in each particular setting is presented; mainly, the causes that triggered the change from public management to the participation of the private sector in management of water services. The next section of analysis deals with the form in which the private sector participates: what is the type of arrangement (contract), and what level of private participation is seen and when did it start. It also presents some variables that will later help me compare and explain the success or failure of the management model used. Variables included are: public participation mechanisms and monitoring and dispute resolution mechanisms. Additionally, in order to analyse in measurable results, the water and sanitation conditions are presented in two different moments: a.) at $t(0)$ – the moment when private sector participation starts-, and b.) at $t(1)$ – the present conditions and/or the moment when private participation ends. Factors like the percentage of population served, quality, prices, regulatory issues and problems encountered in the contract are taken into account, in order to make a comparison of the *ex-ante* situation, and the *ex-post* situation.

V.1 The Case of Buenos Aires, Argentina

V.1.1 Background

Throughout most of the 20th century (since 1912), water and sanitation services in the Greater Buenos Aires¹ region, as well as in the rest of the country, were provided by the government through a public company called Obras Sanitarias de la Nación (OSN). OSN was financed with grants from the National Treasury and the provinces. It was a centralized form of water governance that operated as such until the 80's when it shifted to a decentralized management system where provinces were then responsible for the service. Previous to the decision to involve the private sector in the early 90's, the water services sector in Buenos Aires was suffering, as well as many other public services, a financial crisis. The quality and coverage of the system was not adequate and there was no maintenance of the infrastructure. The "OSN suffered from low rates, low collection (cumulative delinquency was estimated to be around 85%), a bloated payroll, an imbalance in the quality of human resources, low investment levels, and deteriorated facilities" (Sayedoff and Spiller, 1999). By the beginning of the 90's, and with the aim of providing a general macroeconomic stability to the country with reforms promoted by the World Bank and the IMF, the government of Carlos S. Menem who was widely popular and had a favorable political environment to make reforms, commenced a generalized privatization of public companies including the water services industry.

V.1.2. Regulatory Framework

When the decision to open the doors for privatization was made, a Privatization Committee was created. This entity received technical and financial assistance from the World Bank. Its first responsibility was to create a draft regulatory framework in which the concession would operate. This draft was passed to Congress for approval. Parallel to this, the municipality, the province and the federal government worked to create the ground for the new regulatory agency, ETOSS (see section V.1.4.4. below), where every level of government would be represented. The federal government as the owner of the assets, and the province and municipality as the geographical areas where the service would be provided. (Lindfield, 1998)

V.1.3. Trigger for change

The system operated by OSN in a centralized manner had a history of malfunctioning that reached its peak during Argentina's generalized financial crisis in the late 1980's. There were too many problems related to management, excessive number of employees and an obsolete tariff system. The investment needs were not supplied and the infrastructure was

¹ The Greater Buenos Aires is comprised of the Federal Capital plus 13 municipalities surrounding the capital. They are all connected to the same water and sanitation system. LINDFIELD, M. R. (1998) Institutions, Incentives and Risk Preparing Markets for Private Financing of Urban Infrastructure. *The Australian Housing and Urban Research Institute*. Brisbane, Queensland University of Technology / Erasmus Universiteit Rotterdam.

not fit to attend an increasing demand of users. This led to a severe crisis in the sewerage system; wastewater was discharged directly into the river without any prior treatment generating negative impacts on human health and the environment. Insufficient water meters and lack of a measured demand, leaking water pipes and latrines spilling into the groundwater, not sufficient capital to maintain existing infrastructure, a staff of more than 8,000 in OSN, political appointments and excessive political intervention, etc. (Lindfield, 1998) were amongst the factors that caused a severe deterioration of the water services in Buenos Aires. Despite the ability to tap water from the river, it had become “artificially scarce due to mismanagement and poor policies, and losses were estimated at 45% of the total volume supplied.” (Zerah and Graham, 2001) The need to obtain funds to rehabilitate and expand the water and sanitation system, as well as a sustained managerial and financial capability were the pressing issues for the federal government to open the doors for private sector participation in this sector, as promoted by the World Bank. (Robson, 2004). This, along with the aforementioned financial crisis, led to a general sell-off of nationalized industries and the water sector was part of them.

V.1.4. Private Sector Involvement

V.1.4.1 Year when contract with private sector was signed (t(1))

An association of water companies, headed by the French Suez and Aguas de Barcelona, created an entity named Aguas Argentinas S.A., who competed against three other bidders and offered the lowest tariffs (Zerah and Graham, 2001), was the one who, in 1992, won the public offering. The bidding process was coordinated by a Privatization Committee and received technical and financial assistance from the World Bank. The effective date of the start of the contract was on May 1, 1993.

V.1.4.2 Type of Contract

The type of arrangement made was a concession and the contract was signed for a period of 30 years. It is regarded as one of the biggest concessions in the world. The preference for this type of contract, instead of one of management or a lease, was because the government wanted the private investor to take responsibility for the massive investments needed to expand the system. (Zerah and Graham, 2001) The concept adopted was the French Concession model, where the newly created company assumes the responsibility for operating, maintaining and investing in the system during a long period of time (20-30 years). The contract did not contain specific investments to be made, rather it contained gradual performance targets, details on the quality of service, including the installation of water meters. Water rates would be reviewed every five years based on investment plans and estimated expenditures. (Lindfield, 1998) As we have previously seen, with a concession the public domain (the federal government) maintains ownership of fixed assets.

Financing was made through a loan from the World Bank (IFC) (US\$250 million), and a loan from the Interamerican Development Bank (\$98 million). If needed, loans from commercial banks would be used as well. (Lindfield, 1998)

V.1.4.3. Public Participation Mechanisms Used

The water concession was ordered by a presidential decree with no public discussion. (Rogers, 2002) There is not much evidence found on mechanisms of public participation adopted in the concession agreement. The participation of individual communities in the concession contract was based on employment of local workers for building and maintaining the infrastructure in lieu of connection charges. This labor contribution reduced the cost of new connections. Additionally, four local NGOs, IIED-AL, Riachuelo Foundation, Alma and Adeso, were engaged by the concessionaire to strengthen their capacity to respond to the specific needs of the poor. Their responsibility was to organize relevant training programs for employees, develop management manuals focused on services to the poor, and monitor response to coverage, consumption, level of satisfaction and security. (Zerah and Graham, 2001)

Argentinean law establishes that consumers must connect to the network if their premise is at a certain distance from it, therefore the connection might happen without the consumer's consent and without determining their ability and willingness to pay. (Lindfield, 1998) As this is an obligation that the company has, it does not create incentives for the company, or the government, to create mechanisms of public participation within the process of network expansion and more importantly, of tariff setting.

V.1.4.4. Contract Monitoring and Dispute Resolution Mechanisms

A regulatory agency named ETOSS (Ente Tripartito de Obras de Servicios de Saneamiento) was created at the start of the contract and its job was to enforce compliance with the terms of the concession contract, monitor the concessionaire's investment plans, determine tariff provisions and investigate customer complaints. ETOSS was composed of a politically appointed six-member board (two representing each of the three entities involved (Lindfield, 1998)) and was financed by the consumers. There is evidence that suggests that there have been instances of politically motivated decisions imposed in the company's performance standards. Its staff is previous OSN employees who brought with them lack of qualifications for their new responsibilities in tariff settings and commercialization. (Zerah and Graham, 2001)

V.1.5. Water and Sanitation Conditions at t(1).

V.1.5.1. Population at t(1)

The total population of the Great Buenos Aires was 8.6 million inhabitants in 1991. (Lindfield, 1998)

V.1.5.2. Percentage of Population with access to potable water and sanitation at t(1).

Approximately 70 percent (6 million) had access to potable water and 58 percent (5 million) had access to the sewerage system. (Lindfield, 1998)

V.1.5.3. Percentage of Population without access to potable water and/or sanitation at t(1).

Approximately 30% of the population in Buenos Aires did not have access to potable water and approximately 42% had no access to the sewerage system. The shortfall was concentrated almost exclusively in the poorer, suburban areas.

V.1.5.4. Remarks on Water Quality and Prices at t(1)

Production of water relies on its extraction from underground sources and the Rio de la Plata. Most of the 30% of the population without connection to the water and sanitation system relied on water wells and had no sewerage; they suffered from higher rates of water-borne diseases than the rest of the city because of the industrial waste and household sewerage contamination seeping into groundwater sources. (Zerah and Graham, 2001)

V.1.5.5. Issues Throughout the Contract's Period of Performance.

Since the beginning of the contract several changes have taken place and some of the terms of the concession have been renegotiated. The first one occurred in 1994 when the concessionaire was granted a 13.4% tariff increase, which was about half the original reduction on which the contract was awarded. It had quickly become clear that the infrastructure was in worse shape than estimated.

By the end of 1996 the contract needed a renegotiation due to the inability of the company to expand its service because of problems with bill collection (infrastructure charge) in low-income areas. Renegotiation was a lengthy process because it was politically intervened through the ETOSS board of members. An agreement was reached in August 1997 and included important changes, including the replacement of the infrastructure charge with a bimonthly fee (SUMA) payable by all consumers (this change proved unpopular due to rise in the bills), the reduction of connection charges and reduction of contractual obligations such as expansion targets, postponement of performance plan and cancelment of fines imposed by the regulator for failure to reach agreed investment targets. (Zerah and Graham, 2001)

The company and the government have been locked ever since in a series of disagreements on customer rates and legal disputes over performance. With the financial crisis in 2001, the company incurred in major losses and it needed rates to rise in order to meet its performance standards and to finance new investments. According to press reports, the government imposed several fines on the company for its deteriorating service and several times threatened to cancel the concession. This ultimately happened during the current year, when president Kirchner made the official annulment of the contract.

V.1.6. Private sector performance at t(2)

By late 2001 and early 2002 Argentina's economy crashed down and a financial crisis arose. The peso, once in parity with the U.S. Dollar, devaluated and the ability of Aguas Argentina's to provide service was drastically decimated because of its debt in dollars, while the peso was reconverted. Contract terms began to be unmet because tariffs were frozen. Responding to this crisis, the government passed a new law called "Public Urgency" and Aguas Argentinas was able to suspend payments of debt to multilateral organizations and redirect those funds for the costs of day-to-day operations. (Slattery, 2003) When the current president came to power in May 2003 the public services contracts began a revision process. The water services contract with Aguas Argentinas S.A. entered in a negotiation process on tariffs issues, but after two years no final solution was agreed upon. Eventually it was decided that it would be nationalized again. As mentioned, studies (see Daniel Aspiazu y Karina Forcinito, FLACSO) show the private company continually renegotiated investment commitments downwards. The concession in Buenos Aires was already experiencing significant difficulties before the financial crisis in December 2001 and the subsequent devaluation of the peso in 2002. "In September 2005 its private shareholders decided to terminate the 30-year contract, due to failure to reach an agreement with the government on the revision of tariffs." (Hall and Lobina, 2006)

On the 21st of March of 2006, president Nestor Kirchner made the official annulment of the concession contract with Aguas Argentinas. A new state company is nowadays responsible to provide the service and its name is Agua y Saneamientos Argentinos (AySA), and it is run by the *Federación Nacional de Trabajadores de Obras Sanitarias*. (Wikipedia, 2006)

The total time of private sector involvement in the Greater Buenos Aires region was a little less than 13 (thirteen) years.

V.1.6.1. City's Population at t(2).

Estimates based on projections from the 2001 Census indicate that by the end of 2003 the approximate total population of the Great Buenos Aires is 14 million inhabitants. (Argentina, 2006)

V.1.6.2. Percentage of Population with access to potable water and sanitation at t(2).

7,740,000 persons had access to potable water by the end of 2003 (ETOSS, 2006). This is approximately 55% of the population for that year.

5.890.000 persons has access to sewerage by the end of 2003 (ETOSS, 2006). This is approximately 42% of the population.

V.1.6.3. Remarks on Regulation, Water Quality and Prices at t(2).

Under the terms of the initial contract, the expansion of the water and sanitation system was to be financed through an infrastructure charge that would be applied to every customer. This charge affected poor households who in many instances were not able to pay the fee as it represented a monthly payment of up to 20% of the family income of the poorest households. The contractual targets proved hard to achieve and this led to a lack of financing to expand the service and thus, in a regulatory failure. (Zerah and Graham, 2001)

V.2 The Case of Cochabamba, Bolivia

V.2.1 Background

The city of Cochabamba, Bolivia's third largest city, is located approximately 400 kilometers southeast from the capital La Paz, in central Los Andes. Similar to other Latin American countries, Bolivia has gone through a series of structural reforms that began in the 1950's, but the country's economy has not responded well to these measures and poverty remains very high (the highest in South America). In 1985 a stabilization program was launched to restore financial stability and reduce inflation. Still, social benefits have not been seen and poverty is widespread throughout the country. (Slattery, 2003) In 1993 President Sanchez came to power and during his period until 1997 the promotion of private sector involvement in national industries was an important character of his economic policy. In 1996 a loan from the World Bank of US\$14 million to expand water services in Cochabamba was announced, and one of the requisites for the loan to be disbursed was private sector involvement. In September 1999 the Bolivia's central government granted a concession contract to Aguas del Tunari for a period of 40 years. (Shultz, 2003) The contract was terminated in early 2000, due to socioeconomic and political issues, leaving no significant time to thoroughly evaluate the performance of the private firm in the provision of water services in Cochabamba.

V.2.2. Regulatory Framework

Law 2029, the Drinking Water and Sanitation Law, was passed in October 1999. The law was not given much debate and the decision to pass it did not involve all water stakeholders. It was an unpopular measure. Under this law, ground water resources were designated as national resources and were subject to regulation and control by the national government. Therefore legislation placed restriction on new water wells. This law established the legal framework that enabled private sector participation in the water sector and the privatization of water sources. It is claimed that this law also promoted the end of subsidies in the sector. (Slattery, 2003) This law enabled that ownership over rural irrigation systems and community wells could be transferred to the private sector.

V.2.3. Trigger for change

SEMAPA – Servicio Municipal de Agua Potable y Alcantarillado -, the Cochabamba state-owned municipal water utility, had been characterized by being inefficient for decades, often not meeting public health standards and not covering the costs of operating the system, and water supply for the poorest has been almost inexistent. Instead, the poor obtained their water needs from private wells free of charge, or had to buy them from private vendors at high prices. SEMAPA's subsidies were targeted mainly for high and middle-classes, but cuts in the constant provision were normal. It is claimed that service languished. In many cases, water is available for only 4 hours per day. (Harris, 2003)

The government considered the possibility of a project called the Misicuni that consisted of “building a dam (to store the water during the rainy season), a tunnel (to carry the water through a mountain ridge), and an aqueduct (to bring the water to the city).” (Bechtel, 2005) This project required huge financial resources that the government was not able to provide through its normal revenues; therefore private participation was considered, not only for the financial resources, but also for improvements on the water management system. “SEMAPA had accumulated more than \$35 million in debt before the decision to grant the concession was taken.” (Bechtel, 2005)

V.2.4. Private Sector Involvement

V.1.4.1 Year when contract with private sector was signed (t(1))

In 1999 the Bolivian government, through its Superintendencia Sectorial de Saneamiento Basico, granted a 40-year contract to Aguas de Tunari (a subsidiary of the consortium of London-based International Water Ltd. and San Francisco-based Bechtel Corp.) to run SEMAPA, Cochabamba’s water system. Aguas del Tunari took over in October 1999 and was in full operation by January 2000.

V.2.4.2 Type of Contract

The type of contract chosen for Cochabamba water services was a concession. Aguas del Tunari was the only bidder for the contract. The firms responsibilities under the contract included a) the operation and expansion of the municipal water and waste water system, b) Development of a raw water supply project that would add new sources of potable and agricultural water, and c) the construction of an electricity generation project of 40 MWe. Additionally, due to Bolivian legislation, it had exclusivity to operate in its service area and over the area’s water resources. The contract required all actual and potential consumers to connect to the system.(WorldBank and PPIAF, 2006)

V.2.4.3. Public Participation Mechanisms Used

Since the beginning of the process to pass Law 2029, participation of stakeholders was not considered. A lack of consultation and communication is present since early stages and as a result, the terms and conditions of this law were not in tune with sociocultural, political and economic realities in the Cochabamba area. A UNESCO Bolivian hydrologist, Carlos Fernandez J. stated that “There were obviously other ways to tackle the water problem in Bolivia... water legislation has to be based on consulting local people, as other laws are. If local culture, customs and ways of life had been taken into account, all these problems could have been avoided.” (Slattery, 2003)

V.2.4.4. Contract Monitoring and Dispute Resolution Mechanisms

Contract monitoring and enforcement of compliance of the contract was the responsibility of the independent governmental agency Superintendencia Sectorial de Saneamiento Básico (SSSB). This agency was enabled to grant, revoke, extend, or

modify the contract as established by law; additionally it was responsible to design tariff structures and approve price increases, and act as the court of appeal for consumer complaints against the operator. With regards to dispute resolution, it was established that the International Centre for the Settlement of Investment Disputes, the International Chamber of Commerce, and the United Nations Commission on International Trade Law were enabled by the Bolivian government to resolve contract disputes.

V.2.5. Water and Sanitation Conditions at t(1).

V.2.5.1. Population at t(1)

The population of Cochabamba at the time of the contract’s approval and signature was approximately 500,000 potential consumers. The contract did not cover rural areas. (WorldBank and PPIAF, 2006)

V.2.5.2. Percentage of Population without access to potable water and/or sanitation at t(1).

More than 40% of Cochabamba’s population lacked piped water or effective sanitation services. (Bechtel, 2005)

V.2.5.3. Remarks on Service, Water Quality and Prices t(1)

The contract defined certain targets to be achieved by the operator, including five-year moving targets until 100 percent water and wastewater network coverage was reached in 2034. (WorldBank and PPIAF, 2006) As soon as the contract was awarded, the conditions of the local population changed drastically as the company increased rates up to 200% of their original price. Additionally, consumers that obtained their water from private wells and private vendors were forced to shut them down and begin buying water from the new company operating water services in town. Many consumers were faced with a drastic change from consuming water for free to paying a large sum, with regards to their income, for the water they consumed. This change obeyed to the goal of achieving cost recovery and reflecting the true economic cost of the service, and additionally funding the Misticuni scheme – a “US\$300 million project involving the construction of a dam, tunnel and water purification plants that would boost water supplies for the Cochabamba area.” (Slattery, 2003)

As can be observed, the consumers bore much of the risk. The “decreases in water demand would not affect the concessionaire because the contract guaranteed the concessionaire a rate of return of 15-17 percent. Customers also bore exchange rate risk because the concessionaire’s rate of return was indexed to the U.S. dollar.” (WorldBank and PPIAF, 2006)

V.2.5.5. Issues Throughout the Contract’s Period of Performance

The life of the contract had a very short period. Since its inception in October 1999 there

was citizen rejection headed by a group named “La Coordinadora” (La Coordinadora por la Defensa de la Vida y el Agua) composed of rural and urban middle and poor class citizens. The first strike in the city of Cochabamba came just one month after the contract was granted, in November 1999. In January next year, and recently after the announcement of rate increases and the elimination of subsidies, there was a citywide strike under the motto “El Agua es Nuestra Carajo!” (Shultz, 2003). The main issue, other than rate increases for costumers, was that mostly poor Quechua Indian peasants in the periurban and rural areas had to begin paying for water that was previously free of charge.

This strike made the government state that the contract would be reviewed, but no response was given after three weeks. On February 4, the city was occupied by the state’s armed forces. This generated widespread rejection and Cochabamba became a battle zone. Eventually, La Coordinadora received support from members of Congress who made the terms of the contract public. The contract was considered a bad deal and La Coordinadora started to push for its cancellation and claimed water as a public domain. A new strike happened on April 4th and this obliged the government once again to negotiate, but the government of Hugo Banzer, a former Bolivian dictator in the 70’s, did not give in easily and sent police to arrest the Coordinadora negotiators. This proved to be a wrong move that generated more citizen support for La Coordinadora. Even the government negotiator, Governor Galindo, called for the cancellation of the contract and presented his resignation. The government declared a curfew and TV and radio stations were shut off, but the public responded angrily. The conflict ended when the government announced that officials from Aguas del Tunari (Bechtel and International Water Ltd.) left the country, and that the water company would be now turned over to a public board appointed by La Coordinadora. Soon after that the government of Bolivia repealed its water privatization legislation by passing Law 2066 that would modify the previous 2029. (Slattery, 2003)

V.2.6. Private sector performance at t(2)

V.2.6.1. Changes in the initial arrangement t(2).

As the contract had a short period of life (September 3, 1999 until April 10, 2000), there was no time even to consider making any changes to the initial arrangement. The only minor change was the agreement on the initial tariff increase of 35%, which was reduced to 20% on February 3, 2000 in response to the ongoing conflicts. (WorldBank and PPIAF, 2006)

V.2.6.2. City’s Population at t(2).

The time comprised in the period when the contract was valid was very short, the population increase is not significant, and therefore the approximate population at the time the contract ended is approximately 500,000 as well. Estimates say that annual population growth in the city is 4%, therefore, the estimate of Cochabamba’s population for 2005 is approximately 637,500 inhabitants.

V.2.6.3. Percentage of Population with access to potable water and sanitation at t(2).

Bechtel claims that in the first two months of the concession contract, Aguas del Tunari increased supply by 30 percent through repairs and technical enhancements. (Bechtel, 2005)

V.2.6.4. Remarks on Water Quality and Prices at t(2).

SEMAPA, Cochabamba's water company, was turned over to the public domain in May 2000, and is currently headed by appointees of La Coordinadora and the city's government. The rates previously increased were rolled back and subsidies were again installed.

Nevertheless, Aguas del Tunari filed a demand for \$25 million against Bolivia in the International Centre for the Settlement of Investment Disputes, a court that is part of the World Bank group. (Shultz, 2003)

As the Cochabamba water concession operated from October 1999 to April 2000, when it was unilaterally terminated by the government, there is no way of trying to measure if private sector's participation has improved water and sanitation conditions for the city. Instead, in this particular case, the public sector's performance, mainly SEMAPA's performance should be analyzed to see if the MDGs have the potential of being met. This analysis is not part of the present research paper.

V.3 The Case of Cartagena, Colombia

V.3.1 Background

By the end of the decade of the 80's a series of reforms started to take place in Colombia water sector's legal and institutional framework. These reforms dealt basically with and administrative decentralization (diminishing the central government's role in the economy) and the design of a legal and institutional framework that enables private sector participation. These reforms were further consolidated in 1991 when Colombia made a new Constitution that defined water services as a collective right that the government is responsible for providing through its decentralized municipalities. In 1994 a Law on Public Utilities was enacted and it enhanced the private sector's participation in the production of these services. Nowadays municipalities have the opportunity to decide how to manage public services, including the option of enabling the private sector to participate; meanwhile, the central government focuses on regulation, planning and control. (Beato and Diaz, 2003)

Concession contracts are the most popular in Colombia, but in general, private participation in this sector is low. Cities like Medellin and Bogota have strengthened the public services sector (see EPM and EAAB) while others, like Barranquilla and Cartagena (following Barranquilla's example) have chosen to include the private sector's participation by creating mixed capital firms to manage its water services. These laws have proved successful in various instances. Local autonomy, clear objectives, flexibility towards management models, public or private, and transparency in the use of public funds have proved to be characteristics of the new management models promoted through the laws enacted in the early 90's.

V.3.2. Regulatory Framework

The 1991 Constitution laws established a regulatory framework for tariffs, investments, subsidies and related subjects within the public services. Congress decreed that a fixed percentage from the national budget (an amount close to US\$300 million in 2005) must be assigned and transferred annually to municipalities for specific water and sanitation projects. As mentioned, local governments have now more autonomy on how to handle their water and sanitation systems.(Constance, 2006)

The new regulatory and institutional framework for water and sanitation in Colombia is characterized by a separation of once centralized functions in one agency: Even though policy formulation, regulation, control and operation remain under central state control, they all fall under the authority of different government agencies. Policy formulation corresponds to the central government through its specialized ministerial agency, regulation corresponds to another central government agency, the Comisión de Regulación de Agua Potable y Saneamiento who promotes competition and regulates tariffs and financial management, as well as technical and administrative management. One of the most important tasks of this commission is to design a tariff structure that

strives for the water sector's financial autosustainability. The supervisory and control functions in the water services sector is exercised by the Superintendencia de Servicios Públicos, who is enabled to impose fines and sanctions to the ones that do not meet the standards. It also controls that subsidies are channeled correctly. The ministries of health and environment are also involved in the definition of technical criteria in the provision of services. Regionally and locally, the decentralized government agencies and municipalities manage the day-to-day services and operations of the water sector.

V.3.3. Trigger for change

During the 80's and the beginning of the 90's Cartagena was facing an imminent collapse due to technical, financial, commercial and environmental health issues. A lack of efficient administration, high population growth and political interference made water and sanitation services in Cartagena almost obsolete. Nearly one million people lacked it, and most of those who had it, received it for only a few hours a day (20% of consumers suffered big service interruptions while another 42% faced moderate interruptions). The system's infrastructure was deteriorating since the beginning of the 80's due to a lack of financing to maintain it. In the early 90's approximately 52% of the water produced was spilled because of physical damages in the system. Additionally there was no wastewater treatment and the water disposed went directly to the Cartagena Bay, damaging the tourist industry, and the Ciénaga de la Virgen, where poor residents resided.

Commercially, the service had no viability as more than half of the invoices for the service were not paid, and there was no way of accurately measuring the amount of consumers nor the levels of consumption; even more, the public entity was overstaffed (with effects on the funds guided for salaries and pensions) and its managers rotated when politicians in government rotated. "In 1992 accumulated deficit was US\$33 million, while the public company's revenues were only US\$10 million. Central government was obliged to provide constant financial support to the municipality of Cartagena." (Beato and Diaz, 2003) Things started to get worse when the city began growing in economic terms (thanks to the port, and the tourist and petrochemical industries), and more population immigrated. The demands for water and the pressure in the wastewater system was the real trigger of the crisis as it generated a citizen protest, with support from the hotel industry that demanded urgent mending of the situation. (Beato and Diaz, 2003) The crisis reached its peak in 1994 when it was decided to do something about it.

V.3.4. Private Sector Involvement

V.3.4.1 Year when contract with private sector was signed (t(1))

In May 1994 the conditions for an international bid to provide water services in Cartagena were established. After a consulting phase, it was decided from the beginning that the model to involve the private sector would be a joint venture, in which the municipality, the private operator and a small portion of local shareholders would participate.

On the 29th of December Aguas de Barcelona was declared the bid winner and on the 30th

of December the contract was signed between the municipality and the new company ACUACAR (Aguas de Cartagena). The company starts its services provision on the 12th of June 1995 due to adjustments to the changes in the political administration of the municipality. (Beato and Diaz, 2003)

V.3.4.2 Type of Contract

The type of contract agreed upon with the private company is an ‘affermage-lease contract with joint-ownership arrangements’ (WorldBank and PPIAF, 2006), or Joint Venture. The objective of this is for local government to retain ownership of infrastructure and the necessary investment funds while the private entity is responsible for managing the service to improve efficiency and extend coverage. It is a mixed capital company where the city, the Distrito de Cartagena de Indias, owns a controlling stake - 50%- of the water utility, the private operator, Aguas de Barcelona (Grupo AGBAR), receives a minority stake –45.9%- and a contract to run the service with clear performance and coverage-expansion targets, and other local private investors holds the additional 4.1%. (Cartagena, 2006) The operator also has complete control over management, contracting and personnel decisions; for this aspect, the company receives 3,44% of the annual revenues (approximately US\$1 million). (Beato and Diaz, 2003)

Other than the affermage-lease contract between ACUACAR and the municipality there are two additional key contractual instruments: The agreement establishing the joint-venture company ACUACAR, and the Loan agreements between ACUACAR and the World Bank, and the Inter-American Development Bank. (WorldBank and PPIAF, 2006)

The period of the contract is for 26 years.

V.3.4.3. Public Participation Mechanisms Used

The initial public response to the news of the contract that the municipality would celebrate with the private sector was negative. The syndicalized employees of the public company who claimed that their 1500 strong labor force would be cut mainly held this reaction; eventually, the diminishing of employees happened. ACUACAR hired 400 persons out of the 1500 and those left jobless were indemnized based on their years of service. (Constance, 2006)

Nevertheless ACUACAR has through the years gained wide popular support as since the beginning of operations its management created an innovative public participation scheme. It created a new department dedicated exclusively to the social problems of the communities where service was provided. The staff in this department is constantly developing community workshops on “Water Culture” where the operation scheme of the water system is explained, where health and sanitation issues are presented, where counselling regarding the payment of water bills is given, and where community claims are received and channeled. Additionally, to expand its network, the company also hired non-qualified personnel from this communities and constantly trains them in technical skills to build the needed infrastructure. (Constance, 2006)

V.3.4.4. Contract Monitoring and Dispute Resolution Mechanisms

ACUACAR'S performance is evaluated by a special administrative unit attached to the Ministry of Economic Development, called the Comisión de Regulación de Agua Potable y Saneamiento Básico (CRA). This entity has four basic functions: “a) regulation of natural monopolies and economic competition; b) tariff regulation; c) regulation of service quality; and d) regulation of company management.”(WorldBank and PPIAF, 2006). The Ministries of Health, Environment, and Housing, and Economic Development establish the national regulations with which ACUACAR and the municipality must comply.

Additionally there is a monitoring agency, the Superintendencia de Servicios Públicos Domiciliarios, which monitors the day-to-day operations and takes action in the case of noncompliance with national regulations. This entity also ensures that poor people receive the subsidies designed by the national government. At a decentralized level, the District of Cartagena annually audits ACUACAR, and it can impose penalties when performance targets are not met.

The dispute resolution mechanisms that have been established rely on three different institutions. Which one to choose depends on the type of conflict that arises. These are: a) La Superintendencia de Servicios Públicos Domiciliarios (mainly resolving disputes arising between ACUACAR and customers), b) the local courts, and c) the Chamber of Commerce.(WorldBank and PPIAF, 2006)

V.3.5. Water and Sanitation Conditions at t(1).

V.3.5.1. Population at t(1)

Cartagena had a population of approximately 700,000 inhabitants in 1995, of which 85% are classified as poor. Upper classes received an acceptable water service while the majority of the poor population did not.

V.3.5.2. Percentage of Population with access to potable water and sanitation at t(1).

According to Beato and Diaz, in 1994 68% of the population had access to a deficient water service and 56% had access to a sewerage system.

V.3.5.3. Percentage of Population without access to potable water and/or sanitation at t(1).

30% of the population did not have access to potable water and 50% had no access to sewerage. The ones who lacked these services were mainly low-income neighborhoods.

V.3.5.4. Remarks on Services, Water Quality and Prices at t(1)

Water services in Cartagena were deficient, not to say the less. When the private company took over its management and operation in 1995 it had to make urgent infrastructure repairs in the most critical areas. Shortly after the quality of water improved and its pressure normalized throughout the city. (Constance, 2006)

V.3.6. Private sector performance t(2)

Today, ACUACAR has provided its service to the city of Cartagena for eleven years, but for the sake of this investigation, t(2) will be considered as December 2005. Exactly 10.5 years after the private sector got involved in Cartagena's water services.

V.3.6.1. Changes in the initial arrangement t(2).

Due to a change in the municipality's administration, the contract was renegotiated before operations commenced. The main renegotiation dealt with the distribution of the shares of ACUACAR. Increase the shares of the municipality and decrease those of Aguas de Barcelona and of private local investors. But the municipality lacked the financial capital to increase its share, so they agreed that it could pay by transferring assets to ACUACAR. As this was risky for Aguas de Barcelona, it was also established that there would be a "reversion fund" which after a grace period, would repay Aguas de Barcelona the total value of its initial investment in annual cuotes. (WorldBank and PPIAF, 2006)

From June 1995 to December 1996, the original contract limited ACUACAR's role to operation and maintenance with rehabilitation; this did not include the expansion of the service, which would continue being responsibility of the municipality (the municipality continued to be the owner of the infrastructure). In early 1997, following new regulations, and after the loan agreement contracts with international financial institutions, a new tariff system was established and ACUACAR became responsible for implementing wide-ranging sector investments. Nevertheless the revenues on tariffs were not enough so new investment compromises were made that included the municipality. The agreement reached was that ACUACAR would be responsible for investment master plan 1995-2004 for water and the district would be responsible for that of sewerage and sanitation (the multilateral loans were provided specifically for this). Eventually, a year later ACUACAR also pitched in the responsibility for sewerage and sanitation system expansion as the municipality had high financial constraints. The central government became guarantor of the loan, the municipality was the primary responsible for the debt, and ACUACAR would cover the debt partly by the revenues received on tariffs. (Beato and Diaz, 2003) and (WorldBank and PPIAF, 2006)

V.3.6.2. City's Population at t(2).

815,000 inhabitants. (ACUACAR, 2006)

V.3.6.3. Percentage of Population with access to potable water and sanitation at t(2).

By the end of December 2005, and after a progressive annual increase, 99.6% of Cartagena's population has access to in-home potable water and almost 78.6% has access to the sewerage system. (ACUACAR, 2006)

V.3.6.4. Remarks on Service, Water Quality and Prices at t(2).

One of the greatest challenges of this arrangement was the expansion of the service to the neighborhoods that lacked water services completely. It was with the funds received from the central government, The World Bank and the Inter-American Development Bank that the services could be expanded to approximately 350,000 people that had never had it. Water quality and pressure are now normal for almost every part of the city. Management of ACUACAR now relies on automated systems for calculating water demand and measurement techniques have been applied.

This form of private sector participation has proved successful, and in contrast with other cities in Latin America, it has wide popular support. "Politicians see their advantages in not interfering in this service, as the experiment has brought successful results. They end up carrying the medal for good performance." (Beato and Diaz, 2003) Additionally, ACUACAR has been the first public services company in Latin America to receive an ISO 9001 certification of its system, and a ISO 14001/96 certification in Colombia. (ACUACAR, 2006)

Nevertheless, it seems that ACUACAR is on a process of redefining the company's shares as Aguas de Barcelona has put its shares on sale. There is no certainty in the reason for this speculation, but it seems there are some technical, financial and commercial problems arising.²

² Carranza, N. 'Las proximas Guerras: La lucha por el control del agua' (<http://www.voltairenet.org/article131203.html>)

V.4 The Case of Santiago, Chile

V.4.1 Background

Chile, as other Latin American countries in the past few decades, has been in a process of structural reforms in its governmental administration. Its particular focus since the Pinochet era in the 70's was an export-oriented, market based approach to economic development. Since the early 80s Chile was a Latin American pioneer in the subject of privatization, when it began to privatize power and telecommunications. Parallely, a new institutional framework was being developed for water resource management in which a market for water rights would exist. In 1988, the government reorganized the water and sanitation sector under 13 state-owned regional water companies and during the 90's long-term concessions were granted to autonomous corporative public entities, such as EMOS in Santiago, who was jointly owned by the Ministry of Treasury and a public body, the Corporación de Fomento de la Producción (CORFO). In 1998, the government started to partially privatize some of them. (Bitrán and Valenzuela, 2003)

V.4.2. Regulatory Framework

The Dirección General de Aguas (DGA) and the Comisión Nacional del Medio Ambiente (CONAMA) are two public entities that deal with water resources. The first one has the responsibility of formulating policies, planning, constitution of water rights, monitoring water bodies and defining water uses, while the second is in charge of coordinating the actions that result as policies are implemented. (Brown, 2005)

In the early 1980s, a new law was passed (Codigo de Agua, 1981) that separated water rights from land rights, therefore water could now be traded. The responsibility to manage water resources was transferred to users organizations (Juntas de Vigilancia, Asociaciones de Canalistas and Comunidades de Agua and Obras de Drenaje). This gave way to mobility of water rights in local and regional markets within watersheds, including agricultural irrigation. "Different types of water rights were defined, depending on the ability of the owner to use the water or restore it to its natural source." (Bitrán and Valenzuela, 2003). In 1988 a new regulatory regime for water and sanitation was put in place. The water rates within this framework reflected the actual cost of providing water services. These laws also established the general framework for private sector participation. For example nowadays, in Santiago, "the shareholder agreement of Aguas Andinas organizes the relationship between the government as residual shareholder and the private sector, stipulating that the private sector will act as the operator, and granting the public sector certain controls and veto rights." (WorldBank and PPIAF, 2006)

V.4.3. Trigger for change

Since the reforms that took place in the late 80's of EMOS (it was a sort of a mimicking of a concession but within the public sector) the performance in the provision of water

services has not seen as being deficient and this is why the water sector, if compared to other public services like telecommunications and energy in Chile, have taken longer to include private sector's participation. The trigger here has been mostly legislation that has created a positive environment for the private sector, and the need for expanding infrastructure that could not be done otherwise if the public companies were fully responsible of investment. Also there were signs that the quality of potable water was declining prior to the privatization year and this was mostly due to underinvestment problems. In general, Chilean public water companies were thought to: a) not be responsive to economic incentives (for efficient performance), b) inhibit the action of the regulatory body (leaving the customer unprotected with regards to quality of service) and, c) have financial restrictions to improve sewerage treatment systems. (Bitrán and Valenzuela, 2003)

Privatization of water services in Santiago can be seen more as an alternative option for financing infrastructure (treatment plants) to meet the goals established by the government (100% in rural drinking water supply and sanitation coverage for year 2000 and 100% of urban waste water treatment for year 2010).

V.4.4. Private Sector Involvement

V.4.4.1 Year when contract with private sector was signed (t(1))

In 1999, the government decides to sell its shares in EMOS through an international bidding process. EMOS was renamed Aguas Andinas and it is owned by a consortium of private firms headed by the French Suez and Aguas de Barcelona. The Chilean's government agency CORFO has a 35% share and is responsible for pension funds, and company employees. (WorldBank and PPIAF, 2006)

V.4.4.2 Type of Contract

The type of arrangement made is a type of concession that includes a divestiture of assets to the private sector. Under the contract, Aguas Andinas has the following responsibilities: a) management, b) operations and maintenance (including rehabilitation), and c) investment in new infrastructure (expansion). The government, having few shares, has also few responsibilities. In Santiago 95 percent of the municipal area formed EMOS's granted concession, while the remaining 5 percent was divided between preexisting, private water-delivery providers. However, the concession areas defined in 1990 did not cover newly served districts, for which concessionaires have to compete on the open market. Aguas Andinas has not won the concession for all new areas; therefore small-scale informal providers do exist within the Aguas Andinas concession area. (WorldBank and PPIAF, 2006)

V.4.4.3. Public Participation Mechanisms Used

Chilean governments have developed legislation and programs that promote a responsible and permanent participation of water users by supporting them with participatory models of self-management. Communities have therefore been involved in the operation,

management and maintenance of water services, especially in the rural areas. Still, and even though the tariff's law establishes the participation of every interested party in water and sanitation processes, there is not much evidence of urban participation mechanisms established after the private sector's involvement in water services.

V.4.4.4. Contract Monitoring and Dispute Resolution Mechanisms

A decentralized independent regulator at the national level monitors the contract: the Superintendencia de Servicios Sanitarios, financed by the national budget. In turn, this agency is monitored by the Ministry of Public Works. Aguas Andinas must prepare annual reports and provide SISS with all necessary information for its evaluation and audit. In case there is non-compliance with the contract, fines are imposed. Dispute resolution regarding tariffs relies on a panel of experts. When this happens, both the SISS and the company propose a solution, and this panel must choose between the 'best' of the solutions. In the event that Aguas Andinas does not agree with the regulator's interpretation of the law, it is obliged to appeal to the national courts. (WorldBank and PPIAF, 2006)

V.4.5. Water and Sanitation Conditions at t(1).

V.4.5.1. Population at t(1)

Santiago's estimated population in 1999 was 6 million inhabitants. (Instituto Nacional de Estadística, 2006)

V.4.5.2. Percentage of Population with access to potable water and sanitation at t(1).

98% has access to potable water and 89% to a sewerage system. (Savedoff and Spiller, 1999)

V.4.5.3. Remarks on Services, Water Quality and Prices t(1)

Public water and sanitation in Santiago, prior to privatization, was characterized for a fairly good service. Once the private sector got involved, the coverage targets were established in the investment plans that are reviewed every five years, even though there are interim targets. The same goes for water quality standards. Aguas Andinas is responsible to develop the investment plans, which are made for periods of 15 years. These are passes to the regulator for approval, and if so, they are made public. (WorldBank and PPIAF, 2006)

V.4.6. Private sector performance at t(2)

Since the privatization of the assets corresponding to EMOS in 1999, the private sector participation in water services in Santiago has been for a period of 6 years.

V.4.6.1. Changes in the initial arrangement t(2).

No significant changes have occurred.

V.4.6.2. City's Population at t(2).

Approximately 6.4 million inhabitants. (Instituto Nacional de Estadística, 2006)

V.4.6.3. Percentage of Population with access to potable water and sanitation at t(2).

Percentages of population with access to potable water have remained stable, before and after privatization. Gains have been positive in the quality and efficiency of the service. What has been particularly interesting about this case is that services have increased, and Aguas Andinas not only provide potable water and collect sewerage, but it is also now treating wastewater.

V.4.6.4. Remarks on Services, Water Quality and Prices at t(2).

Water in Chile is legally considered a transferable good like any other economic input and water rights are treated as any other property rights that are leased or sold. Even though private sector participation has shown signs of efficiency improvement in the services and has enabled Santiago de Chile to obtain the necessary investment to reach the water quality standards and the target of treating almost 100 percent of the city's sewage, it has also, as it increases the expansion of sewerage systems, made water rates increase as well. In an incident in April 2001, residents of poor neighborhoods in Santiago went out to the streets to demonstrate their rejection to high rates outside the presidential palace. The government has therefore introduced a 'water stamps' program that helps the low-income residents to cover part of the cost of water.

Although privatization's effect on the short-term increases in water rates stimulates lower rates of water consumption, it still might become politically dangerous if gains in efficiency do not translate into lower rates in the medium term. "Even so, the rates charged by private companies are still 40 percent lower on average than those charged by their public counterparts." (Bitrán and Valenzuela, 2003)

VI. COMPARATIVE ANALYSIS OF PERFORMANCE OF PRIVATE SECTOR

VI.1. Type of Arrangement for Private Sector Participation

As described in section IV of this document, there are various types of arrangements that can be made to include private sector participation in water services. These four cases described above have each showed a particular way of making an arrangement. In each case we can observe that the path dependency theory (Pierson, 2000) can be applied as each has, in its own way, applied a type of arrangement where their particular history matters. The particular institutional development that happened earlier in time in each case has an effect in the political outcome that chose one option over another. In three out of four cases (Buenos Aires, Cochabamba and Santiago), has been of the same nature: a concession. In the fourth case, Cartagena de Indias, the arrangement reached was a joint venture.

To analyze the success or failure of each type of arrangement in each particular case, regarding the expansion of coverage for the attainment of the MDGs, it is necessary not only to see if coverage, water quality, and water tariffs are appropriate. It is also necessary to analyze which are the institutional and regulatory frameworks in which these arrangements took place and if these arrangements are set to maintain the water services contracts successfully in a sustainable manner.

In the Buenos Aires concession the assets remained in the public domain and it was public responsibility to set performance standards, monitoring performance and setting fees. The private firm was responsible for investment on infrastructure along with designing, building and maintaining new and existing infrastructure and collecting fees (see Table 4). Since the beginning there were difficulties in governance due to a lack of firm positioning of the regulatory body, which was characterized by its negotiating inexperience with regards to its private counterpart. Additionally, and with respect to the factors presented in section II.2, there was a lack of openness, transparency and accountability, participatory methods were almost inexistent, the arrangement done was not equitable due to the inheritance of a system of tariffs that was based on property rights rather than water consumption rights This issue did not provide a legal security for users. Also, the constant renegotiation of the contract gives signs of a lack of appropriate settlement of technical and financial targets and a lack of clarity about the services to be provided. It seems that there was a lack of reliable information, previous to the contract's signature, and the contract was based on incomplete information.

In the Cochabamba case, responsibilities were distributed the same way as in the Buenos Aires case. One highlighting aspect is that from the beginning there was no public participation in the decision to arrange the concession, and this, along with a big increase in water tariffs in a short period of time, brought the debacle of the contract very quickly. This unsuccessful story of private sector participation may well rely on different but associated factors: First, the method the government used to reach and agreement with

the private company lacked openness and transparency which would later bring a lack of accountability. The process was not participative. The people from Cochabamba were left out of any consultation, and the mayor, with strong ties with the central government, who was part of the negotiating team, did not make any efforts to include any type of consultation.

In Cartagena de Indias the Joint Venture established a joint ownership of assets and the public responsibility of setting performance standards and of monitoring performance and tariffs. The responsibility for capital investment, of designing, building, operating and maintaining infrastructure, and of collecting fees was shared between the public domain and the private firm (see Table 4). This type of arrangement, which in the beginning did not provide generalized citizen support, and the risks of it going wrong were high (due to municipality's politization and corruption, and the violence conditions of the country) has become a model for private sector participation in water services in Latin America. Private sector involvement was decided mainly because there was a crisis in the municipal finances and there were no resources to attend a growing population in need of water. Additionally it was something that the central government was promoting. Funds from the World Bank and the IADB also were motives to include the private sector. Even though the decision process to involve the private sector did not include a participatory method, the new company, ACUACAR, once established implemented an innovative public participation scheme that, along with appropriate tariffs and flexibility, has gained wide public support until today. The water and sanitation network has expanded considerably and it now has a high percentage of the population as costumers. Its focus has been mostly in underserved or non-served low-income communities.

The Santiago de Chile case is a type of a mix between a concession and a joint venture. Even though a portion of the public assets were sold to the private operator, the responsibility for investment on infrastructure along with designing, building and maintaining new and existing infrastructure and collecting fees relied on the private firm and it was not a shared responsibility. This type of arrangement has also proved successful not only in the management of the services, but it has also provided channels for private investment in water treatment plants. This arrangement was chosen not because water and sanitation conditions in Santiago were in bad shape, but mostly because new investment was needed and it was not possible to obtain it from the public treasury. In Santiago the institutional arrangement in place provided a friendly environment for private sector participation.

VI.1.2 Bidding Process

A well carried out competitive bidding process is an appropriate mechanism to commence an arrangement with the private sector, if the requirements and the evaluation criteria are clearly defined beforehand. There must be a transparent evaluation system that creates confidence not only in the bidders, but also in the public institution that is carrying out the bid. It is important that previous to design of the terms of reference and the evaluation of the technical and financial proposals of the bidders, the public entity has access to reliable information about financial estimates and the operational and

performance targets that the contracts aspire to achieve. With this as basis, the evaluation of proposals can be carried out with more assurance about the real opportunities of the proposals of the bidders.

The bidding process in the Buenos Aires Concession was an international competition managed by the Privatization committee supported by private consultants. Only firms with high technical and financial capabilities overcame the prequalification process. The five prequalified firms sent their respective bids, but one of them was considered not feasible. The competition was between the other four and the winner would be the one who offered to charge the lowest water rate, while meeting the required standards of service and the performance targets. (Lindfield, 1998)

In Cochabamba the operator was selected through a negotiation process with only one bidder. Even though the Bolivian law established a competitive bidding, only one proposal was received, therefore the government having no other bids under consideration, and under a mandate of the Supreme Court, negotiated the contract with the only firm that sent a proposal: Aguas del Tunari. (WorldBank and PPIAF, 2006)

In Cartagena, the competition was also an international bid to see who could be the partner of the municipality and of the local investors. Even though there were three companies that expressed interest, only one presented a proposal, therefore the contract was awarded to the only bidder: Aguas de Barcelona. The bidding process was characterized by its rapidness as the party of the mayor at that time had lost the elections and the possibility to revoke the ‘privatization’ was plausible with the entrance of the new political administration. Also, there were risks that many international firms did not want to assume, including Colombia’s violence situation and a lack of clarity and incompleteness in the terms of the contract. On the other hand the syndicalized workers could be able to create an environment where the private operator would find it impossible to perform. (Beato and Diaz, 2003)

In Santiago de Chile the private operator was selected by the sale of shares by limited public tender. Private companies were selected on a first round by certain minimum technical and financial capabilities, and potential service coverage to be provided. The contract award was based on price per share offered. (WorldBank and PPIAF, 2006)

VI.2. Institutional and Regulatory Framework

It is crucial that the legal and institutional framework of the water services sector is as solid and capable to provide legal, administrative, economic and technical sustainability, while providing clear and measurable rules of the game as well, and the capacity to implement them and generate the need for compliance.

In Buenos Aires the regulatory and institutional framework in which the concession for water services functioned proved to be inappropriate. This was due in first instance because the concessionaire inherited the tariff system, along with its institutional baggage, from the previous administration. A new regulatory agency, ETOSS, was

formed and it was in charge of monitoring and negotiating the contract. This entity was a politicized entity and much of the contract renegotiations were politically motivated. Since almost the beginning of the arrangement, government and private sector were engaged in a series of disagreements that were partly generated by an institutional improvisation to handle the contract, and partly by a lack of accurate information that established the rules of the game. Besides, Argentinean law establishes that consumers must connect to the network if their premise is at a certain distance from it, therefore the connection might happen without the consumer's consent and without determining their ability and willingness to pay. (Lindfield, 1998). This factor helped create a distancing of the company and the population served, as there were no incentives to promote participatory mechanisms.

In Cochabamba the difficulties relied, in first instance, on a law (Law 2029) that was passed in October 1999 where private sector participation was enabled, along with a series of measures about water rights that did not seem to benefit the public in general. This law proved to be unpopular as it also ended with the provision of subsidies. Public participation mechanisms were not in place and the decision to involve the private sector was elitist. The Superintendencia Sectorial de Saneamiento Básico (SSSB) was a government agency acting as the private partner's counterpart, but it also proved to be ineffective at the moment of signing a contract that guaranteed more benefits to the international private firms that composed Aguas del Tunari than the actual benefits for the population who saw tariffs increase immensely in a short period of time. The water consumers were the ones who assumed the risks in this arrangement, and before the contract was signed there were already signs of public dissatisfaction that eventually grew so much that the contract had to be terminated and now the government and the private firm are battling million dollar demands in international courts. Today, water services is back in public hands and there is not much evidence on how its performance has been nor where has money for investments in new infrastructure come from, other than the public treasury.

In Cartagena, water services, and public services in general, are characterized by its decentralized nature, established with the 1991 Constitution. Municipalities are able to choose the way they consider best to manage their public services, within certain requirements established by the central government that, in turn, has an annual percentage of money that is destined for these types of projects. The central government, through its Comisión de Regulación de Agua Potable y Saneamiento is in charge of regulating tariffs and promoting competition and financial management, as well as technical and administrative management. At the municipal level the local administration is responsible to manage the day-to-day operations. There is a monitoring agency at this level, the Superintendencia de Servicios Públicos Domiciliarios who is responsible to take action against non-compliance of the contract and the protection of low-income households that receive subsidies. This institutional framework has, up to date, proved successful to mediate disputes between costumers and the firm, and inside the firm as well.

In Santiago, an appropriate institutional environment was generated for private sector participation in water services. Since the 70's the country has been focused on a market oriented economic development, therefore the regulatory and the institutional frameworks are in tune with this objective. In the early 80's a new law was passed in which water rights became independent of land rights therefore creating a market for water that has been developing ever since, and today the population is accustomed to this way of managing water resources. Private sector participation was one of the options present, but not the only one. The institutional framework, that already had experience with the privatizations occurring in the energy and telecommunications sector, was solid enough to include the water sector.

After looking briefly at this aspect in these case studies, it seems clear that reforms in institutional arrangements must precede private sector participation in water services. If there is not a positive environment for its participation to happen it is almost certain that its success will be jeopardized.

VI.3 Tariff Structures

Tariff structures are key components of the success or failure of water services systems and operation. Designing and establishing a tariff scheme is not an easy task. In many cases tariffs do not reflect the real price of the cost of providing water and sanitation, and in others it does. It is an issue with high political stakes that has the possibility of bringing down governments. Tariff structures, as mentioned earlier in this paper, must reflect a willingness to pay by the customer while creating financial strategies to recover the costs of its production and distribution, and eventually to treat wastewater. Tariffs must be coherent and understandable by the customer

The Buenos Aires concession inherited the tariff regime with which OSN operated previously. This tariff regime was inefficient and nontransparent and there was no clarity about the certain basic information such as the number of customers, billing cycles, assets of the public company, etc. Customers usually did not understand the bill received and this generated a lack of payment. The private firm saw from the beginning a major difficulty to provide services effectively as the tariff regime inherited, characterized by a lack of metering, was based “on the type of consumer, (residential, non-residential or real-estate); the service (water only or water and sewerage); and the kind of building involved (location, age and size of the house, total area and type of property). These factors were then multiplied by a k factor, an adjustable figure fixed by the regulator and linked to an index of the operating costs of the concessionaire. The concessionaire was able to change the tariff by negotiating an increase in k , by reclassifying consumers to more expensive non-residential blocks, or by proposing adjustments in building type, size or criteria for age and location.” (Zerah and Graham, 2001) The tariff regime was not established by linking it to the consumption rate; rather it was linked to property characteristics. This generated a lack of incentive to minimize water usage. Additionally there wasn't any subsidy program for low-income users that, in general, lived in areas where there was no service and no property titles. This made it even more difficult for the concessionaire to expand and provide the service to these low-income areas at all.

In Bolivia, the contract established an ‘increasing-block tariff’ of 35% and guaranteed the private firm a 15-17% rate of return. Tariffs would increase by 20% by the second year of the contract (partly to subsidize the Misicuni project). It was possible to adjust these tariffs in the interim based on periodic reviews and expansion targets. Water customers were split into nine classifications, with residential customers divided into four categories based on the type and condition of housing units. Each category contained differential rates based on consumption and there were no external subsidies. (WorldBank and PPIAF, 2006) This scheme also proved non-successful as the costumers were far from willing to pay these high prices for the provision of the water they needed.

In Cartagena, the Comisión de Regulación de Agua Potable y Saneamiento has the task of designing the tariff structure. The main goal settled to establish tariffs was to strive for the water sector’s financial auto sustainability. Additionally they imposed the principle of simplicity and transparency, which means that the tariffs can easily be understood by consumers and controlled by the regulatory agency, and the principle of equity and solidarity (concept inherently brought from the 1991 Constitution), by which low-income consumers may receive support from a homogeneous program of cross-subsidies (costumers are divide into six categories: 6 being the richest and 1 the poorest. Tariffs for level 4 consumers are auto sufficient while consumers of level 5 and 6 cover the costs of consumers in levels 1, 2, and 3). The tariff system was designed so that the fixed rate is able to cover the costs of investment and operation, while the variable portion depends on the rate of consumption and the strata classification of the consumers. (Beato and Diaz, 2003) In addition, ACUACAR has unit dedicated to facilitate community relationships. Company offices have been set up in several poor districts with the objective of giving poor customers easy access to the company and to provide more flexible payment arrangements. (WorldBank and PPIAF, 2006)

The tariff structure designed for Santiago de Chile was legally based on The General Law of Tariffs issued in 1988. This law promoted self-financing mechanisms for companies, and avoided indiscriminate or incorrect price increases. It also promoted incentives for efficiency to companies that did not have guaranteed profitability. This ensured that the provider could operate without having deficits and being profitable on a long- term basis. The tariff structure contains a fixed charge and a variable charge. “The tariffs depend on geographic location, seasonal factors, and levels of consumption. A separate volumetric charge is applied for wastewater disposal. A trade effluent charge is applied to industrial consumers, which varies with the level of effluent pollution.” (WorldBank and PPIAF, 2006) Also there is a scheme of subsidization managed by the government. Cross-subsidies in Santiago were discarded and a direct subsidy covering part of the household payment for drinking water and sewerage services was considered. Consumers that wish to apply for the subsidy have to register at the municipality who selects them through pre-established socioeconomic criteria. It then passes the names to the company. The subsidy scheme is based on the costumers’ willingness to pay (covers shortfalls between actual charges and willingness to pay), where poor customers receive 100% for the first 20 m³ of monthly consumption. The company makes a discount to eligible customers and the government then reimburses it. “The adjustment of tariffs consists of a two-step

procedure based on 15-year projections. First, tariffs are calculated based on marginal cost or efficient tariffs. The figures used are based on a model company and are calculated by aggregating the real information provided by all service providers. Second, these are adjusted upwards or downwards so that the financial self-sufficiency of the operator is guaranteed. The principles of self-sufficiency, equal treatment of all customers, and consideration for seasonal variations, if they exist, are also used in the tariff adjustment process. Tariffs are set for 5-year periods and concessionaires have the right to appeal tariff decisions at the time of these decisions. In addition, the regulator can make interim adjustments to the tariffs in response to exceptional and unexpected circumstances.” (WorldBank and PPIAF, 2006) The application of this tariff structure was possible also because every household has an individual meter so the company was able to register the real consumption of each user.

VI.4. Private Sector’s contribution to the Extension of Water Services

Table 8: Great Buenos Aires Performance Indicators with Respect to the MDG’s target

Indicator	Before Private Sector Participation (1991)	December 2003
<i>City Population</i>	8.6 million	14 million
<i>Percentage of Population Served with Water</i>	70%	55%
<i>Percentage of Population Served with Sewerage</i>	58%	42%

Private sector participation in water services in Buenos Aires shows evidence there was an increase in the extension of water infrastructure. Nevertheless, taking into account population growth, this increase in infrastructure was not sufficient to expand the coverage in population percentage terms. Regions of the city had almost universal access of water and sanitation services, but other regions had very few or lacked them completely. There was actually an overall decrease in both the percentage of population served with water and the percentage of population served with sewerage. Additionally, the rates for water increased periodically previous to the economic crisis of the country, and substantially after it hit the country in early 2002, which led to a tariff freeze by the government. By this basic set of criteria we can establish that the participation of Aguas Argentinas S.A. in this case was not successful. Furthermore, its contract was revoked, by presidential decree in early 2006.

In general terms, private sector participation in water services in Buenos Aires did not improve the conditions of the population with regards to the targets established for water and sanitation in the MDGs.

Table 9: Cochabamba Performance Indicators with Respect to the MDG’s target

Indicator	Before Private Sector Participation (1999)	April 2000
<i>City Population</i>	500,000	500,000

<i>Percentage of Population Served with Water</i>	60%	60%
<i>Percentage of Population Served with Sewerage</i>	60%	60%

The case of Cochabamba does not give us credible information regarding the improvements or detriments that private sector participation generated in the physical conditions of Cochabamba's water and sanitation provision as there was not enough time to evaluate the private firms performance due to a cancellation of the contract 4 months after its signature. This case can also be considered an unsuccessful participation of the private sector in water services as the conditions and the environment for the private sector to operate were not given. This type of arrangement is an example of what should not be done when entering into agreements. It is a clear example of the importance to develop an adequate institutional and regulatory framework previous to the involvement of the private sector in water services and the necessity to involve citizens at the community level and learn about their socioeconomic conditions and the solutions they propose.

Table 10: Cartagena de Indias Performance Indicators with Respect to the MDG's target

Indicator	Before Private Sector Participation (1994-5)	December 2005
<i>City Population</i>	700,000	815,000
<i>Percentage of Population Served with Water</i>	68%	99%
<i>Percentage of Population Served with Sewerage</i>	56%	78%

Cartagena de Indias is a case where private sector participation has been successful, both in terms of the achievement of the basic MDG target and in terms of additional benefits for the communities. This type of arrangement, a joint venture, along with an appropriate institutional arrangement and a positive performance of ACUACAR has brought an important increase in the extension of the service, concentrating efforts mostly in low-income areas of the city who were unserved or underserved. Characteristics of this type of arrangement might well be replicated elsewhere as it has the particular characteristic of having wide popular support thanks to the public participation mechanisms established.

In general terms, private sector participation in water services in Cartagena has given a positive step towards the achievement of the targets established for water and sanitation in the MDGs.

Table 11: Santiago de Chile Performance Indicators with Respect to the MDG's target

Indicator	Before Private Sector Participation (1999)	December 2005
<i>City Population (aprox.)</i>	6 million	6.4 million
<i>Percentage of Population Served with Water</i>	98%	98%
<i>Percentage of Population Served</i>	89%	89%

<i>with Sewerage</i>		
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Participation of the private sector has not brought significant changes to the original conditions presented previous to its incorporation. These previous conditions had high standards and private sector participation was considered more as a financing option to invest in the building and operation of wastewater treatment plants. This should be considered successful private sector participation because even though there has been no significant increase in the percentage of people with access to potable water and sanitation, there is a significant increase in the environmental health conditions by the construction of these treatment plants. It seems that in Chile the conditions to achieve the MDGs are given

VII. CONCLUSIONS

The private sector is starting to take on growing responsibilities in the water and sanitation services, not only in Latin America, but also in other regions of the world. Its participation is creating ideological confrontations mostly where the existence of low-income communities is widespread: the developing countries. In some countries the flow of private funds for water projects has slowed down because politicians and the populations has turned against privatization. It is therefore necessary to start assessing the roles of the public and private sectors in the provision of these crucial services for human kind. In this research paper the objective is to briefly assess the performance of private sector participation in four specific case studies in Latin America: Buenos Aires, Cochabamba, Cartagena, and Santiago. The following table briefly summarizes the findings of this research.

Table 12: Comparison of Variable Performance in Each Case study

Variable \ Case Study	Buenos Aires	Cochabamba	Cartagena	Santiago
<i>Type of Arrangement</i>	Concession	Concession	Joint Venture	Concession
<i>Transparency in Bidding Process</i>	√	X	√	√
<i>Strength of Regulatory and Institutional Framework</i>	X	X	±	√
<i>Appropriateness of Tariffs</i>	X	X	√	√
<i>Extension of Water Services</i>	-	-	+	±
<i>Appropriateness of Public Participation Model Adopted</i>	X	X	√	√

X = Non-existent / does not apply / Bad performance

√ = Good Performance

± = Neither Positive nor Negative (situation remained similar)

+ = Improvement

The first conclusion that can be extracted from this paper is that privatization is not the most appropriate concept to use when involving the private sector in water services. Private sector participation can take many forms, as described in section IV, and it is inherently accompanied by public sector participation. A terminology to use is the Public-Private Partnerships (PPP), which is an arrangement in which the government contracts out or outsources certain aspects of the water services process to the private sector. They should not be misunderstood as privatization; this case is when the assets of a public company have been bought by a private entity.

Nevertheless it is necessary to take into account that private firms pursue their private interests, and these tend to enter into conflicts with public interests. The water sector is characterized by a permanent opportunity for exploitation that can lead to a monopoly. There are cases where entrusting the provision to the private sector has caused many

social, political, economic and environmental damage, but it is also less recognized that within the public sector, operators of water services experience problems due to flaws in the institutional framework where there is lack of accountability of managers and politicians. It is therefore necessary to search a middle ground where win win situations can be exploited for the benefit of all.

Another conclusion that can be extracted from this paper is that it is necessary to create the conditions for appropriate regulatory and institutional reforms prior to involving private sector participation in water services. It is recommended to first develop policies that focus on building stronger public institutions rather than policies that regulate private sector activity, which would come afterwards. Dispersed and uncoordinated state agencies, local community organizations, local governments, private donors and multilateral and bilateral international agencies interfere with water planning at every level of the urban water cycle. When both governments and markets fail or show explicit limitations, it is necessary to design efficient regimes that are able to overcome government and market failures. The challenge is complex as it involves micro and macroeconomic perspectives, as well as financial, regulatory and institutional reforms and environmental issues. Therefore we need to focus our efforts on pragmatic solutions regarding the integrated urban water cycle and, in particular, water services, rather than ideological positions. A set of “clear rules of the game” and effective institutions able to arbitrate conflicts are first necessary steps to fulfill in order to guarantee the success of any type of new venture involving the private sector.. This complexity also has to do with the achievement of wide stakeholder participation (consumers, government, community organizations, private investors, etc.) in the decisions to be made, in order to receive a widespread support that will enable the system to work. Private sector participation will be beneficial only if it represents an adequate model to reform public management and if the results are visible and measurable.

Another conclusion is that citizen participation is crucial to make decisions in the water services sector. Relevant and efficient information is a key aspect to communicate to interested stakeholders. This also has to be addressed through reforms in the institutional arrangements that focus the attention of these services at the community level. Participation and community organization and the local level may create consensus regarding a common future and may help to generate equilibrium between the diverse set of interests. Water, because of its vital nature, is a natural facilitator of consensus building; it helps create citizen consciousness and shared values for an adequate social, economic and environmental development. And when people are able to see results at the local level, the level they are able to reach and touch, is when the performance of a private or a public entity has stepped in the right direction.

In these particular cases seen, we can observe that private sector participation has been beneficial in two cases (Cartagena de Indias and Santiago de Chile), and detrimental in the other two (Buenos Aires and Cochabamba). The reasons for success or failure in each case have its own particular characteristics, but in broad terms, it can be established that the institutional and regulatory frameworks set up in Santiago de Chile and in Cartagena, Colombia, were more solid and had an intrinsic popular support than the ones established

in Buenos Aires and Cochabamba. In Cartagena and Santiago, the participatory models used are bringing fluidity to the performance of the companies; on the other hand the prices that costumers have to pay in Cartagena and Santiago are much more in tune with the willingness to pay of the costumers than what the cases of Cochabamaba and Buenos Aires have shown. Institutional and regulatory conditions, and prices, are key determinants for the success or failure of any type of arrangement in the water services sector with a private firm or a public entity. Chile has been privatizing infrastructure since the military dictatorship in the 80s and the forthcoming democratic governments have followed, and has established the legal and regulatory frameworks that enable private investors to trust in the system. There is ... “legal, administrative, economic and technical sustainability, with clear rules so that any sector, public, private or mixed could join and develop this industry.” (Zerah and Graham, 2001) In Cartagena institutionality is not as solidly established as in Santiago but the experience of its water joint venture enables public and private investment and it is bringing not only positive results for water consumers but also positive results in the institutionalization of procedures and shared values. Its success is based on various factors, but mainly in the success of the financial scheme set up to expand services, the quality of the service itself, and the prices that costumers have to pay, coupled with a flexible payment program addressed to the poor. The financial conditions of the municipality have been improved by working hand-in-hand with the private sector and implementing many of the latter’s financial practices.

The concessions in Cochabamaba and Buenos Aires, (which in theory (see section IV) are the most appropriate forms of contract to achieve private funding) were expected to bring substantial private investment to fund needed infrastructure; but they were not successful mainly because the need of the private investor to recover its costs through the collection of tariffs was not within the willingness or capacity to pay of the costumers, and the investments that were planned in these two concessions were of great magnitude. The challenge for these types of concessions is to be able to recover the costs of its investment not only through bill collection, but also through other type of financial arrangements that do not hit the consumer directly; a situation that politicians are well skilled to exploit.

This leads to another conclusion: the governments of Buenos Aires and Cochabamba entered into these concession contracts because of the need of making large investments for infrastructure. The decision to enter into a concession arrangement with the private sector, and the way it was done (without institutional experience, including participatory mechanisms) proved not to be the most appropriate way to finance their needs. These experiences emphasize the need to achieve local solutions for water services and build up from there, from the community level. Municipalities must strive for their ability to pay the costs of maintaining their drinking water systems and they must be able to access financial mechanisms through, for example micro-credits, and develop local capital markets that enable sustained financing. The issue is finding an appropriate financial mix at the local level that will enable the sector, in the medium-long term, to become auto sustainable. Experience has showed that local communities, through water users' organizations, can govern common resources in more equitable and efficient ways.

Private sector is not a panacea, but neither is the public sector. Both have their flaws and both have their successes. The main challenge we face is finding the financial resources to provide water and sanitation for everyone, and it is well known that the public sector does not have these resources, especially in developing countries. It is therefore necessary to build these public-private partnerships where an appropriate mix of responsibilities is shared; where the parties involved enter into a contract that presents clear rules of the game in a win-win situation. This leads to the conclusion that rather than thinking of the debate of private versus public sectors in water services management, it is crucial to prioritize the development of institutions and institutional strengths, along with solid regulatory frameworks that are able to guarantee that water and sanitation are provided, focusing efforts mostly on low-income communities.

The central question of this research project can now be briefly answered: has private sector involvement in the provision of water services in Latin America increased the proportion of human population accessing an equitable and sustainable source of drinking water at affordable prices?

As seen in the case studies presented, in some cases (Cartagena and Santiago) it has helped increase the proportion of the population with access to water and sanitation, but in others (Buenos Aires and Cochabamba) it has not. It depends. The issue is not about private participation specifically, but about the conditions in place for an appropriate private participation. We know that the public sector in developing countries does not have the resources available to fund the increasing water and sanitation demands of urban populations and that the private sector may have them. We also know that public management needs to be reinforced and in some cases reinvented in order to, in partnership with the private sector, be able to provide water and sanitation to its citizens. Institutional strengthening and appropriate financial mechanisms are key components. Governments should be the owners of water resources to ensure equitable allocation, but to guarantee efficiency in the use and allocation of water, and price affordability with the appropriate financial schemes, the private sector might be able to bring benefits into the equation.

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