

# Water privatization

- An optimal and efficient means for developing countries?

**Essay in economics**

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## **Abstract**

Privatization of goods and services can be a way to limit a firm's or a market's total costs.

Water privatization in developing countries has many different reasons. The outstanding reasons are; the need to promote private investment in water sectors so that, national/private water rights and the millennium goals for water can be reached.

Privatization is a process of changing a business ownership from a public to a private sector. By this process, the government loses power to the new private owner and the firm and/or market transfers to more business oriented. The private owner has one main goal in the business and that is to maximize the profit.

Water is a good that we all need in order to survive, regardless our economic conditions, soon or later we all have to find a way to satisfy this need. Because of this, water is very important for all human being and a part of the human rights.

The crucial need of water for our existence and the private firm's goal are conflicting. This has created many commotions around the world and raised questions about how water privatization violates the human rights of UN conventions. But some people are pro water privatization and some of their arguments are that, privatization limits the government's external borrowing and improve the water distribution system.

**Key words:** Water privatization, Developing countries, Public sector, Private sector

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# 1 Introduction

Half of the world's population, tree billion people live on less than 2US\$ a day. These are by definition considered as poor<sup>1</sup>. One thing that most of them have in common is that they lack access to clean drinking water. Our minimum need of water vary; it depends on the climate, body size, occupation and health status. But overall we need 7,5dl water a day in order to survive. We receive less than half of this by food consumption but the rest is by drinking pure water.

The majority of poor people live in developing countries<sup>2</sup>; Bolivia and South-Africa are example of these nations. According to Michael P. Todaro and Stephen C. Smith's "Common Characteristics of Developing Nations" (2005), these nations have six factors in common. Under mentioned characteristics are the scenarios in developing countries (see Appendix). I will explain how some of them affect the success of water privatization later on.

- Low level of living
- Low level of productivity
- High rate of population growth and dependency burden
- Substantial dependence on Agricultural production and primary-Product Exports
- Prevalence of imperfect markets and incomplete information
- Dependence and vulnerability in international relations

The private sector has been involved in developing countries water distribution since 1990s. This reform was encouraged by among others, the World Bank and International Monetary Founds (IMF)<sup>3</sup>. Water privatization has today extents to many developing countries. Some of the outstanding motivations are to expand the connection coverage and improve the water distribution services. Need for technical expertise and to increase the private investment in water sector so that the government can invest in other important sectors.<sup>4</sup> Privatization is a process of changing a business ownership from a public sector to a private sector. By this

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<sup>1</sup> United Nations Development Programme, *Human Development Report 2007/2008*. p. 25

<sup>2</sup> World Development Indicators (2008), Poverty Data

<sup>3</sup> Carter and Danert, 2003 p.1069

<sup>4</sup> Fredrik Segerfeldt (2003) *Vatten Till Salu*, p. 27-29

process, the government loses the regulation power to the new private owner and the firm and/or market transforms to more business oriented.

## 1.1 Purpose

My point of departure is that privatization of most goods and services can promote a more effective market system and increase a country's total output. So both the private owner and consumers could gain from privatization based on that it is implemented on a well functioning market and that no one would be hurt in the absence of the good/service in question, like water. I also take the definitions and the "Common Characteristics of Developing Nation" from Michael P. Todaro and Stephen C. Smith (2005) as given or correct.

The purpose of this paper is, to analyze water privatization in developing countries in order to understand if this reform is the optimal and efficient means for their water crisis. I will do this by studying the nature of privatization, a private firm's main goal and how that is related to the living and economic conditions in these countries. To make this study possible, I will use the "Common Characteristics of Developing Nations" from Michael P. Todaro and Stephen C. Smith (2005) as a given scenario in these geographic areas. I will also study the water privatization in South-Africa and Chile.

## Questions

- Why privatize water in developing countries?
- What have the privatization changed in Chile's and South Africa's water sectors?

## 1.2 Limitations

The existence of water privatization is enormous around the world today, both within developed and developing countries. The public participation in water sector is very important in developing nations, especially for the poor people who are a majority of the population. Since water is necessary for all human being, it has not been easy for the government to deny households who have not paid their bills. The public participation in the water sector is also important for the animals, plants, and for the whole environmental wheel. At the same time privatization could be a good method to improve the service quality and availability of drinking water in these areas, if it implemented under good and right suppositions.

In this paper, I will focus on the nature of a private firm, the economic condition of developing countries and how these factors affect water privatization and household's access to safe water. To simplify things I will focus on two countries South-Africa and Chile.

## 2 Theory and Backgrounds

### 2.1 Privatization

Privatization is a process of changing a business ownership from a public sector to a private sector. According to Narain (2003: 297-304), the word “privatization” can be viewed in three perspectives. These are privatization through operational measures, privatization through organization measures and privatization through ownership measures. Privatization through operational measures is a process that decreases the involvement and control of government in public companies. It is a sort of management where the government remains as the owner of the company in question.

The second perspective of privatization is a compromise between total privatization and total government ownership. It contains four variants.

The first variant is *Introduction of competition*: the private sector shows the interest for the market in question and decreases the government’s monopoly power. The second variant is *Unbundling*: which is a process of creating functional units from a public enterprise, like basic commercial areas. The third one is *Corporatization*: here, a public company’s license transforms to a public joint. The last variant is *Leasing*: the government keeps the ownership here but the company’s facilities are leased to the private sector for use.

The third perspective, privatization by ownership measures is when the ownership totally changes, from the government to a private owner. This can be done in two ways, *Full divesture and Partial divesture*. With *Full divesture*, the government sells a public company to a private firm. *Partial divesture* is that the government gives up a small part of its shareholdings to a private firm and it continues until the private owner has the majority of shareholdings.<sup>5</sup>

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<sup>5</sup> Narain, Laxmi (2003) *Public Enterprise Management and Privatization*, New Delhi S.Chand and Co Ltd

### 2.1.1 Theories, pro- and counter-arguments

There are many theories behind the privatization phenomena. The dispersed knowledge theory and the policy choice theory are example of these theories that I will describe. The dispersed knowledge theory claims that a private businessperson has more knowledge in the state's business than the state itself. This because, the codification and transfer of knowledge is complex and that makes the centralization difficult. That in order to be efficient, the state should live business decisions in a private operator's hands (Hayek, 1949; Lavoie, 1985). Rowthorn and Chang (1993:57) criticized this theory, that big private firms also have problems with the complexity of dispersed knowledge. Instead, they refer to problems of knowledge allocation that can exist in any organization.

*"The real question is what is the ideal mix of decentralized and centralized forms of knowledge utilization – that is between spontaneous interaction among independent units through the market and hierarchical interaction within one organization. And, this is primarily a matter of optimum size rather than the ownership"* (Rowthorn and Chang 1993:57). So the complexity of dispersed knowledge is not specific for Public firms.

The policy choice theory views State-owned Enterprises (SOEs) as perfect place for corruption, political patronage and primitive accumulation. This because politicians and the government officials are for the most part self-interested, they act in a way that benefit them and not the whole society. Shleifer and Vishney (1994) argue that, politicians offer superfluous jobs at SOEs to their supporters and take advantage of these positions in their own political careers.

Some arguments for water privatization are that, the privatization will lead to efficiency in water sector, attract investors and that will lead to a higher profit. But other scholars argue that there are more reasons or motives for privatization. Like ideological, political and regime survival. According to Vincent Wright (1994:14), the public sector and its monopolistic position limit consumer's choices. Private firms with less market power increase consumer's choices and that is more economic efficient.

But Vickers and Yarrow (1988), Wright (1994:17), Rees (1994:51) point out that in Britain's case, the privatization decision was motivated by the desire to gain voters and political power. Clarke (1994:207) also agrees with this view, "Privatization was pursued for political reasons related to the government troubled attempt to manage the economy and stay in power, rather than to the economic pursuit of efficiency in the industries concerned."

Another argument for water privatization, by Vickers and Yarrow (1988), Rees (1994:52) is the need of reduction of Public Sector Borrowing Requirement (PSBR). PSBR goes to cover the difference between the government's income and expenditure. Privatization limits taxes that are collected from the citizens to finance the government expenditure and decreases the government's external borrowing.

Shiva Vandana describes in her book *Water Wars* (2002), how water privatization will create new motivations to override people's rights and replace a society's collective ownership with a company's ownership and control. In this process, we tend to forget the fact that, there are real people and needs beyond the state and the market. That water privatization is a disadvantage for individual's democratic right for water and for the employees in the public water sector. A private firm will cut the number of worker and keep the most productive workers. This decreases the sustentation possibilities and job security for the public sector employees.

Fredrik Segerfeldt on the other hand believes that, the risks and the negative effects of a private water operator are lower than the costs of lacking the access for clean water when the public operator is in charge. A private water operator can be regulated in the same way as the public one and still improve the water distribution, increase the access for water. This can be done by setting rules in the privatization contract, regarding water price, quality and the coverage areas. There are larger resources, more knowledge and profit maximization interest in a private firm than a public firm. This makes it more probable that these privatization rules will be respected in a private firm. Instead, he notes that, the jeopardy with water privatization is: bad contracts political control, substandard procurements, bad pricing systems etc.<sup>6</sup>

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<sup>6</sup> Segerfeldt (2003) *Vatten Till Salu*, p. 96 - 98

## 2.2 Previous studies

Previous studies in water privatization are important for the success of water privatization in developing countries. In their report, *Reforming the urban water system in Santiago, Chile* (2000) Mary M. Shirley, L. Colin Xu and Ana Maria Zuluaga examine why Santiago's water reform has succeeded while similar reform in other developing countries have failed.

They found four explanations for the reform's success in Santiago.

The first explanation is that, Chile's pre-existing private water rights which recognized water as a scarce and commercial good. The second explanation is that, the reform was designed to entice private investors to the water sector and to motivate them to operate in an efficient way and to expend the system. Third, Chile's government at that time accepted contracts with means-tested subsidy and contracts that imitated a private concession. The last explanation is the country's pre-existing strong norms and bureaucratic institutions which minimized the corruption, inefficiency and maintained the tranquility within the sector. Also that Santiago had a relatively low cost water sources and that minimized the inefficiency and made it politically possible to price at full cost recovery.

In year 2000, Alcazar, Lorena, L. Colin Xu and Ana Maria Zuluaga analyzed the privatization of SEDAPAL (Service de Agua Potable Y Alcantarillado de Lima) in Peru and explore the effects of reform on water services in Lima. They also explain why the other option, a concession did not went through. Due to the economic crisis in 1989-1990 and major problems in the water operation system which lead to among others, water borne diseases and higher dead rates. Peru's new government in 1990 had planned to privatize Lima's water and sewerage utility SEDAPAL through a concession contract. The country's economy was reoriented to a market-led economy and SEDAPAL was privatized instead of the concession.

They found among others that, *"The fundamental reason for Lima's failure to implement the concession was geographical - the scarcity of water sources meant that marginal costs were high, requiring pumping water from deep wells and building adequate storage for dry periods. High extraction costs were compounded by years of neglect, so that much of the system needed to be replaced."* Development Research Group, *The attempt to privatize the water and sanitation utility of Lima, Peru*, (2000)

This means that water prices must be high enough to cover the marginal cost and the return to capital in order to convince a private investor to choose this sector. Since households were not used to the price, a concession would not insure the recovery of the marginal costs. Lima had over 1, 7 million people without water and sewerage connection and many service problems within the sector, so the sharp and sudden price increase would affect the health in the city negatively. The urban poor households would be affected the most and they were important supporters of the new president. A privatization was politically and economic preferred, the new president won the military support and was supported by 80 percent of the population. Economic changes were among others, the change of hyperinflation, and a rapid drop from 398 percent in August 1990 to 4 percent by the end of 1992. The change in the GDP growth went from 6 percent in 1993 to 13 percent in 1994. Development Research Group, *The attempt to privatize the water and sanitation utility of Lima, Peru*, (2000)

A.Estache, A. Goicoechea and L. Trujillo compare the impact of reforms on water delivery services, electricity and fixed telecommunication sectors. In order to determine if the privatization create trade-offs or win-win situations, they examine the effect of the privatization on access, affordability and quality of service in their paper *Utilities reforms and corruption in developing countries* (2006). They did this by using the common trilogy of the regulation of monopolies quantity, price and quality; these factors determine the monopolistic profits. They also used it to evaluate the interplay between privatization and corruption in these sectors. They found among others that, the monopolies have control over the three factors (access, price and quality) which they use to increase their profit margins. That in telecoms and electricity, the privatization affects the impact of corruption on all three factors except price in electricity. They could not determine this in the water sector due to the lack of good data on access, affordability and quality of service.

## 2.3 Water access in developing countries

Developing countries are often defined by their levels of income. According to the World Bank's classification system, which uses a nation's gross national income per capita (GNI), developing countries are those with low-, lower-middle- or upper-middle-incomes. In 2003, the World Bank classed countries with a population of at least 30,000 and with gross national income of 765 or less as low-income countries, from 766 to 3,035 as lower-income countries and from 3,036 to 9,385 as upper-middle-income countries. The structural diversity of these countries affects them markedly in many ways, like their income level, development progress, and freedom. For example: A country's endowments of physical resources like minerals and other raw material, and its endowment of human resources like the quantity and the quality (level of skills) of labor supplied. Its geographic, population and income size are also some of the structural diversities.

Access to safe water is critical for a healthy and a productive life, it is important for a country's economy, for the ecosystem and for the well being of the whole society.

According to Sen Amartya, access to safe water is a part of our social opportunities and that is one of our five kinds of instrumental freedoms as human being. Each of these freedoms helps to improve the individual capability but they can also improve each other. Amartya, *Development as freedom* (1999).

*"Access to safe water is measured by the number of people who have a reasonable means of getting an adequate amount of water that is safe for drinking, washing, and essential household activities, expressed as a percentage of the total population. It reflects the health of a country's people and the country's capacity to collect, clean, and distribute water to consumers."* DEPweb Access to Safe Water, Text 1

Over 200 million urban households in developing countries lack access to safe water<sup>7</sup>. In some developing countries (upper-middle-income countries), most households have access to clean water. Households without access to safe water buy water from neighbors who have running water in their houses, often at a high price.

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<sup>7</sup> DEPwe: Access to safe water 01/04 2009

They can also collect water from public standpipe, streams etc. Public standpipes are often located close to the house (in urban areas, most tracts are provided by public standpipes). It is common with water distributing sellers in developing countries. These sellers carry water on the head, use pushcarts or tanker trucks to deliver water. The selling of pre-packaged water in bottles and small plastic water bags in kiosks, small shops and supermarkets is also common. In rural areas most households (often women and girls) fetch water from streams on daily basis. These streams are far from homes, so it takes much of their time and hard work (carrying many liters of water for a long distance).<sup>8</sup>

## 2.4 Water privatization and the characteristics of developing countries

Water privatization in developing countries and Todaro's and Stephen C. Smith's "Common Characteristics of Developing Nations" (Appendix) are related in many different ways. In the following text, I will explain this relationship, how they affect each other and how some of these characteristics (lacks) can be seen as a supposition for a successful water privatization. Developing countries differ in their structural diversity, the living and economic conditions. This means that, the water privatization will affect each country differently depending on these conditions.

### *Low level of living*

The low level of living in developing countries makes it difficult for many people to afford for food and water. Water privatization which requires that each consumer pay for their use, is understandable but it is unreasonable. It is understandable because the private owner has to be paid in one or another way. Every household have to be responsible and pay for their living costs in order to have a functioning society. But it is unreasonable because, as I said before, many household do not afford for food and water. In worst cases poor people go several days without food; they keep drinking until an opportunity for a meal shows. The private owner will make sure that every user of safe water pays for their use. Households

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<sup>8</sup> Marianne Kjellén (2006) *From Public Pipes to Private Hands, Water Access and Distribution in Dar es Salaam, Tanzania*.

with access to clean water who could not pay for their use, who cheated with water bills and who lived on free public water before the privatization have to find a new solution in order to keep the access to clean water.

#### *High rate of population growth and dependency burden*

The high birth rates in developing countries are motivated by among others high death rates. A household with more children has higher expenses than the one with less children. This is an important factor for most households in developed countries who are in decision of increasing their household with another child. But for several reasons, the importance of this factor is not highly valued in the majority of developing countries. This leads to a population growth. Privatization of water increases the living costs for the whole society and that creates difficulties for households with several children who had limited access to food and water. Because of the increased living cost per person and that water cannot be substituted with other less expensive goods, these households pay a higher price than a household with one or two children. Lack of access to clean water leads to more water-borne diseases, which increase the death rate and leads to a higher population growth in these countries. Water privatization in a developed country does not have the same impact on the family and the society.

#### *Substantial dependence on Agricultural production and primary-Product Exports*

The majority of people in developing countries are occupied with agriculture in rural areas which they use as an income source but more important as a sustenance source. In this production, water is considered as one of the production factors. Water privatization leads to a higher price for water use and that leads to higher production costs. This decreases their incomes and increases their living costs. Another problem is that, water privatization in a country with this production character has the ability to create quantity and price fluctuations in the food supply. This affects every household and the whole nation's economy.

## 2.5 Water as a public/private good

A public good is a good or a service with two characteristics, there is no-rival and no-excludable in consumption of the good. No-rival means that a person's use of the good has no effect on the remaining quantity for other's consumption. No-excludable means that, it is almost impossible to prevent the consumers who have not paid for the good from using it. As I said above, households in rural areas fetch water from streams. It would be difficult and costly to exclude these households from using surface and ground water. On the other hand, it is easier to exclude those who collect water from public pipes and households with connections from the usage by limiting the coverage. Water is rival when looking at the case of the selling of pre-packaged water in bottles and small plastic water bags in kiosks. The amount of water bottles and plastic bags decreases each time one is sold and that decreases the quantity available for other consumers.

A public good creates free riders. Free riders are people who consume a good and do not pay for it. Since the quantity of a public good that we are able to consume does not affect the price we pay for it, no one has the incentives to pay enough for the used quantity.

A private good on the other hand, is a good or a service with the opposite characteristics of the public good.<sup>9</sup> Considering water as a private good, a private provider has the possibility to install meters and charge households and firms with connections for their water consumption. The private provider will also have some free-riders. This could happen by unpaid bills and/or by other illegal ways to connect themselves to the main pipelines. It is possible for the private provider to cut these free-riders from their system/coverage, but this solution leads often to a pressure from human rights organizations and the government. All this create a negative publicity which is undesirable for a firm.

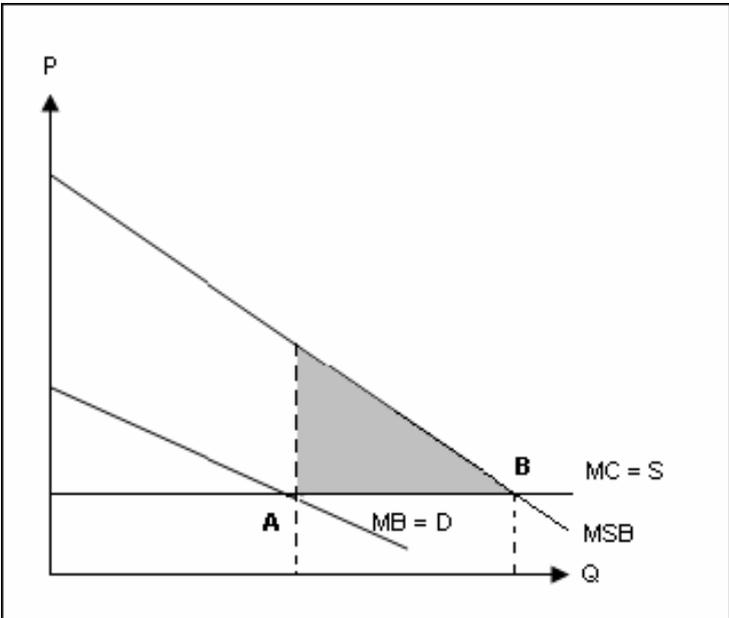
## 2.6 Water privatization and Externalities

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<sup>9</sup> Parking, Powell, Matthews (2003) *Economics*, Fifth Edition p. 343-344

Water privatization in developing countries has both negative and positive externalities. An externality is a cost or benefit from production that falls on someone other than the producer. It is also a cost or benefit from consumption that falls on someone other than the consumer.<sup>10</sup> Women and girls in many developing countries spend much of their time fetching water for the households.<sup>11</sup>

The negative externalities are, the lost time that would have been used in other household work and their regular work. Girls lose their time for the education, higher risk for water diseases like cholera and parasites which can be dispread very fast among the society. All this decreases their capabilities and the whole society's wellbeing. A successful water privatization can transform these negative externalities to positive externalities. Access to clean drinking water in their houses eliminates these diseases, gives opportunities for women and girls for education and other work. The private owner's main goal is to maximize the profit. If the government is not involved in the market and there are no regulations, some households will not get access to clean drinking water.



<sup>10</sup> Parking, Powell, Matthews (2003) *Economics*, Fifth Edition p. 341-342 and p. 385-386

<sup>11</sup> UN-HABITAT, 2003, P.57

The figure above illustrates this case with demand and supply curves. In a free market, the production level will be at the area A, where demand equals supply or where marginal cost (MC) equals marginal (private) benefit (MB). The production should be at point B, where marginal cost (MC) equals Marginal social benefit (MSB) since it is the efficient production level for the whole society. A private operator will not consider this in his production decision making, instead he will use the demand that is equal the marginal (private) benefit (MB). This demand is lower than the MSB demand and it means that, a private operator will produce less than the demanded quantity. This means that, some households will be without clean water if the private operator is in power of the water market. The quantity deviation creates a deadweight loss (the grey area) for the society and that can be eliminated by market regulations or collaboration between the private provider and the government.

## 2.7 Reasons for water privatization in developing countries

One of the United Nations Millennium goals is to cut half of the proportion of people without access to clean and safe water by 2015. Another one is by 2025; provide water, sanitation and hygiene for all. According to the World Bank, private investors are important in water delivery services in order to reach this goal. The public sector alone cannot build an infrastructure in developing countries, so private investors are needed. Privatization in developing countries is a part of conditions for their debt restructure and for financial aid from The World Bank and International monetary Funds.

According to Mary M. Shirley, L. Colin Xu and Ana Maria Zuluaga, a water reform's potential beneficiaries can be categorized in three groups. These are the consumers who would be without water connections, the connected consumers who are willing to pay for an improved service quality and private investors who benefit from the reform. They divide circumstances in water sector that can lead to a reform in four parts. These are: Water shortage, large unmet demand, deficient management and financial problems.

But, problems in water sector are not sufficient reasons for water reform. *“Rather, we expect that reform occurs when a macro-economic crisis shifts political circumstances so that reform becomes politically desirable, in the sense that the political benefits outweigh the*

*political costs, and politically feasible, in the sense that those favoring reform can win control of the veto gates and overcome opposition.”* Mary M. Shirley, L. Colin Xu and Ana Maria Zuluaga (2000).

Using their view of circumstances for a reform and the characteristics of developing countries (see appendix), one can assume that water sectors in most developing countries are in need of a water reform. On the other hand, one can question if a privatization is the right reform for these countries, given that a private firm’s main goal is to make a profit.

Chile’s main reasons for water privatization were the need of funds for maintenance and expansion, that a private firm is more capable of investing and extending the wastewater treatment. To release some government resources from urban water sector that could be used in other areas where the government was more needed, like rural water services and education.<sup>12</sup> Water privatization in South-Africa on the other hand, came with the National Water Act of 1999. The new government at the time viewed water privatization as an important change in order to keep the promise in the Act of 1999, access to clean water for the whole population by 2010. The governments were also pressed by the World Bank, to adopt the water privatization as one of debt and funding conditions

### 3 Suppositions for water privatization

#### 3.1 Private firms and the government

As all other firms, a private owner on water market wants to maximize his profit. Households on the other hand need and want water at affordable price. The price of water is important for both households and the private firm. It determines how many households that gets water, if that supply can be maintained, the distribution improvement and the coverage in the future. The continued existence of a private firm on the water market depends on the

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<sup>12</sup> Mary M. Shirley, L. Colin Xu and Ana Maria Zuluaga (2000) *Reformin Urban Water Supply: The Case of Chile*

satisfaction of household's need of water. If a private firm cannot offer water at affordable prices and/or if there is a lack of clean drinking water in the larger part of the population, it will among other increase water born diseases and death rates in a short time. An adjustment will take place in water distribution in order to fix this and that will decrease the private firm's market power and change its position on the market.

Many governments in developing countries lack the capacity to maintain and/or improve the water and sanitation services for the whole society. The responsibility of water maintenance in regions and villages was unclear and that created many confusions and difficulties in water system.<sup>13</sup> The high level of corruption in these countries also limits the well functioning of water system.<sup>14</sup> For example, the government in South Africa had among other problems with distribution of clean water in many villages. The village habitat had to get water in other ways, like fetching water from rivers and oas. This leads to a large loss for the whole society, like an increase in water born diseases that can spread very fast in the area and higher death rates. Chile had some free riders in the water system and that have a negative effect on the water services.

All this limits the well functioning and development of water system. Households need a government with more structured responsibility for water and/or private firm to be sure of a successive clean water distribution. In order to keep a private provider in this system, he must be compensated in one or another way. He need to cover the production costs in order to keep his firm running and that could be covered by consumers and/or by the government.

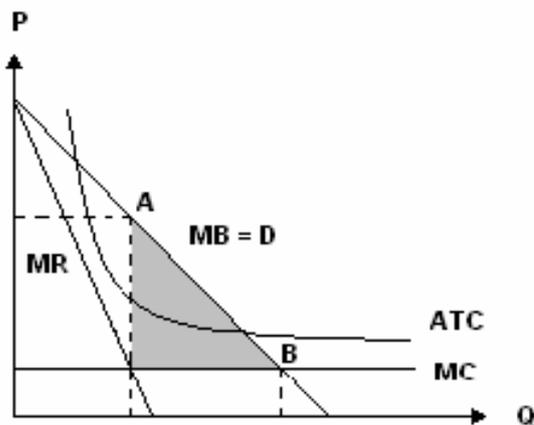
The figure below illustrates the nature of natural monopoly. The private owner maximizes his profit at point A in the figure, where marginal cost (MC) equals marginal revenue (MR). At this point, the quantity produced is low and consumers who want clean water pay a high price. This lead to a deadweight loss (the gray triangle) for the society and that is inefficient. If he increases the quantity produced and lower the price as in point B where price equals marginal cost, which is the efficient point for the society. The water use will increase and

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<sup>13</sup> Fredrik Segerfeldt (2003) *Vatten Till Salu*, p. 27-29

<sup>14</sup> Mitlin, 2004, p. 3

more people (poor) would get access to clean water. But it is inefficient for the producer because of the existing “sunk costs”. Like costs for the investment in facilities which can be used only for one purpose, it is also an investment with a very long recovery time. Since his fixed costs (like maintenance of pipelines and building costs) are high and marginal costs (connecting another household to the water system) are low. He would not be able to cover his production costs.<sup>15</sup>



## 4 South-Africa and Chile

### 4.1 Water privatization in South-Africa

South-Africa is an upper- middle-income country<sup>16</sup> with a total population of 48, 8 million (2008)<sup>17</sup>. The country’s history, apartheid is important in the discussions of the country’s water privatization. Apartheid, from 1948 to 1990’s was a discriminating social system in South-Africa. This system limited the black population’s freedom, economic and political rights etc. During this period, the distribution of safe water was under the government’s

<sup>15</sup> World Bank, 1994, p.22

<sup>16</sup> The World Bank, Country Groups, 07/04 2009

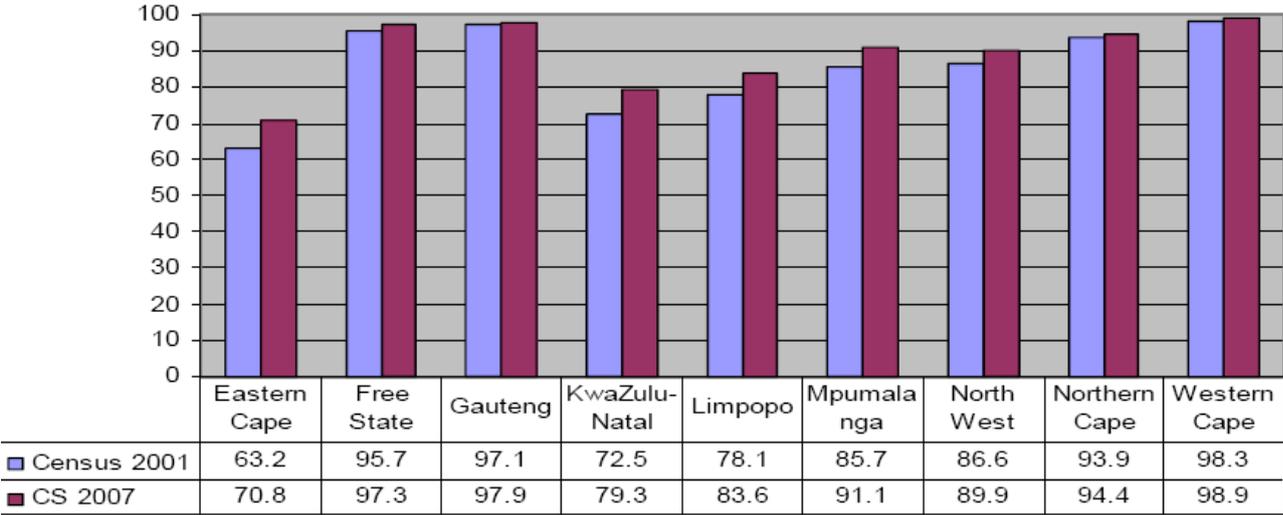
<sup>17</sup> Länder I fickformat 23/01 2009

control. Since black people lacked the political and the economic power, they had very limited access to safe water in the country. In 1980's, the government faced difficulties due to the existing economic crisis, the internal and international pressure on the apartheid system. The end of apartheid in 1994 created big changes, among others redefinition of private rights and redistribution of the country's resources. At this time, 15, 2 million people of the country's population (over 40 million) lacked access to safe water. Before the end of apartheid, South Africa had none established national government departments with a responsibility for water and sanitation supply. The new government made DWAF (The Department of Water Affairs and Forestry) responsible for the water and sanitation supply for all South Africans in 1994. Two years later, DWAF started partnerships with the private sector in order to minimize administration and bureaucracy but also to improve the delivery capacity. At the end of 1990's, poor households had difficulties to pay for their water consumption and were therefore being denied the supply of water and sanitation services. A Reconstruction and Development Program (RDP) was created in order to address the structural problems and to reform the standard of living. Access to safe water for people was one of the program's priorities. This change redefined the need of clean water and that increased the water connection coverage.

South-Africa's national water act of 1999 promised all South Africans the access to safe water by 2010. This water act also permitted municipalities to privatize their water. At this time, the country's largest city Johannesburg created a plan (iGoli 2002) which was intend to rejoin the city, improve accountability and to make the service delivery more integrated. The iGoli 2002 created an independent company Johannesburg Water (JW) in 2001 which signed a five years joint venture contract with Northumbrian Water Company and Sanitation Services and Suez Lyonnaise Des Eaux. According to Sofie Hellberg's interview at Johannesburg Water in February 2005 with Lesego Lebuso, the Divisional Manager for New Services, the Johannesburg's Water is not privatized. It is partitioned by the public and private sectors. South Africa's water market is affected by the low level of income in most provinces but also by people's perception of costs. The willingness to pay for water and sanitation services is low. In 2005, four million South Africans lacked access to safe water and nine million had no access to free basis water which is 25 liter water/person a day (Sofie

Hellberg’s interview in April 2005, with Fred van Zyl, was DWAF’S senior manager for panning and information).<sup>18</sup>

Suez Lyonnaise Des Eaux is one of water companies in South Africa that has been supplying clean water to the white communities since 1970. But the firm is now the supplier of water for more than five million people of all races in Johannesburg, the Easter Cape etc. Water privatization has improved the access to clean water but it created higher water prices. The figure below shows by province, the percentage households with access to piped water in 2001 and 2007. Provinces with the most access in 2007 are: Western Cape with 98, 9 %, Gauteng with 97, 9 % and the Free State with 97, 3 %. But the province that has developed household’s access to water the most is Eastern Cape.

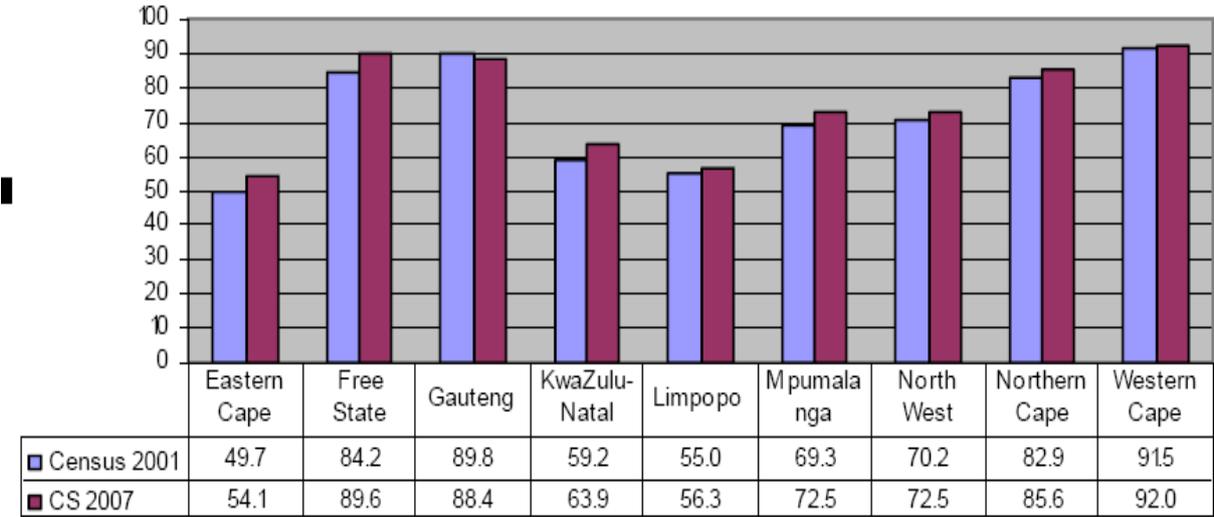


Source: Community Survey, 2007: Basic Results Municipalities, 06/04 2009

Water companies used a prepaid meter price policy which forced consumers to pay for their water use in advance. Households that failed to pay for water bills lose their access to clean water. This forced many households in rural areas to use unclean water and in year 2002, there was a cholera epidemic in the country. A worldwide project was started to stop this epidemic by among others, providing free water for households. The figure below, illustrate by province, the percentage of households with access to piped water within 200 meters. According to data from Statistics South Africa’s 2007 Community Survey, the national

<sup>18</sup> Sofie Hellberg (2005) *Talking about Water, Discourses and hydropolitics in South Africa*

average of the share households with access to safe water within 200 meters has increased, from 72, 1 % in 2001 to 74, 4% in 2007.<sup>19</sup>



Source: Community Survey, 2007: Basic Results Municipalities, 06/04 2009

#### 4.2 Water privatization in Chile

Chile is also an upper- middle-income country<sup>20</sup> with a population of 16, 8 millions (2008)<sup>21</sup>. Under the president Salvador Allende’s time, Chile faced a hyperinflation in 1973, food shortage and which increased black markets in the country. Under this period, a military coup took place and the Army General Augusto Pinochet became the new president. He believed in free-market’s systems so the country’s economy was restructured. Chile’s water sector history goes back in 1977, with the creation of a national service for sanitary work, SENDOS (Servicio National de Obras Sanitarias). SENDOS was among other responsible for water distribution and sanitation. Around this time, a public company EMOS (Empresa Sanitaria de Valparaiso) was created and was in charge of urban drinking water and sanitation (in Santiago and other towns around). The company had ample water sources with good quality and inexpensive surface water from the Maipo River, 90 deep wells and a

<sup>19</sup> Community Survey, 2007: <http://www.statssa.gov.za/Publications/P03011/P030112007.pdf>

06/04 2009

<sup>20</sup> The World Bank, Country Groups, 07/04 2009

<sup>21</sup> Länder I fickformat 23/01 2009

lake. Comparing to the regions other water companies, EMOS was an efficient and well managed (World Bank 1992, p. 34). EMOS’s system was strong enough to cover Santiago’s projected water demand for the next 20 years. The table below shows EMOS’s water and sewerage connections in Santiago from 1980 to 1990. The small part of Santiago’s population without connections were very poor and lived in informal buildings without a secondary network. The table exaggerates the water coverage somewhat, because these households were not a part of EMOS’s clients.

*Table 2. Coverage of Water and Service*

<i>Year</i>	<i>Client Population (000)</i>	<i>% with Water Connection</i>	<i>% with Sewerage Connection</i>
1980	3,597	98.6	85.0
1981	3,675	97.8	83.9
1982	3,750	98.5	84.6
1983	3,860	98.6	84.6
1984	3,926	98.6	87.0
1985	4,049	99.0	87.3
1986	4,287	99.0	88.1
1987	4,250	99.2	90.0
1988	4,422	99.2	90.3
1989	4,593	99.2	90.5
1990	4,816	98.0	90.3

Source: EMOS, *Statistical Bulletin*, various.

Due to the auto-financing policies which were intend to minimize water prices and tariffs. EMOS had to reduce the production cost, many workers were laid-off and new services like meter reading and network maintenance where introduced. In 1998, the selling of public companies started and EMOS was half-privatized. This enhanced private property, introduced mechanism and incentives in water market. It also limited the government’s regulation power in the market. The water coverage increased in Chile, from 98% in 1990 to 100% in 2001. Chile kept selling parts of EMOS’s shares until the company was totally privatized. The present largest companies in water sector are, Aguas Andinas, The Empresa Sanitaria de Valparaiso (ESVAL), and the Empresa de Servicios Sanitarios del Bio-Bío (ESSBIO).<sup>22</sup> The process of water privatization in Chile has among other, led to increased

<sup>22</sup> Mary M. Shirley, L. Colin Xu and Ana Maria Zuluaga (2000) *Reformin Urban Water Supply: The Case of Chile*

protection of the pre-existing water rights and that created a large investment in the improvement of water infrastructure. The privatization of EMOS increased the production efficiency, which is measured as number of clients per worker. The private owners keep the pre-existing quality of water services and make sure that households pay their water bills.

## **5 Conclusions**

Water privatization in developing countries has many different reasons. The outstanding reasons are; the need of private investors in water sectors so that, private water rights and the millennium goals for water can be reached. That a private firm is more capable of investing and extending the wastewater treatment, to release some of the government's resources from urban water sector that could be used in other areas like education.

Private firms have more technical competence in the water industry than the state; they are also expertise in company management. Water privatization has increased the access to clean water and production efficiency in some developing countries like in South-Africa and Chile. But it has also created many problems, like the cholera epidemic in South-Africa. The prepaid price policy in South Africa is conflicting with the country's Water Service Act, people's right to clean water. The water cuts off automatically, households do not get any chances to prepare for other alternatives for their water use.

Water privatization in Chile has not caused any catastrophes or significant changes for households; it has among others enhanced water rights and increased efficiency. We can find some explanation for this success in Chile's pre-existing structures in water sector and market structures. This limited the change of living conditions that the water privatization would have created for households.

Based on the nature of a private owner, to profit maximize and the characters of developing countries, I found that there are weak suppositions for a successful water privatization in developing countries. This is because the private firm's goal and the characteristics of developing countries are conflicting. The private owner maximizes his profit by choosing right price and right quantity supplied. The characteristics of developing countries such as low level of living, limits most household's ability to pay the firm's "right" price. The Lack of a perfect or suitable market and information, the unequal distribution of economic and

political power between rich and poor also limit the success of water privatization like in South-Africa's case. This means that pure privatization with no regulations will lead to problems in accessibility of safe water. Chile on the other hand, had water institutions, a stable water market and over 95% of the population had water connections before the reform and that gave the market a solid ground for privatization. The Substantial dependence on agricultural production and primary-product exports makes water an important production factor. This affects the farmer's income level, food prices, the export level and the whole economy in a country.

At the same time, one cannot conclude that the outcome of the water reforms in Chile and South-Africa is solely based on the Characteristics of developing countries. They are upper-middle-income countries where the living and economic standards are higher than many developing countries but their Characteristics still differ and affect them in different ways. Differences in their structural diversity, their development ranking and their political position also affected the success of water privatization. For example, Chile's new government restructured the country to a free-market economy and the end of apartheid in South Africa.

Water privatization has changed the market structure both in Chile and South-Africa. Before the privatization in South-Africa, the state was in charge of the distribution of clean water and had the whole market power. Water privatization created a redistribution of the market power between several firms and consumers and the access has increased. All this, leads to a change in the water sector's market structure.

But, it is important to note that, the change of South-Africa's market structure is strongly affected by the end of apartheid and redefinition of private and water rights. The willingness to pay for water and sanitation services also plays an important role since the market demand originates from households willingness to pay for these services.

Water privatization in Chile's has created a change in the county's market structure for water. Chile's water distribution went from the state to public firms and then to private firms. This decreased the state's regulation power and the market power little by little. It also enhanced private property, introduced market mechanism and incentives in water market.

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## 7 Appendix

### *Common Characteristics of Developing countries*

Developing countries have six common characteristics according to Michael P. Todaro and Stephen C. Smith (2005). Below are the definitions of these characteristics. But it is important to have in mind that, because of the differences in their structural diversity, the living and economic situations differ in different countries. For example, Chile and South Africa are upper-middle-income countries where the living and economic standard is higher than many developing countries. So these six characteristics are more developed there.

- Low levels of living

The majority of people in developing nations have a low level of living compared to a very small group within the same country and to people in developed countries. The quality of life is very low and the death rate at a young age is high. These low levels of living are the effects of poverty, limited education, poor health, inadequate housing etc.

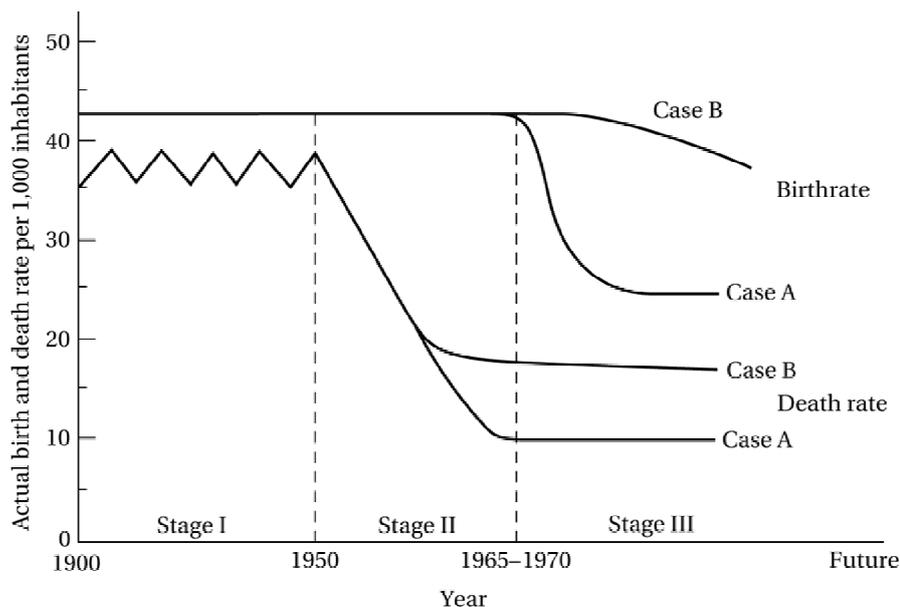
- Low levels of productivity

The production function (capital and labor) shows how much output is produced by used inputs capital and labor. Since the levels of living are low in underdeveloped

countries, the quantity and the quality of labor is also low. This limited and unproductive labor for production leads to lower output.

- High rates of population growth and dependency burdens

The majority of the world's population lives in developing countries where birth- and death rates are very high. Low levels of living lead to high death rates and that leads to high birth rates, since people usually want to make sure to not leave this life without leaving some children behind them. In other words, a higher death rate leads to a higher birth rate. Cultural values are an example of other factors that lead to high rates of population growth. Dependency burden is the part of population that does not contribute to the whole country's labor force. This group contains young people under 15 years and old people over 64 years.



- Substantial dependence on agricultural production and primary-product export  
Over 65% of the population in underdeveloped countries live on and work with agriculture in rural areas. In these countries, there is a high production of primary goods like agriculture and fuel for consumption and export.

- Prevalence of imperfect markets and limited information

Lack of a perfect or suitable market and information in underdeveloped countries makes it harder for the functioning of the economic system.

- Dominance, dependence, and vulnerability in international relations

In underdeveloped countries, there is unequal distribution of economic and political power between rich and poor, and that limits the progress of development.